SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Volume I – Final Environmental Impact Report for the Shell Carson Facility Ethanol (E10) Project

December2012

SCH No. 2010041057

Executive Officer
Barry R. Wallerstein, D.Env.

Deputy Executive Officer
Planning, Rule Development, and Area Sources
Elaine Chang, DrPH

Assistant Deputy Executive Officer
Planning, Rule Development, and Area Sources
Laki Tisopulos, Ph.D., P.E.

Planning and Rules Manager
CEQA and Socioeconomic Analyses
Susan Nakamura

Submitted to:
SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Prepared by: **AECOM**

Reviewed by:
Barbara Radlein, Air Quality Specialist, CEQA Section
Steve Smith, Ph.D., Program Supervisor, CEQA Section
Lauren Nevitt, Deputy District Counsel II
Veera Tyagi, Senior Deputy District Counsel
Jay Chen, Senior Air Quality Engineering Manager
Thomas Liebel, Senior Air Quality Engineer
Sean Cullins, Air Quality Engineer II
Charles Tupac, Air Quality and Compliance Supervisor

This Page Intentionally Blank

PREFACE

This document constitutes the Final Environmental Impact Report (EIR) for the Shell Carson Facility Ethanol (E10) Project. The Draft EIR was circulated for a 45-day public review and comment period from September 21, 2012 to November 6, 2012. Three comment letters were received during the public comment period relative to the Draft EIR. These comment letters and responses to the individual comments are included in Appendix I-C of this document. The comments were evaluated and no comments in these letters identified other potentially significant adverse environmental impacts from the proposed project not already analyzed in the Draft EIR.

Minor modifications have been made to the Draft EIR. To facilitate identifying changes in this Final EIR, modifications to the document are included as underlined text and text removed from the document is indicated by ~~strikethrough~~. To avoid confusion, minor formatting changes are not shown in underline or strikethrough mode. None of the modifications alter any conclusions reached in the Draft EIR, or provide new information of substantial importance relative to the draft document that would require recirculation of the Draft EIR pursuant to CEQA Guidelines §15088.5. Therefore, this document is now a Final EIR.

This Page Intentionally Blank

This Page Intentionally Blank

TABLE OF CONTENTS

VOLUME I Page No.

VOLUME I APPENDICES

LIST OF FIGURES

LIST OF TABLES

VOLUME II - TECHNICAL APPENDICES

CHAPTER 1

INTRODUCTION AND EXECUTIVE SUMMARY

This Page Intentionally Blank

1.0 INTRODUCTION AND EXECUTIVE SUMMARY

1.1 INTRODUCTION

Shell Oil Products US (Shell) is proposing a project at its Carson Distribution Facility (Carson Facility) to increase the Carson Facility's capacity to store on-site either 100 percent pure (neat) or denatured ethanol (a blend of ethanol and approximately two to five percent gasoline) and load ethanol into tanker trucks owned by third-party customers that deliver the ethanol to gasoline blending and distribution terminals for the southern California market. The increase in ethanol storage and loading capacity is in response to requests by Shell's existing clients for a more efficient, consolidated facility that will allow those customers to better meet an increase in the amount of ethanol required to be blended into gasoline to comply with the 2007 amendments to the California Air Resources Board (CARB) Phase 3 Reformulated Gasoline (RFG) requirements. The Shell Carson Facility Ethanol (E10) Project (proposed project) includes the following changes to the Carson Facility: 1) increase the permitted ethanol throughput at an existing two-lane tanker truck loading rack; 2) convert four existing storage tanks from gasoline to ethanol service; 3) install one new ethanol tanker truck loading lane and associated ethanol loading rack; 4) expand the existing ethanol loading rack operations building; and 5) install one new gasoline storage tank to partially replace gasoline storage capacity transferred to ethanol service.

1.2 PURPOSE/LEGAL REQUIREMENTS

In accordance with §15121 (a) of the California Environmental Quality Act (CEQA) Guidelines (California Code of Regulations, Title 14, Division 6, Chapter 3), the purpose of an Environmental Impact Report (EIR) is to serve as an informational document that "will inform public agency decision makers and the public generally of the significant environmental effect of a project, identify possible ways to minimize the significant effects, and describe reasonable alternatives to the project." The proposed project requires discretionary approvals from the South Coast Air Quality Management District (SCAQMD) and the City of Carson and, therefore, it is subject to the requirements of CEQA (Public Resources Code, §21000 et seq.).

CEQA requires that the environmental impacts of proposed projects be evaluated and that feasible methods to reduce, avoid or eliminate significant adverse impacts of the projects be identified and implemented. The lead agency is the public agency that has the greatest responsibility for carrying out or approving a project which may have a significant effect upon the environment (Pubic Resources Code §21067). In the case of the proposed project, either the City of Carson or the SCAQMD could assume the lead agency role. CEQA Guidelines §15051 (d) states that where there are two or more public agencies with a substantial claim to be lead agency, the public agencies may, by agreement, designate an agency as lead agency. The SCAQMD has the greatest responsibility for supervising or approving the entire project as a whole and is the most appropriate public agency to act as lead agency. Therefore, on May 20, 2008, the City of Carson agreed to designate the SCAQMD as lead agency for the proposed project[1]. The proposed project requires discretionary approval from the SCAQMD for

[1] Email communication from John Signo - Senior Planner, City of Carson Planning Division, to Michael Krause - Air Quality Specialist, SCAQMD; May 20, 2008.

modifications to existing stationary source equipment and installation of new stationary source equipment. The City of Carson will act as the responsible agency for any permits and approvals required by the city.

1.3 SCOPE AND CONTENT

To fulfill the purpose and intent of CEQA, the SCAQMD, as the lead agency for this project, prepared a Notice of Preparation of an Environmental Impact Report and Initial Study (NOP/IS) to identify potential adverse environmental impacts associated with the E10 Project (see Appendix I-A).

The NOP/IS was circulated for a 30-day comment period from April 16, 2010 to May 18, 2010. The NOP/IS was circulated to neighboring jurisdictions, responsible agencies, other public agencies, and interested individuals in order to solicit input on the scope of the environmental analysis to be included in the EIR. In addition, a scoping meeting was held on May 4, 2010, to solicit any additional public input on the environmental analysis to be included in the EIR. Four comment letters were received on the NOP/IS during the public comment period. Comment letters and responses to the individual comments are provided in Appendix I-B. The NOP/IS formed the basis for and focus of the technical analyses in this ~~Draft~~ EIR. The following environmental topics were identified in the NOP/IS as potentially significant and are further addressed in this document:

- Air Quality
- Biological Resources
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Noise
- Transportation and Traffic

At the time the NOP/IS was circulated, the environmental checklist did not specifically include impacts from greenhouse gas (GHG) emissions as a topic to be evaluated as part of a CEQA document. However, as a matter of policy the SCAQMD has evaluated GHG impacts since 2007 for projects where it is the lead agency. Therefore, in the "Air Quality" section of the environmental checklist, the NOP/IS acknowledged that the effects of GHG emissions would be analyzed in the EIR. Amendments to the CEQA Guidelines adopted by the Natural Resources Agency in 2010 contained revisions to the environmental checklist in Appendix G which formalized the requirement to consider GHG impacts as part of any environmental analysis. After the release of the NOP/IS for the proposed project, the topic of "Greenhouse Gases" was added to the "Air Quality" portion of the SCAQMD checklist and renamed as "Air Quality and Greenhouse Gas Emissions," and questions were added to specifically address the consideration of GHG impacts. A full analysis of GHG emissions is addressed in this ~~Draft~~ EIR.

The screening analysis in the NOP/IS concluded that the following environmental topics would not be significantly adversely affected by the proposed project:

- Aesthetics
- Agricultural Resources
- Cultural Resources
- Energy
- Geology and Soils
- Land Use and Planning
- Mineral Resources
- Population and Housing
- Public Services
- Recreation
- Solid and Hazardous Waste

None of the comments received on the NOP/IS or at a public scoping meeting changed any of the conclusions regarding the potential effects of the proposed project included in the NOP/IS.

At the time the NOP/IS was circulated, the environmental checklist also did not specifically include impacts to forest lands as a topic to be evaluated as part of a CEQA document. The recent amendments to the CEQA Guidelines adopted by the Natural Resources Agency contained revisions to the environmental checklist to include consideration of impacts to forest lands in the environmental analysis. Specifically, the topic of "Agriculture Resources" in the checklist was revised and renamed as "Agriculture and Forest Resources," and questions were added to address the consideration of impacts to forest resources.

Although the NOP/IS did not include a preliminary analysis of impacts to forest resources, to make the analysis consistent with the recent changes to the environmental checklist, a discussion of potential impacts from the proposed project that could conflict with, or cause rezoning of forest lands, has been included in Chapter 4 of this ~~Draft~~ EIR. No significant impacts on forest resources were identified.

Pursuant to §15130 of the CEQA Guidelines, a discussion of potential cumulative impacts is also provided in this ~~Draft~~ EIR. This ~~Draft~~ EIR also includes identification of alternatives and comparisons of their effects on the environment, prepared in accordance with §15126.6 of the CEQA Guidelines. CEQA Guidelines §15126.6 requires that an EIR include a range of reasonable alternatives that could feasibly attain the basic objectives of the proposed project and are capable of eliminating or reducing some of the significant adverse environmental effects associated with the proposed project.

The Draft EIR was circulated for a 45-day public review and comment period from September 21, 2012 to November 6, 2012. As with the NOP/IS, the Draft EIR was circulated to neighboring jurisdictions, responsible agencies, other public agencies, and interested individuals. Three comment letters were received during the public comment period relative to the Draft EIR. These comment letters and responses to the individual comments are included in Appendix I-C of this document. The comments were evaluated and no comments in these letters identified other potentially significant adverse environmental impacts from the proposed project not already analyzed in the Draft EIR.

Minor modifications have been made to the Draft EIR. To facilitate identifying changes in this Final EIR, modifications to the document are included as underlined text and text removed from the document is indicated by ~~strikethrough~~. To avoid confusion, minor formatting changes are not shown in underline or strikethrough mode. None of the modifications alter any conclusions reached in the Draft EIR, or provide new information of substantial importance relative to the draft document that would require recirculation of the Draft EIR pursuant to CEQA Guidelines §15088.5. Therefore, this document is now a Final EIR.

1.4 RESPONSIBLE AGENCIES

CEQA Guidelines §15381 defines a "responsible agency" as "a public agency which proposes to carry out or approve a project, for which a Lead Agency is preparing or has prepared an EIR or Negative Declaration. For the purposes of CEQA, the term ~~”~~“responsible agency” includes all public agencies other than the lead agency that have discretionary approval power over the project.” The existing two-lane ethanol truck loading rack currently operates under Design Overlay Review (DOR) Number 764-01 granted by the City of Carson. A modification will be required to the DOR to allow for the increased truck traffic associated with the proposed project. Therefore, the proposed project will require discretionary approval from the City of Carson, who may use this EIR in its decision making process. Additionally, agencies listed in Table 2-3 in Chapter 2 of this EIR may also use this EIR in their decision making process.

The following bullet points list a sample of public agencies that may have permitting authority for aspects of modifications at the Carson Facility, and have been given an opportunity to review and comment on the NOP/IS and EIR; however, except for the DOR, no new discretionary permits or permit modifications are expected to be required from these agencies for the proposed project:

- City of Carson;
- State Water Resources Control Board (SWRCB);
- Regional Water Quality Control Board (RWQCB); and
- Los Angeles County Sanitation District.

1.5 INTENDED USES OF THE EIR

The EIR is intended to be a decision-making tool that provides disclosure of the environmental consequences associated with implementing the proposed project. Additionally, CEQA Guidelines §15124 (d)(1) requires the lead agency to identify the following specific types of intended uses:

- A list of the agencies that are expected to use the EIR in their decision making;

- A list of permits and other approvals required to implement the project; and,
- A list of related environmental review and consultation requirements required by federal, state, or local laws, regulations, or policies.

It is expected the City of Carson will evaluate this EIR to determine if it is sufficient as the CEQA document for its discretionary approvals over portions of the proposed project. To the extent that other local public agencies, such as cities, county planning commissions, etc., are responsible for making land use and planning decisions related to approval of the proposed project, they could possibly use this EIR as input in their decision-making process. See the preceding section for a list of public agencies whose approval may be required and who may also be expected to use this EIR in their decision-making process.

1.6 AREAS OF CONTROVERSY

In accordance with CEQA Guidelines §15123 (b)(2), the areas of controversy known to the lead agency, including issues raised by agencies and the public, shall be identified in the CEQA document. "Controversy" is generally defined as a difference in opinion or a dispute. During the ~~After~~ public comment ~~notification and review~~ period for ~~of~~ the NOP/IS, the SCAQMD received four comment letters. General comments included the following, the EIR should: evaluate health impacts from increased truck traffic on sensitive receptors, such as schools; establish an appropriate baseline; evaluate use of emission reduction credits, evaluate potential soil contamination and identify necessary remediation; and evaluate cumulative impacts. As indicated here, issues raised in these comment letters do not constitute areas of controversy as they are related specifically to potential impacts from the proposed project and are addressed in this EIR.~~, and~~ R~~r~~esponses to the~~ose~~ comment letters received relative to the NOP/IS are provided in Appendix I-B.

In addition, the SCAQMD received three comment letters relative to the Draft EIR during the public comment period. The comment letters and responses to the comments raised in those letters are provided in Appendix I-C of this document. Of the comments received on the Draft EIR, none identified new issues relative to the environmental analysis or potential areas of controversy that could not be responded to in Appendix I-C. Further, none of the comments alter any conclusions reached in the Draft EIR, nor provide new information of substantial importance relative to the draft document. No other “controversial” issues have been raised regarding the proposed project. Consequently, since the issues raised are related specifically to analyses that are already included in this EIR or are required to be included in this EIR, there are no areas of controversy known to the lead agency. Further, since no areas of controversy were identified by SCAQMD or the public during the review and comment periods for both the NOP/IS and the Draft EIR, it is concluded that the proposed project does not contain any areas of controversy as defined by CEQA.

1.7 EXECUTIVE SUMMARY - CHAPTER 2: PROJECT DESCRIPTION

1.7.1 PROJECT OBJECTIVES

Shell developed the proposed project in response to customer requests for additional ethanol storage and delivery capacity. Because ethanol is typically shipped from production facilities in smaller quantities than batches of gasoline, e.g. on unit trains or barges containing roughly 65,000 barrels (bbl)[2], Shell proposes to convert existing smaller (69,000 bbl) gasoline storage tanks to ethanol service to maximize its efficiency in using its existing storage facilities. Furthermore, the change from 5.7 percent to 10 percent for ethanol in gasoline as mandated by the 2007 amendments to the CARB Phase 3 RFG requirements has prompted Shell's customers to request from Shell approximately 75 percent more ethanol storage and handling capacity. It is upon this basis that Shell developed the following project objectives:

1. Increase the Carson Facility's ethanol storage capacity by approximately 75 percent to respond to customer demand for flexible ethanol storage and handling capacity;

2. Increase the Carson Facility's ethanol tanker-truck loading capacity by at least 75 percent to respond to customer demand for consolidated distribution of ethanol;

3. Include modifications that would allow the Carson Facility to minimize impacts to its existing capacity to receive, store and deliver other petroleum products (e.g., gasoline, diesel fuel, jet fuel) at current levels for its current and future customers; and

4. Maintain operational efficiency, safety and flexibility at the Carson Facility.

1.7.2 PROJECT LOCATION

The proposed project is located at the Shell Carson Distribution Facility, located at 20945 South Wilmington Avenue, in the City of Carson. The Carson Facility is approximately 446 acres in size and is bounded to the north by Del Amo Boulevard, to the east by South Wilmington Avenue and Martin Street, to the south by 213th Street, and to the west by Chico Street, Annalee Avenue, and Tillman Avenue. All proposed modifications would occur within the confines of the existing Carson Facility.

1.7.3 LAND USE AND ZONING

The Carson Facility is zoned Manufacturing, Heavy (MH), and the City of Carson General Plan has the site divided into three land use designations: Heavy Industrial (HI), Business Park (BP), and Light Industrial (LI). Surrounding land uses include light industrial and single-family residential to the north, light industrial to the west, single-family residential to the south, light industrial to the southeast and light and heavy industrial to the east. Five schools are located within one-quarter mile of the Carson Facility: Del Amo Elementary School is located approximately 0.07 mile south of the facility, Peace and Joy Christian School is located approximately 0.08 mile west of the facility, Magnolia Science Academy is located

[2] One barrel is 42 gallons.

approximately 0.16 mile north-northwest of the facility, Intercoast College is located approximately 0.18 mile southwest of the facility and Friendship Children's Center is located approximately 0.24 mile south of the facility.

1.7.4 EXISTING OPERATIONS

The Carson Facility is a former refinery and chemical manufacturing plant site. Chemical manufacturing was discontinued in the 1980s, and the refinery ceased operating in 1992. The process units have been dismantled, while the storage tanks remain. The facility currently consists of the following three operations:

1. Petroleum products pipelines, storage and distribution: Gasoline, jet fuel and diesel fuel are delivered into the facility by pipeline from local refineries and distribution terminals, delivered by pipeline from Shell's Mormon Island Marine Terminal at the Port of Los Angeles, stored in above-ground storage tanks, and delivered out of the facility by pipeline to customers. A small volume of diesel fuel is also transferred by pipeline to the chemicals storage and distribution area, described below, and loaded into tanker trucks.

2. Chemical products storage and distribution: Non-halogenated solvents are delivered to the chemicals storage area by railcar or tanker truck and transferred into storage tanks in the chemicals area, located on the east side of the facility. These solvents are transferred by pipeline to an adjacent facility operated by Nexeo Solutions for loading into trucks or drums and delivery to customers. As noted above, a small volume of diesel is transferred by pipeline to this operation and loaded into tanker trucks for delivery to customers through a truck loading rack located in the area.

3. Ethanol storage and loading: Ethanol is delivered by pipeline into the facility primarily from an off-site railcar offloading facility owned and operated by a third party (the Kinder Morgan Lomita Terminal), stored in above-ground storage tanks located in the petroleum products area, and transferred into tanker trucks at an on-site two lane ethanol truck loading rack for delivery to customers. A small percentage of the daily throughput of ethanol is also delivered off-site to the Kinder Morgan Carson Terminal by an existing pipeline dedicated to ethanol service. The significant challenges of using dedicated pipelines for shipment of ethanol over longer distances effectively precludes shipping ethanol by pipeline to the Carson Facility's other ethanol customers.

The Carson Facility's existing two-lane ethanol truck loading rack is currently permitted to load a maximum of 30,000 barrels per day (bbl/day) of ethanol. It is not permitted to load other products.

The Carson Facility essentially provides an ethanol receiving, storage and tanker truck loading service to its customers who own the ethanol. The Carson Facility's customers are the fuel distributors that load and then distribute to their gasoline distribution terminals the ethanol stored at the Carson Facility. Thus, the trucks coming into the Carson Facility are owned by third party customers and are not owned by the Carson Facility. The Carson Facility does not take ownership of the ethanol.

1.7.5 PROPOSED CARSON FACILITY MODIFICATIONS

The proposed facility modifications are summarized in this section. They consist of modifications to existing equipment and installation of new equipment.

Shell is proposing to increase the permitted throughput for the existing two-lane ethanol truck loading rack from 30,000 bbl/day to 35,000 bbl/day of ethanol and to construct a new single-lane ethanol truck loading rack with a maximum throughput capacity of 17,500 bbl/day of ethanol. Thus, the total ethanol tanker truck loading capacity would increase by 75 percent, from 30,000 bbl/day to 52,500 bbl/day. The change in the level of ethanol in gasoline to accommodate the 2007 CARB Phase 3 RFG amendment requirements is an increase of approximately 75 percent, from 5.7 percent to 10 percent, which is expected to have resulted in an increase in the demand for ethanol to be blended into gasoline of approximately 75 percent. Thus, the 75 percent increase in the Carson Facility's ethanol tanker truck loading capacity is intended to accommodate its customers' requirements and requests for sufficient ethanol facilities to meet 2007 CARB Phase 3 RFG amendment requirements.

Shell is also proposing to increase the ethanol storage capacity at the Carson Facility by converting existing gasoline tanks to ethanol service, which would also support the 75 percent increase in ethanol demand to meet 2007 CARB Phase 3 RFG amendment requirements. Further, Shell is proposing to partially offset the loss of exiting gasoline storage capacity by constructing a new 158,000 bbl gasoline storage tank.

The additional ethanol is expected to be primarily delivered into the Carson Facility through the existing pipeline dedicated to ethanol service that is currently used from the off-site railcar offloading facility owned and operated by Kinder Morgan.

1.7.5.1 Ethanol Throughput Increase for Existing Loading Lanes

Shell is proposing to increase the maximum permitted ethanol throughput for the existing two-lane ethanol truck loading rack from 30,000 bbl/day to 35,000 bbl/day. Each loading lane can load about four trucks per hour. Since the average capacity of a tanker truck is 190 barrels, each lane can load about 760 barrels per hour, and the two lanes together can load about 1,520 barrels per hour. The maximum possible throughput over a 24-hour period is 36,480 bbl/day, which is more than the proposed maximum throughput of 35,000 bbl/day. Thus, increasing the throughput to 35,000 bbl/day would not require physical modifications to the existing two-lane truck loading rack or an increase in the number of trucks loaded each hour. Volatile organic compound (VOC) emissions from the tanker truck loading operations are controlled by an existing vapor recovery and thermal oxidizer system. Increasing the throughput would not require physical modifications to the vapor recovery and thermal oxidizer system, because the 142 cubic feet per minute (cfm) average vapor flow rate when two trucks are loaded at the same time is much less than the thermal oxidizer's total capacity of 600 cfm.

1.7.5.2 Storage Tank Conversions from Gasoline to Ethanol Service

Shell is proposing to convert four existing 69,000 bbl storage tanks from gasoline to ethanol service to increase the Carson Facility's capacity to store ethanol until it is loaded into trucks.

Shell currently has 396,000 bbl of ethanol storage at the Carson Facility. Conversion of four of the existing gasoline storage tanks into ethanol storage would result in an increase of 276,000 bbl for a total ethanol storage capacity of 672,000 bbl, a 70 percent increase. Although this percentage increase in ethanol storage capacity is slightly less than the 75 percent increase proposed in the first project objective, converting five existing 69,000 bbl storage tanks from gasoline to ethanol service would actually increase the Carson Facility's ethanol storage capacity by 345,000 bbl, which would result in an 87 percent increase. Because the 87 percent increase that would result from converting five existing storage tanks to ethanol service exceeds the 75 percent increase in the first project objective by 12 percent, Shell is proposing to convert only four existing gasoline storage tanks to store ethanol to meet the increased demand for ethanol as a blending component.

The specific storage tanks to be converted would be selected based on operational requirements at the facility and would be selected from among the following five storage tanks: 505, 506, 509, 510 and 514. The tank conversion activities would consist of draining and degassing the tanks, replacing the tanks' internal coatings with an ethanol-compatible coating material and lining the undersides of the tank roofs. The tanks' suction and discharge piping would also be modified to connect to the Carson Facility's existing ethanol system piping because the piping that carries ethanol through the facility is separate from the piping that carries gasoline.

1.7.5.3 New Single-Lane Truck Loading Rack

Shell is proposing to construct one new single-lane truck ethanol loading rack, with a maximum permitted loading rate of 17,500 bbl/day, adjacent to the two existing truck loading lanes. New equipment to be installed for the new single-lane truck loading rack would include two new pumps (one active pump and one standby pump, each with a capacity of 2,700 gallons per minute), three ethanol loading arms, with an ethanol meter and control valve at each arm and two vapor recovery hoses. The associated piping, conduits and a canopy covering the truck loading lane would be supported by a new structural steel frame. The new lane would also have a control panel for control of loading operations. Constructing the new truck loading lane would require excavating approximately 1,500 cubic yards of soil for foundations and paving approximately 8,000 square feet. The new truck loading rack would be connected to the vapor control system for the existing two-lane truck loading rack. The total vapor flow rate to the vapor control system would be approximately 213 cfm when the two existing loading lanes and the new loading lane are in use at the same time. Since this flow rate is substantially less than the system's capacity of 600 cfm, the proposed ethanol loading throughput increase from constructing the new single-lane truck loading rack can be accommodated without modifying the existing vapor control system to increase its capacity, although the Permit to Operate would need to be modified.

1.7.5.4 Loading Rack Operations Building Expansion

Shell is proposing to modify the existing ethanol truck loading rack control building in support of the increased ethanol loading capacity to provide additional office space, additional space for training ethanol tanker truck drivers on the Carson Facility's safety and operational procedures, and storage space to replace an outdoor storage shed that would be displaced when the new single-lane truck loading rack is constructed. The building size would increase from 867 square feet to 1,727 square feet, and the expansion would add a conference room, storage room, kitchen area, an office and an additional restroom. The appearance of the building addition would match the existing one-story, masonry block building.

1.7.5.5 New Gasoline Storage Tank

Shell is proposing to construct a new gasoline storage tank with a maximum working storage capacity of 158,000 barrels to partially replace gasoline storage capacity at the facility that would be transferred to ethanol service. The new gasoline storage tank would be 160 feet in diameter, with a shell height of 51.5 feet and would have a cone roof. It would be constructed on a currently vacant area surrounded by a dike that would provide secondary containment for the storage tank within the Carson Facility. Constructing the new gasoline storage tank would consist of grading the area where it would be located, excavating approximately 10,000 cubic yards of soil for the tank foundation, constructing the concrete tank foundation, erecting the tank shell, hydrostatic testing of the tank, constructing the tank roof, coating the interior and exterior of the tank, and installing suction and discharge piping.

It should be noted that even with the construction of the new gasoline storage tank there would be a net reduction in gasoline storage capacity at the Carson Facility of 118,000 bbl. Shell has determined that the economic tradeoffs of gaining the extra ethanol storage capacity versus losing the existing gasoline storage capacity are consistent with the needs of its current and future customers, such that it will minimize the impacts to those clients.

1.7.6 CONSTRUCTION OF THE PROPOSED PROJECT

Assuming the EIR is certified and required agency permits and approvals are received, construction activities for the proposed Shell project could begin and are expected to be completed approximately 17 months later. Construction for each component of the proposed project would vary over the construction schedule. The construction activities for most of the components are expected to overlap during the first four months of the construction period. Construction work shifts are anticipated to be one 10-hour shift per day, five or six days per week depending on the construction phase, generally from 7:00 a.m. to 5:00 p.m.

1.7.7 OPERATION OF THE PROPOSED PROJECT

Operation of the proposed project would be implemented in two interim phases prior to achieving the final proposed project operation. During the first interim phase, the permitted maximum daily throughput of the existing two-lane ethanol truck loading rack would increase to 35,000 bbl/day. Because construction is not necessary or required to increase the throughput of the existing two-lane truck ethanol loading rack, this phase would begin when the existing permits are revised and continue for approximately four months, until construction of the new single-lane truck ethanol loading rack is completed. The second interim phase would begin when the new single-lane truck ethanol loading rack becomes operational, which would increase the permitted maximum daily throughput by an additional 17,500 bbl/day, from 35,000 bbl/day to a total of 52,500 bbl/day. The second interim phase would continue for approximately 13 months, until construction of the proposed new gasoline storage tank is completed, at which time the proposed project would be fully implemented. The permitted maximum daily throughput for the existing and proposed new ethanol loading racks would remain at 52,500 bbl/day following the second interim phase.

The daily average ethanol loading rate during the baseline period was 25,344 bbl/day, and the daily average number of ethanol tanker trucks loaded during the baseline period was 132 trucks per day, which generated 264 one-way tanker truck trips to and from the Carson Facility.

The permitted maximum daily ethanol throughput during the first interim phase of 35,000 bbl/day would be an increase of 9,656 bbl/day above the baseline loading rate and would increase the daily number of ethanol tanker trucks loaded to 184 trucks per day, which would be an increase of 52 tanker trucks per day above the average daily number loaded during the baseline period. The daily number of trips by these additional tanker trucks would be 104 one-way trips per day.

The permitted maximum daily ethanol throughput of 52,500 bbl/day during the second interim phase and during full operation would be an increase of 27,156 bbl/day above the baseline loading rate and would increase the daily number of ethanol tanker trucks loaded to 276 trucks per day, which would be an increase of 92 tanker trucks per day above the first interim phase and 144 tanker trucks per day above the average daily number loaded during the baseline period. The daily number of trips by these additional tanker trucks would be an increase of 184 one-way trips per day above the first interim phase and 288 one-way trips per day above the baseline period.

As indicated in Section 1.4, the existing two-lane ethanol truck loading rack currently operates under Design Overlay Review (DOR) Number 764-01 granted by the City of Carson. A modification will be required to the DOR to allow for the increased truck traffic associated with the proposed project. Shell will propose to the city that the modification to the DOR limit the maximum daily of tanker trucks loaded with ethanol to 276 trucks per day.

No additional employees would be required on-site to operate any new equipment as a result of implementing the proposed project.

1.8 EXECUTIVE SUMMARY - CHAPTER 3: ENVIRONMENTAL SETTING

This chapter presents the existing environmental setting for the proposed project, which normally constitutes the baseline physical conditions by which a lead agency determines whether an impact is significant. This EIR is focused only on the environmental topics identified in the NOP/IS (see Appendix I-A) that could be significantly adversely affected by the proposed project. The reader is referred to the NOP/IS for discussion of environmental topics not considered in this EIR, and the rationale for inclusion or exclusion of each environmental topic. The environmental topics identified in Chapter 3 include both a regional and local setting and are summarized in the following subsections.

1.8.1 AIR QUALITY

Air quality in the area of the SCAQMD's jurisdiction has shown substantial improvement over the last two decades. Nevertheless, some federal and state air quality standards are still exceeded frequently and by a wide margin. Of the National Ambient Air Quality Standards (NAAQS) established for seven criteria pollutants (ozone, lead, sulfur dioxide, nitrogen dioxide, carbon monoxide, particles smaller than 10 microns (PM10) and particles smaller than 2.5 microns (PM2.5)), the area within the SCAQMD's jurisdiction is only in attainment with standards set for carbon monoxide, sulfur dioxide, and nitrogen dioxide. Air monitoring for PM10 indicates that SCAQMD has attained the NAAQS but the United States Environmental Protection Agency (EPA) has not yet approved the SCAQMD's request for re-designation to attainment. The Los Angeles County portion of the SCAQMD is designated as non-attainment for the state and federal standards for lead, based on emissions from two specific facilities.

Chapter 3 discusses the effects of meteorological conditions, temperature and rainfall, and wind flow patterns on the existing air quality conditions in the Basin. Existing air quality is examined regarding criteria pollutants, regional air quality, local air quality, the Carson Facility criteria pollutant emissions, toxic air contaminants (TACs), as well as the regulatory setting.

In addition, construction and operational activities associated with the proposed project also have the potential to increase emissions of GHGs. The environmental setting and GHG impacts are primarily discussed in Chapter 5 - Cumulative Impacts.

1.8.2 BIOLOGICAL RESOURCES

A search of the California Natural Diversity Database (CNDDB), which is maintained by the California Department of Fish and Game (CDFG), was conducted in 2007 and updated in 2009 to identify occurrences of special-status species that have been recorded in the area of the Carson Facility. A biological reconnaissance survey of the proposed project site was also conducted on June 22, 2009. The survey included locations within the Carson Facility where construction for the proposed project would occur plus a 500-foot buffer area surrounding each of these locations. The survey also included a lay down area, approximately four acres in size, which is located adjacent to and east of the ethanol loading facility.

The 2007 and 2009 searches of the CNDDB identified 28 special-status plant species and 35 special-status wildlife species within the general vicinity of the Carson Facility. It is unlikely that the plant species have the potential to exist within the proposed project locations, because the site is not compatible with their habitat requirements. Additionally, no special-status plant species were observed during the survey. Although no special-status wildlife species were observed during the 2009 survey, three species, including Monarch butterfly (*Danaus plexippus*), burrowing owl, and western yellow bat (*Lasiurus xanthinus*), could potentially utilize habitat within the 500-foot buffer area from the proposed project locations. Nesting birds, which are protected under the Migratory Bird Treaty Act (MBTA), could also utilize this habitat.

1.8.3 HAZARDS AND HAZARDOUS MATERIALS

The Carson Facility is permitted to handle materials with the potential to cause harm to people, property, or the environment. An accidental release of these materials could occur due to natural events, such as earthquakes, and non-natural events, such as mechanical failure or human error. Potential existing hazards from the Carson Facility are those associated with accidental releases of flammable liquids, such as gasoline, which could lead to a fire. State and federal laws require detailed planning to ensure that hazardous materials are properly handled, used, stored, and disposed of to prevent or mitigate injury to human health or the environment in the event that such materials are accidentally released.

1.8.4 HYDROLOGY AND WATER QUALITY

The NOP/IS (see Appendix I-A) determined that the proposed project at the Carson Facility has the potential to generate significant adverse water supply impacts. The NOP/IS also determined that the proposed project does not have the potential to generate significant adverse water quality impacts (see Appendix I-A).

Water consumed in the Los Angeles Basin includes both imported water and water from local sources. Imported sources of water (including the Colorado River Aqueduct (CRA), the State Water Project's (SWP) California Aqueduct, and the Los Angeles Aqueduct) have, in previous years, supplied more than six million acre-feet[3] or two trillion gallons of water to the southern California region annually. Imported sources have accounted for approximately 74 percent of the total water used in the region. Local sources of water account for approximately 26 percent of the total volume consumed annually in the southern California area. Local sources include surface water runoff and groundwater.

Back-to-back dry years and low reservoir levels put California in a statewide drought, and Governor Arnold Schwarzenegger declared a statewide drought on June 4, 2008. In late 2008, the state's major reservoirs were at about one-third of capacity, at a time when they would typically be at about two-thirds. As a result, the State Department of Water Resources (DWR) has allocated only 15 percent of requested amounts of water to be delivered to the SWP in 2009. This allocation is the second lowest in the history of the SWP. Because of the drought, local water resources are not expected to be stable in the future on a region-wide basis. However, because of higher than average rainfall years in 2010 and 2011, on March 30, 2011 Governor Jerry Brown declared an official end to the drought in California.

The Rancho Dominguez District of the California Water Service Company (Cal Water) provides water service to the Carson Facility. The Cal Water Rancho Dominguez District utilizes a combination of local groundwater and imported surface water to serve customers in Carson and parts of Torrance, Compton, Long Beach, and Harbor City. Approximately 80 percent of the water supply distributed by Cal Water is comprised of imported water, 18 percent is groundwater, and two percent is desalinated water.

[3] One acre-foot is equivalent to 325,851 gallons.

The Carson Facility does not have any wells on-site to provide water. Additionally, the Carson Facility does not currently have reclaimed water available for use at the facility. The infrastructure to use reclaimed water for irrigation, such as pipelines, is present within the facility, and the Shell operators are attempting to arrange for a connection to the West Basin Municipal Water District's reclaimed water supply, but it is not known if or when the connection may be established. Until then, all water consumed by the Carson Facility is provided by Cal Water.

The Carson Facility currently consumes potable water for fire protection, irrigation, employee use and consumption and for periodic hydrostatic testing of the structural integrity of existing storage tanks following major modifications to the tanks. Annual potable water consumption by the facility decreased from approximately 14.6 million gallons in 2006 to approximately 12.7 million gallons in 2009. Reclaimed water is not currently available for use at the facility.

1.8.5 NOISE

Noise is usually defined as sound that is undesirable because it interferes with speech communication and hearing, is intense enough to damage hearing, or is otherwise annoying (unwanted sound). Sound levels are measured on a logarithmic scale in decibels (dB). The universal measure for environmental sound is the "A" weighted sound level, dBA, which is the sound pressure level in decibels as measured on a sound level meter using the A-weighted filter network. "A" scale weighting is a set of mathematical factors applied by the measuring instrument to shape the frequency content of the sound in a manner similar to the way the human ear responds to sounds. In general, a change in sound level of less than 3.0 dBA is not typically noticed by the human ear. Changes from 3.0 to 5.0 dBA may be noticed by some individuals who are extremely sensitive to changes in noise. A greater than 5.0 dBA increase is readily noticeable, while the human ear perceives a 10.0 dBA increase in sound level to be a doubling of sound.

Noise-sensitive receptors in the vicinity of the proposed project include residences to the north of the Carson Facility on the north side of East Del Amo Boulevard, residences along a portion of the southern facility boundary, an elementary school south of the facility and residences south of the facility and 213th Street.

Predominant sources of off-site noise in the vicinity of the Carson Facility include vehicular (including truck) traffic along Wilmington Avenue and Del Amo Boulevard and on the Interstate 405 Freeway, heavy and light industrial activities, commercial uses, and rail traffic on rail lines and spurs. Short-term (approximately 15 minutes duration) noise measurements were taken on January 13, 2010, at two locations in the residential area west of Wilmington Avenue and south of the Distribution Facility, and 24-hour duration noise measurements were taken on September 20-21, 2011 in the same residential area. The short-term measurements were taken between 1:30 p.m. and 3:30 p.m., and the 24-hour measurements were taken beginning at 11:00 a.m. The Equivalent Noise Level (L_{eq})[4] during the short-term measurements was 49 dBA and 55 dBA. The higher noise level was due primarily to children playing in the local park to the southeast of

[4] L_{eq} is the steady-state sound level that, in a specified period of time, contains the same acoustical energy as a varying sound level over the same time period

the measurement location. During the 24-hour measurements, daytime noise levels ranged from 49 to 53 dBA L_{eq} between 7:00 a.m. and 10:00 p.m., and nighttime noise levels ranged from 43 to 48 dBA L_{eq} between 10:00 p.m. and 7:00 a.m. Based on the measurements, the daytime L_{eq} was 51.6 dBA, and the Nighttime L_{eq} was 46.1 dBA.

In 1995, the City of Carson adopted the "Noise Control Ordinance of the County of Los Angeles," as amended, as the City's Noise Control Ordinance, which sets standards for noise levels in the City. The ordinance includes separate standards for noise from construction activities and noise from other activities. These standards apply to the proposed project.

1.8.6 TRANSPORTATION AND TRAFFIC

Key regional transportation facilities in the area of the Carson Facility include the San Diego Freeway (I-405), located approximately 0.1 miles southwest of the facility, the Long Beach Freeway (I-710), located approximately 1.6 miles east of the facility, the Harbor Freeway (I-110), located approximately 1.7 miles west of the facility, and the Redondo Beach/Artesia Freeway (SR-91), located approximately 1.7 miles north of the facility. Key streets in the vicinity of the Carson Facility include Wilmington Avenue and Alameda Street to the east and Del Amo Boulevard to the north. These roadways provide access to the facility from the freeways. In accordance with requirements of the Carson Facility's DOR granted by the City of Carson, all ethanol tanker trucks are mandated to exit the facility onto Wilmington Avenue heading north to Del Amo Boulevard and then east to Alameda Street, avoiding residential areas.

The operating characteristics of an intersection are defined in terms of the level of service (LOS), which describes the quality of traffic flow based on variations in traffic volume and other variables such as the number of signal phases. LOS A to C operate well. LOS C normally is taken as the design level in urban areas outside a regional core. LOS D typically is the level for which a metropolitan area street system is designed. LOS E represents volumes at or near the capacity of the roadway which will result in possible stoppages of momentary duration and fairly unstable traffic flow. LOS F occurs when a facility is overloaded and is characterized by stop-and-go (forced flow) traffic with stoppages of long duration.

Peak traffic period LOS analyses were developed for intersections in the vicinity of the Carson Facility. Traffic counts, including turn counts, were taken to determine the existing traffic at eight intersections. Of the eight intersections, one is operating at LOS D during the morning peak period (Susana Road and Del Amo Boulevard) and one at LOS E during the evening peak period (Wilmington Avenue and I-405 Southbound On-/Off-Ramps). The other six intersections are operating at LOS C or better.

1.9 EXECUTIVE SUMMARY - CHAPTER 4: ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Chapter 4 assesses the potential environmental impacts of the construction and operation of the proposed project. Chapter 4 evaluates those impacts that are considered potentially significant under the requirements of CEQA, as determined by the NOP/IS (see Appendix I-A). Specifically, an impact is considered significant under CEQA if it leads to a "substantial, or potentially substantial, adverse change in the environment." Table 1-1 (located at the end of this chapter) summarizes the air quality, biological resources, hazards and hazardous materials, hydrology and water quality, noise and transportation and traffic impacts of the proposed project.

1.9.1 AIR QUALITY

1.9.1.1 Environmental Impacts

The SCAQMD makes significance determinations based on the maximum daily emissions during the construction period, which provides a "worst-case" analysis of the construction emissions. Similarly, significance determinations for operational emissions are based on the maximum daily emissions during the operational phase. Because operation of the proposed project would be implemented in interim phases that overlap with the entire construction period before achieving full operation, the significance determination of emissions during the construction period is based in comparing the overlapping construction and operational emissions with the operational significance thresholds.

Greenhouse gas emissions, though part of the air quality analysis, are cumulative impacts and are analyzed in Chapter 5 for both construction and operational emissions.

Construction Period Emissions

Peak daily overlapping construction and operational emissions for the proposed project are summarized in Table 4.2-7 together with the SCAQMD's daily operational threshold levels. Estimated peak daily emissions during the construction period are expected to be less than the significance thresholds for carbon monoxide (CO), sulfur oxides (SOx), PM10 and PM2.5. However, estimated peak daily emissions during the construction period of the proposed project at the Carson Facility are anticipated to exceed the significance thresholds for volatile organic compounds (VOC) and nitrogen oxides (NOx). Therefore, the air quality impacts during the construction period are considered significant.

Air quality dispersion modeling was conducted to evaluate the potential for peak overlapping construction and operational emissions to cause localized exceedances of the operational ambient air quality CEQA significance thresholds for CO, NO_2, PM10 and PM2.5. Based on the American Meteorology Society (AMS)/EPA Regulatory Model (AERMOD), the CO significance threshold is not equaled or exceeded, but the NOx, PM10 and PM2.significance thresholds are exceeded. Therefore, emissions during construction of the proposed project are not expected to cause significant adverse localized CO air quality impacts at the nearest sensitive receptors, but they may cause significant adverse localized NO_2, PM10 and PM2.5 air quality impacts to the nearest sensitive receptors.

Operational Emissions

The proposed project's operational emissions are also evaluated in Chapter 4. The major sources of operational emissions are combustion emissions from the thermal oxidizer used to control VOC emissions during tanker truck loading, fugitive VOC emissions from tanker trucks during loading operations and exhaust emissions from tanker trucks traveling to and from the Carson Facility. Operational emissions for the proposed project are summarized in Table 4.2-4 together with the SCAQMD's daily operational threshold levels. Estimated emissions during operation of the proposed project are expected to be below the significance thresholds for CO, SOx, PM10 and PM2.5. Estimated emissions during operation are anticipated to exceed the significance thresholds for VOC and NOx. VOC emissions would be offset through emission credits required for permitted sources pursuant to SCAQMD Rule 1303 and NOx and SOx emissions would be offset through RECLAIM Trading Credits (RTCs) required for permitted sources pursuant to SCAQMD Regulation XX. However, VOC and NOx emissions after applying emission credits and RTCs to permitted sources would remain significant because VOC and NOx emissions from non-permitted sources are anticipated to exceed the respective significance thresholds and emission credits and RTCs are not available for such non-permitted sources. Therefore, the air quality impacts associated with operation of the proposed project are considered significant.

The peak operational emissions, including tanker truck exhaust emissions, were modeled to determine the potential impacts on CO, NO_2, PM10 and PM2.5 ambient air quality. Based on AERMOD, the ground level concentrations of the specified criteria pollutants are expected to be below the SCAQMD's significance thresholds for changes in air quality concentrations. Therefore, no significant impacts on local concentrations of criteria pollutants are expected during operation of the proposed project.

A health risk assessment (HRA) was also conducted to evaluate the potential health risks from increased emissions of TACs from the proposed project, including exhaust emissions from tanker trucks, during operation of the proposed project. The risks were evaluated for residential locations, worker locations and sensitive receptors, such as schools, in the vicinity of the Carson Facility and near the routes traveled by tanker trucks between the facility and the local freeways. Based on the air quality modeling and related assumptions, the cancer risks to the Maximum Exposed Individual Worker (MEIW) and the Maximum Exposed Individual Resident (MEIR) were calculated to be 1.55 in one million, and 2.11 in one million, respectively, or less than ten per one million. The highest cancer risk at a sensitive receptor was estimated to be 1.61 in one million. These results are less than the SCAQMD CEQA cancer risk significance threshold of ten in one million.

The highest acute hazard index for the proposed project is estimated to be 0.0020, while the highest non-cancer chronic hazard index for the proposed project is estimated to be 0.020. The acute and non-cancer chronic hazard indices for the proposed project are less than the SCAQMD CEQA significance threshold of 1.0. Therefore, no significant adverse acute or chronic health impacts are expected from the proposed project.

1.9.1.2 Mitigation Measures

A number of feasible mitigation measures have been imposed on the proposed project to mitigate the potentially significant adverse air quality impacts associated with construction emissions. The mitigation measures include the development of a Construction Emission Management Plan, requiring construction equipment to be equipped with engines that meet or exceed California Tier 3 emission standards to the extent possible, minimizing the sizes of construction equipment engines, limiting truck idling to five minutes, using electricity wherever possible, maintaining construction equipment, suspending construction activities during first stage smog alerts and increasing watering of unpaved vehicle travel areas to three times per day.

Feasible mitigation measures to mitigate the potentially significant adverse impacts associated with operational emissions were not identified. The thermal oxidizer used to destroy VOC in the gases collected by the loading rack vapor collection system would be required to meet current BACT emission limits for VOC. Specifically, the VOC emission limit in the current permit, which was issued in 2003, is 0.08 pound per 1,000 gallons of ethanol loaded. The thermal oxidizer would be subject to BACT and lowest achievable emission rate (LAER) requirements for VOC emissions. Current air quality BACT guidelines indicate a BACT standard for "gasoline load racks" of 0.02 pounds VOC per 1,000 gallons product loaded because this rate has been achieved in practice in California and other similar loading rack projects in the district have this condition. Although this rack would load only ethanol, due to the potential for emissions of gasoline vapors from the incoming trucks, SCAQMD permitting staff indicated that this BACT standard would apply[5] because it has been achieved in practice. These limits represent the lowest achievable emission rate (LAER). Thus, it is not feasible to reduce these emissions.

VOC and NOx emissions from tanker truck exhaust would be reduced if all tanker trucks delivering ethanol from the Carson Facility were late-model trucks that have lower emissions than the average emissions from heavy heavy-duty vehicles in southern California. However, as discussed previously, the tanker trucks that deliver ethanol from the facility are operated by the Carson Facility's customers or by operators under contract to the Carson Facility's customers. Therefore, it is not be feasible for Shell to directly require all tanker trucks that deliver ethanol from the facility to be late-model trucks.

1.9.1.3 Level of Significance after Mitigation

VOC, NOx, PM10 and PM2.5 emissions during the construction period are expected to remain significant following mitigation. The construction emissions associated with CO and SOx are less than significant and, therefore, mitigation is not required. Construction emissions are expected to be short-term and they would be eliminated following completion of the construction phase.

As previously noted, operation of the proposed project is not expected to generate significant CO, SOx, PM10, or PM2.5 impacts during operation. The operational impacts of the proposed project are anticipated to exceed the applicable VOC and NOx significance thresholds and, therefore, generate significant VOC and NOx impacts. Increases in VOC and NOx emissions are required to be offset for permitted sources pursuant to SCAQMD Rule 1303 and Regulation XX, respectively. The emission credits for VOC and RTCs for NOx would reduce the proposed project's net VOC and NOx emissions, respectively. However, VOC and NOx emissions after applying emission credits and RTCs to permitted sources would remain significant because VOC and NOx emissions from non-permitted sources are anticipated to exceed the respective significance thresholds. No additional feasible mitigation measures to reduce VOC or NOx emissions during operation of the proposed project were identified. Therefore, impacts from VOC and NOx emissions are expected to remain significant.

[5] Personal communication, Mr. Thomas Liebel, Senior Air Quality Engineer, SCAQMD, December 2009.

1.9.2 BIOLOGICAL RESOURCES

1.9.2.1 Environmental Impacts

Construction Impacts

No candidate, sensitive, or special-status species were observed during a survey of locations within the Carson Facility where construction for the proposed project would occur, and there is no suitable habitat to support these species within the construction footprint of the proposed project. However, three special-status species, including the burrowing owl, Monarch butterfly, and western yellow bat, could potentially utilize habitat within a 500-foot buffer area from the proposed project construction areas. Nesting birds, which are protected under the MBTA, could also utilize this habitat.

During the biological survey of the project locations, a single burrow that could potentially be utilized by the burrowing owl was detected approximately 50 feet north of the proposed construction lay down area. Although no owls were seen occupying this burrow and there were no signs of recent use, future occupancy of this burrow by an owl cannot be precluded. The presence of an owl or the presence of an occupied burrow within the vicinity of a construction area poses some potential risk to individual owls in the form of direct mortality or accidental injury from construction vehicles, or entrapment inside the burrows during grading, as they are a ground-dwelling species. Therefore, construction of the proposed project could potentially cause significant adverse impacts to the burrowing owl.

A small grove of eucalyptus trees located approximately 400 feet west of the proposed gasoline storage tank construction could provide wintering roosts for Monarch butterflies, and western yellow bats could potentially roost in fan palms approximately 250 feet from the proposed construction laydown area. However, the proposed gasoline storage tank construction would be more than 200 feet from the grove, which is considered to be a buffer limit around roost trees to avoid disturbing an active roost or aggregation of butterflies. Thus, there would be no adverse indirect impacts to potentially roosting butterflies from added noise and vehicle activity. Additionally, the proposed lay down area would be more than 100 feet from the palm trees, which is considered to be a buffer limit from roosting bats to avoid disturbing a roost. Thus, there would be no adverse indirect impacts to potentially roosting western yellow bats.

The grove of eucalyptus trees, as well as the stands of fan palms located approximately 250 feet north of the ethanol loading area, have the potential to support nesting birds. Therefore, construction of the proposed project could potentially cause significant adverse impacts to nesting birds.

Operational Impacts

The proposed new gasoline storage tank would not generate noise during operation, and facility personnel would only visit the storage tank as required for routine inspections and necessary maintenance. Thus, operation of the gasoline storage tank would not have the potential to disturb nesting birds in the grove of eucalyptus trees west of the gasoline storage tank location.

Activities during operation of the other components of the proposed project would be similar in nature to those that currently occur, except that the daily maximum number of ethanol tanker truck loading trips associated with the proposed project would be approximately twice the daily average number of trips during the baseline period (e.g., 552 one-way trips per day vs. 264 one-way trips per day). However, due to the degraded nature of the habitat and the ongoing activity within the Carson Facility, the area is not expected to support a significant number of sensitive species. The wildlife that may currently utilize the habitats within the Carson Facility does so in spite of this high level of disturbance. These individuals have become accustomed to an elevated level of activity, and it is unlikely that a further increase in truck trips would change their habits. Thus, operation of the other components would not have the potential to disturb nesting birds in the fan palms north of the ethanol loading area.

Based on these considerations, operation of the proposed project would not cause significant adverse impacts to biological resources.

1.9.2.2 Mitigation Measures

Feasible mitigation measures have been imposed on the proposed project to mitigate the potentially significant adverse impacts on biological resources associated with construction activities. The mitigation measures include conducting pre-construction presence/absence surveys by qualified biologists for the species that could potentially be impacted by construction activities and, if the surveys indicate the presence of these species, establishing appropriate "no-construction" buffer areas around the locations where the species are found.

No mitigation measures are required for the operation phase of the proposed project, because potential impacts on biological resources were determined to be less than significant.

1.9.2.3 Level of Significance after Mitigation

Implementation of the mitigation measures would reduce impacts to sensitive and special-status wildlife species during construction of the proposed project to a less than significant level. Impacts on biological resources during operation of the proposed project would also be less than significant.

1.9.3 HAZARDS AND HAZARDOUS MATERIALS

1.9.3.1 Environmental Impacts

Potential hazard impacts are considered to be significant if an accidental release of a hazardous material results in exposure to one or more individuals off-site. Hazard impacts are evaluated by estimating the potential impact distances caused by "worst-case" accident scenarios. Impacts are considered significant if the accident scenario would increase the area of potential current impacts beyond the facility's fence line.

A scenario involving a spill of flammable liquid was considered for each of the three components of the proposed project that involves handling or storage of flammable liquid (i.e., the existing storage tanks converted from gasoline to ethanol service, the new gasoline storage tank and the new single-lane loading rack). Two possible outcomes were identified and analyzed for each of the scenarios. The first outcome involves contact of the spilled liquid with an ignition source to cause a pool fire. The second outcome involves evaporation of a portion of the liquid to produce a vapor cloud, which then comes into contact with an ignition source to cause a vapor cloud explosion.

The "worst-case" accident scenario involving the new gasoline storage tank could potentially cause impacts that extend beyond the Carson Facility's fence line. Approximately 97 percent of the off-site geographic area of these impacts would overlap with off-site areas that could potentially be impacted by "worst-case" accident scenarios involving existing storage tanks. Thus, a worst-case accident scenario involving the new gasoline storage tank would potentially increase the geographic extent of off-site impacts by approximately 2.8 percent (comprising an area of approximately 182,680 square feet) compared with potential impacts from existing storage tanks. Therefore, because the hazard impacts associated with the new gasoline storage tank extend into new areas off-site, the impacts exceed the hazards and hazardous materials significance criterion. While the "worst-case" accident scenarios involving the converted storage tanks also could potentially cause impacts that extend beyond the Carson Facility's fence line, although still within the hazard footprint of existing storage tanks, converting them from gasoline to ethanol service would actually reduce the current potential impact distance. This reduction results because potential impacts from a pool fire or vapor cloud explosion involving ethanol would not extend as far as a pool fire or vapor cloud explosion involving gasoline, thus, reducing the number of potential off-site exposures to pool fire or vapor cloud explosion incidents. Therefore, the hazard impacts associated with converting the existing storage tanks from gasoline to ethanol service would not exceed the hazards and hazardous materials significance criterion. The "worst-case" scenarios involving the new single-lane ethanol truck loading rack would not cause impacts that would extend beyond the Carson Facility's fence line. Therefore, hazard impacts associated with the new single-lane loading rack would not exceed the hazards and hazardous materials significance criterion.

Additionally, soils that would be excavated to construct the foundation for the new gasoline storage tank would potentially be considered hazardous waste. If this potentially hazardous waste is not handled properly in accordance with local, state and federal rules which regulate the characterization, handling, transportation, and ultimate disposition of contaminated soils, potential significant adverse impacts from exposure to the potential hazardous waste could occur.

1.9.3.2 Mitigation Measures

Mitigation measures are required, if feasible, to minimize the potentially significant "worst-case" off-site hazard impacts associated with the proposed new gasoline storage tank. There are a number of rules, regulations, and laws applicable to the Carson Facility that serve to reduce the potential adverse impacts associated with hazards at the facility, including those hazards associated with the new gasoline storage tank. Federal Occupational Safety and Health Administration (OSHA) regulations require the preparation and implementation of a Process Safety Management (PSM) Plan. A PSM Plan that meets the requirements of the regulations and is appropriately implemented is intended to prevent or minimize the consequences of a release involving a toxic, reactive, flammable, or explosive chemical. A PSM review would be required as part of the proposed project. The primary components of a PSM include written process safety information to enable the employer and employees to identify and understand the hazards posed by the process, performance of a process safety analysis to determine and evaluate the hazard of the process being analyzed, development of operating procedures that provide clear instructions for safely conducting activities involved in each process identified for analysis, training in the overview of the process and in the operating procedures for facility personnel and contractors, and a pre-start up safety review for new facilities and for modified facilities where a change is made in the process safety information. Additionally, the proposed project plan includes several design and operational features to minimize the risk and consequences of a gasoline leak from the new gasoline storage tank.

No additional feasible mitigation measures to minimize the potentially significant "worst-case" off-site hazard impacts associated with the proposed new gasoline storage tank have been identified, over and above the extensive safety regulations that currently apply to the Carson Facility.

A feasible mitigation measure has been imposed on the proposed project to mitigate the potentially significant adverse off-site hazard impacts associated with the excavation and disposal of soils that would be excavated to construct the foundation for the new gasoline storage tank. This mitigation measure requires preparation and implementation of a Construction Contaminated Soils Management Plan that addresses the identification, sampling, characterization, handling, segregation, storage, and disposal of contaminated soils in compliance with local, state, and federal regulations.

1.9.3.3 Level of Significance after Mitigation

Implementation of the mitigation measure requiring preparation and implementation of a Construction Contaminated Soils Management Plan would reduce potential hazards and hazardous materials impacts associated with excavation of potentially contaminated soils to a less than significant level.

Although compliance with existing regulations and implementation of the proposed project safety measures are intended to minimize the potential impacts associated with a release, such compliance is not expected to completely eliminate the potential hazard impacts associated with the proposed new gasoline storage tank. Therefore, hazards and hazardous material impacts generated by the proposed project, specifically the new gasoline storage tank, will continue to exceed the significance criteria.

1.9.4 HYDROLOGY AND WATER QUALITY

1.9.4.1 Environmental Impacts

The NOP/IS (see Appendix I-A) determined that the proposed project at the Carson Facility has the potential to generate significant adverse impacts on hydrology and water quality. Specifically, the use of potable water for hydrostatic testing during construction and operation of the proposed project would exceed significance criteria for water supply. Therefore, the proposed project's water supply impacts are evaluated in this EIR. The NOP/IS determined that the proposed project does not have the potential to generate significant adverse water quality impacts (see Appendix I-A). Therefore, water quality impacts were not evaluated further in this EIR.

Construction Impacts

During construction activities, the proposed project may use minor quantities of water for dust suppression and soil compaction associated with site preparation and grading, in compliance with the dust suppression requirements of SCAQMD Rule 403 - Fugitive Dust. In addition, the proposed new gasoline storage tank and new piping associated with the proposed project would require the use of water for hydrostatic testing during construction. Reclaimed water is not currently available for use at the Carson Facility. Although the Shell operators are in the process of arranging for the availability of reclaimed water at the Carson Facility, it is currently unknown if or when reclaimed water may become available. Therefore, potable water would need to be used during the construction period for these activities.

Preliminary analysis of hydrostatic testing of the new gasoline storage tank indicates that it may require a total of approximately 7.7 million gallons of water over four or more days, with a maximum daily use of less than two million gallons. Construction of the proposed project would not create an ongoing, long-term increase in demand for potable water, as the use of potable water for hydrostatic testing of the proposed new gasoline storage tank would only occur once during construction of the proposed project.

The Carson Facility's water supplier, California Water Service Company, Rancho Dominguez District (Cal Water), indicated that the increased potable water use for the proposed project can be supplied. Thus, the existing potable water supply has the capacity to meet the increased demands of the proposed project. Even though the existing potable water supply has the capacity to meet the increased demands of the proposed project for potable water during the construction phase, the maximum daily usage of potable water during construction of the proposed project would exceed the SCAQMD's daily threshold for potable water use.

Operational Impacts

The proposed project is not expected to increase water demand on a continual basis during the operational period, as gasoline storage tanks and ethanol loading racks do not require water for their operation.

The proposed new gasoline storage tank may require hydrostatic testing to test its structural integrity if major repairs are made sometime in the future, and the potable water required would be similar to the amount required during construction. However, new tanks, such as the proposed gasoline storage tank, are not expected to require major repairs for at least 20 years. Thus, it is expected that major repairs and possible hydrostatic testing would not be required for at least 20 years, if at all.

If reclaimed water becomes available at the Carson Facility before additional hydrostatic testing of the proposed gasoline storage tank is conducted, potable water would not be needed. If additional hydrostatic testing of the proposed new gasoline storage tank is needed in the future and reclaimed water is not available, the maximum daily usage of potable water would exceed the daily threshold for potable water consumption.

1.9.4.2 Mitigation Measures

Mitigation measures are required, if feasible, to minimize the potentially significant water supply impacts associated with the construction and operation phases of the proposed project since the quantity of potable water required for hydrostatic testing of the proposed gasoline storage tank would exceed the significance threshold during construction and may also exceed the significance threshold during operation. As discussed in Subsection 1.9.4.1, the Shell operators are in the process of arranging for the availability of reclaimed water at the Carson Facility. However, it is currently unknown if or when reclaimed water would become available. Additionally, it is not known if it would be available in sufficient quantities and a sufficient pressure for hydrostatic testing of the proposed new gasoline storage tank. The Carson Facility currently discharges water from hydrostatic testing with potable water to both the Los Angeles County Sanitation District's sanitary sewer system under its industrial user permit and to the Dominguez Channel under its NPDES permit. The NPDES permit would need to be amended to allow the discharge of reclaimed water used for hydrostatic testing.

Because of the aforementioned uncertainties regarding the availability of reclaimed water for hydrostatic testing of the proposed new gasoline storage tank and the requirement to amend the Carson Facility's NPDES permit, use of reclaimed water for hydrostatic testing is not considered a feasible mitigation measure at this time.

No other feasible mitigation measures to avoid exceeding the water supply significance threshold have been identified because hydrostatic testing is required during construction of the proposed gasoline storage tank to test its structural integrity to help ensure that leaks of gasoline will not occur after the tank is filled with gasoline.

1.9.4.3 Level of Significance after Mitigation

No feasible mitigation measures have been identified to avoid having water use exceed the water supply significance threshold during construction of the proposed project or during operation of the proposed project if additional hydrostatic testing of the proposed gasoline storage tank is required in the future.

1.9.5 NOISE

1.9.5.1 Environmental Impacts

Construction Impacts

Construction activities for the proposed project may generate some noise associated with the use of construction equipment and construction-related traffic. Because construction is anticipated to take place 10 hours per day, from 7:00 a.m. to 5:00 p.m., Monday through Friday and occasionally on Saturday, there would be no construction activities that would generate noise during the nighttime. Maximum increases in noise levels at residences closest to the construction areas within the Carson Facility caused by the operation of construction equipment were estimated. These estimated maximum increases did not exceed the limits specified in the City of Carson's noise ordinance. Therefore, noise impacts caused by the operation of construction equipment at the Carson Facility would be less than significant.

Maximum increases in noise levels at residences closest to the routes expected to be used by construction-related traffic were also estimated. The maximum increases would be less than one dBA, which would be less than the significance threshold of a three dBA increase and would not be noticeable. Therefore, noise impacts caused by construction-related traffic would be less than significant.

Operational Impacts

The number of ethanol tanker trucks loaded at the Carson Facility is expected to increase during operation of the proposed project, resulting in the generation of additional noise at the ethanol loading area from truck loading activities. Noise generated by ethanol tanker trucks traveling within the Carson Facility and to and from the facility would also increase.

Due to the distances between the ethanol loading area and the closest residences, intervening barriers, and the background noise from surrounding roadway traffic, noise caused by increases in loading activities at the ethanol loading during operation of the proposed project are not expected to be audible at nearby receptors. Therefore, noise impacts associated with stationary noise sources during operation would be less than significant.

The number of trucks loaded each hour is expected to increase from approximately six trucks per hour to approximately 12 trucks per hour, which would generate an increase of 12 one-way on-site truck trips per hour (six inbound trucks plus six outbound trucks per hour). The estimated maximum hourly equivalent noise level from the increased on-site tanker truck trips at the closest residence was 54 dBA. The resulting daytime noise levels at the residence would increase by one dBA, from 53 dBA to 54 dBA, which is less than the noise significance threshold of a three dBA increase. The resulting nighttime noise levels at the residence would increase by two dBA, from 48 dBA to 50 dBA, which does not exceed the 50 dBA noise standard. Therefore, on-site operation of the proposed project would not cause significant adverse daytime or nighttime noise impacts.

Maximum increases in noise levels at residences closest to the off-site routes expected to be used by the increased operational ethanol tanker truck traffic were also estimated. The maximum increases would be less than one dBA, which would be less than the significance threshold of a three dBA increase and would not be noticeable. Therefore, noise impacts caused by off-site operational traffic would be less than significant.

1.9.5.2 Mitigation Measures

No significant adverse noise impacts during construction or operation are expected as a result of the activities associated with the proposed project. Therefore, no specific mitigation measures are required.

1.9.6 TRANSPORTATION AND TRAFFIC

1.9.6.1 Environmental Impacts

Construction Traffic Impacts

Construction activities resulting from implementing the proposed project would generate a temporary increase in traffic in the vicinity of the Carson Facility associated with construction workers and construction trucks. The LOS analysis assumes that 195 construction workers would be commuting to the Carson Facility during peak construction activities. Additionally, 115 construction trucks are assumed to travel to and from the facility during peak construction activities. The morning (A.M.) peak period of the adjacent street system surrounding the Carson Facility is from 7:00 a.m. to 9:00 a.m. Because the construction shift is anticipated to start at 7:00 a.m., worker commuting traffic attributable to project construction is not anticipated to affect the A.M. peak period conditions. However, impacts from construction worker commuting during the A.M. peak period were evaluated to allow for unanticipated changes to the daily construction schedule. The evening (P.M.) peak period is from 4:00 p.m. to 6:00 p.m. Because the construction shift is anticipated to end at 5:00 p.m., construction workers for the proposed project would leave during the P.M. peak period. Therefore, the analysis examined impacts from construction worker commuting during the P.M. peak period. Construction truck trips would mainly consist of material deliveries that would occur throughout the 10-hour workday. Thus, approximately 12 construction trucks are assumed to travel to and from the facility during the A.M. and P.M. peak traffic periods.

Analyses were performed to evaluate potential impacts on the traffic system during the morning A.M. and P.M. peak traffic periods. The traffic analysis shows that the proposed project may cause an increase of 3.8 percent at the Wilmington Avenue/I-405 South-bound On-/Off-Ramp intersection during the PM peak period. This intersection operates at LOS E during the PM peak period. Therefore, construction traffic for the proposed project could result in significant adverse impacts to this intersection during the P.M. peak period during project construction.

The traffic analysis shows that the intersection of Wilmington Avenue and Dominguez Street may show a change in LOS from A to B during the P.M. peak period and the intersections of Wilmington Avenue and Carson Street may show a change in LOS from A to B during the A.M. peak period. However, LOS B is considered acceptable; therefore this change in LOS is not considered a significant adverse impact. No other intersections are anticipated to show a change in LOS.

The volume-to-capacity ratio may increase by more than two percent at the intersections of Wilmington Avenue and Del Amo Boulevard, Alameda Street and Del Amo Boulevard, Santa Fe Avenue and Del Amo Boulevard, Wilmington Avenue and Dominguez Street, and Wilmington Avenue and Carson Street. However, these intersections would operate at LOS A, B or C. The volume-to-capacity ratio is not expected to increase by more than two percent at any other intersection studied except the Wilmington Avenue/I-405 South-bound On-/Off-Ramp intersection, as previously noted. Therefore, construction traffic for the proposed project is not expected to result in significant adverse impacts to any of the intersections other than the Wilmington Avenue/I-405 South-bound On-/Off-Ramp intersection during the P.M. peak period.

The traffic analysis also shows that construction-related traffic for the proposed project would not cause a change in LOS on freeways or increase the volume-to-capacity by two percent or more. Therefore, no adverse impacts are expected on local freeways due to construction activities associated with the proposed project.

Operational Traffic Impacts

During operation, the increase in ethanol loading is expected to result in additional truck traffic on area roadways. The LOS analysis assumes that the number of tanker trucks loaded with ethanol at the Carson Facility during operation of the proposed project would increase by 144 trucks/day (equivalent to 288 one-way truck trips per day) over the average number during the baseline period. The additional truck trips are estimated for purposes of this study to be spread evenly over a 24-hour period, with approximately six inbound and six outbound trips per hour occurring during each of the A.M. and P.M. peak traffic periods. The tanker trucks would continue to use the route required by the DOR approved by the City of Carson for the proposed project: Wilmington Avenue between Dominguez Street and Del Amo Boulevard, Del Amo Boulevard between Dominguez Street and the I-710 Freeway, and Alameda Street north and south of Del Amo Boulevard.

The traffic analysis shows that operation of the proposed project would not cause a change in the LOS at intersections in the vicinity of the Carson Facility or cause in increase on the volume-to-capacity ratio at an intersection of two percent or more. Therefore, impacts on traffic during operation of the proposed project are expected to be less than significant.

1.9.6.2 Mitigation Measures

Mitigation measures are required, if feasible, to minimize the potentially significant traffic impacts associated with the construction phase of the proposed project, since the construction traffic for the proposed project may cause significant adverse impacts to the Wilmington Avenue/I-405 South-bound On-/Off-Ramp intersection during the PM peak period.

A mitigation measure will be imposed on the proposed project that would require Shell to require that construction workers not use this intersection to access the Southbound I-405 Freeway when they leave the facility at the end of the construction shift. Instead, construction workers who want to travel south on the I-405 Freeway would be required to travel north on Wilmington Avenue to Del Amo Boulevard, east on Del Amo Boulevard to the Southbound I-710 Freeway, and south on the I-710 Freeway to the Southbound I-405 Freeway. This requirement would be included in construction contracts. Additionally, Shell would post signs in the construction worker parking area reminding them of this requirement and remind them of this requirement during daily briefings. Shell would also enforce compliance by requiring construction workers to have colored stickers in their back windows and periodically conducting visual audits to see if any cars with the stickers get onto the Southbound I-405 Freeway at Wilmington Avenue. If a worker is seen to enter the South-bound I-405 Freeway at Wilmington Avenue, Shell would take one or more of the following actions: (1) issue a warning to the worker following the first violation and not allow the worker on the Carson Facility following a second violation; (2) deduct a specified amount from the payment to the contractors who employ the workers for each violation; or (3) stop construction work and conduct a 30-minute meeting with all contractor employees on the project regarding the importance of following the directive, at the contractor's expense (i.e. Shell would not pay the contractor for the project delay).

1.9.6.3 Level of Significance after Mitigation

Implementation of the mitigation measure would reduce impacts on traffic and transportation during construction of the proposed project to a less than significant level. Impacts on traffic and transportation during operation of the proposed project would also be less than significant.

1.10 EXECUTIVE SUMMARY - CHAPTER 5: SUMMARY OF CUMULATIVE IMPACTS

CEQA Guideline §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 Carson Facility which may contribute cumulative impacts to those generated by the proposed project at the facility. The discussion in Chapter 5 lists projects which are reasonably expected to proceed in the foreseeable future, i.e., project information has been submitted to a public agency.

1.10.1 AIR QUALITY AND GREENHOUSE GASES

1.10.1.1 Environmental Impacts

Construction Impacts

Estimated construction emissions for the Carson Facility proposed project exceed the regional thresholds established by the SCAQMD for VOC and NOx and the localized significance thresholds for NOx, PM10 and PM2.5. Therefore, the construction air quality impacts are considered cumulatively considerable for VOC, NOx, PM10 and PM2.5 and are concluded to be cumulatively significant. Although estimated construction emissions for the potential cumulative projects exceed the thresholds established by the SCAQMD for CO, estimated construction emissions for the Carson Facility proposed project do not exceed the thresholds established by the SCAQMD for CO and SOx. As stated in CEQA Guidelines §15064(h)(4)), the "mere existence of significant cumulative impacts caused by other projects alone shall not constitute substantial evidence that the proposed project's incremental effects are cumulatively considerable." Therefore, the air quality construction impacts for the proposed project are not cumulatively considerable for CO and SOx.

Operational Impacts

Estimated operational emissions for the Carson Facility proposed project exceed the thresholds established by the SCAQMD for VOC and NOx. Therefore, the operational air quality impacts are considered cumulatively considerable for VOC and NOx and are concluded to be cumulatively significant. Although estimated operational emissions for the potential cumulative projects exceed the thresholds established by the SCAQMD for CO, PM10 and PM2.5, estimated operational emissions for the Carson Facility proposed project do not exceed the thresholds established by the SCAQMD for CO, SOx, PM10 and PM2.5. As stated in CEQA Guidelines

§15064(h)(4)), the "mere existence of significant cumulative impacts caused by other projects alone shall not constitute substantial evidence that the proposed project's incremental effects are cumulatively considerable." Therefore, the air quality operational impacts for the proposed project are not cumulatively considerable for CO, SOx, PM10, and PM2.5.

Toxic Air Contaminant Impacts

The health risk assessment (HRA) results for the Carson Facility proposed project operational activities were below the significance threshold. The potential impacts from toxic air contaminants are localized impacts. Most of the potential carcinogenic health risk impacts from the HRA for the proposed project were associated with diesel particulate matter (DPM) emissions from the increase in tanker truck trips, with the risks increasing in areas adjacent to the Carson Facility in the vicinity of the on-site route followed by the tanker trucks. The other proposed projects in the area may result in overall TAC emission increases. However, the cumulative projects are located one-half mile or more from the Carson Facility, and on-site toxic air contaminant emissions are not expected to overlap due to the distance from the Carson Facility and dispersion from the sources, which dilutes toxic emission impacts. It is possible that DPM emissions from diesel trucks associated with one of the potential cumulative projects may occur on some of the same roadways as DPM emissions from ethanol tanker trucks for the proposed Carson Facility project. Health risks from DPM emissions from trucks associated with the other project have not been estimated so it is not known if they may cause significant adverse impacts that could overlap with impacts from the proposed Carson Facility project. However, as stated in CEQA Guidelines §15064(h)(4)), the "mere existence of significant cumulative impacts caused by other projects alone shall not constitute substantial evidence that the proposed project's incremental effects are cumulatively considerable." Therefore, no significant cumulative adverse impacts from toxic air contaminants are expected from the proposed project.

Greenhouse Gases

Global climate change refers to changes in average climatic conditions on earth as a whole, including temperature, wind patterns, precipitation and storms. Global warming, a related concept, is the observed increase in average temperature of the earth's surface and atmosphere. One identified cause of global warming is an increase of greenhouse gases (GHGs) in the atmosphere. Some studies indicate that the potential effects of global climate change may include rising surface temperatures, loss in snow pack, sea level rise, more extreme heat days per year, and more drought years. Events and activities, such as the industrial revolution and the increased consumption of fossil fuels (e.g., gasoline, diesel, coal, etc.), have heavily contributed to the increase in atmospheric levels of GHGs. As reported by the California Energy Commission (CEC), California contributes 1.4 percent of the global and 6.2 percent of the national GHGs emissions.

In response to growing scientific and political concern regarding global climate change, California has recently adopted a series of laws to reduce both the level of GHGs in the atmosphere and to reduce emissions of GHGs from commercial and private activities within the State.

On December 5, 2008, the SCAQMD adopted an interim GHG Significance Threshold for projects where it is the lead agency using a tiered approach for determining significance. The objective of the SCAQMD's interim GHG significance threshold proposal is to achieve a GHG emission capture rate of 90 percent of all new or modified stationary source projects. A GHG significance threshold based on a 90 percent emission capture rate is considered to be appropriate to address the long-term adverse impacts associated with global climate change because most projects will be required to implement GHG reduction measures. Further, a 90 percent GHG emission capture rate sets the emission threshold low enough to capture a substantial fraction of future stationary source projects that will be constructed to accommodate future statewide population and economic growth, while setting the emission threshold high enough to exclude small projects that will in aggregate contribute a relatively small fraction of the cumulative statewide GHG emissions.

The proposed project has been evaluated for all increases in GHG emission sources during construction and operation, including increased energy supplied via purchased electrical power during operation. The proposed project is estimated to result in an increase of 12,349 metric tons per year of GHGs. This estimated increase exceeds the SCAQMD's GHG significance threshold for industrial projects where it is the lead agency of 10,000 metric tons of CO_2 equivalent emissions per year. Therefore, GHG emissions associated with the proposed project are considered to be cumulatively considerable and to contribute to significant adverse cumulative impacts associated with GHG emissions.

1.10.1.2 Mitigation Measures

Estimated CO and SOx emissions during construction and operation of the proposed project are not expected to be cumulatively significant. Therefore, mitigation measures for these emissions are not required. Mitigation measures to reduce the potentially significant air quality impacts from VOC, NOx, PM10 and PM2.5 emissions during construction of the proposed project were identified in Subsection 4.2.3. No additional feasible project-specific mitigation measures for emissions during construction have been identified. No feasible mitigation measures for VOC or NOx emissions during operation of the proposed project were identified, as discussed in Subsection 4.2.3. A mitigation measure to reduce annual GHG emissions was identified in Subsection 5.3.5 that would limit the annual quantity of ethanol loaded by the existing two-lane loading rack and the proposed new single-lane loading rack to 16,972,500 bbl during any calendar year. This mitigation measure would not reduce the maximum permitted daily (as opposed to annual) ethanol loading from the proposed limit of 52,500 bbl/day.

1.10.1.3 Level of Significance after Mitigation

Estimated CO and SOx emissions during construction of the proposed project are not expected to be cumulatively significant, and estimated CO, SOx, PM10 and PM2.5 emissions during operation of the proposed project are not expected to be cumulatively significant. The estimated cumulative adverse air quality impacts due to construction activities associated with the proposed project are expected to exceed the SCAQMD significance thresholds for VOC, NOx, PM10 and PM2.5 emissions, and thus, are considered to be cumulatively significant, even after mitigation. The estimated cumulative adverse air quality impacts associated with the operation of the proposed project are expected to exceed the SCAQMD significance thresholds for VOC and

NOx emissions, and thus, are considered to be cumulatively significant, even after mitigation. By limiting the annual quantity of ethanol loaded to 16,972,500 bbl per year, mitigation measure G-1 would reduce estimated GHG emissions from the proposed project to 9,937 metric tons per year, which would not exceed the SCAQMD significance threshold. Therefore, the proposed project's GHG emissions with mitigation are not cumulatively considerable and do not contribute to overall significant cumulative GHG impacts.

1.10.2 BIOLOGICAL RESOURCES

1.10.2.1 Environmental Impacts

Potential impacts on biological resources during the construction phase of the proposed project are expected to be less than significant with the application of mitigation measures identified in Subsection 4.3.3. The impacts on biological resources during construction of the proposed project could be caused by the potential disturbance of special status species or nesting birds if they are present inside the facility during the construction activities. Since construction activities for the proposed project are not expected to impact most biological resources outside the facility, they are not expected to overlap with any potential impacts on biological resources caused by the potential cumulative projects. However, birds are mobile and can move from site to site. A relatively minor loss of habitat from multiple sites could result in the eventual loss of significant amounts of habitat to the species or group of species overall. Because these temporary impacts would be fully mitigated and there would be no long-term loss of potential habitat as a result of the proposed project, there would be no cumulative impact from the proposed project. Therefore, construction of the proposed project would not cause cumulative adverse impacts on biological resources. Operation of the proposed project is not expected to cause impacts on biological resources. Therefore, operation of the proposed project would not cause cumulative adverse impacts on biological resources.

1.10.2.2 Mitigation Measures

Project-specific mitigation measures to reduce impacts on biological resources during the construction phase for the proposed project to less than significant levels were identified in Subsection 4.3.3. Because operation of the proposed project is not expected to cause impacts on biological resources, no mitigation measures during the operational phase are required. Further, because construction and operation of the proposed project are not expected to cause cumulative adverse impacts on biological resources, no additional mitigation measures are required.

1.10.2.3 Level of Significance after Mitigation

Impacts on biological resources after the application of the mitigation measures during construction as identified in Subsection 4.3.3 would be less than significant. Therefore, the proposed project's biological impacts during construction are not cumulatively significant.

1.10.3 HAZARDS AND HAZARDOUS MATERIALS

1.10.3.1 Environmental Impact

None of the potential cumulative projects identified in Section 5.2, except the BP Carson Refinery Safety, Compliance and Optimization Project, is expected to use or store hazardous materials in quantities that could cause potentially significant impacts. Additionally, it is extremely unlikely that upset conditions would occur at both the Carson Facility and the BP Carson Refinery at the same time. Furthermore, the potential vapor cloud explosion hazard assumed in the "worst-care" analysis is expected to travel less than 2,000 feet from the new gasoline storage tank location, and all of the potential cumulative projects are more than 2,000 feet from the location of the new gasoline storage tank. In particular, the location of the project at the BP Carson Refinery is more than 6,000 feet from the location of the new gasoline storage tank at the Carson Facility. The Final EIR for the BP Carson Refinery project (SCAQMD, 2006) concluded that the maximum off-site impact distance for a "worst-case" accident during operation would be less than 1,700 feet. Thus, even if upset conditions were to occur at both the Carson Facility and the BP Carson Refinery at the same time, off-site impacts are not expected to overlap. Therefore, the proposed project is not expected to cause significant cumulative hazards and hazardous materials impacts.

1.10.3.2 Mitigation Measures

Because construction of the proposed project is not expected to cause impacts on hazards and hazardous materials, no mitigation measures during the construction phase are required. However, the proposed project operational impacts due to hazards and hazardous materials are considered to be significant. While there are no feasible mitigation measures that have been identified, over and above the extensive safety regulations that currently apply to the Carson Facility, as discussed in Subsection 4.4.3, a number of existing rules and regulations apply to the Carson Facility, as well as to other industrial facilities, regarding minimizing hazards and the handling, transport and storage of hazardous materials. Compliance with these rules and regulations is expected to minimize industry-related hazards and hazardous materials impacts. No additional feasible mitigation measures were identified for the BP Carson refinery project over and above the extensive safety regulations that currently apply to the refinery facility.

1.10.3.3 Level of Significance after Mitigation

No project-specific operational impacts of the BP Carson Refinery project on the Carson Facility proposed project due to hazards and hazardous materials are expected because hazards at the BP Carson Refinery are not expected to overlap with hazards at the Carson Facility and vice versa. Thus, any adverse operational hazards and hazardous materials impacts that may result from the proposed project would not be considered cumulatively considerable. Although compliance with existing regulations and implementation of the proposed project safety measures are intended to minimize the potential impacts associated with a release, such compliance is not expected to completely eliminate the potential hazards and hazardous materials impacts. Therefore, hazards and hazardous material impacts generated by the proposed project, specifically the new gasoline storage tank, are expected to remain significant.

1.10.4 HYDROLOGY AND WATER QUALITY

1.10.4.1 Environmental Impacts

Impacts to water supply during construction of the Carson Facility proposed project exceed the SCAQMD's potable water demand significance threshold. None of the CEQA documents for the potential cumulative projects identified potentially significant adverse impacts to water supply during construction. However, because the maximum daily use of potable water during construction of the proposed project exceeds the potable water significance threshold established by the SCAQMD, the impacts to potable water supply during construction are considered cumulatively considerable because it has the potential to adversely affect local water supplies to the cumulatively related facilities.

Impacts to water supply during operation of the proposed project may exceed the SCAQMD's potable water demand significance threshold if additional hydrostatic testing of the proposed new gasoline storage tank is needed in the future and reclaimed water is not available. None of the CEQA documents for the potential cumulative projects identified potentially significant adverse impacts to water supply during operation. However, because the maximum daily use of potable water during operation of the proposed project may exceed the potable water significance threshold established by the SCAQMD, the potential impacts to potable water supply during operation are considered cumulatively considerable because it has the potential to adversely affect local water supplies to the cumulatively related facilities.

1.10.4.2 Mitigation Measures

As indicated in Subsection 5.6.1, construction and operational activities may have significant adverse cumulative potable water supply impacts. As indicated in Subsection 4.5.3, no feasible project-specific mitigation measures to reduce water supply impacts during the construction and operational phases for the proposed project were identified.

1.10.4.3 Level of Significance after Mitigation

The estimated cumulative adverse water supply impacts due to construction and operational activities associated with the proposed project are expected to exceed the SCAQMD significance threshold for potable water use, and thus, are considered to be cumulatively considerable, and, thus, are expected to remain cumulatively significant.

1.10.5 NOISE

1.10.5.1 Environmental Impacts

Construction of the proposed project is not expected to cause project-specific significant adverse noise impacts. Although construction of the other potential cumulative projects would generate noise, impacts from construction noise are localized. The Safran City Center Project, which is the closest potentially related project to the Carson Facility, is more than 3,400 feet from the areas within the Carson Facility where construction activities would occur. Noise levels from on-site construction activities for the Carson Facility project would not be expected to be audible at this distance. Therefore, on-site construction activities for the proposed project are not expected to cause significant cumulative noise impacts. Because all but one of the potentially related projects that may be under construction at the same time as the proposed project are located on the opposite side of the I-405 Freeway from the Carson Facility, it is unlikely that traffic associated with construction of these projects would utilize the same routes to and from the local freeway system as truck and construction worker traffic traveling to and from the Carson Facility. Although one of the potentially related projects is located on the same side of the I-405 Freeway as the Carson Facility, the most direct route to that project from the I-405 Freeway would be north on Avalon Boulevard, which does not coincide with routes anticipated to be used by traffic during construction of the proposed project at the Carson Facility. Therefore, traffic during construction of the proposed project is not expected to cause cumulatively considerable adverse noise impacts and, therefore, traffic during construction of the proposed project is not expected to generate significant adverse cumulative noise impacts.

Operation of the proposed project is not anticipated to cause significant noise impacts. Potential noise impacts during operation of the proposed project would be caused by tanker trucks traveling within and to and from the Carson Facility. None of the available CEQA documents for the potential cumulatively related projects indicated that traffic associated with operation of those projects would be in the vicinity of the Carson Facility. Therefore, noise generated by tanker trucks traveling within and in the vicinity of the Carson Facility is not expected to cause cumulative noise impacts with traffic associated with operation of the other projects. It is possible that trucks associated with one of the potential cumulative projects could travel on some of the same roadways as ethanol tanker trucks for the proposed Carson Facility project, and noise from these trucks could affect the same residences adjacent to the truck routes that could be affected by the ethanol tanker trucks. Noise impacts from trucks associated with the other project have not been estimated so it is not known if they may cause significant adverse impacts that could overlap with impacts from the proposed Carson Facility project. However, as stated in CEQA Guidelines §15064(h)(4)), the "mere existence of significant cumulative impacts caused by other projects alone shall not constitute substantial evidence that the proposed project's incremental effects are cumulatively considerable." Therefore, no significant cumulative adverse noise impacts are expected from the proposed project.

1.10.5.2 Mitigation Measures

Construction and operation of the proposed project are not expected to cause significant cumulative noise impacts. Therefore, mitigation measures are not required.

1.10.6 TRANSPORTATION AND TRAFFIC

1.10.6.1 Environmental Impacts

Potential project-specific adverse impacts on traffic and transportation during the construction phase of the proposed project are expected to be less than significant with the application of mitigation measures identified in Subsection 4.7.3 (see Table 4.7-8). Because all but one of the potentially related projects that may be under construction at the same time as the proposed project are located on the opposite side of the I-405 Freeway from the Carson Facility, it is unlikely that traffic associated with construction of these projects would utilize the same routes to and from the local freeway system as truck and construction worker traffic traveling to and from the Carson Facility. Although one of the potentially related projects is located on the same side of the I-405 Freeway as the Carson Facility, the most direct route to that project from the I-405 Freeway would be north on Avalon Boulevard, which does not coincide with routes anticipated to be used by traffic during construction of the proposed project at the Carson Facility. Therefore, the proposed project is not anticipated to cause cumulatively considerable impacts on traffic and transportation during construction.

Increased tanker truck trips to and from the Carson Facility during operation of the proposed project are not expected to cause project-specific significant impacts on traffic. Potential cumulative traffic impacts from operation of the proposed project and the largest potential cumulative projects were analyzed. The analysis concluded that significant adverse impacts would not occur. Therefore, operation of the proposed project is not expected to cause significant cumulative impacts on traffic and transportation.

1.10.6.2 Mitigation Measures

Project-specific mitigation measures to reduce impacts on traffic and transportation during the construction phase for the proposed project to less than significant levels were identified in Subsection 4.7.3. Because operation of the proposed project is not expected to cause significant project-specific adverse impacts on traffic and transportation, no mitigation measures during the operational phase are required.

1.10.6.3 Level of Significance after Mitigation

Project-specific impacts on transportation and traffic after the application of the project-specific mitigation measures during construction as identified in Subsection 4.7.3 would be less than significant. Therefore, the proposed project's transportation and traffic impacts during construction are not expected to generate significant adverse cumulative transportation and traffic impacts during construction. The analysis of potential cumulative impacts during operation concluded that significant adverse impacts would not occur. Therefore, operation of the proposed project is not expected to cause significant cumulative impacts on traffic and transportation.

1.11 EXECUTIVE SUMMARY - CHAPTER 6: SUMMARY OF ALTERNATIVES

This EIR identifies and compares the relative merits of a range of reasonable alternatives to the proposed project as required by the CEQA guidelines. According to the CEQA Guidelines, alternatives should include feasible measures that would attain most of the basic objectives of the proposed project and that would avoid or substantially lessen any of the significant effects of the proposed project while providing a means for evaluating the comparative merits of each alternative. In addition, though the range of alternatives must be sufficient to permit a reasoned choice, they need not include every conceivable project alternative (CEQA Guidelines, §15126.6(a)). The key consideration is whether the selection and discussion of alternatives foster informed decision-making and public participation.

Alternatives to the proposed project include: Alternative 1 - No Project Alternative; Alternative 2 - Construct the New Gasoline Storage Tank at an Alternative Location within the Carson Facility; and Alternative 3 – Eliminate the New Gasoline Storage Tank.

Only the No Project Alternative (Alternative 1) avoids the exceedance of all significance criteria identified with the proposed project, so it would be the "Environmentally Superior Alternative" (CEQA Guidelines §15126.6(e)(2)). While eliminating project-specific impacts in all areas, the No Project Alternative (Alternative 1) would prevent Shell from meeting any of the objectives of the proposed project. Furthermore, under Alternative 1, Shell's current and potential new customers for ethanol storage and loading would need to rely on existing infrastructure or new infrastructure that would need to be constructed at some other unknown location to continue to meet current and increased future demand. According to CEQA Guidelines §15126.6(e)(2), if the environmentally superior alternative is the no project alternative, then the EIR shall identify an environmentally superior alternative among the other alternatives. Alternative 3 has been identified as the environmentally superior alternative as explained in the discussion below.

The alternative location for the new gasoline storage tank for Alternative 2 was chosen to maximize the distance between the gasoline storage tank and the facility boundaries while avoiding the need to demolish existing structures and keeping the tank as close as possible to existing storage tanks. The location is just to the northwest of the ethanol loading area. Under Alternative 2 (as with the proposed project), emissions of VOC, NOx, PM10 and PM2.5 would exceed the applicable significance thresholds during the construction period, although the exceedance would be greater under Alternative 2 than for the proposed project. Operational VOC and NOx emissions would be the same under Alternative 2 and the proposed project and would exceed the applicable significance criteria. Alternative 2 would reduce by slightly less than half the approximately 183,000 square foot increase in the off-site hazard footprint resulting from the proposed project, yet the new hazard footprint under Alternative 2 would cover a residential area whereas the new area covered by the hazard footprint of the proposed project would be in a commercial/industrial area. Alternative 2 would not eliminate the potential exceedance of the potable water supply significance threshold that would occur for the proposed project. All other impacts would be less than the significance thresholds under Alternative 2 and for the proposed project.

The entire Carson Facility is under a Cleanup and Abatement Order (CAO) 97-120 from the Los Angeles RWQCB related to contamination from the former refinery and chemical facilities historically at the site. Within the next one to two years, vapor extraction will begin in the area identified for the alternative tank site under Alternative 2 to address subsurface contamination issues. The vapor extraction process and other soil and groundwater remediation will require approximately five to eight years of action before the site would be suitable for construction of new facilities, including a new gasoline storage tank.

Delaying the construction of the new gasoline storage tank until the location would be appropriately remediated and ready for development would delay full implementation of the conversion of the existing gasoline storage tanks to ethanol storage, which would not fully meet the first three objectives for the project for six to ten years later than anticipated. Also, as a result of this delay, it is possible that other ethanol storage projects could be constructed, thus eliminating the need for the currently proposed project.

In addition, for several reasons Alternative 2 would not meet the fourth objective, to maintain operational efficiency, safety and flexibility at the Carson Facility. First, while the existing tanks closest to the location for the gasoline storage tank under Alternative 2 also contain gasoline, the piping systems connecting the tanks together are not designed to accommodate a new tank to the east of the existing storage tanks. Connecting the new tank into the gasoline manifold system would require approximately 1,500 feet of additional piping and would result in more complicated tracking and control systems. That additional complexity in the piping and control systems would introduce additional complexity in inspecting and managing the tanks; which may also impact safety protocols. It is for these reasons that Shell's standard operating procedure at the Carson Facility is to store similar products together whenever possible. This additional complexity would reduce operational efficiency and safety controls.

Under Alternative 3 (as with the proposed project), emissions of VOC, NOx, PM10 and PM2.5 would exceed the applicable significance thresholds during construction, although they would be lower under Alternative 3 than the proposed project. Operational VOC and NOx emissions would be the same under Alternative 3 and the proposed project and would also exceed the applicable significance criteria during operation. Alternative 3 would avoid the 2.8 percent increase in the off-site hazard impact area resulting from the proposed project, and Alternative 3 would also eliminate the potential exceedance of the potable water supply significance threshold that would occur for the proposed project. All other impacts would be less than the significance thresholds under Alternative 3 and for the proposed project. Because Alternative 3 would eliminate exceedances of significance criteria for both hazards and hazardous materials and hydrology and water quality impacts compared to the proposed project, Alternative 3 is considered to be the Environmentally Superior Alternative as required under §15126.6(e)(2) of the CEQA Guidelines.

However, Alternative 3 would only meet two of the four objectives for the proposed project. Although Alternative 3 would meet Shell's objectives 1 and 2 (it would increase the Carson Facility's storage capacity of ethanol by approximately 75 percent and would allow Shell to respond to its customers' requests for 75 percent more ethanol throughput capacity), Alternative 3 would not meet objectives 3 and 4 (it would not minimize impacts to its existing capacity to receive, store and deliver other petroleum products at current levels for its current and future customers, and would not maintain operational efficiency, safety and flexibility at the Carson facility.) This alternative would reduce Shell's existing on-site storage capacity for other fuels by 158,000 bbls (compared to the proposed project) and would reduce operational efficiency within the Carson Facility by requiring more adjustment of the remaining existing gasoline storage resources. In the absence of the new gasoline storage capacity, Shell's existing gasoline operations would be impacted substantially. Shell would have to limit when and how batches of gasoline and diesel fuel are sent out to the distribution terminals via pipelines (the normal way they are shipped to the distribution terminals). With the reduced storage capacity some customers may need to delay or miss delivery of a fuel batch to a distribution terminal, or a refinery may need to slow production if sufficient storage is unavailable. Batches of gasoline from refineries typically arrive in larger quantities (typically 100,000 bbl) than ethanol (typically 65,000 bbl). Shell has analyzed its operations and developed the proposed project in order to maintain flexibility and operational efficiency for the system as a whole.

The proposed project is preferred over the No Project Alternative because the No Project Alternative would not meet any of the project's objectives.

The proposed project is preferred over Alternative 2 for the following reasons:

- Peak daily VOC and NOx PM10 emissions during the construction period, which exceed the applicable regional significance thresholds under Alternative 2 and the proposed project, would be higher under Alternative 2;

- The requirements for vapor extraction and other soil and groundwater remediation would delay the construction of the new gasoline storage tank for between six and ten years, thereby requiring reordering the completion of work on the different components of the project and substantially delaying achievement of the project's first three objectives;

- Alternative 2 would reduce by less than half but not eliminate the off-site geographic area that is outside the existing hazard footprint. Also, the new area within the hazard footprint for Alternative 2 is residential while the new area within the hazard footprint for the proposed project is commercial and light industrial; and

- Alternative 2 would not meet the project's fourth objective because of the increased operational complexity introduced by the new gasoline storage tank not being located with other gasoline tanks.

The proposed project is preferred over Alternative 3 for the following reasons:

- Although Alternative 3 would eliminate the increase under the proposed project in the off-site geographic area that currently exceeds the significance thresholds for hazard impacts, the increase in the off-site geographic area for the proposed project is 2.8 percent of the existing geographic area where hazard impact thresholds would potentially be exceeded. Additionally, the probability of a catastrophic failure of the proposed new gasoline storage tank is 0.127 catastrophic failures per million hours to 3.02 failures per million hours, which correspond to a rate of failure between approximately once per 38 years and once per 900 years. Thus, the incremental probability of a storage tank failure and a resultant fire or explosion during operation of the proposed project is small. Regardless, this potential hazard impact would be eliminated under this alternative;

- Alternative 3 would also eliminate the use of potable water for hydrostatic testing for the proposed new gasoline storage tank for the proposed project, the use of potable water for this hydrostatic testing is not an ongoing demand; and

- Alternative 3 would not meet the project's third or fourth objectives. This alternative would reduce Shell's existing on-site storage capacity for other fuels by up to 158,000 bbls (compared to the proposed project) and would reduce operational efficiency within the Carson Facility by requiring more adjustment and coordination of the remaining existing gasoline storage resources.

No feasible project alternative completely eliminates all significant adverse environmental impacts. Therefore, based on the foregoing information, the proposed project most efficiently achieves the project objectives while minimizing potential adverse environmental impacts.

1.12 EXECUTIVE SUMMARY - CHAPTERS 7 AND 8: REFERENCES AND ACRONYMS

Information on references cited (including organizations and persons consulted) and the acronyms are presented in Chapters 7 and 8, respectively.

Table 1-1
Summary of Environmental Impacts, Mitigation Measures and Residual Impacts

Number	Impact	Mitigation Measures[1]	Implementing Entity for Mitigation Measures	Timing of Mitigation Measures	Impact After Mitigation
Air Quality					
1	Estimated construction emissions of VOC and NOx exceed the SCAQMD regional CEQA significance thresholds and are considered significant.	Develop a Construction Emission Management Plan, require construction equipment to be equipped with engines that meet or exceed California Tier 3 emission standards to the extent possible, minimize the sizes of construction equipment engines, limit truck idling to five minutes, use electricity wherever possible, maintain construction equipment, and suspend construction activities during first stage smog alerts.	Shell	During construction	Construction emissions are expected to remain significant for VOC and NOx.

Table 1-1 (continued)
Summary of Environmental Impacts, Mitigation Measures and Residual Impacts

Number	Impact	Mitigation Measures[1]	Implementing Entity for Mitigation Measures	Timing of Mitigation Measures	Impact After Mitigation
Air Quality (continued)					
2	Estimated construction emissions of CO, SOx, PM10 and PM2.5 do not exceed the SCAQMD CEQA regional significance thresholds and are considered less than significant for regional impacts.	None required.	N/A	N/A	Construction emissions are expected to be less than significant for CO, SOx, PM10 and PM2.5.
3	Local ground-level concentrations of NO_2, PM10 and PM2.5 during construction may exceed the localized significance threshold and are considered significant.	Same as Item 1 for construction NOx emissions and water unpaved surfaces on which vehicles travel three times per day.	Shell	During construction	Local ground-level concentrations of NO_2, PM10 and PM2.5 during construction are expected to remain significant.

Table 1-1 (continued)
Summary of Environmental Impacts, Mitigation Measures and Residual Impacts

Number	Impact	Mitigation Measures[1]	Implementing Entity for Mitigation Measures	Timing of Mitigation Measures	Impact After Mitigation
Air Quality (continued)					
4	Local ground-level concentrations of CO during construction are not expected to exceed the localized significance thresholds and are considered less than significant.	None required.	N/A	N/A	Concentrations of CO during construction are expected to be less than significant.
5	Traffic impacts during construction of the proposed project are not expected to cause CO hotspots and no significant adverse impact on ambient air quality is expected.	None required.	N/A	N/A	Concentration of CO from traffic during construction is expected to be less than significant.

Table 1-1 (continued)
Summary of Environmental Impacts, Mitigation Measures and Residual Impacts

Number	Impact	Mitigation Measures[1]	Implementing Entity for Mitigation Measures	Timing of Mitigation Measures	Impact After Mitigation
Air Quality (continued)					
6	Estimated operational emissions of VOC and NOx exceed the SCAQMD CEQA significance thresholds and are considered significant.	VOC and NOx emissions from stationary sources will be offset. No other feasible mitigation measures were identified.	Shell	Prior to operation	Operational emissions are expected to remain significant for VOC and NOx.
7	Estimated operational emissions of CO, SOx, PM10 and PM2.5 do not exceed the SCAQMD CEQA significance thresholds and are considered less than significant.	None required. Project stationary source emissions are controlled through use of BACT.	N/A	N/A	Operational emissions are expected to be less than significant for CO, SOx, PM10 and PM2.5.

Table 1-1 (continued)
Summary of Environmental Impacts, Mitigation Measures and Residual Impacts

Number	Impact	Mitigation Measures[1]	Implementing Entity for Mitigation Measures	Timing of Mitigation Measures	Impact After Mitigation
Air Quality (continued)					
8	Local ground-level concentrations of CO, NO_2, PM10 and PM2.5 during operation are not expected to exceed the localized significance threshold and are considered less than significant.	None required.	N/A	N/A	Concentrations of CO, NO_2, PM10 and PM2.5 during operation are expected to be less than significant.
9	The cancer risk due to operation of the proposed project is expected to be less than the significance criterion of 10 in one million, so that project impacts are less than significant.	None required.	N/A	N/A	Cancer risk impacts are expected to be less than significant.

Table 1-1 (continued)
Summary of Environmental Impacts, Mitigation Measures and Residual Impacts

Number	Impact	Mitigation Measures[1]	Implementing Entity for Mitigation Measures	Timing of Mitigation Measures	Impact After Mitigation
Air Quality (continued)					
10	The proposed project's impacts associated with exposure to non-carcinogenic compounds are expected to be less than significant. The chronic hazard index and the acute hazard index are both below the significance threshold of 1.0 and, thus, are considered less than significant.	None required.	N/A	N/A	No significant non-carcinogenic health impacts are expected.

Table 1-1 (continued)
Summary of Environmental Impacts, Mitigation Measures and Residual Impacts

Number	Impact	Mitigation Measures[1]	Implementing Entity for Mitigation Measures	Timing of Mitigation Measures	Impact After Mitigation
Air Quality (continued)					
11	Estimated GHG emissions from the proposed project exceed the SCAQMD CEQA significance thresholds and are considered cumulatively significant.	Limit annual ethanol loading to 16,972,500 barrels during any calendar year.	Shell	During operation	Estimated GHG emissions from the proposed project are expected to be reduced below the SCAQMD CEQA significance thresholds and are considered less than significant.
Biological Resources					
12	Construction of the proposed project could potentially cause significant adverse impacts on the burrowing owl and nesting birds.	Conduct pre-construction presence/absence surveys by qualified biologists for the species that could potentially be impacted by construction activities and, if the surveys indicate the presence of these species, establish appropriate "no-construction" buffer areas around the locations where the species are found.	Shell	Prior to and during construction	Potential impacts on the burrowing owl and nesting birds during construction are expected to be reduced to less than significant as a result of the mitigation measures.

Table 1-1 (continued)
Summary of Environmental Impacts, Mitigation Measures and Residual Impacts

Number	Impact	Mitigation Measures[1]	Implementing Entity for Mitigation Measures	Timing of Mitigation Measures	Impact After Mitigation
Biological Resources (continued)					
13	Operation of the proposed project is not anticipated to cause significant adverse impacts on biological resources.	None required.	N/A	N/A	Potential impacts on biological resources during operation of the proposed project are expected to be less than significant.
Hazards and Hazardous Materials					
14	Installation of the new gasoline storage tank could potentially cause off-site impacts from a fire or vapor explosion under a "worst-case" scenario.	A Process Safety Management review will be required as part of the proposed project to reduce the likelihood and consequences of an accident that could cause significant adverse impacts. Additionally, Shell will implement several design and operational features to minimize the risk and consequences of a gasoline leak from the new gasoline storage tank.	Shell	Prior to operation of the new gasoline storage tank	Potential hazards and hazardous material impacts from a fire or vapor cloud explosion during operation of the proposed project are expected to remain significant.

Table 1-1 (continued)
Summary of Environmental Impacts, Mitigation Measures and Residual Impacts

Number	Impact	Mitigation Measures[1]	Implementing Entity for Mitigation Measures	Timing of Mitigation Measures	Impact After Mitigation
Hazards and Hazardous Materials (continued)					
15	Excavation of contaminated soils could potentially cause off-site impacts if not handled properly in accordance with local, state and federal rules which regulate the characterization, handling, transportation, and ultimate disposition of contaminated soils.	Prepare and implement a Construction Contaminated Soils Management Plan that addresses the identification, sampling, characterization, handling, segregation, storage, and disposal of contaminated soils in compliance with local, state, and federal regulations.	Shell	Prior to and during construction	Potential hazards and hazardous material impacts from excavating contaminated soils during construction of the proposed project are expected to be less than significant.

Table 1-1 (continued)
Summary of Environmental Impacts, Mitigation Measures and Residual Impacts

Number	Impact	Mitigation Measures[1]	Implementing Entity for Mitigation Measures	Timing of Mitigation Measures	Impact After Mitigation
Hydrology and Water Quality					
15	Potable water use during construction of the proposed project is expected to exceed the SCAQMD CEQA significance threshold.	None identified.	N/A	N/A	Potable water supply impacts during construction are expected to remain significant.
16	Potable water use during operation of the proposed project may exceed the SCAQMD CEQA significance threshold.	None identified.	N/A	N/A	Potable water supply impacts during operation are expected to remain significant.

Table 1-1 (continued)
Summary of Environmental Impacts, Mitigation Measures and Residual Impacts

Number	Impact	Mitigation Measures[1]	Implementing Entity for Mitigation Measures	Timing of Mitigation Measures	Impact After Mitigation
Noise					
17	Noise impacts during construction are expected to be below the significance criteria, and, thus, noise impacts during construction are considered less than significant.	None required.	N/A	N/A	Noise impacts during construction are expected to be less than significant.
18	Noise impacts during operation are expected to be below the significance criteria and, thus, noise impacts during operation are considered less than significant.	None required.	N/A	N/A	Noise impacts during operation are expected to be less than significant.

Table 1-1 (continued)
Summary of Environmental Impacts, Mitigation Measures and Residual Impacts

Number	Impact	Mitigation Measures[1]	Implementing Entity for Mitigation Measures	Timing of Mitigation Measures	Impact After Mitigation
Traffic and Transportation					
19	Estimated traffic impacts on one local intersection ~~and freeways~~ during construction exceed the significance threshold and, thus, impacts are considered significant.	Construction workers will be restricted from using the Wilmington Avenue/I-405 South-bound On-/Off-Ramp to access the Southbound I-405 Freeway when they leave the facility at the end of the construction shift. Instead, construction workers who want to travel south on the I-405 Freeway will be required to travel north on Wilmington Avenue to Del Amo Boulevard, east on Del Amo Boulevard to the Southbound I-710 Freeway, and south on the I-710 Freeway to the Southbound I-405 Freeway.	Shell	During construction	Traffic impacts on local intersections during construction are expected to be less than significant.

Table 1-1 (concluded)
Summary of Environmental Impacts, Mitigation Measures and Residual Impacts

Number	Impact	Mitigation Measures[1]	Implementing Entity for Mitigation Measures	Timing of Mitigation Measures	Impact After Mitigation
Traffic and Transportation (continued)					
20	Estimated traffic impacts on local freeways during the construction period are less than the significance threshold and, thus, impacts are considered less than significant.	None required.	N/A	N/A	Traffic impacts on local freeways during construction are expected to be less than significant.
21	Estimated traffic impacts on local intersections and freeways during operation are less than the significance thresholds and, thus, impacts are considered less than significant.	None required.	N/A	N/A	Traffic impacts during operation are expected to be less than significant.

[1] These are summaries of the mitigation measures. The reader is referred to Chapter 4 for specific details of the mitigation measures.

CHAPTER 2

PROJECT DESCRIPTION

This Page Intentionally Blank

2.0 PROJECT DESCRIPTION

2.1 INTRODUCTION

Shell is proposing a project at its Carson Facility to increase the facility's capacity to store on-site either 100 percent pure (neat) or denatured ethanol (a blend of ethanol and approximately two to five percent gasoline) and load ethanol into tanker trucks owned and operated by third party customers that deliver the denatured ethanol to gasoline blending and distribution terminals for the southern California market. The proposed increase in denatured ethanol storage and loading capacity is in response to requests by Shell's existing clients for a more efficient, consolidated facility that will allow those customers to better meet the 75 percent increase in ethanol content in gasoline required by the 2007 amendments to the CARB Phase 3 RFG requirements.

The proposed project includes the following changes to the Carson Facility: 1) increase the ethanol throughput at an existing two-lane tanker truck loading rack; 2) convert four existing storage tanks from gasoline to ethanol service; 3) install one new ethanol tanker truck loading lane and associated ethanol loading rack; 4) expand the existing ethanol loading rack operations building; and 5) install one new gasoline storage tank to replace gasoline storage capacity transferred to ethanol service.

2.2 BACKGROUND

Federal and California regulations have required gasoline to have a minimum oxygen content to reduce tailpipe emissions from motor vehicles since 1992. Prior to 1999, these regulations did not specify the type of oxygenate to be added to gasoline to meet the oxygen content requirements. Methyl tertiary butyl ether (MTBE) was typically used in California to comply with the oxygen content requirements. In response to a study conducted by the University of California about the health and environmental risks and benefits of MTBE in gasoline compared to other oxygenates, California Governor Davis issued an Executive Order D-5-99 on March 25, 1999 that directed California to phase-out the use of MTBE in gasoline by December 31, 2002. On December 9, 1999, CARB adopted new gasoline specifications, known as the California Reformulated Gasoline (RFG) Phase 3 requirements, which included a prohibition on the use of MTBE in gasoline by December 31, 2002. In order to continue to meet oxygen content requirements without using MTBE, the petroleum industry in California instead was required to blend 5.7 percent denatured ethanol into gasoline base stock for sale at retail outlets. The December 31, 2002 deadline was later extended to December 31, 2003.

Replacing MTBE with ethanol as an oxygenate in gasoline required changes in the way oxygenate blending occurred. MTBE was predominately added to gasoline at refineries before the gasoline was transported to gasoline distribution facilities by pipelines, where the gasoline was loaded into tanker trucks for distribution to retail outlets. However, unlike gasoline containing MTBE, gasoline containing ethanol has a high affinity for water. As a result, transporting gasoline containing ethanol by pipeline could lead to unacceptable levels of water in the gasoline, particularly if the pipelines are also used to transport other fuels such as diesel or jet fuel or are over several miles in length. To avoid having excess water in the final gasoline fuel, ethanol is blended with gasoline base stock at the gasoline distribution facilities instead of at the refineries. This change required transporting ethanol to the gasoline distribution facilities, most commonly by tanker truck.

At the time the RFG Phase 3 requirements were adopted, there was insufficient infrastructure in place in southern California to support the volumes of ethanol required by gasoline distribution facilities to meet the new oxygen/ethanol gasoline specification. To help meet the increase in demand for ethanol, ethanol storage and transfer facilities were constructed at the Carson Facility in 2003. The Carson Facility's capabilities for receipt, storage and loading of ethanol into tanker trucks for delivery to off-site gasoline blending and distribution terminals has enabled Shell to support the market demand for ethanol. The Carson Facility currently has 325,000 bbl of ethanol storage capacity and operates a two-lane ethanol loading rack. The existing ethanol loading rack is permitted to load up to 30,000 barrels[6] of ethanol into tanker trucks per day, which represents a substantial portion of the ethanol blended into gasoline in southern California.

The Carson Facility essentially operates as a warehousing facility to receive, store, and load ethanol owned by Shell's customers. The Carson Facility does not take ownership of the ethanol passing through the Carson Facility. Rather, the customers contract with the Carson Facility to provide a negotiated amount of storage capacity and loading capacity on both a daily and annual basis.

As part of the RFG Phase 3 regulatory process, CARB directed its staff to investigate the potential emissions impact of adding ethanol to gasoline, specifically related to the increase in hydrocarbon emissions through permeation. Permeation refers to the diffusive process whereby fuel molecules migrate through the materials of a vehicle's fuel system. Eventually, the fuel molecules are emitted into the air where they contribute to evaporative emissions from the vehicle. Recently completed studies of on-road motor vehicles now show that ethanol increases the evaporation emissions of gasoline through permeation over that of a comparable fuel without ethanol or with MTBE. Based on study results, CARB staff calculated the statewide increase in evaporative emissions from on-road motor vehicles due to the presence of ethanol in gasoline to be about 18.4 tons per day of hydrocarbons (HC) in 2010. This represents a seven percent increase in evaporative emissions and a four percent increase in overall HC emissions (CARB, 2007).

On June 14, 2007, CARB adopted amendments to the RFG Phase 3 specifications (herein referred to as the 2007 RFG Phase 3 amendments), and these amendments became effective on August 29, 2008. The 2007 RFG Phase 3 amendments address the permeation issue and emissions increases due to ethanol.

The 2007 RFG Phase 3 amendments (CARB, 2008a) include:

- Amending the California Predictive Model to ensure that emissions associated with permeation caused by ethanol use are mitigated and to incorporate new data;

[6] One barrel is 42 gallons.

- Decreasing the gasoline sulfur cap limit from 30 parts per million by weight (ppmw) to 20 ppmw (21 ppmw for California reformulated gasoline blendstock for oxygenate blending [CARBOB[7]]) to improve enforceability and facilitate new motor vehicle emissions control technology;
- Allowing emissions averaging beginning December 31, 2009, for low-level sulfur blends to provide additional flexibility for producers and importers that produce gasoline in order to compensate for unexpected deviations in the refinery process that could lead to individual batch inconsistencies;
- Applying a 7.00 pounds per square inch (psi) Reid vapor pressure (RVP) limit to oxygenated gasoline when the evaporative emissions portion of the Predictive Model is used to certify ethanol blends to reflect that virtually all gasoline will be oxygenated and that commingling emissions are not a problem for these fuels;
- Retaining the 6.90 RVP limit for non-oxygenated gasoline to ensure that no increase in hydrocarbon emissions from commingling with oxygenated gasoline will occur;
- Allowing flexibility in setting oxygen content in the Predictive Model to account for variability in test methods;
- Increasing the maximum allowable amount of denaturant in ethanol to be consistent with the current standards of the American Society of Testing and Materials (ASTM);
- Updating the test method for oxygenate content of gasoline;
- Requiring producers to use the revised Predictive Model starting December 31, 2009;
- Adding an option to use an alternative emissions reduction plan (AERP) beginning December 31, 2009 through December 31, 2011, instead of producing RFG compliant with the revised Predictive Model, to help mitigate emissions associated with permeation; and
- Requiring the production of RFG Phase 3 gasoline that complies with the revised Predictive Model after December 31, 2011.

According to CARB staff, the most cost-effective way for fuel producers to meet the requirements of the 2007 RFG Phase 3 amendments would be to increase the percentage of ethanol blended into gasoline to 10 percent (E10), which will reduce exhaust hydrocarbon emissions sufficiently to offset the increase in emissions through permeation (CARB, 2008b). Thus, complying with the 2007 RFG Phase 3 amendments essentially required fuel producers to increase the percentage of ethanol blended into gasoline from the current required level of 5.7 percent to 10 percent by December 31, 2009, unless they choose to implement an AERP, in which case they will be required to increase the ethanol level to 10 percent no later than January 1, 2012.

[7] CARBOB is the blendstock with which ethanol is blended to produce oxygenated gasoline. The sulfur cap limit is higher for CARBOB than for gasoline, because adding denatured ethanol to CARBOB reduces the sulfur content of the resulting oxygenated gasoline.

While the requirement for the increased percentage of ethanol to be blended into gasoline was mandated to occur no later than January 1, 2012, in fact, many of the gasoline distributors increased the percentage of ethanol blended into gasoline by January 1, 2010. As a result, the supply of ethanol in southern California is currently meeting the demand. However, Shell has been receiving requests from its customers for more capacity for ethanol storage and delivery and developed the proposed project in response to those requests. Shell's customers have indicated that the increased storage and loading capacity at the Carson Facility would offset disruptions in the supply chain and offer flexibility and liquidity of ethanol which would allow them to more readily buy, sell and trade ethanol. That additional capacity also allows Shell to offer stronger quality control and cost savings for the industry from the efficiency and economic scale of the Carson Facility. In addition, the increased ethanol inventory would help offset disruptions in the ethanol supply-chain and variability of demand due to holidays, events and other demand spikes. Furthermore, in anticipation of future increases in ethanol blends, such as E15, being discussed with the EPA, the proposed project will serve as an important component in maintaining the transportation infrastructure within southern California.

2.3 PROJECT OBJECTIVES

As described in Section 2.1, Shell developed the proposed project in response to customer requests for additional ethanol storage and delivery capacity. Because ethanol is typically shipped from production facilities in smaller quantities than batches of gasoline, e.g. on unit trains or barges containing roughly 65,000 bbl, Shell proposed to convert the existing smaller (69,000 bbl) gasoline storage tanks to ethanol service to maximize its efficiency in using its existing storage facilities. Furthermore, the change from 5.7 percent to 10 percent for ethanol in gasoline as mandated by the 2007 amendments to the CARB Phase 3 RFG requirements has prompted Shell's customers to request from Shell approximately 75 percent more ethanol storage and handling capacity. It is upon this basis that Shell developed the following project objectives:

1. Increase the Carson Facility's ethanol storage capacity by approximately 75 percent to respond to customer demand for flexible ethanol storage and handling capacity;

2. Increase the Carson Facility's ethanol tanker-truck loading capacity by at least 75 percent to respond to customer demand for consolidated distribution of ethanol;

3. Include modifications that would allow the Carson Facility to minimize impacts to its existing capacity to receive, store and deliver other petroleum products (e.g., gasoline, diesel fuel, jet fuel) at current levels for its current and future customers; and

4. Maintain operational efficiency, safety and flexibility at the Carson Facility.

As discussed in Section 2.2, Shell is proposing the Carson Facility E10 project to meet its customers' demand for additional flexible ethanol storage and delivery capacity. Because the Carson Facility functions like a warehouse, receiving, storing and loading products for its customers, it is important that Shell has the necessary flexibility in storage options to meet individual customer demands for storage and loading of the ethanol. The proposed project was designed to provide that flexibility, which is the basis for objectives 1 and 2.

The Carson Facility currently provides storage and throughput for gasoline and other liquid fuels for a large number of customers in southern California. Shell developed the proposed project to balance customers' demands for ethanol storage and delivery capacity with customers' demands for storage of other fuels. Maintaining that balance is the basis for objective 3.

Inherent in these objectives is Shell's internal requirement to complete this project with a zero incident safety record not only in construction but also throughout its operational lifespan. To that end, Shell will continue to support designs and operating procedures that minimize the potential for safety incidents. Objective 4 encapsulates this requirement because minimizing components, procedures, staff requirements, piping runs and overall complexity saves financial and environmental costs and enhances safety and quality both during construction and operation.

2.4 PROJECT LOCATION

The proposed project is located at the Shell Carson Distribution Facility, located at 20945 South Wilmington Avenue, in the City of Carson. Figures 2-1 and 2-2 show the regional and site locations of the Carson Facility, respectively. The Carson Facility is approximately 446 acres in size and is bounded to the north by Del Amo Boulevard, to the east by South Wilmington Avenue and Martin Street, to the south by 213th Street, and to the west by Chico Street, Annalee Avenue, and Tillman Avenue. All proposed modifications would occur within the confines of the existing Carson Facility.

2.5 LAND USE AND ZONING

The City of Carson has zoned the entire facility Manufacturing, Heavy (MH). The City of Carson General Plan has also divided the site into three land use designations: Heavy Industrial (HI), Business Park (BP) and Light Industrial (LI). Although the zoning designations are supposed to implement the General Plan land use designations, some of the zoning designations for the facility are not completely consistent with the land use designations because the entire facility is zoned MH. However, the Heavy Industrial land use designation is consistent with the MH zoning, and the proposed project would be located within the portion of the facility designated as Heavy Industrial.

Surrounding land uses include light industrial and single-family residential to the north, light industrial to the west, single-family residential to the south, light industrial to the southeast and light and heavy industrial to the east. There are several schools located within approximately two miles of the Carson Facility as shown in Table 2-1. Schools shown in Table 2-1 also include schools near expected tanker truck routes.

Figure 2-1. Regional Location Map

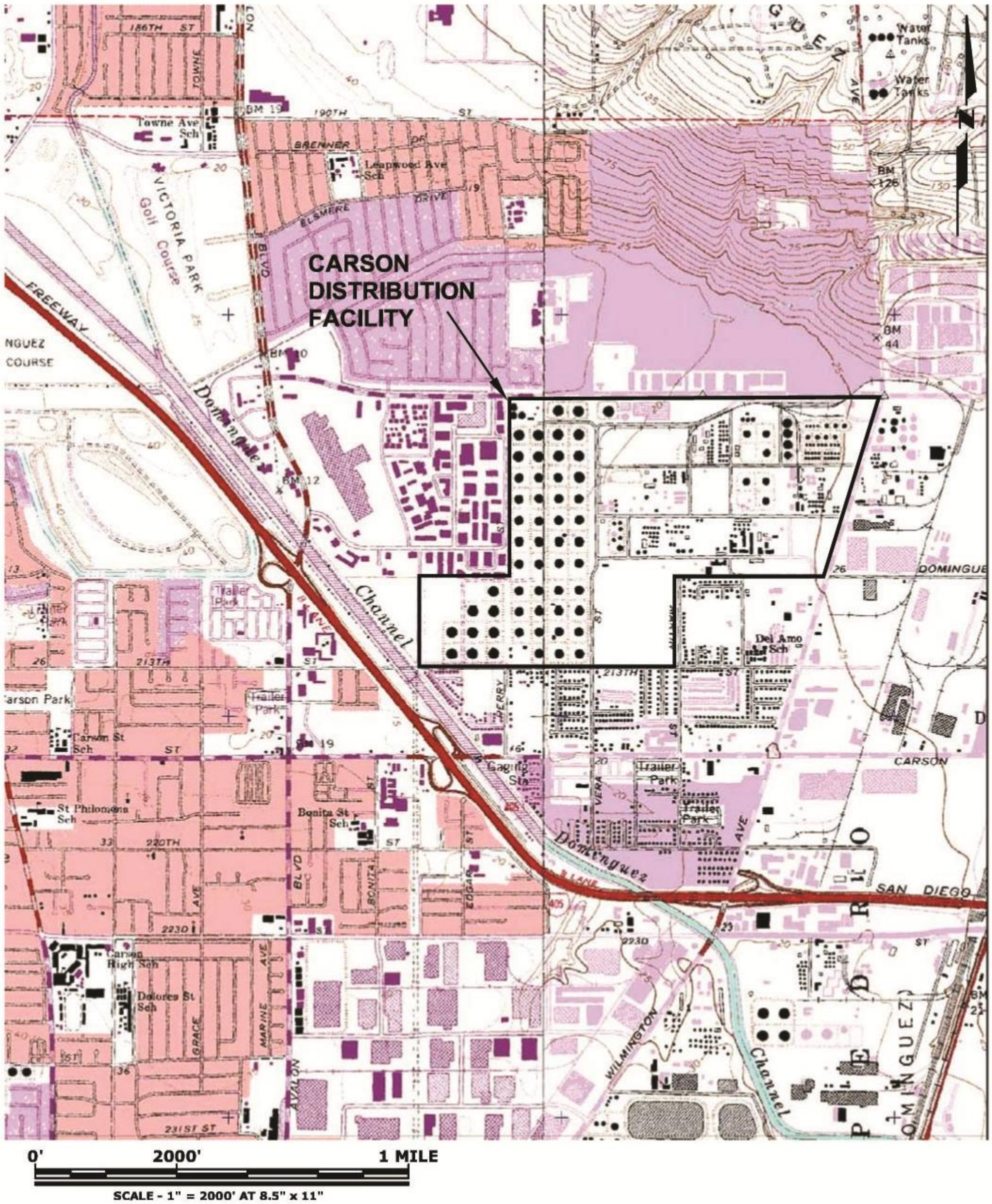


Figure 2-2. Site Location Map, Shell Carson Distribution Facility

Table 2-1
Schools Within Approximately Two Miles From the Facility Boundary

School	Address	Approximate Distance to Closest Facility Boundary (miles)
Peace & Joy Christian School	940 East Dominguez St., Carson	0.08
Friendship Children's Center	1717 East Carson St., Carson	0.24
Dominguez Seminary	18127 South Alameda St., Compton	1.64[1]
Del Amo Elementary School	21228 Water St., Carson	0.07
Magnolia Science Academy	1254 East Helmick St., Carson	0.16
Curtiss Middle School	1254 East Helmick St., Carson	0.32
Eternal Word Graduate School	19819 Midtown Ave., Carson	0.26
Golden Wings Academy	20715 Avalon Blvd., Carson	0.46
New Millennium Secondary School	20700 Avalon Blvd., Carson	0.25
Carson Montessori Academy	812 East Carson St., Carson	0.34
InterCoast College	One Civic Plaza, Carson	0.18
Carnegie Middle School	21820 Bonita St., Carson	0.28
First Lutheran School	19707 South Central Avenue, Carson	0.30

[1] Location is adjacent to truck route to SR-91

2.6 EXISTING OPERATIONS

The Carson Facility is a former refinery and chemical manufacturing plant site. Chemical manufacturing was discontinued in the 1980s, and the refinery ceased operating in 1992. The process units have been dismantled, while the storage tanks remain. The facility currently consists of the following three operations:

1. Petroleum products pipeline storage and distribution: gasoline, jet fuel and diesel fuel are delivered into the facility by pipeline from local refineries (Valero in Wilmington, Tesoro in Wilmington, Chevron in El Segundo, BP in Carson and Exxon-Mobil in Torrance) and distribution terminals, delivered by pipeline from Shell's Mormon Island Marine Terminal at the Port of Los Angeles, stored in above-ground storage tanks, and delivered out of the facility by pipeline to customers. A small volume of diesel fuel is also transferred by pipeline to the chemicals storage and distribution area, described in #2 below, and loaded into tanker trucks. This diesel transfer operation is located on the west side of the facility.

2. Chemical products storage and distribution: Non-halogenated solvents are delivered to the chemicals storage area by railcar or tanker truck and transferred into storage tanks in the chemicals area, located on the east side of the facility. This facility is geographically separate from the petroleum products storage area. These solvents are transferred by pipeline to an adjacent facility operated by Ashland Chemical Co. for loading into trucks or drums and delivery to customers. As noted in #1 above, a small volume of diesel is transferred by pipeline to this operation and loaded into tanker trucks for delivery to customers through a truck loading rack located in the area.

3. Ethanol storage and loading: Ethanol is delivered by pipeline into the facility primarily from an off-site railcar offloading facility owned and operated by a third party (the Kinder Morgan Lomita Terminal), stored in above-ground storage tanks located in the petroleum products area, and transferred into tanker trucks at an on-site two-lane ethanol truck loading rack for delivery to customers. This rack is located adjacent to the petroleum products facility.

2.6.1 EXISTING ETHANOL OPERATIONS

Currently, ethanol is primarily delivered by a dedicated ethanol pipeline into the Carson Facility from the Kinder Morgan Lomita Terminal. It is stored in above-ground storage tanks and transferred into tanker trucks at an on-site two-lane ethanol truck loading rack for delivery to customers. A small percentage of the daily throughput of ethanol is also delivered off-site to the Kinder Morgan Carson Terminal by an existing pipeline dedicated to ethanol service. The lack of available infrastructure precludes shipping ethanol by pipeline to the Carson Facility's other ethanol customers.

The current SCAQMD permit for the two-lane ethanol truck loading rack allows ethanol throughput up to a maximum of 30,000 barrels per day (bbl/day). It is not permitted to load other products.

The Carson Facility essentially provides an ethanol receiving, storage and tanker truck loading service to its customers who own the ethanol. The Carson Facility's customers are the fuel distributors that load and then distribute the ethanol stored at the Carson Facility to their gasoline distribution terminals. Thus, the trucks coming into the Carson Facility are owned by third party customers and are not owned by the Carson Facility. The Carson Facility does not take ownership of the ethanol. Rather, ownership commonly passes from the ethanol producer to the fuel distributor once it enters the Carson Facility.

2.7 PROPOSED CARSON FACILITY MODIFICATIONS

Shell is proposing to increase the permitted throughput for the existing two-lane ethanol truck loading rack from 30,000 bbl/day to 35,000 bbl/day and to construct a new single-lane ethanol truck loading rack with a maximum throughput capacity of 17,500 bbl/day of ethanol. Thus, the total ethanol tanker truck loading capacity would increase by 75 percent, from 30,000 bbl/day to 52,500 bbl/day. The change in the level of ethanol in gasoline to accommodate the 2007 CARB Phase 3 RFG amendment requirements is an increase of approximately 75 percent, from 5.7 percent to 10 percent, which is expected to have resulted in an increase in the demand for ethanol to be blended into gasoline of approximately 75 percent. Thus, the 75 percent increase in the Carson Facility's ethanol tanker truck loading capacity is intended to accommodate its customers' requirements and requests for sufficient ethanol infrastructure to meet 2007 CARB Phase 3 RFG amendment requirements.

Shell is also proposing to increase the ethanol storage capacity at the Carson Facility by converting existing storage tanks from gasoline to ethanol service, which would also support the 75 percent increase in ethanol demand to meet 2007 CARB Phase 3 RFG amendment requirements. Further, Shell is proposing to partially offset the loss of existing gasoline storage capacity by constructing a new gasoline storage tank.

The additional ethanol is expected to be primarily delivered into the Carson Facility through the existing pipeline dedicated to ethanol service that is currently used from the off-site railcar offloading facility owned and operated by Kinder Morgan.

The following sections provide additional detail describing the proposed project. Figure 2-3 provides the locations of the changes within the Carson Facility.

2.7.1 ETHANOL THROUGHPUT INCREASE FOR EXISTING LOADING LANES

Shell is proposing to increase the maximum permitted ethanol throughput for the existing two-lane ethanol truck loading rack from 30,000 bbl/day to 35,000 bbl/day. The existing two-lane truck loading rack is capable of loading one 190-barrel capacity tanker truck in each lane in approximately 15 minutes, including the time required for the truck to pull into the loading lane, connect the loading arms, load the ethanol, disconnect the loading arms, and pull out of the loading lane. Thus, approximately 96 trucks could be loaded with ethanol per loading lane in a 24-hour period. This corresponds to a maximum possible throughput of about 18,240 bbl/day per lane. While the facility does not currently load more than its maximum permitted throughput of 30,000 bbl/day, it is capable of loading a total of about 36,480 bbl/day through both lanes. Since this maximum possible throughput is more than the proposed throughput of 35,000 bbl/day, the proposed increase in throughput from 30,000 bbl/day to 35,000 bbl/day can be accomplished by increasing the number of trucks loaded each day by approximately 52 one-way trips without changing the time required to load each truck. Therefore, part of the proposed throughput increase can be accommodated without modifying the existing two-lane truck loading rack.

Volatile organic compound (VOC) emissions from the tanker truck loading operations are controlled by a combined vapor recovery and thermal oxidizer system. The air in the cargo spaces in the empty tanker trucks when they arrive at the Carson Facility has vapors which contain VOCs from the trucks' previous loads. Ethanol displaces this air as it is loaded into the tanker trucks. The displaced air is collected by vapor recovery hoses connected to the trucks during the loading process, stored in a 50,000 cubic foot bladder tank, and then sent to an SCAQMD-permitted thermal oxidizer, where the organic vapors collected from both loading lanes are burned to control VOC emissions. The bladder tank acts as a surge vessel to avoid large fluctuations in the vapor flow rate to the combustion system and can store displaced vapors from about 47 tanker trucks with an average capacity of 190 barrels. The combustion system has an input capacity of 600 cubic feet per minute (cfm). Loading a 190-barrel capacity tanker truck

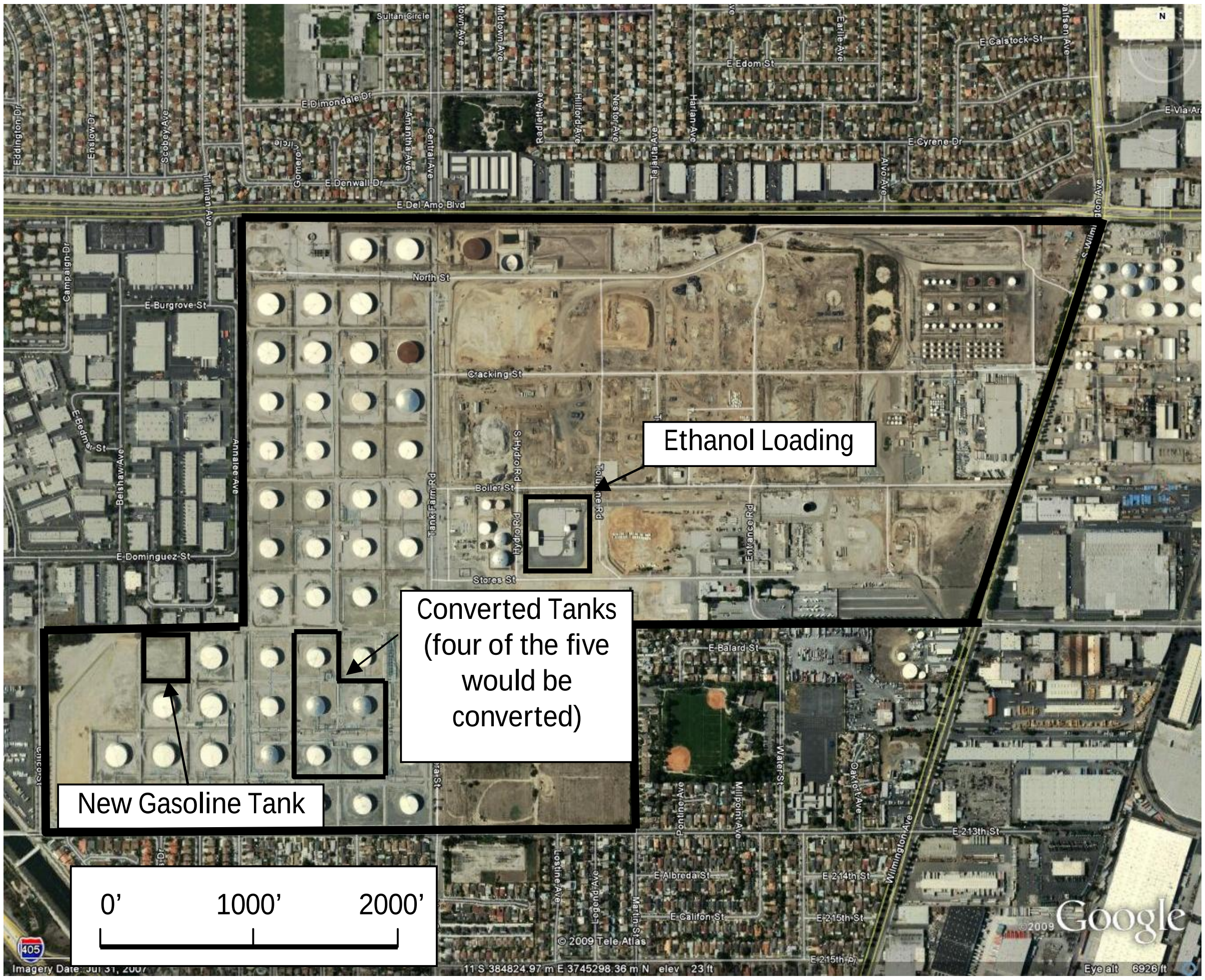


Figure 2-3. Site Plan Showing Locations of Project Components

with ethanol displaces 1,067 cubic feet of vapors from the truck cargo space. Since the loading operations for a single truck require 15 minutes, the average vapor flow rate from loading one truck is about 71 cfm (1,067 cubic feet/15 minutes = 71.1 cfm), and the average flow rate when two trucks are loaded at the same time is about 142 cfm, which is much less than the combustion system’s total capacity of 600 cfm. Since the proposed increase in maximum daily throughput would not change the time required to load each tanker truck, the flow rate to the combustion system would not increase. Therefore, the proposed throughput increase can be accommodated without modifications to the existing vapor recovery and thermal oxidizer system.

Although neither the existing two-lane truck loading rack nor the vapor recovery and control system would need to be physically modified to achieve the proposed increase in daily throughput, the existing SCAQMD Permit to Operate for the two-lane truck loading rack would need to be modified to increase the maximum permitted daily throughput. Because the permit would need to be modified, the existing vapor recovery and control system would be required to achieve current best available control technology (BACT) and lowest achievable emission rate

(LAER) requirements for VOC emissions, which the existing control system can achieve. Specifically, the VOC emission limit in the current permit, which was issued in 2003, is 0.08 pound per 1,000 gallons of ethanol loaded. Current BACT and LAER for "gasoline load racks" is 0.02 pound VOC per 1,000 gallons product loaded (Bay Area Air Quality Management District (BAAQMD) BACT guidelines). Although this rack would load only ethanol, due to the potential for emissions of gasoline vapors from the incoming trucks, SCAQMD permitting staff indicated that this BAAQMD BACT standard would apply[8] because it has been achieved in practice. Previous source tests of the system have demonstrated that the proposed BACT emission limits can be achieved without modifying the control system.

2.7.2 STORAGE TANK CONVERSIONS FROM GASOLINE TO ETHANOL SERVICE

Shell is proposing to convert four existing 69,000 bbl storage tanks from gasoline to ethanol service to increase the facility's capacity to store ethanol before it is loaded into trucks. Shell currently has 396,000 bbl of ethanol storage at the Carson Facility. Conversion of four existing storage tanks from gasoline to ethanol service would result in an increase of 276,000 bbl for a total ethanol storage capacity of 672,000 bbl, a 70 percent increase. Although this percentage increase in ethanol storage capacity is slightly less than the 75 percent increase proposed in the first project objective, converting five existing 69,000 bbl storage tanks from gasoline to ethanol service would actually increase the Carson Facility's ethanol storage capacity by 345,000 bbl, which would result in an 87 percent increase. Because the 87 percent increase that would result from converting five existing storage tanks to ethanol service exceeds the 75 percent increase in the first project objective by 12 percent, Shell is proposing to convert only four existing gasoline storage tanks to store ethanol to meet the increased demand for ethanol as a blending component.

The specific existing storage tanks to be converted would be selected based on operational requirements at the facility and would be selected from among the following five storage tanks: 505, 506, 509, 510 and 514. All five of these tanks are approximately 117 feet in diameter and 42 feet tall and have maximum storage capacities of approximately 69,000 barrels. As shown in Figure 2-3, they are all located in the same area within the facility. By converting tanks within the same area, Shell would retain the operational efficiency consistent with its standard operating procedures and community standards of practice.

Storage tanks containing the same product are generally located close to each other and in close proximity to the manifold system that connects the tanks to the main receipt and delivery pipelines. Minimizing the distances between tanks with the same contents and between the tanks and the main manifold system minimizes the amount of piping, valves, pumps, and flanges in the system. This arrangement also minimizes time, energy, and costs during construction, and fugitive emissions and power demands during operations. Locating tanks with the same contents close to each other also minimizes the amount of oversight needed to maintain operating safety and product quality control. Finally, locating tanks with the same contents close to each other facilitates response by emergency personnel tasked with fire suppression.

[8] Personal communication, Mr. Thomas Liebel, Senior Air Quality Engineer, SCAQMD, December 2009.

The tank conversion activities would consist of draining and degassing the tanks, replacing the tanks' internal coatings with an ethanol-compatible coating material prior to filling, and lining the undersides of the tank roofs. The tanks' suction and discharge piping would also be modified to connect to the facility's existing ethanol system piping because the piping that carries ethanol at the facility is separated from the piping that carries gasoline.

2.7.3 NEW SINGLE-LANE TRUCK LOADING RACK

Shell is proposing to construct one new single-lane truck loading rack, with a maximum permitted loading rate of 17,500 bbl/day, adjacent to the two existing truck loading lanes. New equipment to be installed for the new single-lane truck loading rack would include two new pumps (one active pump and one standby pump, each with a capacity of 2,700 gallons per minute), and three ethanol loading arms, with an ethanol meter and a control valve at each arm and two vapor recovery hoses. The associated piping, conduits and a canopy covering the truck loading lane would be supported by a new structural steel frame. The new lane would also have a control panel for control of loading operations. Constructing the new truck loading lane would require excavating approximately 1,500 cubic yards of soil for foundations and paving approximately 8,000 square feet.

The new truck loading rack would be connected to the vapor control system for the existing two-lane truck loading rack. Since, as stated previously, the average vapor flow rate when loading a single truck is about 71 cfm, the total vapor flow rate to the vapor control system would be approximately 213 cfm when the two existing loading lanes and the new loading lane are in use at the same time. This total flow rate is substantially less than the existing vapor combustion system's capacity of 600 cfm. Therefore, the proposed ethanol loading throughput increase from constructing the new single-lane truck loading rack can be accommodated without modifying the existing vapor control system to increase its capacity, although the Permit to Operate would need to be modified.

2.7.4 LOADING RACK OPERATIONS BUILDING EXPANSION

Shell is proposing to modify the existing ethanol truck loading rack control building in support of the increased ethanol loading capacity to provide additional office space, additional space for training ethanol tanker truck drivers on the Carson Facility's safety and operational procedures, and storage space to replace an outdoor storage shed that would be displaced when the new single-lane truck loading rack is constructed. The building size would increase from 867 square feet to 1,727 square feet, and the expansion would add a conference room, storage room, kitchen area, an office and an additional restroom. The appearance of the new addition would match the existing one-story, masonry block building. The construction activities would include removal of part of an existing sidewalk, some internal partitions, partial ceiling systems, roof systems and some windows and doors to facilitate the building expansion; grading and excavation of an area approximately 30 feet wide by 70 feet long; building erection (walls and roof); and installation of utilities (plumbing, electrical, heating, ventilation and air conditioning).

2.7.5 NEW GASOLINE STORAGE TANK

Shell is proposing to construct a new gasoline storage tank with a maximum working storage capacity of 158,000 barrels to partially replace the gasoline storage capacity that would be transferred to ethanol service. The new gasoline storage tank would be 160 feet in diameter, with a shell height of 51.5 feet and would have a cone roof. It would be constructed on a currently vacant area surrounded by a dike that would provide secondary containment for the storage tank within the Carson Facility.

The storage tanks adjacent to and near the location for the proposed new gasoline storage tank are all in gasoline service. As discussed previously in Subsection 2.7.2, storage tanks containing the same product are generally located close to each other together and in close proximity to the manifold system that connects the tanks to the main receipt and delivery pipelines, which is a main reason that this location was selected for the proposed new gasoline storage tank.

Constructing the new gasoline storage tank would consist of grading the area where it would be located, excavating approximately 10,000 cubic yards of soil for the tank foundation, constructing the concrete tank foundation, erecting the tank shell, hydrostatic testing of the tank, constructing the tank roof, coating the interior and exterior of the tank, and installing suction and discharge piping.

It should be noted that even with the construction of the new gasoline storage tank there would be a net reduction in gasoline storage capacity at the Carson Facility of 118,000 bbl. Shell has determined that the economic tradeoffs of gaining the extra ethanol storage capacity versus losing the existing gasoline storage capacity are consistent with the needs of their current and future customers, such that it will minimize the impacts to those clients.

2.8 CONSTRUCTION OF THE PROPOSED PROJECT

Assuming the EIR is certified and required agency permits and approvals are received, construction activities for the proposed Shell project could begin. As shown in Figure 2-4, activities to convert the existing storage tanks from gasoline to ethanol service are expected to last for about six months, construction activities for the new single-lane truck loading rack are expected to last for about four months, construction activities for the loading rack operations building expansion are expected to last for about two months, and construction activities for the new gasoline storage tank are expected to last for about 17 months. Activities to convert one existing storage tank from gasoline to ethanol service are expected to last for about three months, and no more than two existing storage tanks would be converted at the same time. The construction schedule shown in Figure 2-4 assumes that two storage tanks would be converted during the first three months of the construction period and two more storage tanks would be converted during the next three months. Because this schedule results in the greatest potential overlap of construction activities, using it to evaluate potential impacts from construction activities in the EIR ensures that impacts are not underestimated.

Figure 2-4
Shell Carson Facility Ethanol (E10) Project Construction Schedule

Component	Construction Month																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Storage Tank Conversions from Gasoline to Ethanol																	
New Loading Lane																	
Operations Building Expansion																	
New Gasoline Storage Tank																	

Construction is not necessary or required to increase the throughput of the existing two-lane truck ethanol loading rack. The throughput would increase when the existing permits are revised, which would occur before the new single-lane truck ethanol loading rack is expected to be operational.

Construction work shifts are anticipated to be one 10-hour shift per day, generally from 7:00 a.m. to 5:00 p.m. Construction activities are anticipated to occur five or six days per week, depending on the construction phase, from Monday through Friday or Saturday.

Peak overall construction employment for the proposed project is anticipated to be 195 workers during the first month of construction, which would generate 390 daily one-way commuting trips. Average construction employment over the entire 17-month construction period is estimated at about 63 workers.

A peak of approximately 230 one-way construction truck trips per day to and from the facility is anticipated to occur during the first two months of construction activities for the proposed project. These trips would include trips by haul trucks and by trucks delivering materials to the facility and are anticipated to be spread out over the 10-hour daily construction period.

A peak of approximately 620 total one-way construction worker (390) and construction truck (230) trips per day would occur.

2.9 OPERATION OF THE PROPOSED PROJECT

Operation of the proposed project would be implemented in two interim phases prior to achieving the final proposed project operation, as shown in Table 2-2. During the first interim phase, the permitted maximum daily throughput of the existing two-lane ethanol truck loading rack would increase to 35,000 bbl/day. Because construction is not necessary or required to increase the throughput of the existing two-lane truck ethanol loading rack, this phase would begin when the existing permits are revised and continue for approximately four months, until construction of the new single-lane truck loading rack is completed. The second interim phase would begin when the new single-lane truck loading rack becomes operational, which would increase the permitted maximum daily throughput by an additional 17,500 bbl/day, from 35,000 bbl/day to a total of 52,500 bbl/day. The second interim phase would continue for approximately 13 months, until construction of the proposed new gasoline storage tank is completed, at which time the proposed project would be fully implemented. The permitted maximum daily throughput for the existing and proposed new ethanol loading racks would remain at 52,500 bbl/day following the second interim phase.

The daily average ethanol loading rate during the baseline period was 25,344 bbl/day, and the daily average number of ethanol tanker trucks loaded during the baseline period was 132 trucks per day, which generated 264 one-way tanker truck trips to and from the Carson Facility.

Table 2-2
Proposed Project Implementation Phases

Implementation Phase	Phase Duration (months)	Increase above Baseline: Ethanol Loading (bbl/day)	Increase above Baseline: Trucks Loaded (trucks/day)	Increase above Baseline: One-Way Ethanol Tanker Truck Trips (trips/day)	Overlapping Construction
Phase I: Increase throughput through two existing loading lanes	4	9,656	52	104	Begin storage tank conversion, construct new loading lane, expand operations building, begin new gasoline storage tank construction
Phase II: A. Increase throughput through two existing loading lanes	13	9,656	52	104	Complete storage tank conversion, complete new gasoline storage tank construction
B. Operate new ethanol single-lane loading rack		17,500	92	184	
Total		**27,156**	**144**	**288**	
Full Implementation: A. Increase throughput through two existing loading lanes	ongoing	9,656	52	104	None
B: Operate new ethanol single-lane loading rack		17,500	92	184	
C: Operate new gasoline storage tank		0	0	0	
Total		**27,156**	**144**	**288**	

The permitted maximum daily ethanol throughput during the first interim phase of 35,000 bbl/day would be an increase of 9,656 bbl/day above the baseline loading rate and would increase the daily number of ethanol tanker trucks loaded to 184 trucks per day, which would be an increase of 52 tanker trucks per day above the average daily number loaded during the baseline period. The daily number of trips by these additional tanker trucks would be 104 one-way trips per day.

The permitted maximum daily ethanol throughput of 52,500 bbl/day during the second interim phase and during full operation would be an increase of 27,156 bbl/day above the baseline loading rate and would increase the daily number of ethanol tanker trucks loaded to 276 trucks per day, which would be an increase of 92 tanker trucks per day above the first interim phase and 144 tanker trucks per day above the average daily number loaded during the baseline period. The daily number of trips by these additional tanker trucks would be an increase of 184 one-way trips per day above the first interim phase and 288 one-way trips per day above the baseline period.

As indicated in Section 1.4, the existing two-lane ethanol truck loading rack currently operates under Design Overlay Review (DOR) Number 764-01 granted by the City of Carson. A modification will be required to the DOR to allow for the increased truck traffic associated with the proposed project. Shell will propose to the city that the modification to the DOR limit the maximum daily of tanker trucks loaded with ethanol to 276 trucks per day.

No additional employees would be required on-site to operate any new equipment as a result of implementing the proposed project.

Typically, construction occurs prior to project operation. However, because of the interim operating phases in the proposed project, construction activities overlap with increases in operations above current levels. As a result, proposed project phases incorporate both operating equipment and construction activities, and are based on the interim operating phases and construction activities described in Table 2-2. Potential environmental impacts of both operation and construction will thus be analyzed together.

2.10 PERMITS AND APPROVALS

Shell is required to obtain environmental permits to operate the Carson Facility from a variety of federal state, and local agencies (see Table 2-3). Shell has secured the appropriate permits to operate the existing Carson Facility. However, Shell has applied for and must obtain air quality permits related to the proposed project. The environmental permits generally required by Shell are discussed below. The Carson Facility currently has operating permits but some of these may require modifications associated with the proposed project revisions. A summary of major permitting and regulatory compliance requirements for existing equipment is provided in Table 2-3.

2.10.1 FEDERAL APPROVALS

Direct federal approvals for the proposed project are not expected because many of the U.S. EPA regulations and requirements are implemented by state or local agencies. However, the Spill

Prevention Control and Countermeasure (SPCC) Plan (40CFR 112, §112.7) requires all new and modified facility units and storage tanks be included in a new or existing SPCC Plan, as applicable, and such plan must be reviewed by the Los Angeles Regional Water Quality Control Board, as the enforcing agency. Further, the Carson Facility will have to continue to comply with the applicable provisions of the Superfund Amendments and Reauthorization Act (SARA) Title III and Occupational Safety and Health Act (OSHA). In California, both federal and state Community Right-to-Know laws are coordinated through the California Governor's Office of Emergency Services (OES) and known as the Emergency Planning and Community Right-to-Know Act (EPCRA). The corresponding state law is Chapter 6.95 of the California Health and Safety Code (H&SC). As a result, no direct federal approval is expected to be required prior to commencing the proposed project.

2.10.2 STATE APPROVALS

Construction-related permits may be required from the California Occupational Safety and Health Administration (CalOSHA) for activities associated with demolition, construction, excavation, and tower crane erection. Any deliveries of heavy construction equipment which require the use of oversized transport vehicles on state highways will require a California Department of Transportation (Caltrans) transportation permit.

2.10.3 LOCAL APPROVALS

The SCAQMD has responsibility as lead agency for the CEQA process and for certification of the EIR. Permits to Construct/Operate for new units and modifications to existing units will be required. Permits or plan approvals also may be required for construction, soil remediation, and demolition activities. The SCAQMD requires a permit for any equipment or process, which emits an air contaminant or controls the issuance of an air contaminant.

The existing two-lane ethanol truck loading rack currently operates under Design Overlay Review (DOR) No. 764-01 granted by the City of Carson. A modification will be required to the DOR to allow for the facility modifications and increased truck traffic associated with the proposed project.

The project may require revisions to the National Pollutant Discharge Elimination System (NPDES) permit, including storm water runoff, from the Regional Water Quality Control Board (RWQCB).

The Los Angeles County Fire Department is responsible for review and approval of the Hazardous Material Business Plan (HMBP) for the Carson Facility, which would need to be revised as part of the proposed project. The Fire Department also is responsible for assuring that fire codes are implemented.

Building, grading and electrical permits for the proposed project would be required from the City of Carson to assure that the project complies with the Uniform Building Code.

Table 2-3
Federal, State and Local Agency Permits and Applications

Agency Permit or Approval	Requirement	Applicability to Project
Federal		
U.S. Environmental Protection Agency (EPA)	Spill Prevention Control and Countermeasure Plan (40 CFR Part 112), implemented by the Los Angeles Regional Water Quality Control Board	Modifications to Carson Facility that affect the potential for oil or flammable materials discharge into navigable waters.
	Title III of the federal Clean Air Act Amendments of 1990, including development of an Accidental Release Program, implemented by the California Emergency Management Agency	Modifications to Carson Facility operations involving use of listed regulated substances.
	Title III of the Superfund Amendments and Reauthorization Act of 1986, including §313 – Annual Release Reporting (Form R), implemented by EPA	Modifications to Carson Facility operations involving use or storage of extremely hazardous substances (EHSs) or other regulated hazardous materials.
Occupational Safety and Health Administration (OSHA)	Compliance with 29 CFR 1920, including preparation of an Emergency Response Plan, a Fire Prevention Plan, Process Hazards Safety Review, and employee training, implemented by the California Emergency Management Agency and the Los Angeles County Fire Department	Modifications to Carson Facility operations involving materials that are acutely toxic, flammable or explosive.

Table 2-3 (continued)
Federal, State and Local Agency Permits and Applications

Agency Permit or Approval	Requirement	Applicability to Project
U.S. Department of Transportation (U.S. DOT)	Compliance with U.S. DOT regulations regarding transportation of hazardous substances (40 CFR Part 172), implemented by the California Department of Transportation and California Department of Toxic Substance Control	Project-related transportation (import/export of hazardous substances).
State		
California Environmental Protection Agency, Dept. of Toxic Substances Control (DTSC)	On-site hazardous waste generation	Project-related modifications to applicable hazardous materials and hazardous waste generation handling at the Carson Facility
	Proposition 65 – California's Safe Drinking Water and Toxic Enforcement Act of 1986	Project-related exposure of the public to listed carcinogens or reproductive toxins due to proposed modifications. Public notification is required under certain specified conditions.
California Department of Transportation (Caltrans)	Transportation Permit (CCR 21 Division 2, et.seq.)	Project-related application to transport overweight, oversize, and wide loads on state highway
California Department of Industrial Relations, Division of Occupational Safety and Health (CalOSHA)	Process Safety Management (PSM) Program (40 CFR Part 1910)	PSM program may require updating due to the proposed project including written process safety information, hazard and operability (HAZOP) analysis, development of operating procedures, training procedures, and pre-start safety review.
	Construction-related permits (CCR Title 8, Division 1, and crane Chapter 4)	Excavation, construction, demolition and tower crane erection permit.

Table 2-3 (continued)
Federal, State and Local Agency Permits and Applications

Agency Permit or Approval	Requirement	Applicability to Project
CalOSHA (continued)	Written Hazard Communication Standard Compliance Program	Project-related modifications to Carson Facility operations involving hazardous materials (including needed modifications to employee training programs).
California Office of Emergency Services	Transportation Permit (CCR 21 Division 2, et.seq.)	Emergency Planning and Community Right-to-Know Act (EPCRA), H&SC Chapter 6.95
Local		
South Coast Air Quality Management District (SCAQMD)	Permits to Construct	SCAQMD Rule 201: Permit to construct and operate. Applications are required to construct, operate or modify stationary emission sources.
	Permits to Operate	SCAQMD Rule 203: Permit to Operate. Applications are required to operate stationary emissions sources.
	CEQA	The SCAQMD is the lead agency for preparation of the environmental document and approval of the project (Public Resources Code, §21067) and CEQA Guidelines §15367.
	Title V of the 1990 Clean Air Act	SCAQMD Regulation XXX: Permit to construct and operate. Applications are required to construct, operate or modify stationary emission sources.

Table 2-3 (continued)
Federal, State and Local Agency Permits and Applications

Agency Permit or Approval	Requirement	Applicability to Project
SCAQMD (continued)	Prevention of Significant Deterioration (PSD)	SCAQMD Regulation XVII: Requirements for modifications to stationary sources in attainment areas. The Permit to Construct issued by the SCAQMD will be evaluated for PSD applicability. CO, NOx, and SOx net emissions from the project will be determined. If net emissions from the project are less than PSD thresholds (i.e., 40 tons/year for NOx and SOx and 100 tons/year for CO), PSD will not be triggered. However, BACT will be installed for all pollutants.
	Standards for Approving Permits	SCAQMD Rule 212: Permits cannot be issued unless the equipment can operate in compliance with the California Health and Safety Code and provisions of Rule 212. Also requires public notification of significant project.
	BACT and Modeling	SCAQMD Rule 2005, Regulation XIII, or Regulation XVII: New or modified permit units must be installed with BACT, obtain offsets and perform modeling of new emissions increases
	Toxics Best Available Control Technology (T-BACT) and Risk Assessment	SCAQMD Rule 1401: New Source Review (NSR) of Carcinogenic Air Contaminants. New or modified permit units must comply with maximum allowed risk levels.

Table 2-3 (concluded)
Federal, State and Local Agency Permits and Applications

Agency Permit or Approval	Requirement	Applicability to Project
Regional Water Quality Control Board (RWQCB)	National Pollutant Discharge Elimination System (NPDES) Permit/Waste Discharge requirement.	Project-related modifications to applicable storm water runoff plans.
	SPCC plan requirement.	Project-related modifications to applicable SPCC plans.
City of Carson	Design Overlay Review (DOR)	Project-related modifications to operations allowed by current DOR
	Building Permit	Required for project-related foundations and buildings to assure compliance with Uniform Building Code
	Grading Permit	Required prior to grading.
	Plumbing and Electrical Permit	General construction permit.
Los Angeles County Fire Department (LACFD)	Hazardous Materials Business Plan	Storage of project-related hazardous materials.
	Above Ground Storage of Hazardous/Flammable Materials (Uniform Fire Code, Article 80)	Project-related storage of regulated materials
Los Angeles County Sanitation District	Industrial Wastewater Discharge Permit (California Health & Safety Code, Division 6, Chapter 4, Article 1, §6521)	Project-related modifications to the Carson Facility's industrial wastewater discharge to the sewer if it affects the quantity, quality or method of industrial wastewater disposal.

CHAPTER 3

ENVIRONMENTAL SETTING

Introduction
Air Quality
Biological Resources
Hazards and Hazardous Materials
Hydrology and Water Quality
Noise
Transportation and Traffic

This Page Intentionally Blank

3.0 ENVIRONMENTAL SETTING

3.1 INTRODUCTION

CEQA Guidelines §15125(a) states that "An EIR must include a description of the physical environmental conditions in the vicinity of the project, as they exist at the time the notice of preparation is published, or if no notice of preparation is published, at the time environmental analysis is commenced, from both a local and regional perspective. This environmental setting will normally constitute the baseline physical conditions by which a lead agency determines whether an impact is significant." This chapter presents the existing environmental setting for the proposed project, from both a both a regional and local perspective, which normally constitutes the baseline physical environmental conditions by which a lead agency determines whether an impact is significant. This chapter also describes the existing environment around the Carson Facility, as applicable, that could be adversely affected by the proposed project.

Potential impacts from the proposed project were evaluated by analyzing the effects of increases in activities above the baseline activities that could cause impacts. The levels of the existing activities at the Carson facility for delivering ethanol by tanker trucks, such as the quantity of ethanol loaded into tanker trucks and the number of tanker truck trips from the facility to deliver ethanol, vary from day-to-day in response to short-term variations in customer demand. Periods of equipment maintenance and repair also cause day-to-day variations in activities at the facility. Thus, the levels of activities at the Carson Facility that occurred on the day when the NOP/IS was published would not be a reasonable representation of baseline conditions for this EIR. CEQA provides some flexibility in determining a project's baseline by stating, "This environmental setting [at the time the NOP is released] will **normally** [emphasis added] constitute the baseline physical conditions by which a lead agency determines whether an impact is significant." Therefore, levels of activities between January 15, 2010, and April 14, 2010, were used to establish the baseline. This time period was used for the following reasons:

- Complying with the 2007 RFG Phase 3 amendments required fuel producers to increase the percentage of ethanol blended into gasoline by December 31, 2009. As a result, levels of activities at the Carson facility associated with ethanol loading and delivery prior to January 2010 were not representative of current market demand;
- The first two weeks of January 2010 were a transition period for the demand for ethanol deliveries from the Carson Facility. Therefore, January 15, 2010, was used as the beginning of the time period to establish the baseline; and
- April 14, 2010, was used as the end of the time period to establish the baseline, because the NOP/IS was published on April 15, 2010.

This ~~Draft~~ EIR focuses only on the environmental topics that could be significantly affected in an adverse way by the proposed project, as identified in the NOP/IS (see Appendix I-A), which include air quality, biological resources, hazards and hazardous materials, hydrology and water quality, noise and transportation/traffic. The rationales for why the remaining environmental topic areas are not significant are summarized in Chapter 4. Also, the reader is referred to the NOP/IS (see Appendix I-A) for discussion of environmental topics not considered in this ~~Draft~~

EIR and the rationale for inclusion or exclusion of an analysis for each environmental topic in this ~~Draft~~ EIR.

At the time the NOP/IS for the proposed project was circulated for public comment, the environmental checklist (CEQA Guidelines, Appendix G) did not specifically include impacts to forest lands as a topic to be evaluated as part of a CEQA document. The amendments to the CEQA Guidelines adopted by the Natural Resources Agency in 2010 contained revisions to the environmental checklist to include consideration of impacts to forest lands in the environmental analysis. Although the NOP/IS did not include a preliminary analysis of impacts to forest resources, to make the analysis consistent with the changes to the environmental checklist, a discussion of potential environmental impacts from the proposed project that could conflict with, or cause rezoning of forest lands, has been included in Chapter 4 of the ~~Draft~~ EIR. No significant impacts on forest resources were identified.

3.2 AIR QUALITY

The Carson Facility is located in the South Coast Air Basin (Basin), which is a sub-area within the SCAQMD jurisdiction (referred to hereafter as the district). The district consists of the four-county Basin (Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino counties) and the Riverside County portions of the Salton Sea Air Basin and the Mojave Desert Air Basin. The Basin is bounded by the Pacific Ocean to the west and south and the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east.

3.2.1 CLIMATE AND METEOROLOGY

The climate in the Basin generally is characterized by sparse winter rainfall and hot summers tempered by cool ocean breezes. A temperature inversion, a warm layer of air that traps the cool marine air layer underneath it and prevents vertical mixing, is the prime factor that allows contaminants to accumulate in the Basin. The mild climatological pattern is interrupted infrequently by periods of extremely hot weather, winter storms, and Santa Ana winds. The climate of the area is not unique, but the high concentration of mobile and stationary sources of air contaminants in the western portion of the Basin, in addition to the mountains, which surround the perimeter of the Basin, contribute to the generally poor air quality in the region.

Temperature affects the air quality of the region in several ways. Local winds are the result of temperature differences between the relatively stable ocean air and the uneven heating and cooling that takes place in the Basin due to a wide variation in topography. Temperature also has a major effect on vertical mixing height and affects chemical and photochemical reaction times. The annual average temperatures vary little throughout the Basin, averaging 75 ^{o}F. The coastal areas show little variation in temperature on a year-round basis due to the moderating effect of the marine influence. On average, August is the warmest month while January is the coolest month. Most of the annual rainfall in the Basin falls between November and April. Annual average rainfall varies from nine inches in Riverside to 14 inches in downtown Los Angeles.

Wind flow patterns play an important role in the transport of air pollutants in the Basin. The winds flow from offshore and blow eastward during the daytime hours. In summer, the sea breeze starts in mid-morning, peaks at 10 to 15 miles per hour, and subsides after sundown.

There is a calm period until about midnight. At that time, the land breeze begins from the northwest, typically becoming calm again about sunrise. In winter, the same general wind flow patterns exist except that summer wind speeds average slightly higher than winter wind speeds. This pattern of low wind speeds is another factor that allows pollutants to accumulate in the Basin.

The normal wind patterns in the Basin are interrupted by the unstable air accompanying the passing of storms during the winter and infrequent strong northeasterly Santa Ana wind flows from the mountains and deserts north of the Basin.

3.2.2 EXISTING AIR QUALITY

Local air quality in the Basin is monitored by the SCAQMD, which operates a network of monitoring stations throughout the Basin. The California Air Resources Board (CARB) operates additional monitoring stations.

3.2.2.1 Criteria Pollutants

Criteria air pollutants are those pollutants for which the federal and state governments have established ambient air quality standards or criteria for outdoor concentrations in order to protect public health with a margin of safety (see Table 3.2-1). National Ambient Air Quality Standards (NAAQS) were first authorized by the federal Clean Air Act of 1970 and have been set by the U.S. Environmental Protection Agency (U.S. EPA). California Ambient Air Quality Standards (CAAQS) were authorized by the state legislature in 1967 and have been set by CARB.

Table 3.2-1
State and Federal Ambient Air Quality Standards

Air Pollutant	State Standard[1]	Federal Primary Standard[2]	Most Relevant Effects
	Concentration/ Averaging Time	Concentration/ Averaging Time	
Carbon Monoxide (CO)	20 ppm, 1-hr. average > 9.0 ppm, 8-hr. average >	35 ppm, 1-hr. average > 9 ppm, 8-hr. average >	(a) Aggravation of angina pectoris and other aspects of coronary heart disease; (b) Decreased exercise tolerance in persons with peripheral vascular disease and lung disease (c) Impairment of central nervous system functions; and (d) Possible increased risk to fetuses

Table 3.2-1 (continued)
State and Federal Ambient Air Quality Standards

Air Pollutant	State Standard[1] Concentration/ Averaging Time	Federal Primary Standard[2] Concentration/ Averaging Time	Most Relevant Effects
Ozone (O_3)	0.09 ppm, 1-hour average > 0.070 ppm, 8-hour average >	0.12 ppm, 1-hour average > 0.075 ppm, 8-hour average >	(a) Short-term exposures: 1) Pulmonary function decrements and localized lung edema in humans and animals; and, 2) Risk to public health implied by alterations in pulmonary morphology and host defense in animals; (b) Long-term exposures: Risk to public health implied by altered connective tissue metabolism and altered pulmonary morphology in animals after long-term exposures and pulmonary function decrements in chronically exposed humans; (c) Vegetation damage; and, (d) Property damage.
Nitrogen Dioxide (NO_2)	0.18 ppm, 1-hour average > 0.030 ppm, AAM >	0.100 ppm, 1-hour average > 0.053 ppm, AAM >	(a) Potential to aggravate chronic respiratory disease and respiratory symptoms in sensitive groups; (b) Risk to public health implied by pulmonary and extra-pulmonary biochemical and cellular changes and pulmonary structural changes; and (c) Contribution to atmospheric discoloration
Sulfur Dioxide (SO_2)	0.25 ppm, 1-hour average > 0.04 ppm, 24-hour average >	75 ppb, 1-hour average >	Bronchoconstriction accompanied by symptoms which may include wheezing, shortness of breath and chest tightness during exercise or physical activity in persons with asthma

Table 3.2-1 (continued)
State and Federal Ambient Air Quality Standards

Air Pollutant	State Standard[1]	Federal Primary Standard[2]	Most Relevant Effects
	Concentration/ Averaging Time	Concentration/ Averaging Time	
Suspended Particulate Matter (PM10)	50 µg/m^3, 24-hour average. > 20 µg/m^3, AAM >	150 µg/m^3, 24-hour average >	(a) Excess deaths from short-term exposures and exacerbation of symptoms in sensitive patients with respiratory disease; and, (b) Excess seasonal declines in pulmonary function, especially in children.
Suspended Particulate Matter (PM2.5)	12 µg/m^3, AAM >	15.0 µg/m^3, AAM > 35 µg/m^3, 24-hour average >	(a) Increased hospital admissions and emergency room visits for heart and lung disease; (b) Increased respiratory symptoms and disease; and, (c) Decreased lung functions and premature death.
Lead	1.5 µg/m^3, 30-day average >=	1.5 µg/m^3, calendar quarter 0.15 µg/m^3, rolling 3-month average	(a) Increased body burden; and (b) Impairment of blood formation and nerve conduction
Sulfates	25 µg/m^3, 24-hour average >=	None	(a) Decrease in ventilatory function; (b) Aggravation of asthmatic symptoms; (c) Aggravation of cardio-pulmonary disease; (d) Vegetation damage; (e) Degradation of visibility; and (f) Property damage
Visibility Reducing Particles	In sufficient amount to give an extinction coefficient > 0.23 inverse kilometers (visual range to less than 10 miles) with relative humidity less than 70 percent, 8-hour average (10 a.m. - 6 p.m. PST)	None	Visibility impairment on days when relative humidity is less than 70 percent
Vinyl Chloride	0.01 ppm, 24-hour average > =	None	Known carcinogen

Table 3.2-1 (concluded)
State and Federal Ambient Air Quality Standards

Air Pollutant	State Standard[1] Concentration/ Averaging Time	Federal Primary Standard[2] Concentration/ Averaging Time	Most Relevant Effects
Hydrogen Sulfide	0.03 ppm, 1-hour average >=	None	Odor annoyance

ppm = parts per million of air, by volume $\mu g/m^3$ = micrograms per cubic meter ppb = parts per billion by volume
AAM = annual arithmetic mean

[1] California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, suspended particulate matter—PM10, PM2.5, and visibility reducing particles, are values that are not to be exceeded. All others are not to be equaled or exceeded.

[2] National standards (other than ozone, particulate matter, nitrogen dioxide, sulfur dioxide and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest eight hour concentration in a year, averaged over three 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 $\mu g/m^3$ is equal to or less than one. For PM2.5, the 24 hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. The 1-hour nitrogen dioxide standard is attained when the 3-year average of the 98th percentile of the daily maximum 1-hour average does not exceed 0.100 ppm. The 1-hour sulfur dioxide standard is attained when the 3-year average of the 99th percentile of the daily maximum 1-hour average does not exceed 75 ppb.

Air quality standards have been established by the U.S. EPA and CARB for ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), particulate matter less than 10 microns equivalent aerodynamic diameter (PM10), particulate matter less than 2.5 microns in diameter (PM2.5), sulfur dioxide (SO_2), and lead. The California standards are generally more stringent than the federal air quality standards, and in the case of PM10, far more stringent. California also has established standards for sulfate, visibility reducing particles, hydrogen sulfide (H_2S) and vinyl chloride.

The Basin is currently designated as non-attainment for PM10, PM2.5, and ozone for both state and federal standards, non-attainment for the state NO_2 standards, and the Los Angeles County portion of the Basin is designated as non-attainment for the state and federal lead standards, based on emissions from two specific facilities. However, the SCAQMD is seeking redesignation of the Basin to attainment for the federal PM10 standard. The Basin is classified as attainment for both the federal and state standards for CO and SO_2 and as attainment for the federal standards for NO_2. The Basin is classified as attainment for the state sulfates standard.

The sources of air contaminants in the Basin vary by pollutant but generally include on-road mobile sources (e.g., automobiles, trucks and buses), off-road mobile sources (e.g., airplanes, ships, trains, construction equipment, etc.), residential/commercial sources, and industrial/manufacturing sources. Mobile sources are responsible for a large portion of the total Basin emissions of several pollutants.

Mobile sources, both on-road and off-road, continue to be the major contributors for each of the criteria pollutants monitored in the Basin. For example, CARB (2010a) estimated that, during 2008, mobile sources represented 52 percent of volatile organic compounds (VOC) emissions

(VOCs are precursors to O_3 formation), 90 percent of nitrogen oxides (NOx) emissions (also a precursor to O_3 formation), and 91 percent of CO emissions. Mobile sources represented 15 percent of directly emitted PM10 with another 44 percent due to vehicle-related entrained road dust and 30 percent of directly emitted PM2.5 with another 17 percent due to vehicle-related entrained road dust.

3.2.2.2 Regional Air Quality

The SCAQMD monitors levels of various criteria pollutants at approximately 30 monitoring stations. In 2010, the most recent year for which complete data are currently available, the maximum ozone and PM2.5 concentrations continued to exceed federal standards by wide margins. Maximum one-hour and eight-hour average ozone concentrations, 0.143 parts per million (ppm) recorded in the west Central San Bernardino Valley area and 0.123 ppm recorded in the central San Bernardino Mountains area, were 119 and 164 percent of the federal standard, respectively. The central San Bernardino Mountains area has remained as the most affected area in terms of the number of days exceeding the eight-hour federal ozone standard in recent years, with 74 days in 2010, followed by the east San Bernardino Valley with 61 days in 2010 (SCAQMD, 2012). All monitored areas of the Basin exceeded the state eight-hour ozone standard except south central Los Angeles County and all monitored areas of the Basin exceeded the state one-hour standard except southwest coastal Los Angeles County (SCAQMD, 2012).

Maximum 24-hour average and annual average PM2.5 concentrations, 54.2 micrograms per cubic meter ($\mu g/m^3$) and 15.2 $\mu g/m^3$ recorded in the Mira Loma area, were 155 and 101 percent of the federal 24-hour and annual average standards, respectively (SCAQMD, 2012).

PM10 concentrations did not exceed the federal standard in 2010. The highest 24-hour average PM10 concentration recorded, 107 $\mu g/m^3$ in the Coachella Valley area, was 71 percent of the federal standard. All monitored areas of the Basin except Saddleback Valley, the Coachella Valley and the central San Bernardino Mountains area exceeded the state annual standard and 12 of the 21 monitoring stations where PM10 is measured in the Basin exceeded the state 24-hour standard (SCAQMD, 2012).

CO concentrations did not exceed the standards in 2010. The highest eight-hour average carbon monoxide concentration recorded, 3.6 ppm in the south central Los Angeles County area, was 40 percent of the federal and state CO standards (SCAQMD, 2012).

In 2010, the federal standards for NO_2 and SO_2 were not exceeded. The maximum annual average NO_2 concentration, 0.0262 ppm recorded in the Pomona/Walnut Valley area, was 49 percent of the federal standard, and the maximum one-hour average concentration, 0.0970 ppm recorded in the Pomona/Walnut Valley area, was 97 percent of the federal standard. The state revised the one-hour NO_2 standard from 0.25 ppm to 0.18 ppm and established a new annual standard for NO_2 of 0.030 ppm effective March 20, 2008. The one-hour and annual state NO_2 standards were not exceeded (SCAQMD, 2012).

Lead and sulfate concentrations did not exceed the ambient air quality standards in 2010. The maximum quarterly lead concentration of 0.01 $\mu g/m^3$ recorded in all areas of the Basin was one percent of the federal standard, and the maximum monthly-average lead concentration of 0.02

$\mu g/m^3$ recorded in the central Los Angeles and south San Gabriel Valley areas was three percent of the state standard. The maximum 24-hour average sulfate concentration (12.2 $\mu g/m^3$ recorded in the south coastal Los Angeles County area) was 49 percent of the state standard (SCAQMD, 2012).

On November 12, 2008, EPA published new national ambient air quality standards for lead, which became effective January 12, 2009. The existing national lead standard, 1.5 $\mu g/m^3$, was reduced to 0.15 $\mu g/m^3$, averaged over a rolling three-month period. EPA designated the Los Angeles County portion of the Basin as non-attainment for the new lead standard, effective December 31, 2010, based on measurements between 2006 and 2008 from monitoring sites located in the immediate vicinity of two battery recycling facilities.

3.2.2.3 Local Air Quality

The project site is located within the SCAQMD's South Coastal Los Angeles County monitoring area (Source Receptor Area 4). The monitoring station closest to the Carson Facility is the South Coastal Los Angeles County 1 (North Long Beach) monitoring station, located at 3648 North Long Beach Boulevard, approximately three miles east-southeast of the facility. Recent (2006 through 2010) background air quality data for criteria pollutants for the South Coastal Los Angeles County 1 monitoring station are presented in Table 3.2-2.

The area has shown a general improvement in air quality with decreasing or consistent concentrations of most pollutants (see Table 3.2-2). Air quality in the South Coastal Los Angeles County monitoring area complies with the state and federal ambient air quality standards for CO, NO_2, SO_2, sulfate and lead.

Ozone concentrations in the area did not exceed the federal standards, but they exceeded the state one-hour standard in 2007 and 2010 and the state eight-hour standard in 2007, 2008 and 2010. PM10 concentrations in the area did not exceed the federal 24-hour or annual standards, but they exceeded the state 24-hour PM10 standard every year from 2006 through 2009 and the state annual PM10 standard every year from 2006 through 2010. PM2.5 concentrations in the area exceeded the federal 24-hour PM2.5 standard in 2007, 2008 and 2009 but they did not exceed the federal annual standard from 2006 through 2010. PM2.5 concentrations exceeded the state annual standard every year from 2006 through 2010 (SCAQMD, 2012).

Table 3.2-2
Ambient Criteria Pollutant Air Quality at South Coastal Los Angeles County 1 Monitoring Station

Constituent		Maximum Observed Concentration (Number of Exceedances[1])				
		2006	**2007**	**2008**	**2009**	**2010**
Ozone:	1-Hour (ppm)	0.08	0.099	0.093	0.089	0.101
	Federal Standard	(0)	(0)	(0)	(0)	(0)
	State Standard[2]	(0)	(1)	(0)	(0)	(1)
	8-Hour (ppm)	0.058	0.073	0.074	0.068	0.084
	Federal Standard	(0)	(0)	(0)	(0)	(1)
	State Standard	(0)	(1)	(1)	(0)	(1)
Carbon Monoxide:						
	1-Hour (ppm)	4	3*	3	3	3
	8-Hour (ppm)	3.4	2.6*	2.6	2.2	2.1
	Federal Standard	(0)	(0*)	(0)	(0)	(0)
	State Standard	(0)	(0*)	(0)	(0)	(0)
Nitrogen Dioxide:						
	1-Hour (ppm)	0.10	0.11	0.13	0.11	0.0928
	State Standard	(0)	(0)	(0)	(0)	(0)
	Annual Arithmetic Mean (ppm)	0.0215	0.0207	0.0208	0.0212	0.0198
	Federal Standard	(N)	(N)	(N)	(N)	(N)
	State Standard	(--)	(--)	(N)	(N)	(N)
PM10:	24-Hour ($\mu g/m^3$)	78	75	62	62	44
	Federal Standard	(0%)	(0%)	(0%)	(0%)	(0%)
	State Standard	(9.8%)	(9%)	(2%)	(5%)	(0%)
	Annual Arithmetic Mean ($\mu g/m^3$)	31.1	30.2	29.1	30.5	22.0
	Federal Standard[3]	(N)	(--)	(--)	(--)	(--)
	State Standard	(Y)	(Y)	(Y)	(Y)	(Y)
PM2.5:	24-Hour ($\mu g/m^3$)	58.5*	82.9	57.2	63.0	35.0
	Federal Standard	(0%*)	(3.6%)	(2.3%)	(1.8%)	(0%)
	Annual Arithmetic Mean ($\mu g/m^3$)	14.2*	14.6	14.2	13.0	10.5
	Federal Standard[4]	(N*)	(N)	(N)	(N)	(N)
	State Standard	(Y*)	(Y)	(Y)	(Y)	(N)
Sulfur Dioxide:						
	1 Hour (ppm)	0.03	0.11	0.09	0.02	0.040
	State Standard	(0)	(0)	(0)	(0)	(0)
	24-Hour (ppm)	0.010	0.011	0.012	0.005	0.006
	Federal Standard	(0)	(0)	(0)	(0)	(0)
	State Standard	(0)	(0)	(0)	(0)	(0)
	Annual Arithmetic Mean (ppm)	0.0012	0.0027	0.0022	N/A	N/A
	Federal Standard	(N)	(N)	(N)	(N/A)	(N/A)
Lead:	30-Day Average ($\mu g/m^3$)	0.01	0.02	0.01	0.01	0.01
	State Standard	(0)	(0)	(0)	(0)	(0)
	Quarterly Average ($\mu g/m^3$)	0.01	0.01	0.01	0.01	0.01
	Federal Standard	(0)	(0)	(0)	(0)	(0)
Sulfate:	24-Hour ($\mu g/m^3$)	17.8	11.1	11.0	13.6	11.8
	State Standard	(0%)	(0%)	(0%)	(0%)	(0%)

Source: SCAQMD (2012)

ppm = parts per million by volume $\mu g/m^3$ = micrograms per cubic meter N/A = not available

[1] Number of days standard was exceeded for ozone, carbon monoxide, nitrogen dioxide (1-hour) and sulfur dioxide (1-hour and 24-hour);percent of days standard was exceeded for 24-hour PM10, PM2.5 and sulfate; number of times standard was exceeded for lead; (Y) = annual standard was exceeded; (N) = annual standard was not exceeded; (--) = no standard. Based on standards in effect during each year.

[2] State 8-hour ozone standard became effective May 17, 2006.

[3] Federal annual PM10 standard of 150 $\mu g/m^3$ was revoked effective December 16, 2006.

[4] Federal 24-hour PM2.5 standard was revised from 65 $\mu g/m^3$ to 35 $\mu g/m^3$ effective December 17, 2006.

* Less than 12 full months of data; may not be representative

3.2.2.4 Carson Facility Criteria Pollutant Emissions

Operation of the existing Carson Facility results in the emissions of criteria pollutants that have not exceeded permitted levels. The reported emissions of criteria air pollutants from permitted sources at the Carson Facility for the last two-year period, based on the annual emission fee reports prepared for the SCAQMD, are shown in Table 3.2-3. Emissions from mobile sources, which include off-site tanker trucks and employee commuting vehicles, are also shown in Table 3.2-3. Emissions from mobile sources were estimated from facility records of the number of tanker trucks loaded and the number of employees using emission factors based on the CARB EMFAC 2007 model. The emissions in Table 3.2-3 are based on actual operations and not the maximum potential to emit. The Carson Facility is permitted for higher emissions from permitted sources than presented in Table 3.2-3.

Table 3.2-3
Shell Carson Facility Annual Emissions

Reporting Period/ Sources	**Tons per Year**					
	CO	**VOC**	**NOx**	**SOx**	**PM10**	**PM2.5** [a]
2009/Permitted	0.289	121.4	4.23	0.047	0.064	0.064
2009/Mobile	14.8	3.59	43.9	0.044	2.68	2.68
2009/Total	**15.1**	**125.0**	**48.2**	**0.091**	**2.74**	**2.74**
2010/Permitted	0.383	125.6	3.68	0.032	0.086	0.086
2010/Mobile	16.7	4.06	49.5	0.055	2.38	2.38
2010/Total	**17.0**	**129.7**	**53.2**	**0.087**	**2.46**	**2.46**
Two-Year Average/Total	**16.1**	**127.3**	**50.7**	**0.089**	**2.60**	**2.60**
Reporting Period/ Sources	**Pounds per Day**					
2009/Permitted	1.6	665.2	23.1	0.26	0.35	0.35
2009/Mobile	81.1	19.7	240.5	0.2	14.7	1407
2009/Total	**82.7**	**684.9**	**264.1**	**0.5**	**15.0**	**15.0**
2010/Permitted	2.10	688.2	20.2	0.18	0.47	0.47
2010/Mobile	91.5	22.2	271.2	0.30	13.0	13.0
2010/Total	**93.2**	**710.7**	**291.5**	**0.5**	**13.5**	**13.5**
Two-Year Average/Total	**88.2**	**697.5**	**277.8**	**0.5**	**14.2**	**14.2**

[a] The PM2.5 fraction of PM10 is assumed to be 100 percent.
Values may not be exact due to rounding.
Assumes the facility operates 365 days per year.

3.2.2.5 Toxic Air Contaminants

The California Health and Safety Code (§39655) defines a toxic air contaminant (TAC) as an air pollutant which may cause or contribute to an increase in cancer risk and non-cancer risks including increases in mortality, serious illness, or that may pose a present or potential hazard to human health. Under California's TAC program (Assembly Bill 1807, Health and Safety Code §39650 et seq.), CARB, with the participation of the local air pollution control districts, evaluates and develops any needed control measures for TACs. The general goal of regulatory agencies is to limit exposure to TACs to the maximum extent feasible.

Monitoring for TACs is limited compared to monitoring for criteria pollutants because toxic pollutant concentrations are typically more localized than criteria pollutant concentrations. CARB conducts air monitoring for a number of TACs every 12 days at approximately 20 sites throughout California. The Carson Facility is located closest to the North Long Beach Monitoring station. A summary of data from the North Long Beach station for various TACs is considered to be an appropriate estimate of the TAC concentration in the vicinity of the Carson Facility (Table 3.2-4).

The SCAQMD measured TAC concentrations as part of its Multiple Air Toxic Exposure Study, referred to as MATES. The purpose of the study was to provide an estimate of exposure to TACs to individuals within the district. In the second study, MATES-II, the SCAQMD conducted air sampling at about 24 different sites for over 30 different TACs between April 1998 and March 1999. The Final MATES-II Report from this study indicated the following: 1) cancer risk levels appear to be decreasing since 1990 by about 44 percent to 63 percent; 2) mobile source components dominate the cancer risk; 3) approximately 70 percent of all cancer risk is attributed to diesel particulate matter emissions; 4) about 20 percent of all cancer risk is attributed to other toxics associated with mobile sources; 5) about 10 percent of all risk is attributed to stationary sources; and 6) no local "hot spots" have been identified. According to the Final MATES-II Report, the average carcinogenic risk in the district was about 1,400 per million people. This means that 1,400 people out of one million are susceptible to developing cancer from exposure to the known TACs over a 70-year period of time. The cumulative cancer risk averaged over the four counties (Los Angeles, Orange, Riverside and San Bernardino) was 980 in one million when diesel sources are included and was about 260 in one million when diesel sources are excluded. Of the monitoring sites in the MATES-II study, the Long Beach monitoring site is the closest site to the Carson Facility. The cancer risk at the Long Beach monitoring site, based on monitoring data, was about 1,100 per million for stationary and mobile sources, including diesel sources. The cancer risk from mobile sources (alone, excluding diesel sources) was about 350 per million. The complete final report on the MATES-II study is available from the SCAQMD (SCAQMD, 2000).

Table 3.2-4
Ambient Toxic Air Pollutant Air Quality at North Long Beach Monitoring Station

Pollutant	Annual Average Concentration	Pollutant	Annual Average Concentration
Volatile Organic Compounds (2008 unless otherwise noted)	**ppbv[1]**	**Volatile Organic Compounds (2008 unless otherwise noted)**	**ppbv[1]**
Acetaldehyde	0.86	Ethyl Benzene	0.17
Acetone	7.15	Formaldehyde	2.37
Acetonitrile	0.62	Methyl Bromide	0.021
Acrolein	0.77	Methyl Chloroform	0.095
Benzene	0.45	Methyl Ethyl Ketone	0.10
1,3-butadiene	0.094	Methyl tertiary Butyl Ether	0.45 (2003)
Carbon Disulfide	0.84 (2004)	Methylene Chloride	0.23
Carbon Tetrachloride	0.092 (2003)	Perchloroethylene	0.047
Chloroform	0.047	Styrene	0.11
o-Dichlorobenzene	0.15 (2006)	Toluene	1.19
p-Dichlorobenzene	0.15 (2006)	Trichloroethylene	0.020
cis-1,3-Dichloropropene	0.05	m/p-Xylene	0.59
trans-1,3-Dichloropropene	0.05	o-Xylene	0.20
Polycyclic Aromatic Hydrocarbons (2004)	**ng/m^3[2]**	**Polycyclic Aromatic Hydrocarbons (2004)**	**ng/m^3[2]**
Benzo(a)pyrene	0.107	Benzo(k)fluoranthene	0.055
Benzo(b)fluoranthene	0.116	Dibenz(a,h)anthracene	0.032
Benzo(g,h,i)perylene	0.444	Indeno(1,2,3-cd)pyrene	0.136
Inorganic Chemical Elements (2001 unless otherwise noted)[3]	**ng/m^3[2]**	**Inorganic Chemical Elements (2001 unless otherwise noted)[3]**	**ng/m^3[2]**
Aluminum	1140	Nickel	9.4 (2007)
Antimony	3.8	Phosphorus	40.8
Arsenic	1.50	Potassium[4]	649 (2002)
Barium	48.4	Rubidium[4]	2.2
Bromine	9.1	Selenium	1.11
Calcium[4]	912	Silicon[4]	2950
Chlorine	1550	Strontium[4]	9.49 (2007)
Chromium	4.8 (2007)	Sulfur[4]	1040 (2008)
Cobalt	0.94 (2007)	Tin[4]	4.97
Copper	34.5	Titanium[4]	108 (2008)
Hexavalent Chromium	0.053 (2008)	Uranium[4]	1.1
Iron[4]	1150 (2008)	Vanadium	21.8
Lead	11.2	Yttrium	1.1
Manganese	18.3 (2008)	Zinc	73.3
Mercury	1.7	Zirconium[4]	5.13
Molybdenum[4]	2.79		

Source: CARB (2010b)
[1] ppbv = parts per billion by volume
[2] ng/m^3 = nanograms per cubic meter
[3] These are all of the chemical elements reported for the site, including chemical elements that are not toxic air pollutants. Chemical elements that are not toxic air pollutants are indicated with footnote 4.
[4] Not classified as a toxic air pollutant.

The SCAQMD completed a third study, referred to as MATES-III, that included monitoring for 21 TACs at 10 fixed and five temporary sites within the district in neighborhoods near toxic emission sources or in areas where community members are concerned about health risks from air pollution. The initial scope of the monitoring was for a one-year period from April 2004 through March 2005. Due to heavy rains in the district in the fall and winter during this period, there was concern that the measurements may not be reflective of typical meteorology. The study was thus extended for a second year from April 2005 through March 2006. The MATES-III study estimates that 94 percent of the cancer risk is attributed to emissions associated with mobile sources, and about six percent of the risk is attributed to toxics emitted from stationary sources, which include industries and businesses such as dry cleaners and chrome plating operations. The results indicate that diesel exhaust continues to be a major contributor to air toxics risk, accounting for about 84 percent of the total risk. Compared to previous studies of air toxics in the district, the MATES-III study found a decreasing risk for air toxics exposure, with the population weighted risk down by eight percent from the analysis in MATES-II. The highest risks were near the port area, an area near central Los Angeles and near transportation corridors. The average carcinogenic risk in the district is about 1,200 per one million people. This means that 1,200 people out of one million are susceptible to developing cancer from exposure to the known TACs over a 70-year period of time (SCAQMD, 2008a).

Of the monitoring sites in the MATES-III study, the North Long Beach study site is the closest to the Carson Facility. The results of the monitoring for the North Long Beach site indicate that regional emissions (e.g., mobile sources) substantially exceed local influences (local stationary sources). The complete Final Report on the MATES-III study is available online and can be accessed from the SCAQMD website at:

http://www.aqmd.gov/prdas/matesIII/MATESIIIFinalReportSept2008.html.

3.2.2.6 Greenhouse Gases (GHGs)

According to the Intergovernmental Panel on Climate Change (IPCC), warming of the climate system is unequivocal and greater than 90 percent of increased temperatures are due to increased concentrations of GHGs (IPCC, 2007) Global warming, a subset of global climate change, is the observed increase in average temperature of the earth's surface and atmosphere. An identified contributor to global warming is an increase of GHGs in the atmosphere. Due to the global nature of the concerns regarding GHGs, the environmental setting, and applicable impacts are primarily discussed in Chapter 5 - Cumulative Impacts.

3.2.3 REGULATORY BACKGROUND

Ambient air quality standards in California are the responsibility of, and have been established by, both the U.S. EPA and CARB. These standards have been set at concentrations that provide margins of safety for the protection of public health and welfare. Federal and state air quality standards are presented in Table 3.2-1. The SCAQMD has established levels of episodic criteria and has indicated measures that must be initiated to immediately reduce contaminant emissions when these levels are reached or exceeded. The federal, state, and local air quality regulations are identified below in further detail.

3.2.3.1 Federal Regulations

The U.S. EPA is responsible for setting and enforcing the NAAQS for ozone, CO, NO_2, SO_2, PM10, PM2.5, and lead. The U.S. EPA has jurisdiction over emissions sources that are under the primary authority of the federal government including aircraft, locomotives, and emissions sources outside of state waters (Outer Continental Shelf). The U.S. EPA also establishes emission standards for vehicles sold in states other than California. Automobiles sold in California must meet the stricter emission requirements of CARB.

Other federal regulations applicable to the proposed project include Section 110 of the Clean Air Act, which authorizes the U.S. EPA to develop technology based standards which apply to specific categories of stationary sources (New Source Performance Standards) (including 40 CFR 60 Subpart Kb – Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels)), Title III of the Clean Air Act, which regulates toxic air contaminants (including 40 CFR 63 Subpart R – National Emission Standards for Gasoline Distribution Facilities (Bulk Gasoline Terminals and Pipeline Breakout Stations)), as well as Title V of the Clean Air Act, which establishes a federal permit program for major sources. The proposed project would require modifications to the Title V operating permit for the Carson Facility. The Title V program is implemented by the SCAQMD in the southern California area via SCAQMD Regulation XXX. The U.S. EPA also has authority over the PSD (prevention of significant deterioration) Program[9]. PSD review would not be required for the proposed project since the proposed modifications would not result in an increase of NOx, SOx or GHG emissions that meet or exceed the PSD thresholds.

3.2.3.2 California Regulations

The California Clean Air Act (AB2595) mandates achieving the maximum degree of emission reductions possible from vehicular and other mobile sources in order to attain the state ambient air quality standards by the earliest practical date. CARB, which became part of the California Environmental Protection Agency in 1991, is responsible for ensuring implementation of the California Clean Air Act and the federal Clean Air Act and for regulating emissions from consumer products and motor vehicles. CARB has established emission standards for vehicles sold in California and for various types of equipment.

California gasoline specifications are governed by both state and federal agencies. During the past decade, federal and state agencies have imposed numerous requirements on the production and sale of gasoline in California. The RFG Phase 3 regulations and the 2007 amendments to these regulations that were adopted by CARB are discussed in Chapter 2.

California also has established a state air toxics program, California Toxic Air Contaminants Program (Tanner Bill) (AB1807), which was modified by the Revised Tanner Bill (AB2728). This program sets forth provisions to implement the national program for control of TACs.

[9] The SCAQMD has been delegated limited authority to implement PSD in the district through Regulation XVII – Prevention of Significant Deterioration (PSD).

The Air Toxic "Hot Spots" Information and Assessment Act (AB2588), as amended by Senate Bill 1731 (SB1731), requires operators of certain stationary sources to inventory air toxic emissions from their operations and, if directed to do so by the local air district, prepare a health risk assessment to determine the potential health impacts of such emissions. If the health impacts are determined to be "significant" (cancer risk greater than 10 per one million exposures or non-cancer hazard index greater than 1.0), each facility operator must, upon approval of the health risk assessment, provide public notification to affected individuals.

3.2.3.3 Local Regulations

The district is under the jurisdiction of the SCAQMD, which has regulatory authority over stationary sources, air pollution control equipment, and limited authority over mobile sources. The SCAQMD is responsible for air quality planning in the district and developing and updating the Air Quality Management Plan (AQMP). The AQMP establishes the strategies that will be used to achieve compliance with National and California Ambient Air Quality Standards (NAAQS and CAAQS, respectively) in all areas within the SCAQMD's jurisdiction. The SCAQMD generally regulates stationary sources of air pollutants. There are a number of SCAQMD regulations that may apply to the proposed project including Regulation II – Permits, Regulation III – Fees, Regulation IV – Prohibitions (including Rule 462 – Organic Liquid Loading and Rule 463 – Organic Liquid Storage), Regulation IX – New Source Performance Standards, Regulation X – National Emissions Standards for Hazardous Air Pollutants (NESHAPS), Regulation XI – Source Specific Standards (including Rule 1166 - Volatile Organic Compound Emissions from Decontamination of Soil and Rule 1178, Further Reductions of VOC Emissions from Storage Tanks at Petroleum Facilities), Regulation XIII – New Source Review, Regulation XIV – New Source Review of Carcinogenic Air Contaminants (including Rule 1401 – New Source Review of Toxic Air Contaminants, and Rule 1403 – Asbestos Emissions from Demolition/Renovation Activities), Regulation XX – RECLAIM Program, and Regulation XXX – Title V Permits.

3.3 BIOLOGICAL RESOURCES

The NOP/IS (see Appendix I-A) concluded that the proposed project at the Carson Facility has the potential to generate significant adverse impacts on biological resources, specifically, candidate, sensitive, or special status species. A search of the California Natural Diversity Database (CNDDB), which is maintained by the California Department of Fish and Game (CDFG), was conducted in 2007 and updated in 2009 to identify occurrences of special-status species that have been recorded in the area of the Carson Facility. The searches covered the United States Geological Survey (USGS) Long Beach 7.5-Minute Quadrangle and seven surrounding quadrangles in the project vicinity, including Inglewood, South Gate, Whittier, Torrance, Los Alamitos, San Pedro, and Seal Beach. A biological reconnaissance survey of the proposed project site was also conducted on June 22, 2009 (see Appendix II-E). The survey included locations within the Carson Facility where construction for the proposed project would occur (see Figure 2-3) plus a 500-foot buffer area surrounding each of these locations. The buffer areas were surveyed to identify biological resources located outside of the areas where construction would occur that may be indirectly affected by construction activities. The survey also included a lay down area, approximately four acres in size, which is located adjacent to and east of the ethanol loading facility.

3.3.1 PLANT SPECIES AND COVER TYPES

The area where the proposed new gasoline storage tank would be constructed has been previously developed and is considered urban or built-up land (Holland, 1986). An urban or built-up habitat type is characterized by human use and development, including cities, business parks, commercial and industrial complexes, etc. Each project area site consists primarily of bare ground enclosed by an earthen berm. The surrounding 500-foot buffer area is also composed primarily of bare ground with existing storage tanks surrounded by earthen, concrete, or asphalt-covered berms to the east and south, a detention basin to the west, and commercial development adjoining the Carson Facility to the north. The area offers little value to plants and wildlife, particularly to sensitive species, because natural vegetative cover as well as food and water sources have generally been eliminated by past disturbances for fire safety reasons and current heavy industrial use. Vegetation is primarily composed of a sparse cover of ruderal vegetation (weedy, non-native vegetation associated with disturbed conditions) dominated by cudweed (*Gnaphalium* sp.) and wild heliotrope (*Heliotropium curassavicum*). Some native and non-native ornamental plants also occur on the site. A small stand of eucalyptus trees (*Eucalyptus* sp.) is located approximately 400 feet west of the proposed gasoline storage tank construction footprint, along the facility boundary.

The ethanol loading area and the adjacent proposed laydown area are also composed of urban or built-up habitat (Holland 1986). A similar lack of natural vegetative cover characterizes the ethanol loading area, which is paved and does not contain suitable habitat for natural vegetative cover and special-status plant and wildlife species. The adjacent laydown area is sparsely vegetated by ruderal species, including primarily cudweed and Australian saltbush (*Atriplex semibaccata*). The surrounding 500-foot buffer included a small stand of native mulefat (*Baccharis salicifolia*) and non-native tree tobacco (*Nicotiana glauca*) shrubs north of the area at the time the biological reconnaissance survey of the proposed project area was conducted in 2009, but this vegetation has subsequently been cleared and removed. Other species observed in the buffer include bristly oxtongue (*Picris echioides*) and bull thistle (*Cirsium vulgare*), both of which are native to the United States, but are introduced species in California. Small stands of ornamental fan palms (*Washingtonia* sp.) were also observed within the buffer area, approximately 250 feet east of the proposed project area.

The 2007 and 2009 searches of the CNDDB identified 28 special-status plant species within the eight-quadrangle area in the vicinity of the Carson Facility. It is unlikely that these plant species have the potential to exist within the proposed project locations, because the site is not compatible with their habitat requirements. Additionally, no special-status plant species were observed during the survey.

3.3.2 WILDLIFE SPECIES

Wildlife species identified during the survey of the proposed project areas include the northern mocking bird (*Mimus polyglottos*), American kestrel (*Falco sparverius*), mourning dove (*Zenaida macroura*), rock dove (*Columba livia*), Anna’s hummingbird (*Calypte anna*), house sparrow (*Passer domesticus*), desert cottontail (*Sylvilagus audubonii*), and California ground squirrel (*Spermophilus beecheyi*). The proposed gasoline storage tank location, detention basin and surrounding area appear to have been covered with stormwater at some point, based on waterfowl and shorebird tracks detected on the dry mud. Additionally, a burrow measuring approximately four square inches was observed approximately 50-feet north of the proposed construction lay down area. This burrow could potentially be utilized by the burrowing owl (*Athene cunicularia*), although no indications of occupation (such as "white-wash" or excrement, feathers or remains of prey) were observed within or around the burrow opening at the time of the survey.

Special-status wildlife species include those listed by the United States Fish and Wildlife Service (USFWS) as Endangered or Threatened, or those species proposed for listing (Candidates) under the federal Endangered Species Act and by the CDFG under the California Endangered Species Act. Additionally, wildlife species receive federal protection under the Bald Eagle Protection Act (*e.g.*, bald eagle, golden eagle), the Migratory Bird Treaty Act (MBTA) and state protection under CEQA Guidelines §15380(d).

The 2007 and 2009 searches of the CNDDB identified 35 special-status wildlife species within the eight-quadrangle area in the general vicinity of the Carson Facility. Although no special-status wildlife species were observed during the 2009 survey, three species, including Monarch butterfly (*Danaus plexippus*), burrowing owl, and western yellow bat (*Lasiurus xanthinus*), could potentially utilize habitat within the 500-foot buffer area from the proposed project locations. Nesting birds, which are protected under the MBTA, could also utilize this habitat. The three special-status species and nesting birds are discussed below.

3.3.2.1 Monarch Butterfly

Currently, Monarch butterflies are not specifically protected by federal or state laws. However, in California the butterfly and its habitats are indirectly protected by the Public Resources Code and the Fish and Game Code. Cities and counties with established roost sites have adopted protection measures specific to the Monarch butterfly. For example, the City of Goleta (2009) has established "Environmentally Sensitive Habitat Areas" for the Monarch butterfly, which requires a buffer ranging from 50 to 200 feet around historic or active roost trees depending upon local conditions and activities. The buffer that the City of Goleta sets for construction activities around an active roost or aggregation of butterflies is 200 feet between October 1 and March 1.

Monarch butterflies are predominantly an open country, frost intolerant species. Monarchs are known to spend winters during their migrations in wind-protected eucalyptus, pine and cypress (*Cupressus* spp.) trees in California. Monarch butterflies prefer open habitats such as fields, meadows, weedy areas, marshes and roadsides and are often associated with milkweeds (*Asclepias* sp.), an important nectar source (Opler et al., 1995).

The CNDDB records indicated that the Monarch butterfly has been identified within the proximity of the Carson Facility. The proposed project site does not support milkweed. However, the grove of eucalyptus trees located to the west of the proposed gasoline storage tank location could provide wintering roosts for this species.

3.3.2.2 Burrowing Owl

The burrowing owl is recognized by the CDFG as a Species of Special Concern and is protected under the MBTA. Habitat for the burrowing owl includes dry, open, short-grass areas often associated with burrowing mammals (Haug et al., 1993). This species is a year-round resident of coastal lowlands in grasslands, agricultural areas, desert scrub and coastal dunes where it digs its own burrows or occupies existing burrows (Unitt, 2004, Haug et al., 1993). The burrowing owl is diurnal and perches during daylight at the entrance to its burrow or on low posts. Nesting occurs from March through August.

During the survey, a single burrow that could potentially be utilized by this species was detected approximately 50 feet north of the proposed construction lay down area. Although no owls were seen occupying this burrow and there were no signs of use, future utilization of this burrow by an owl is possible. Though on-site vegetation is sparse, burrowing owls are known to be tolerant of human encroachment and disturbance of natural habitat (Bates, 2006).

3.3.2.3 Western Yellow Bat

The western yellow bat is recognized by the CDFG as a Species of Special Concern. This species is found from northern Mexico across the desert regions of the southwestern U.S. These bats have an affinity for palm oases and desert riparian habitats and appear to be expanding their range with the increased use of palms in ornamental landscaping. Although the closest record of the western yellow bat is approximately 13 miles from the Carson Facility, this species uses palm trees as roost sites. This species does not appear to hibernate, and at least some individuals or populations may be migratory, although some individuals appear to be present year-round, even in the northernmost portion of their range. The females are pregnant and nursing pups from April through July. The small stand of fan palms approximately 250 feet from the ethanol loading and laydown areas may provide roosting habitat for the western yellow bat. This species has not been observed on the Carson Facility, although focused surveys have not been conducted.

A study of mitigation strategies for bats was prepared for Caltrans by Johnston, Tatarian, and Pierson (2004). The purpose of the study was to provide Caltrans with effective mitigation strategies for bats when Caltrans maintenance or construction activities could potentially reduce, eliminate, or compromise bat populations and their habitats. The study, which was administered through California State University Sacramento (CSUS) and conducted in cooperation with Caltrans, CDFG, the University of California and private researchers, considers 100 feet as a buffer limit to avoid disturbing roosting bats. This buffer limit is considered appropriate for the proposed project because many of the activities associated with Caltrans construction projects, such as grading and the use of haul trucks, are similar to the construction activities for the proposed project.

3.3.2.4 Nesting Bird Species

Nesting birds and active nests are protected under federal (MBTA) and California (Fish and Game Code) regulations. Nesting bird season is typically defined as occurring between February 15 and August 31 for most species. Generally, regulatory agencies consider 300 feet and 500 feet as buffer limits to avoid disturbing nesting passerine (perching) birds and nesting raptors, respectively. The grove of eucalyptus trees located approximately 400 feet west of the proposed gasoline storage tank location and the stands of fan palms located approximately 250 feet east of the proposed laydown area have the potential to support nesting birds.

3.3.3 REGULATORY BACKGROUND

3.3.3.1 Federal Regulations

The purposes of the Federal Endangered Species Act (ESA) of 1973 are to provide a means to protect ecosystems upon which endangered and threatened species depend, to provide a program for the conservation of endangered and threatened species, and to take steps as may be appropriate to achieve the purposes of the treaties and conventions applicable to biological resources.

The federal MBTA implements various treaties and conventions between the United States and other countries, including Canada, Japan, Mexico and the former Soviet Union, for the protection of migratory birds. Under the MBTA, taking, killing, or possessing migratory birds or their eggs or nests is unlawful.

3.3.3.2 State Regulations

The California Endangered Species Act, Fish and Game Code Section 2070, Division 3, Chapter 1-5 provides for the establishment of a state list of endangered and threatened species by the Fish and Game Commission and restricts activities that may impact these species.

The Native Plant Protection Act (California Fish and Game Code Sec. 1900-1913) prohibits the taking, possessing, or sale within the state of any plants with a state designation of rare, threatened, or endangered (as defined by the CDFG). An exception to this prohibition allows landowners, under specified circumstances, to take listed plant species, provided that the owners first notify the CDFG and give that state agency at least 10 days to come and retrieve (and presumably relocate) the plants elsewhere before they are plowed or otherwise destroyed. However, the Fish and Game Code, §1913 exempts from the "take" prohibition "the removal of endangered or rare native plants from a canal, lateral ditch, building site, or road, or other right of way".

3.3.3.3 Local Regulations

There are no local regulations that would apply to Biological Resources.

3.4 HAZARDS AND HAZARDOUS MATERIALS

3.4.1 TYPES OF ON-SITE HAZARDS

The NOP/IS (see Appendix I-A) concluded that the proposed project at the Carson Facility has the potential to generate significant adverse hazards or hazardous materials impacts from the transport, use, and disposal of hazardous materials. Hazard incidents consist of accidental occurrences that may create adverse effects on human health or the environment. This section describes features of the existing environment as they relate to the risk of a major accident occurring at the Carson Facility. Factors which are taken into consideration to determine the potential risks from an accident are as follows:

- The probability of an accident occurring;
- The consequences of an accident (exposures);
- The types of materials potentially involved in an accident; and
- The location of sensitive receptors e.g. residences, schools, and businesses.

Based on a review of the existing Carson Facility operations and processes, the types of accidents that could affect the public would involve the ignition of flammable liquids. The chemicals considered to pose the greatest risks are gasoline, ethanol, diesel fuel and jet fuel. Both thermal radiation and blast overpressures could result from the ignition of a gasoline, ethanol, diesel fuel or jet fuel release.

Potential hazards at the facility may include exposure to pool fires and vapor cloud explosions. These hazards are described below.

Pool Fire: The rupture of a storage tank containing a flammable liquid material or an accident during tanker truck loading, followed by ignition of the spilled liquid could result in a pool fire. The pool fire could lead to being exposed to thermal radiation, which is the heat generated by a fire. The severity of potential burns resulting from exposure to thermal radiation varies based on the intensity of the fire, the duration of exposure, and the distance of an individual from the fire.

Vapor Cloud Explosion: The rupture of a storage tank containing a flammable liquid material or an accident during tanker truck loading, followed by evaporation of the liquid material to produce flammable vapors and ignition of the flammable vapors could result in a vapor cloud explosion. A vapor cloud explosion could cause impacts to individuals and structures in the area due to overpressure.

Shell currently adheres to the following safety design and process standards and regulations:

- The California Health and Safety Code Fire Protection specifications;
- The design standards for petroleum product storage and distribution equipment established by the American Petroleum Institute, the American Society of Mechanical Engineers, the American Institute of Chemical Engineers, the American National Standards Institute, and the American Society of Testing and Materials; and
- The applicable federal and California Occupational Safety and Health Administration (OSHA) requirements.

Shell maintains three required emergency response plans for the Carson Facility. A Facility Response Plan is maintained to assist Carson Facility personnel to prepare for and respond to a discharge originating from the facility and to minimize hazards from fires, explosions, or any unplanned sudden or non-sudden releases of hazardous waste or hazardous waste constituents. A Spill Prevention, Control, and Countermeasure (SPCC) plan, as required by the U.S. EPA, is kept onsite and updated as necessary. The SPCC plan includes requirements for secondary containment for storage tanks, employee training and emergency response procedures. A Hazardous Material Business Plan (HMBP) is also maintained for the site. The HMBP requirements are overseen by the Los Angeles County Fire Department, which is the Certified Unified Program Agency (CUPA) with jurisdiction for the City of Carson. The HMBP is updated annually and lists the quantities and locations of all hazardous materials stored onsite, emergency response procedures in the case of an accidental release or other emergency and employee training requirements. Shell endeavors to ensure clear access to the Carson Facility for emergency response vehicles at all times

3.4.2 HAZARDS AND HAZARDOUS MATERIALS TRANSPORTATION RISKS

There is a possibility that an ethanol tanker truck could be involved in an accident that causes its contents to be spilled. The factors used for determining accident statistics include the vehicle distance traveled and the type of vehicle or transportation system. Factors affecting truck transportation accidents include the type of roadway, presence of road hazards, vehicle type, maintenance and physical condition of the truck, and driver training.

A common reference frequently used in measuring probable risk of an accident is the number of accidents per million miles traveled. The Federal Motor Carrier Safety Association commissioned a study by the Battelle Institute in 2001 to assess the comparative risks of hazardous materials truck shipment accidents (Battelle, 2001). In this report, the estimated frequencies for trucking accidents involving various hazardous materials are computed based on 1996 mileage traveled. For hazardous materials accidents involving flammable liquids (Hazardous Material Division 3 [HM3]), the computed accident frequency was based on 0.50 accidents per million miles (Battelle, 2001, Table 24, HM3). Not all accidents involving hazardous material transport results in releases of hazardous materials. For HM3 flammable liquids, the Battelle study found that only 35.5 percent of accidents result in a release of hazardous materials (Battelle, 2001, Table 9, HM3). Of the accidents with releases, only 14.5 percent resulted in a fire or explosion (Battelle, 2001, Table 10, HM3). Consequently, a fire or explosion resulting from a hazardous material transport accident occurs in only 5.2 percent of accidents. Therefore, the frequency of accidents involving a release of hazardous materials and resulting in a fire or explosion is estimated to be 0.026 per million miles traveled.

3.4.3 REGULATORY BACKGROUND

There are many federal and state rules and regulations that petroleum storage facilities must comply with in order to minimize the potential impacts associated with hazardous materials at these facilities. Some of the more applicable regulations relative to hazards are summarized in the following paragraphs.

Under OSHA regulations (29 CFR Part 1910), facilities which use, store, manufacture, handle, process, or move highly hazardous materials must prepare a fire prevention plan.

Process Safety Management of Highly Hazardous Chemicals, 29 CFR Part 1910.119, requires the preparation of a Process Safety Management (PSM) plan, which includes written process safety information, hazard and operability (HAZOP) analysis, development of operating procedures, training procedures, and pre-start safety review.

Transportation of Hazardous Materials by Pipeline, 49 CFR Part 195, prescribes safety standards and reporting requirements for pipeline facilities used to transport hazardous liquids or carbon dioxide. 49 CFR Part 195 includes requirements for pipeline design, construction, pressure testing, corrosion control, operations and maintenance, and qualifications of pipeline personnel.

The U.S. EPA's Emergency Planning and Community Right-to-Know Act (EPCRA) requires annual reporting of releases from facilities such as the Carson Facility and creates other specific obligations in the event of an emergency release.

Terminal facilities that store petroleum products in excess of 1,320 gallons in aboveground storage tanks or in excess of 40,000 gallons in underground storage tanks are required to have a SPCC Plan per the requirements of 40 CFR, Section 112.1. The SPCC Plan is designed to prevent spills from on-site facilities and includes requirements for secondary containment, provides emergency response procedures, establishes training requirements, etc.

Section 112(r) of the Clean Air Act Amendments of 1990 [42 U.S.C. 7401 et. Seq.] and Article 2, Chapter 6.95 of the California Health and Safety Code require facilities that handle listed regulated substances in quantities above specified threshold amounts to develop Risk Management Plans (RMPs) to prevent accidental releases of these substances. U.S. EPA regulations are set forth in 40 CFR Part 68. In California, the California Accidental Release Prevention (CalARP) Program regulation (CCR Title 19, Division 2, Chapter 4.5) was issued by the Governor's Office of Emergency Services (OES). The Carson Facility is not subject to the requirements of either the federal RMP Program or the California CalARP Program, because the Carson Facility does not handle listed regulated substances above the specified threshold amounts.

The Hazardous Materials Transportation (HMT) Act is the federal legislation that regulates transport of hazardous materials. The primary regulatory authorities tasked with implementing or enforcing the HMT Act are the U.S. Department of Transportation (U.S. DOT), the Federal Highway Administration, and the Federal Railroad Administration. The HMT Act requires that carriers report releases of hazardous materials to the U.S. DOT at the earliest practical moment (49 CFR §171.15). Incidents that must be reported involve deaths, injuries requiring hospitalization and property damage exceeding $50,000.

49 CFR Part 180, Subpart E, Qualification and Maintenance of Cargo Tanks, prescribes design specifications and testing requirements for cargo tanks used for the transportation of hazardous materials. Specifically, it requires cargo tanks to be certified liquid and vapor tight and to be capable of maintaining design pressures. Caltrans also sets standards for trucks transporting

hazardous materials in California, and the regulations are enforced by the California Highway Patrol.

The Elder California Pipeline Safety Act of 1981, California Government Code Sections 51010-51019, prescribes regulations for the construction, operation and maintenance of pipelines used to transport hazardous liquids.

Title 8 of the California Code of Regulations (CCR), General Industry Safety Order §5189, specifies required prevention program elements to protect workers at facilities that handle toxic, flammable, reactive or explosive materials. Prevention program elements are aimed at preventing or minimizing the consequences of catastrophic releases of the chemicals and include process hazard analyses, formal training programs for employees and contractors, investigation of equipment mechanical integrity, and an emergency response plan.

California Assembly Bill 2185 (Health and Safety Code §1367.06) requires local agencies to regulate the storage and handling of hazardous materials and requires development of a plan to mitigate the release of hazardous materials. Businesses that handle any of the specified hazardous materials must submit to government agencies (i.e., fire departments), an inventory of the hazardous materials, an emergency response plan, and an employee training program. The business plans must provide a description of the types of hazardous materials/waste onsite and the location of these materials. The information in the business plan can then be used in the event of an emergency to determine the appropriate response action, the need for public notification, and the need for evacuation.

3.5 HYDROLOGY AND WATER QUALITY

The NOP/IS (see Appendix I-A) determined that the proposed project at the Carson Facility may generate significant adverse impacts on available water supply during construction. The NOP/IS also determined that the proposed project does not have the potential to generate significant adverse impacts on water supply during operation or significant adverse water quality impacts during either construction or operation (see Appendix I-A). No comments were received on the NOP/IS that refuted these conclusions. The following subsections describe the existing water supply and water use by the facility.

3.5.1 LOS ANGELES BASIN WATER SUPPLY

Water consumed in the Los Angeles Basin includes both imported water and water from local sources. Imported sources of water (including the Colorado River Aqueduct (CRA), the State Water Project's California Aqueduct, and the Los Angeles Aqueduct) have, in previous years, supplied more than six million acre-feet[10] or two trillion gallons of water to the southern California region annually. Imported sources have accounted for approximately 74 percent of the total water used in the region.

The Metropolitan Water District of Southern California (MWD) provides water to supplement local water sources for Southern California. The MWD service area encompasses approximately

[10] One acre-foot is equivalent to 325,851 gallons.

5,200 square miles and includes 27 member agencies. Available water supplies provided by the MWD are diverse and include State Water Project (SWP) deliveries, Colorado River deliveries (according to Federal apportionments and guidelines), water transfers and exchanges, storage and groundwater banking programs, and State and federal initiatives (such as the California Water Use Plan for the Colorado River and Delta Improvements). The MWD also operates several filtration plants to treat both Colorado River and SWP water supplies.

Local sources of water account for approximately 26 percent of the total volume consumed annually in the southern California area. Local sources include surface water runoff and groundwater. The largest surface water sources in the region are the Colorado, the Santa Ana, and the Santa Clara River systems. Major groundwater basins in the region include the Central, Raymond, San Fernando and San Gabriel basins (Los Angeles County); the Upper Santa Ana Valley Basin system (San Bernardino and Riverside counties); the Coastal Plain Basin (Orange County); and the Coachella Valley Basin (Riverside County).

Back-to-back dry years and low reservoir levels put California in a statewide drought, and Governor Arnold Schwarzenegger declared a statewide drought on June 4, 2008. In late 2008, the state's major reservoirs were at about one-third of capacity, at a time when they would typically be at about two-thirds. As a result, the State Department of Water Resources (DWR) has allocated only 15 percent of requested amounts of water to be delivered to the SWP in 2009. This allocation is the second lowest in the history of the SWP. Additionally, a federal judge's restrictions on pumping in the Sacramento-San Joaquin Delta, ordered in 2007 to protect the threatened Delta smelt, reduced water deliveries by as much as 30 percent in 2008 to the San Francisco Bay Area, the Central Coast, the San Joaquin Valley and Southern California. Because of the drought, local water resources are not expected to be stable in the future on a region-wide basis. However, because of higher than average rainfall years in 2010 and 2011, on March 30, 2011 Governor Jerry Brown declared an official end to the drought in California.

3.5.2 LOCAL WATER SUPPLY

The Rancho Dominguez District of the California Water Service Company (Cal Water) provides water service to the Carson Facility. The Cal Water Rancho Dominguez District utilizes a combination of local groundwater and imported surface water to serve customers in Carson and parts of Torrance, Compton, Long Beach, and Harbor City. Approximately 80 percent of the water supply distributed by Cal Water is comprised of imported water, 18 percent is groundwater, and two percent is desalinated water (City of Carson, 2004a). The imported water is surface water imported by the MWD from the Colorado River and the SWP. The local groundwater supply is pumped from eight active wells throughout the service area.

Two groundwater basins underlie the City of Carson: the Central Water Basin and the West Coast Basin. Groundwater levels in the Central Basin depend on local storm runoff, imported and recycled water for groundwater recharge and the injection of imported water from the inland side of the Alamitos Seawater Intrusion Barrier. Subsurface flows from the San Gabriel Valley and precipitation on the Montebello Forebay also percolate into and replenish the Central Basin. West Coast Basin groundwater originates from subsurface flows from the Central Basin and injection along the sea water barrier system. A system of dams, flood control channels and percolation ponds artificially recharge the basins. Los Angeles County studies indicate that 90 percent of the rain and runoff in the County either percolates naturally into the ground or is captured in flood control reservoirs for later release to recharge the groundwater basins (City of Carson, 2004a).

The Carson Facility does not have any wells on-site to provide water. Additionally, the Carson Facility does not currently have reclaimed water available for use at the facility. The infrastructure to use reclaimed water for irrigation, such as pipelines, is present within the facility, and the Shell operators are attempting to arrange for a connection to the West Basin Municipal Water District's reclaimed water supply, but it is not known if or when reclaimed water will be available at the Carson Facility. Thus, all water consumed by the Carson Facility is currently provided by Cal Water.

3.5.3 CARSON FACILITY WATER USE

The Carson Facility currently consumes potable water for fire protection, irrigation, employee use and consumption and for hydrostatic testing of the structural integrity of existing storage tanks that have undergone major repairs[11]. Annual potable water consumption data by the Carson Facility from 2006 to 2010 are listed in Table 3.5-1. Table 3.5-1 shows that annual potable water use decreased from approximately 14.6 million gallons in 2006 to approximately 12.4 million gallons in 2010.

Table 3.5-1
Carson Facility Historical Potable Water Consumption (2006-2009)

Year	Annual Water Consumption (million gallons per year)		
	Storage Tank Hydrostatic Testing[1]	Other Uses[2]	Total
2006	9.2	5.4	14.6
2007	9.2	5.2	14.4
2008	9.2	4.1	13.3
2009	9.2	3.5	12.7
2010	9.2	3.1	12.4

[1] Usage for hydrostatic testing is based on testing an average of three existing, 73,000 barrel capacity tanks for structural integrity each year.
[2] Other uses include fire protection, irrigation and employee use and consumption.

3.5.4 REGULATORY BACKGROUND

3.5.4.1 Federal Regulations

The federal Safe Drinking Water Act (SDWA) was passed by Congress in 1974 to protect the public health by regulating the nation's public drinking water supply. The SDWA authorizes the

[11] The facility tests an average of three tanks each year.

U.S. EPA to set national health-based standards for drinking water to protect against naturally-occurring and man-made contaminants. The U.S. EPA sets standards for drinking water quality and oversees the states, localities, and water suppliers that are responsible for implementing those standards. The SDWA originally focused on treatment in order to provide safe drinking water. The SDWA was amended in 1986 and 1996 and requires several actions to protect drinking water and its sources, which include rivers, lakes, reservoirs, springs and ground water wells. The 1996 amendments to the SDWA recognized source water protection, operator training, funding for water system improvements, and public information as important components of providing safe drinking water.

3.5.4.2 State Regulations

The California Safe Drinking Water Act was passed in 1976. The State's potable water supply is managed through local agencies and water districts, including the DWR, the Department of Health Services (DHS), and the State Water Resources Control Board (SWRCB). The DWR planned, constructed and now manages the SWP.

Under the California Urban Water Management Planning Act, each urban water supplier must make every effort to ensure the appropriate level of reliability in its water service sufficient to meet the needs of its customers during normal, dry and multiple dry water years. In doing so, each urban water supplier must prepare and adopt an urban water management plan, to be updated every five years.

Senate Bill 610 (Costa) was passed by the California Legislature in 2001 to further enforce the California Urban Water Management Planning Act. Senate Bill 610 applies water assessment requirements to a variety of development actions. Where a city or county determines that a "project" defined by the Water Code is subject to CEQA, it must comply with the water supply assessment procedure as set forth in the Water Code. Pursuant to the Water Code "projects" typically include: 1) residential projects of more than 500 units; 2) shopping centers/business establishments employing more than 1,000 persons or including more than 500,000 square feet of floor space; 3) commercial space employing more than 1,000 persons or including more than 250,000 square feet of floor space; 4) a hotel/motel including more than 500 rooms; 5) industrial/manufacturing uses planned to house more than 1,000 persons, occupy more than 40 acres of land, or include more than 650,000 square feet of floor area; and 6) any project which would demand as much water as a 500 unit residential development. The water supply assessment must be prepared by the local public water supply provider and include specific information that identifies the existing water supply entitlements and contracts. Where a water supply assessment is prepared, the information it provides must be included in the CEQA document being compiled to analyze the potential environmental effects of the proposed action.

Governor Arnold Schwarzenegger declared an official drought for the State of California in June of 2008 under Executive Order S-06-08. Under the Order, the DWR is directed to expedite existing grant programs for local water districts and agencies for new or ongoing water conservation and water use reduction programs and projects, facilitate water transfers to respond to potential emergency water shortages and water quality degradation, prepare to operate a dry-year water purchasing program, conduct an aggressive water conservation and outreach campaign, convene the Climate Variability Advisory Committee to prioritize and expedite drought-related climate research, provide technical assistance for drought response to local water agencies and districts for improving landscape and agricultural irrigation efficiencies, review the water shortage contingency elements of urban water management plans and work cooperatively with water suppliers to implement improvements and additional actions to facilitate drought response and preparedness and to promote water conservation.

In February 2009, the Governor further proclaimed a state of emergency regarding the third consecutive year of drought in the State. The proclamation requested that all urban water users immediately increase their water conservation activities to reduce their individual water use by 20 percent; directed the DWR to expedite water transfers and related efforts by water users and suppliers, offer technical assistance to agricultural water suppliers and agricultural water users, implement short-term efforts to protect water quality or water supply and to join with other appropriate agencies to launch a statewide water conservation campaign; directs state agencies to immediately implement a water use reduction plan and take water conservation actions; and requests that federal and local agencies also implement water use reduction plans for facilities within their control. However, as previously noted, due to above average rainfall in 2010 and 2011, Governor Jerry Brown declared an official end to the drought in California on March 30, 2011.

California Water Code §71460 et seq. states that a water district may restrict the use of water during any emergency caused by drought, or other threatened or existing water shortage, and may prohibit the use of water during such periods for any purpose other than household uses or such other restricted uses as determined to be necessary. The water district may also prohibit the use of water during such periods for specific uses which it finds to be nonessential.

3.6 NOISE

The NOP/IS (see Appendix I-A) concluded that the proposed project at the Carson Facility has the potential to generate significant adverse noise impacts. Noise is usually defined as sound that is undesirable because it interferes with speech communication and hearing, is intense enough to damage hearing, or is otherwise annoying (unwanted sound). Sound levels are measured on a logarithmic scale in decibels (dB). The universal measure for environmental sound is the “A” weighted sound level, dBA, which is the sound pressure level in decibels as measured on a sound level meter using the A-weighted filter network. “A” scale weighting is a set of mathematical factors applied by the measuring instrument to shape the frequency content of the sound in a manner similar to the way the human ear responds to sounds.

Because decibels are measured on a logarithmic scale, they cannot be added or subtracted through ordinary arithmetic. A doubling of the sound pressure from a source, such as doubling of traffic volume, would increase the sound level by three dB; a halving of the sound pressure would result in a three dB decrease.

In general, a change in sound level of less than 3.0 dBA is not typically noticed by the human ear (FHWA, 1980). Changes from 3.0 to 5.0 dBA may be noticed by some individuals who are extremely sensitive to changes in noise. A greater than 5.0 dBA increase is readily noticeable, while the human ear perceives a 10.0 dBA increase in sound level to be a doubling of sound.

Most environmental noises can be approximately described in terms of the overall sound pressure levels, the variations of these levels over time and human sensitivity to the noise levels throughout the day. The following noise descriptors are used to describe environmental noise:

- L_{max} (Maximum Noise Level): The highest A-weighted integrated noise level occurring during a specific period of time;
- L_{eq} (Equivalent Noise Level): The energy mean (average) noise level. The steady-state sound level that, in a specified period of time, contains the same acoustical energy as a varying sound level over the same time period;
- L_{dn} (Day-Night Noise Level): The L_{dn} is the average A-weighted sound level measured over a 24-hour time period that is adjusted by 10 dBA upward during the nighttime noise-sensitive hours of 10:00 p.m. through 7:00 a.m. The L_{dn} attempts to account for the fact that noise during this specific period of time is a potential source of disturbance with respect to normal sleeping hours; and
- CNEL (Community Noise Equivalent Level): CNEL is another average A-weighted sound level measured over a 24-hour time period, but is adjusted during the evening and nighttime hours. A CNEL noise measurement is obtained after adding 5.0 dBA to sound levels occurring during the evening from 7:00 p.m. to 10:00 p.m., and 10.0 dBA to sound levels occurring during the nighttime from 10:00 p.m. to 7:00 a.m. The 5.0 and 10.0-dBA adjustments are applied to account for most people's increased noise sensitivity during the evening and nighttime hours (Caltrans 2009).

Groundborne vibration consists of oscillatory waves that propagate from the source through the ground to adjacent structures. The frequency of a vibrating object describes how rapidly it is oscillating. The number of cycles per second of oscillation is the vibration frequency, which is described in terms of hertz (Hz). The normal frequency range of most groundborne vibration that can be felt generally starts from a low frequency of less than one Hz to a high of about 200 Hz (Crocker 2007).

Vibration in buildings from construction activities may cause rattling of windows, items on shelves and pictures hanging on walls. Vibration of building components can also take the form of an audible low-frequency rumbling noise, which is referred to as groundborne noise. Groundborne noise is usually only a problem when the originating vibration spectrum is dominated by frequencies in the upper end of the range (60 to 200 Hz), or when foundations or utilities, such as sewer and water pipes, physically connect the structure and the construction activity (FTA 2006).

Vibration levels are usually expressed as a single-number measure of vibration magnitude, in terms of velocity or acceleration, which describes the severity of the vibration without the frequency variable. The peak particle velocity (PPV) is defined as the maximum instantaneous positive or negative peak of the vibration signal, usually measured in inches per second (in/sec).

3.6.1 EXISTING NOISE ENVIRONMENT

Land uses surrounding the Carson Facility include light industrial and single-family residential to the north; light and heavy industrial to the east; single-family residential, a park, and an elementary school to the southeast; single-family residential and an electrical substation to the south; and light industrial uses to the west. Residential uses are also located further south of the facility along Wilmington Avenue and along Carson Street west of Wilmington Avenue.

The Noise Element of the City of Carson General Plan (City of Carson, 2004b) identifies residences, public and private school/preschool classrooms, places of worship, hospitals, and elderly care facilities as noise-sensitive receptors. Noise-sensitive receptors in the vicinity of the proposed project include residences to the north of the Carson Facility on the north side of East Del Amo Boulevard, residences along a portion of the southern facility boundary, an elementary school south of the facility and residences south of the facility and 213th Street.

Predominant sources of existing off-site noise in the vicinity of the Carson Facility include vehicular (including truck) traffic along Wilmington Avenue and Del Amo Boulevard, heavy and light industrial activities, commercial uses and rail traffic on rail lines and spurs. Common industrial noise sources include trucks, air compressors, generators and outdoor loudspeakers. Commercial noise sources include mechanical equipment and engines in stationary motors, such as power tools at repair shops. Noise from residential uses in the project area is minor compared to noise from the surrounding non-residential uses and vehicular traffic.

Short-term (approximately 15 minutes duration) noise measurements were taken on January 13, 2010, at two locations in the residential area west of Wilmington Avenue and south of the Carson Facility, and 24-hour duration noise measurements were taken on September 20-21, 2011 at one location in the same residential area as the short-term measurements (see Figure 3.6-1). These locations were selected because these residential areas are the closest residential areas to the proposed project sites, so could be affected by construction and operational noise from the proposed project. The short-term measurements were taken between 1:30 p.m. and 3:30 p.m. with a Larson Davis 824 sound level meter (SLM), and the 24-hour measurements were taken beginning at 11:00 a.m with a Larson Davis 820 SLM. Both meters were set on "slow" response with "A-weighting." The SLMs were positioned five feet above ground level. The weather was fair with a calm wind of less than five miles per hour during all measurements. There was little local traffic during the measurements.

Results of the short-term noise measurements are summarized in Table 3.6-1. As shown in Table 3.6-1, the L_{eq} at Noise Measurement Location #1 was 49 dBA, and the L_{eq} at Noise Measurement Location #2 was 55 dBA. The higher noise level at Location #2 was due primarily to children playing in the local park to the southeast of the measurement location. The results of the 24-hour measurements at the long-term measurement location, approximately 60 feet east of the northern end of Martin Street adjacent to the Carson Facility fence line, are summarized in Table 3.6-2. As shown in Table 3.6-2, daytime noise levels ranged from 49 to 53 dBA L_{eq} between 7:00 a.m. and 10:00 p.m., and nighttime noise levels ranged from 43 to 48 dBA L_{eq} between 10:00 p.m. and 7:00 a.m. Based on the measurement, the daytime L_{eq} was 51.6 dBA, and the Nighttime L_{eq} was 46.1 dBA. Detailed measurement data are provided in Appendix II-H.

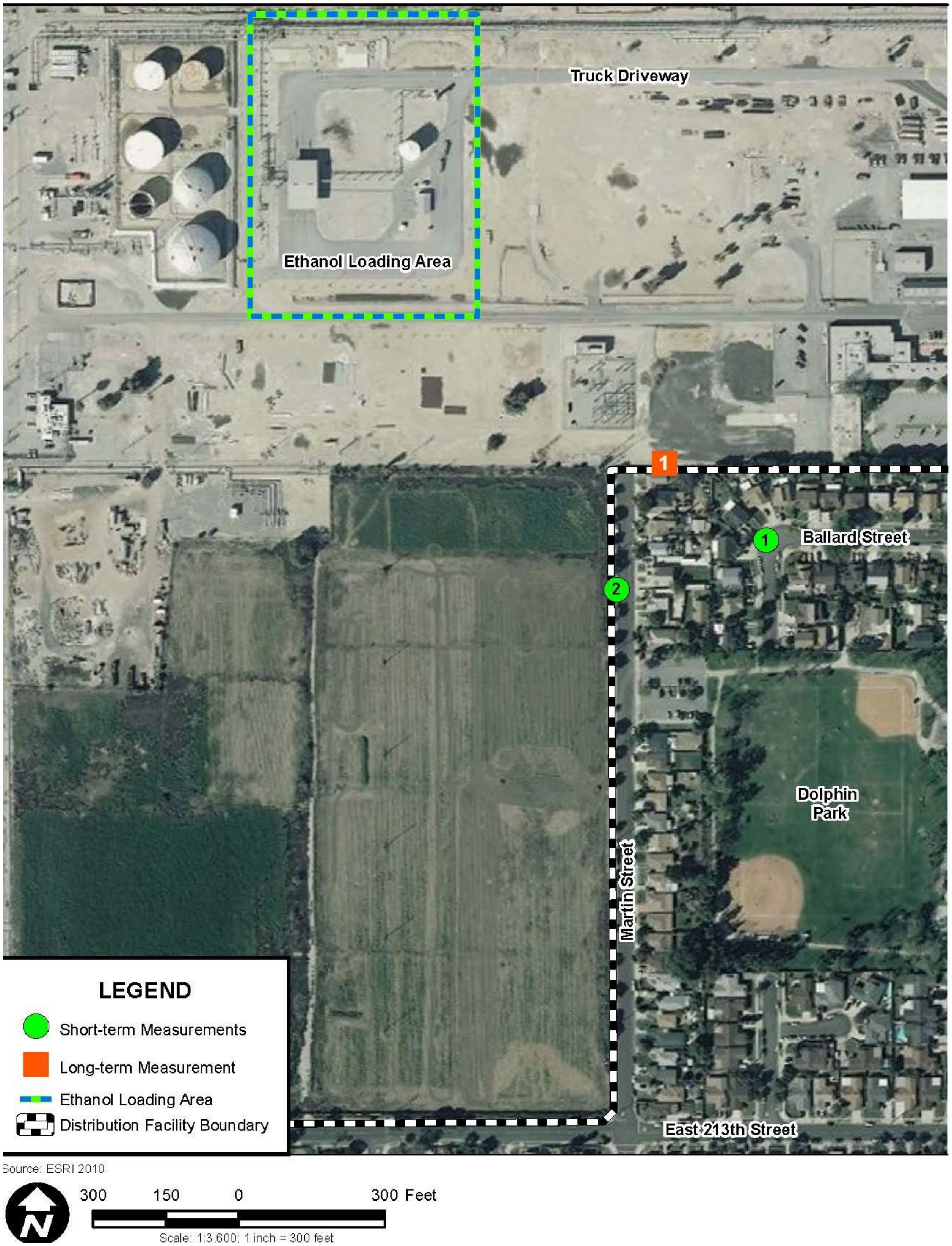


Figure 3.6-1. Noise Measurement Locations

Table 3.6-1
Short-term Noise Measurement Results

Noise Measurement Location #[1]	Location	Start Time of Measurement	L_{eq} dBA	L_{max} dBA	L_{min} dBA
1	Front yard of 21006 Pontine Avenue	1:30 p.m.	49	64	45
2	Across street from 21020 Martin Street, 10 feet from Carson Facility fence line	2:03 p.m.	55	74	49

[1] The Noise Measurement Location #s correspond to locations shown in Figure 3.6-1

Table 3.6-2
24-hour Noise Measurement Results[1]

Date	Time	Leq (dBA)	Date	Time	Leq (dBA)
09/20/2011	11:00 AM	52	09/20/2011	11:00 PM	47
09/20/2011	12:00 PM	53	09/21/2011	12:00 AM	48
09/20/2011	1:00 PM	53	09/21/2011	1:00 AM	46
09/20/2011	2:00 PM	51	09/21/2011	2:00 AM	43
09/20/2011	3:00 PM	52	09/21/2011	3:00 AM	45
09/20/2011	4:00 PM	53	09/21/2011	4:00 AM	45
09/20/2011	5:00 PM	52	09/21/2011	5:00 AM	46
09/20/2011	6:00 PM	51	09/21/2011	6:00 AM	47
09/20/2011	7:00 PM	52	09/21/2011	7:00 AM	53
09/20/2011	8:00 PM	50	09/21/2011	8:00 AM	51
09/20/2011	9:00 PM	49	09/21/2011	9:00 AM	50
09/20/2011	10:00 PM	49	09/21/2011	10:00 AM	52

[1] The noise measurements were made approximately 60 feet east of the northern end of Martin Street, adjacent to the facility fence line (see Figure 3.6-1).

3.6.2 REGULATORY BACKGROUND

In 1995, the City of Carson adopted the "Noise Control Ordinance of the County of Los Angeles," as amended, as the City's Noise Control Ordinance, which sets standards for noise levels in the City. The ordinance includes separate standards for noise from construction activities and noise from other activities.

The construction noise control standards include separate standards for non-scheduled, intermittent, short-term operation of construction equipment of 20 days or less and for relatively long-term operation of construction equipment of 21 days or more. Since construction activities for the proposed project are anticipated to last for 17 months, the standards for long-term operation of construction equipment, listed in Table 3.6-3, are applicable to the proposed project.

Table 3.6-3
City of Carson Noise Ordinance Maximum Noise Levels for Long-Term Construction

Time Interval	Single-family Residential	Multi-family Residential
Daily, except Sundays and legal holidays, 7:00 a.m. to 8:00 p.m.	65 dBA	70 dBA
Daily, 8:00 p.m. to 7:00 a.m. and all day Sunday and legal holidays	55 dBA	60 dBA

The standards for noise from non-construction activities include interior and exterior noise levels for properties within designated noise zones, as shown in Table 3.6-4. The City of Carson Noise Control Ordinance provides for modifications to the limits in Table 3.6-4 for locations on boundaries between two different zones. At a property boundary between two different zones, the exterior standard is the arithmetic mean of the exterior noise level limit shown in Table 3.6-4 for the subject zones or, when noise source originates on an industrial property and is impacting another noise zone, then the applicable exterior noise level is the daytime exterior noise level for the subject receptor property. Thus, the standards for properties adjacent to the Carson Facility for noise caused by operation of the proposed project would be the daytime exterior noise level standards in Table 3.6-4.

The City of Carson Noise Control Ordinance also prohibits the operation of any device that creates vibration above the vibration perception threshold of any individual at or beyond the property boundary of the source if on private property, or at 150 feet (46 meters) from the source if on a public space or public right-of-way. The perception is defined as a motion velocity of 0.01 inch per second (in/sec) over the range of one to 100 Hz, which is equivalent to 0.10 in/sec PPV.

Table 3.6-4
City of Carson Noise Ordinance Noise Levels for Operations

Noise Zone	Designated Noise Zone Land Use (Receptor property)	Time Interval	Exterior Noise Level (dBA)	Interior Noise Level (dBA)
I	Noise-sensitive area	Anytime	45	---
II	Residential properties	10:00 p.m. to 7:00 a.m. (nighttime)	45	---
		7:00 a.m. to 10:00 p.m. (daytime)	50	---
III	Commercial properties	10:00 p.m. to 7:00 a.m. (nighttime)	55	---
		7:00 a.m. to 10:00 p.m. (daytime)	60	---
IV	Industrial properties	Anytime	70	---
All Zones	Multi-family Residential	10:00 p.m. to 7:00 am (nighttime)	---	40
		7:00 a.m. to 10:00 p.m. (daytime)	---	45

3.7 TRANSPORTATION AND TRAFFIC

The NOP/IS (see Appendix I-A) concluded that the proposed project at the Carson Facility has the potential to generate significant adverse transportation/traffic impacts through potentially substantial increases in traffic during construction and operation of the proposed project. Although the construction of the proposed modifications would occur entirely within the boundaries of the existing Carson Facility, construction worker commute trips and construction material haul truck trips to and from the facility are expected to increase. The Carson Facility loaded an average of 132 ethanol tanker trucks per day during the baseline period, which generated an average of 264 one-way trips per day, and employed approximately 42 persons, which generated an average of approximately 84 one-way commuting trips per day. Although operation of the proposed project is not expected to increase the need for additional employees at the facility, the number of trucks visiting the facility is expected to increase. Increased construction and operation vehicle trips will be discussed in Chapter 4. The existing transportation and traffic conditions in the vicinity of the project site are discussed below.

3.7.1 REGIONAL CIRCULATION

The Carson Facility is located at 20945 South Wilmington Avenue in the City of Carson, California. The facility is approximately 10 miles north of the Ports of Long Beach and Los Angeles and 16 miles southeast of the Los Angeles International Airport (LAX). Key regional transportation facilities in the project area include the San Diego Freeway (I-405), located approximately 0.1 mile southwest of the facility; the Long Beach Freeway (I-710), located approximately 1.6 miles east of the facility; the Harbor Freeway (I-110), located approximately 1.7 miles west of the facility; and the Redondo Beach/Artesia Freeway (SR-91), located approximately 1.7 miles north of the facility. The I-405 Freeway stretches from the San Fernando area in Los Angeles County northwest of the project site to the El Toro area in Orange County southeast of the project site. The I-405 Freeway runs diagonally through the City of Carson. The I-710 and I-110 Freeways are both north-south trending freeways through the City of Carson that originate at the Ports of Long Beach and Los Angeles; the I-710 terminates in East Los Angeles and the I-110 terminates in Pasadena, both lying north of the project site. SR-91 is an east-west trending route that extends from the I-110 Freeway in the Gardena area east to Riverside.

In addition to the vehicular system, the surrounding area is serviced by a network of railroad facilities. This system provides an alternative mode of transportation for the distribution of goods and materials. The Los Angeles area is served by two main-line freight railroads, the Burlington Northern Santa Fe and the Union Pacific Railroad. These freight railroads connect southern California with other U.S. regions, Mexico and Canada via their connections with other railroads. The Los Angeles County Metropolitan Transportation Authority (MTA) operates commuter rail systems in the Los Angeles area. Additionally, Amtrak provides inter-city service, principally between San Diego and San Luis Obispo.

3.7.2 LOCAL CIRCULATION

Key streets in the vicinity of the Carson Facility include Wilmington Avenue and Alameda Street to the east and Del Amo Boulevard to the north. These roadways provide access to the facility from the freeways. In accordance with requirements of the DOR granted by the City of Carson, all large product vehicles are mandated to exit the Carson Facility onto Wilmington Avenue heading north to Del Amo Boulevard and then east to Alameda Street, avoiding residential areas.

In addition to the freeway and local roadway network, the Carson Facility is also located approximately one mile west of the Alameda Corridor, a 20-mile railroad expressline that connects the Ports of Long Beach and Los Angeles to the transcontinental railway network. A rail spur that enters the Carson Facility at the northeast boundary of the property, near the intersection of Del Amo Boulevard and Wilmington Avenue, provides rail access to the Carson Facility. Currently, non-halogenated solvents are delivered by rail to the Carson Facility for storage and subsequent shipment out of the facility by pipeline.

The City of Carson and surrounding communities are served by public transit. The City of Carson's bus system, Carson Circuit, provides service within Carson and also offers connections to the Metro Blue Line Station and regional bus services from Long Beach Transit, Torrance Transit, Los Angeles County MTA, and Gardena Municipal bus lines (City of Carson, 2010a). In addition, the North/South Shuttle is available in Carson and departs from the Artesia Transit Center located at 182nd Street/Albertoni to connect Carson residents to the regional and local bus lines in Los Angeles County (City of Carson, 2010b). Countywide services for the disabled, as well as Dial-a-Ride services, are also available throughout the City of Carson.

3.7.3 EXISTING TRAFFIC CONDITIONS

A traffic analysis was performed for the proposed project and is included in Appendix II-I. The traffic analysis included a level-of-service (LOS) analysis using existing traffic volumes and intersection survey data. LOS is a quantitative measure used to describe the condition of traffic flow, ranging from excellent conditions at LOS A to overloaded conditions at LOS F. The Intersection Capacity Utilization (ICU) methodology was used to determine the intersection volume-to-capacity (V/C) ratio and corresponding LOS for eight signalized study intersections:

1. Wilmington Avenue and Del Amo Boulevard;
2. Alameda Street and Del Amo Boulevard;
3. Santa Fe Avenue and Del Amo Boulevard;
4. Susana Road and Del Amo Boulevard;
5. Wilmington Avenue and Dominguez Street;
6. Wilmington Avenue and Carson Street;
7. Wilmington Avenue and I-405 Northbound On-/Off-Ramps; and
8. Wilmington Avenue and I-405 Southbound On-/Off-Ramps.

These intersections are located on the major local streets that would be expected to be used by increased traffic during construction and operation of the proposed project.

The LOS definitions for signalized intersections are provided in Table 3.7-1.

Manual intersection traffic counts were conducted on a typical weekday (Thursday, October 15, 2009) during the morning (A.M.) peak period, from 7:00 a.m. to 9:00 a.m. and the evening (P.M.) peak period, from 4:00 p.m. to 6:00 p.m. Existing weekday morning and evening peak hour traffic volumes derived from the count data are shown in Figure 3.7-1.

The results of the analysis of existing weekday morning and afternoon peak hour conditions at the study intersections are summarized in Table 3.7-2. Detailed LOS calculations are provided in Appendix II-I. Of the eight study intersections, one is operating at LOS D during the morning peak period (Susana Road and Del Amo Boulevard) and one at LOS E during the evening peak period (Wilmington Avenue and I-405 Southbound On-/Off-Ramps). The other six study intersections are operating at LOS C or better.

Table 3.7-1
Level-of-Service Definitions for Signalized Intersections

Level of Service	Volume-to-Capacity Ratio	Definition
A	0.00 - 0.60	EXCELLENT. No Vehicle waits longer than one red light and no approach phase is fully used.
B	>0.61 - 0.70	VERY GOOD. An occasional approach phase is fully utilized; many drivers begin to feel somewhat restricted within groups of vehicles.
C	>0.71 - 0.80	GOOD. Occasionally drivers may have to wait through more than one red light; backups may develop behind turning vehicles.
D	>0.81 - 0.90	FAIR. Delays may be substantial during portions of the rush hours, but enough lower volume periods occur to permit clearing of developing lines, preventing excessive backups.
E	>0.91 - 1.0	POOR. Represents the most vehicles intersection approaches can accommodate; may be long lines of waiting vehicles through several signal cycles.
F	> 1.0	FAILURE. Backups from nearby locations or on cross streets may restrict or prevent movement of vehicles out of the intersection approaches. Tremendous delays with continuously increasing queue lengths.

Source: Transportation Research Board (1994)

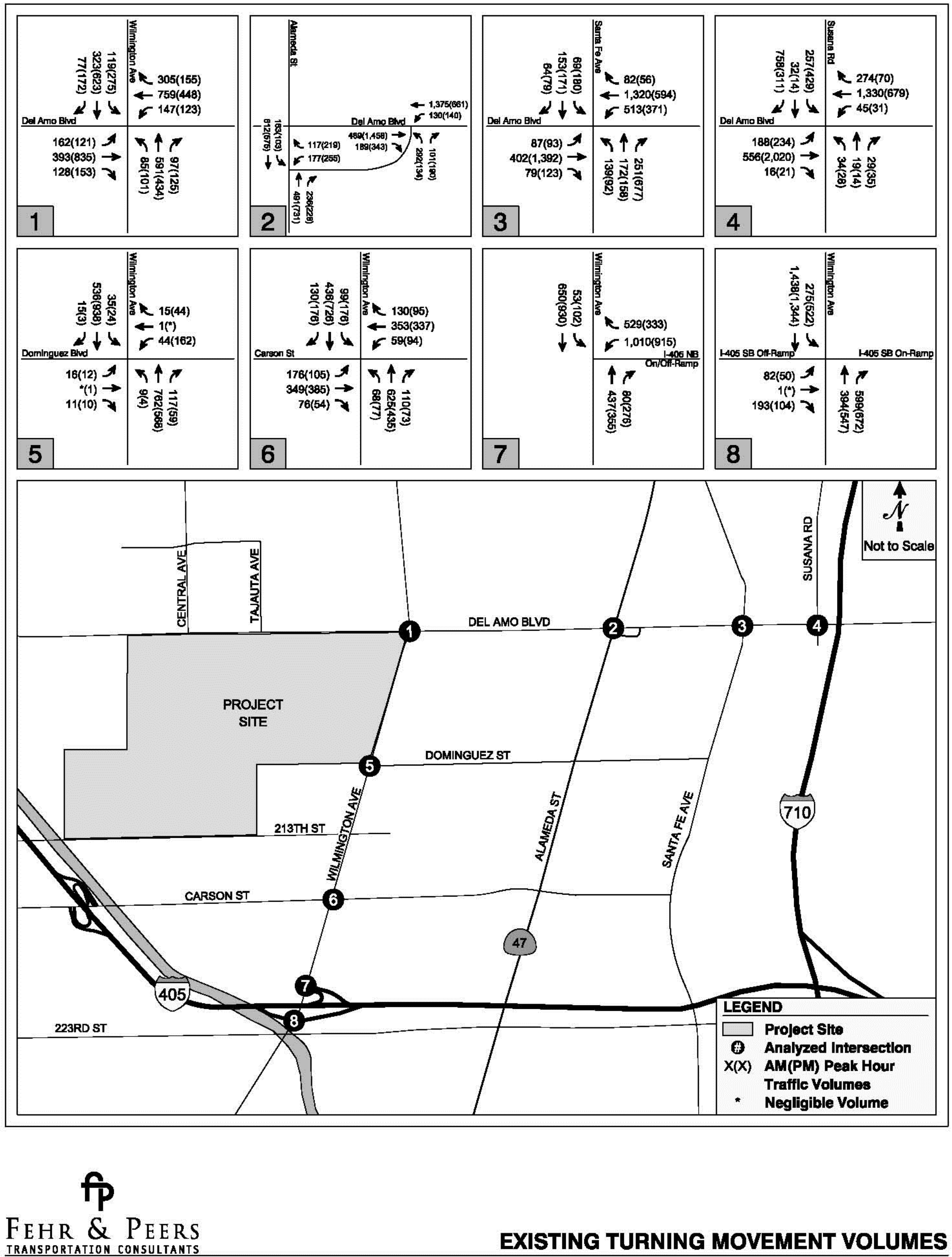


Figure 3.7-1. Existing Turning Movement Volumes

Table 3.7-2
Existing Intersection Level-of-Service Analysis

Intersection	Peak Period	V/C Ratio	LOS
1. Wilmington Avenue & Del Amo Boulevard	A.M. P.M.	0.627 0.612	B B
2. Alameda Street & Del Amo Boulevard (location to the East) Alameda Street & Del Amo Boulevard (location to the West)	A.M. P.M. A.M. P.M.	0.500 0.567 0.386 0.468	A A A A
3. Santa Fe Avenue & Del Amo Boulevard	A.M. P.M.	0.722 0.773	C C
4. Susana Road & Del Amo Boulevard	A.M. P.M.	0.804 0.765	D C
5. Wilmington Avenue & Dominguez Street	A.M. P.M.	0.395 0.473	A A
6. Wilmington Avenue & Carson Street	A.M. P.M.	0.577 0.571	A A
7. Wilmington Avenue & I-405 NB On-/Off-Ramp	A.M. P.M.	0.665 0.694	B B
8. Wilmington Avenue & I-405 SB On-/Off-Ramp	A.M. P.M.	0.767 0.911	C E

3.7.4 REGULATORY BACKGROUND

The Southern California Association of Governments (SCAG), which is the designated Metropolitan Planning Organization (MPO) for Imperial, Orange, Riverside, San Bernardino, Ventura and Los Angeles counties, is responsible for transportation planning in these counties. Under federal law, SCAG must prepare a Regional Transportation Plan (RTP) that addresses how the region will meet federal mandates, particularly air quality requirements. The RTP must be approved by federal agencies in order to continue to receive federal transportation funds. Only projects and programs included in the RTP are eligible for federal funding.

The Los Angeles County MTA is the State-designated planning and programming agency for Los Angeles County. The Los Angeles County MTA submits recommended projects and programs to SCAG for inclusion in the RTP and proactively identifies the transportation needs and challenges that Los Angeles County will face over the next 25 years through the development of its Long Range Transportation Plan (LRTP). The LRTP helps decision-makers understand the options that are available for improving the transportation system and how different options contribute toward improving mobility. The adopted LRTP becomes the blueprint for implementing future transportation improvements in Los Angeles County. The Los Angeles County MTA seeks to meet its mobility, air quality, and access goals by recommending projects that: 1) maintain the existing transportation system; 2) maximize system efficiency; and 3) increase system capacity and manage demand.

In June 1990, California voters approved Proposition 111 to fund transportation-related improvements Statewide. The Congestion Management Program (CMP) legislation (originally Assembly Bill (AB) 471 amended by AB1791) requires urbanized counties in California to adopt a CMP in order to be eligible to receive Proposition 111 revenues. The Los Angeles County MTA is the authorized CMP agency for Los Angeles County. The County's CMP is comprised of a system of arterial roadways, freeways, and 164 intersections, which are monitored. Where a proposed project would add 50 or more trips during either the A.M. or P.M. peak periods to the arterial, a traffic analysis must be prepared that addresses traffic conditions at all CMP monitoring locations. However, there are no arterial CMP monitoring locations in the City of Carson. The CMP also requires traffic studies to analyze all CMP freeway monitoring locations where a proposed project would add 150 or more trips in either direction during the A.M. or P.M. peak periods. The freeways in the City of Carson that are designated for monitoring in the CMP include SR-91, I-110, I-405, and I-710. Compliance with the CMP provisions includes (City of Carson, 2002):

- Land use coordination through utilization of standardized traffic impact analysis methodologies;
- Implementation and enforcement of Transportation Demand Management (TDM) strategies;
- Maintenance of transit service standards;
- Demonstrated transportation modeling consistency with the Countywide computer model;
- Monitoring of CMP highway system LOS;
- Development of LOS deficiency plans where applicable;
- Development of seven-year capital improvement programs; and
- Monitoring and conformance with all CMP provisions.

This Page Intentionally Blank

CHAPTER 4

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

This Page Intentionally Blank

4.0 ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

4.1 INTRODUCTION

This chapter provides an analysis of potential adverse environmental impacts associated with the Shell Carson Facility Ethanol (E10) Project discussed in Chapter 2. Pursuant to CEQA Guidelines §15126.2(a), Chapter 4 evaluates those impacts that are considered potentially significant for those environmental areas identified in the NOP/IS as being potentially significant (see Appendix I-A). An impact is considered significant under CEQA if it leads to a "substantial, or potentially substantial, adverse change in the environment." Impacts from the project fall within one of the following categories:

Beneficial - Impacts would have a positive effect on the environment.

No impact - There would be no impact to the identified resource as a result of the proposed project.

Adverse but not significant - Some impacts may result from the project; however, they are judged to be insignificant. Impacts are frequently considered insignificant when the changes are minor relative to the size of the available resource base or would not change an existing resource.

Potentially significant but mitigation measures reduce impacts to insignificance - Significant impacts may occur; however, with proper and feasible mitigation the impacts can be reduced to insignificance.

Potentially significant and mitigation measures are not available to reduce impacts to insignificance - Impacts may occur that would be significant even after mitigation measures have been applied to lessen their severity or no mitigation measures are available.

4.2 AIR QUALITY

The NOP/IS (see Appendix I-A) determined that the proposed project at the Carson Facility has the potential to generate significant adverse impacts on air quality. Project-specific adverse regional air quality impacts associated with increased criteria pollutant emissions during the construction and operation phases of the proposed project have been evaluated in this EIR. Impacts to sensitive receptors in areas near the proposed project site, for both criteria pollutants and TACs, have also been analyzed in this EIR.

While the proposed project is expected to emit GHGs, emitting GHGs from a single project into the atmosphere would not necessarily create a significant adverse project-specific global climate change effect. Rather, it is the increased accumulation of GHG emissions from more than one project or many individual sources that may contribute to adverse global climate change impacts. In virtually every project subject to CEQA review, a project's GHG emissions will be relatively small compared to global or even statewide GHG emissions, and, as such, will almost certainly have no detectable impact on global climate change. Due to the complex physical, chemical, and atmospheric mechanisms involved in global climate change, sufficient tools are not yet available to accurately identify the specific impact, if any, to global climate change from one project's incremental increase in global GHG emissions. As such, project-specific GHG emissions and determining the significance of potential impacts are more properly assessed on a cumulative basis.

For the above reasons, the analysis of GHG emission is more appropriately analyzed as a cumulative impact. Therefore, the existing GHG setting (baseline), project-specific emissions that contribute to cumulative climate change impacts, and the determination of whether or not project-specific GHG emission impacts are considered to be cumulatively considerable and, therefore, contribute to significant adverse cumulative climate change impacts are discussed in Chapter 5 – Cumulative Impacts, not in the project-specific impacts chapter, Chapter 4, as is typically the case when analyzing other types of project-specific impacts in EIRs prepared by the SCAQMD.

4.2.1 SIGNIFICANCE CRITERIA

To determine whether or not air quality impacts from the proposed project may be significant, impacts will be evaluated and compared to the criteria in Table 4.2-1. If impacts equal or exceed any of the criteria in Table 4.2-1, they will be considered significant. Additionally, impacts would be considered significant if the proposed project would not be consistent with the most recently adopted Air Quality Management Plan (AQMP).

4.2.2 ENVIRONMENTAL IMPACTS

4.2.2.1 Consistency with Air Quality Management Plan

The Air Quality Management Plan is a blueprint of control measures designed to attain and maintain with a margin of safety both national and California ambient air quality standards. The control measures are developed by compiling a current air pollutant emissions inventory, projecting the emissions inventory to future years, evaluating the impacts of future emissions on ambient air quality through air quality modeling, determining reductions in the projected future emissions needed to attain the standards, and devising control measures that will achieve those emission reductions. The AQMP is generally updated every three years. The last update to the SCAQMD AQMP was adopted by the SCAQMD Governing Board in 2007 (SCAQMD, 2007).

The 2007 AQMP demonstrates that the applicable ambient air quality standards can be achieved within the timeframes required under federal law. Population and commercial/industrial growth projections from local general plans adopted by cities in the district and compiled by the Southern California Association of Governments (SCAG) are some of the inputs used to develop the AQMP.

Table 4.2-1
SCAQMD Air Quality Significance Thresholds

Mass Daily Thresholds [a]		
Pollutant	**Construction [b]**	**Operation [c]**
NOx	100 lbs/day	55 lbs/day
VOC	75 lbs/day	55 lbs/day
PM10	150 lbs/day	150 lbs/day
PM2.5	55 lbs/day	55 lbs/day
SOx	150 lbs/day	150 lbs/day
CO	550 lbs/day	550 lbs/day
Lead	3 lbs/day	3 lbs/day

Toxic Air Contaminants (TACs), Odor, and GHG Thresholds	
TACs (including carcinogens and non-carcinogens)	Maximum Incremental Cancer Risk ≥ 10 in 1 million Cancer Burden > 0.5 excess cancer cases (in areas ≥ 1 in 1 million) Hazard Index ≥ 1.0 (project increment)
Odor	Project creates an odor nuisance pursuant to SCAQMD Rule 402
GHG	10,000 MT/yr CO2eq for industrial facilities

Ambient Air Quality for Criteria Pollutants [d]	
NO2 1-hour average annual arithmetic mean	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 0.18 ppm (state) 0.03 ppm (state) and 0.0534 ppm (federal)
PM10 24-hour average annual average	10.4 $\mu g/m^3$ (construction)[e] & 2.5 $\mu g/m^3$ (operation) 1.0 $\mu g/m^3$
PM2.5 24-hour average	10.4 $\mu g/m^3$ (construction)[e] & 2.5 $\mu g/m^3$ (operation)
SO2 1-hour average 24-hour average	0.25 ppm (state) & 0.075 ppm (federal – 99^{th} percentile) 0.04 ppm (state)
Sulfate 24-hour average	25 $\mu g/m^3$ (state)
CO 1-hour average 8-hour average	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 20 ppm (state) and 35 ppm (federal) 9.0 ppm (state/federal)
Lead 30-day Average Rolling 3-month average Quarterly average	1.5 $\mu g/m^3$ (state) 0.15 $\mu g/m^3$ (federal) 1.5 $\mu g/m^3$ (federal)

[a] Source: SCAQMD CEQA Handbook (SCAQMD, 1993)
[b] Construction thresholds apply to both the South Coast Air Basin and Coachella Valley (Salton Sea and Mojave Desert Air Basins).
[c] For Coachella Valley, the mass daily thresholds for operation are the same as the construction thresholds.
[d] Ambient air quality thresholds for criteria pollutants based on SCAQMD Rule 1303, Table A-2 unless otherwise stated.
[e] Ambient air quality threshold based on SCAQMD Rule 403.

KEY: lbs/day = pounds per day; ppm = parts per million; $\mu g/m^3$ = microgram per cubic meter; ≥ = greater than or equal to; MT/yr CO2eq = metric tons per year of CO2 equivalents; > = greater than

The current operations at the project site are consistent with the land use designations and zoning in the City of Carson and for the Carson Facility. The Carson Facility is zoned Manufacturing, Heavy (MH), and the City of Carson General Plan has the site divided into three land use designations: Heavy Industrial (HI), Business Park (BP), and Light Industrial (LI). The proposed project would occur in portions of the facility that are designated HI. Therefore, the proposed project would be consistent with the current zoning and land use plan. Furthermore, as indicated in Subsection 2.7, the proposed project would not require additional on-site employees at the Carson Facility during operation. Therefore, the proposed project would not require amendments to the local general plan or cause increases in the growth projections in the 2007 AQMP. Consequently, the proposed project would be consistent with the local general plan. Because growth projections in local general plans are used as inputs for the AQMP, consistency with the general plan means the project is also consistent with the AQMP.

The proposed project must comply with applicable SCAQMD requirements and control measures for new or modified sources. For example, new and modified stationary emission sources associated with the proposed project are required to comply with the SCAQMD's Regulation XIII - New Source Review requirements that include the use of BACT and offsetting non-attainment pollutant emission increases over one pound per day with emission reduction credits (ERCs) or RECLAIM Trading Credits (RTCs) pursuant to Rule 2005 at applicable offset ratios. Further, the proposed project must also comply with prohibitory rules, such as Rule 403, for the control of fugitive dust. See also the discussion in Subsection 3.2.3.3 for a list of additional SCAQMD rules applicable to the proposed project. By complying with these requirements, the proposed project would not conflict or obstruct implementation of the AQMP.

4.2.2.2 Construction Impacts

Construction Emission Sources

Emissions are expected from the following equipment and activities during the construction phase of the proposed project:

- On-site construction equipment, such as backhoes, loaders and cranes;
- On-site and off-site motor vehicles, such as delivery trucks and construction worker vehicles;
- On-site and off-site dust associated with travel on paved and unpaved roads and surfaces;
- On-site fugitive dust associated with earth moving and soil handling;
- On-site architectural coating (painting);
- On-site asphaltic paving; and
- Storage tank degassing.

Daily on-site and off-site construction emissions were calculated for each construction phase for each component of the proposed project. Detailed construction emission calculations are provided in Appendix II-A and are described in the following paragraphs.

Construction Equipment (Off-road Mobile Sources)

On-site construction equipment engines produce combustion emissions. Depending on the construction phase, construction equipment may include air compressors, manlifts, vacuum systems, boom trucks, cranes, graders, excavators, backhoes, loaders, welders, generators, and concrete pumps. Shell and its engineering contractors estimated the types and number of pieces of construction equipment to be used during each construction phase. The equipment was assumed to operate 10 hours per day. Emission factors based on the CARB OFFROAD 2007 model (available on the SCAQMD web page at http://www.aqmd.gov/ceqa/handbook/offroad/offroad.html) were used to calculate construction equipment emissions. Because Shell currently anticipates that construction would begin in 2012, emission factors for 2012 were used.

Motor Vehicles (On-road Mobile Sources)

On-site and off-site on-road motor vehicle engines also produce combustion emissions. Motor vehicles traveling on-site may include construction worker commuting vehicles, material delivery and removal trucks, service trucks, pick-up trucks, flatbed trucks, water trucks, boom trucks and welding trucks. Vehicles traveling off-site are anticipated to include construction worker commuting vehicles and material delivery and removal trucks. Shell and its engineering contractors estimated the types and number of motor vehicles to be used during each construction phase. Vehicles were assumed to travel one mile per day onsite. Construction workers were assumed to travel 35 miles per day offsite, and material delivery and removal trucks were assumed to travel 50 miles per day offsite. Emission factors based on the CARB EMFAC 2007 model (available on the SCAQMD web site at http://www.aqmd.gov/ceqa/handbook/onroad/onroad.html) were used to calculate motor vehicle exhaust emissions. Because Shell currently anticipates that construction would begin in 2012, emission factors for 2012 were used.

Fugitive Dust Associated with Travel on Paved and Unpaved Surfaces

Motor vehicles traveling on paved and unpaved roads and surfaces are anticipated to be a source of fugitive PM10 and, to a lesser extent, PM2.5 emissions during the construction period. Construction worker commute vehicles and material delivery and removal trucks were assumed to travel one mile per day onsite on paved roads to access the construction worker parking and construction laydown areas. On-site travel by other motor vehicles was assumed to be on unpaved roads and surfaces. All off-site travel was assumed to be on paved roads. PM10 and PM2.5 emissions from travel on paved roads were calculated using the emission factor equation from Section 13.2.1 of the U.S. EPA's Compilation of Air Pollutant Emission Factors (AP-42) and using CARB's Emission Inventory Methodology 7.9 to determine the appropriate silt loading. PM10 and PM2.5 emissions from travel on unpaved roads and surfaces were calculated using the emission factor equation from Section 13.2.2 of AP-42 and using Table A9-9-D-1 from the SCAQMD's CEQA Handbook (SCAQMD, 1993) to determining the appropriate silt content.

On-site vehicle speeds will be limited to 15 miles per hour, which has a particulate matter control efficiency of approximately 57 percent[12].

On-Site Fugitive Dust Associated with Earth Moving and Soil Handling

Earth moving and soil handling activities that can generate fugitive PM10 and PM2.5 emissions include grading, trenching, wind erosion of temporary storage piles, and truck filling and dumping. Shell and its engineering contractors estimated the daily levels of these activities from the sizes of areas to be graded and the sizes of foundations. Emissions from grading and soil handling were estimated using emission factor equations from Sections 11.9 and 13.2.4 of AP-42, and emissions from temporary storage pile wind erosion were estimated using an emission factor equation from Table 9-9-E of the SCAQMD CEQA Handbook (SCAQMD, 1993). The mean wind speed and soil silt content, which are needed to apply these equations, were estimated from Tables 9-9-G and A9-9-E-1 of the SCAQMD CEQA Handbook. During construction activities, water used as a dust suppressant to comply with SCAQMD Rule 403 – Fugitive Dust, would be applied in the construction area during grading, trenching, and earth-moving activities to control or reduce fugitive dust emissions. It was assumed that this watering would maintain moist soil conditions, so the moisture content for moist soil was used to calculate controlled emission factors for grading and soil handling. Application of water during high wind events reduces emissions from wind erosion of temporary storage piles by a factor of up to approximately 61 percent[12]. It was assumed that two applications of water per day would reduce emissions from wind erosion by 61 percent.

On-Site Architectural Coating

The on-site application of architectural coatings can generate VOC emissions when organic solvents in the coating materials evaporate after application. Converting the existing storage tanks from gasoline to ethanol service would require replacing the tanks' internal coatings with a different coating material and lining the undersides of the tank roofs prior to filling, because the current internal tank coatings are not compatible with ethanol. However, the coating that would be applied to these tanks is a two-part epoxy coating that does not contain organic VOCs, so applying this coating would not produce VOC emissions from solvent evaporation. The interior and exterior of the new gasoline storage tank would require coating to prevent corrosion of the tank material. Additionally, coatings would be applied to new piping and other new equipment. It is assumed that the coatings applied to the interior and exterior of the new gasoline storage tank and to new piping and other new equipment or appurtenances would contain organic solvents. As a worst-case assumption, the VOC content of the new gasoline storage tank, new equipment, new piping and appurtenances coatings was assumed to be equal to the maximum compliant limit for industrial maintenance coatings, 100 grams per liter, in SCAQMD Rule 1113 - Architectural Coatings. The quantities of coatings that would be applied to the interior and exterior of the new gasoline storage tank were estimated from the area of the surfaces to be coated and the required thickness of the coating. Shell's engineering contractor estimated the quantities of coatings that may be applied to other equipment for the purpose of quantifying potential VOC emissions.

[12] Table X1-A Mitigation Measure Examples: Fugitive Dust From Construction & Demolition, p. 1, SCAQMD, April 2007. (http://www.aqmd.gov/ceqa/handbook/mitigation/fugitive/MM_fugitive.html)

Additionally, the use of clean-up solvents to remove dirt and grease from new equipment and new piping and appurtenances prior to coating can also generate VOC emissions when organic materials in the clean-up solvents evaporate. As a worst-case assumption, it was assumed that one pint of clean-up solvent would be used for each gallon of coating, and the VOC content of the clean-up solvents was assumed to be 6.18 pounds per gallon, based on CARB's Emission Inventory Methodology 6.3. Spent clean-up solvents would be stored in closed containers prior to disposal. The hazard classification of the spent solvents would be determined prior to disposal. If they are determined to be hazardous, they would be disposed of at a hazardous waste facility.

On-Site Asphaltic Paving

Construction of the new single-lane truck loading rack would require paving additional area on-site with asphalt. Asphaltic paving generates VOC emissions when the asphalt cures. To provide a conservative analysis of VOC emissions from asphalt, it was assumed that the entire additional area would be paved in one day. VOC emissions from the paving were calculated using an emission factor from Appendix A of the California Emissions Estimator Model (CalEEMod) (CalEEMod, 2011).

Storage Tank Degassing

After the gasoline is emptied from the storage tanks to be converted from gasoline to ethanol service, gasoline vapors that remain in the tanks would need to be removed to reduce the vapor concentrations to safe levels for entry by workers into the tanks. The gasoline vapors would be captured and combusted in a portable thermal oxidizer, which would generate combustion emissions. Additionally, it is not feasible to completely remove all of the vapors in the tanks, so the residual vapors would be emitted when the storage tanks are opened. VOC emissions from the thermal oxidizer were estimated by assuming that the thermal oxidizer outlet concentration would be at the limit specified in SCAQMD BACT Determination A/N 384630 for Tank Degassing[13]. VOC emissions caused by residual gasoline vapors when the storage tanks are opened were calculated by assuming that the residual concentration in the storage tanks would be at the limit specified in SCAQMD Rule 1149. CO, PM10 and PM2.5 emissions from the thermal oxidizer were estimated using emission factors from Section 1.4 of AP-42. NOx emissions were estimated assuming the thermal oxidizer NOx emission factor is the same as the NOx emission factor for the thermal oxidizer used to control emissions from the ethanol loading rack. Other data used to estimate emissions during the degassing process, such as the volumes of the tank to be degassed, the concentration of vapors in the storage tanks at the beginning of the degassing process, the thermal oxidizer flow rate, and the time required to degas each storage tank, were calculated from the storage tank characteristics, the properties of gasoline, and from previous experience with storage tank degassing.

Miscellaneous Emissions

In addition to the construction-related emissions already identified for the proposed project, another source of VOC emissions could be contaminated soil if found and soil remediation

[13] http://www.aqmd.gov/bact/AQMDBactDeterminations.htm

activities are necessary. VOC contaminated soil is defined as soil which registers 50 ppm or greater per the requirements of SCAQMD Rule 1166 – Volatile Organic Compound Emissions from Decontamination of Soil. If VOC contamination is found, soil remediation must occur pursuant to a SCAQMD-approved Rule 1166 Plan to assure the control of fugitive emissions, which generally includes covering contaminated soil piles with heavy plastic sheeting and watering activities to assure the soil remains moist. The Rule 1166 Plan must be approved by the SCAQMD prior to excavation of VOC contaminated soils. Soil remediation activities are also under the jurisdiction of the RWQCB, and it may be necessary for the RWQCB and SCAQMD to coordinate in order to assure air quality impacts, as well as water quality impacts, are adequately mitigated. VOC emission estimates would be speculative at this time, however, because the levels of contamination, if any, are currently unknown.

Regional Construction Emissions Impacts

As discussed in Subsection 2.8 and shown in Table 2-2, operation of the proposed project would be implemented in two interim phases, which would overlap with construction activities for the proposed project, prior to achieving the final proposed project operation. The first interim phase would occur during the first four months of construction of the proposed project, and the second interim phase would occur during the rest of the construction period. Peak daily emissions from construction activities only are analyzed in this subsection. Peak daily emissions from overlapping construction and operational activities are analyzed in Subsection 4.2.2.4. When analyzing overlapping construction and operation emissions, significance is determined by comparing the results to the regional operational significance thresholds.

Daily construction emissions from the aforementioned sources were calculated for each construction phase. Figure 4.2-1 shows the anticipated construction schedule by construction week for each construction phase for each component of the proposed project and shows how the construction activities would vary throughout the construction period. Daily emissions of each pollutant during each week were calculated by adding together the daily emissions from the construction phases anticipated to occur during each week. The peak daily construction emissions of each pollutant are the highest daily construction emissions anticipated to occur during any week. Detailed construction emission calculations are in Appendix II-A.

The peak daily criteria pollutant construction emissions are summarized in Table 4.2-2. The emissions in Table 4.2-2 represent emissions from construction activities only and do not include any overlapping emissions from operational activities. Peak daily criteria pollutant construction emissions for all pollutants are expected to occur during the fourth week of construction, which is during the first interim phase as described in Section 2.9. This is the week when the greatest overlap between construction phases is expected to occur and when the peak number of construction workers is anticipated to be required. Construction equipment is a major source of emissions of all pollutants listed. Additionally, architectural coating is a major source of VOC emissions, off-site motor vehicle exhaust is a major source of CO emissions, and on-site fugitive dust from motor vehicles is a major source of PM10 emissions.

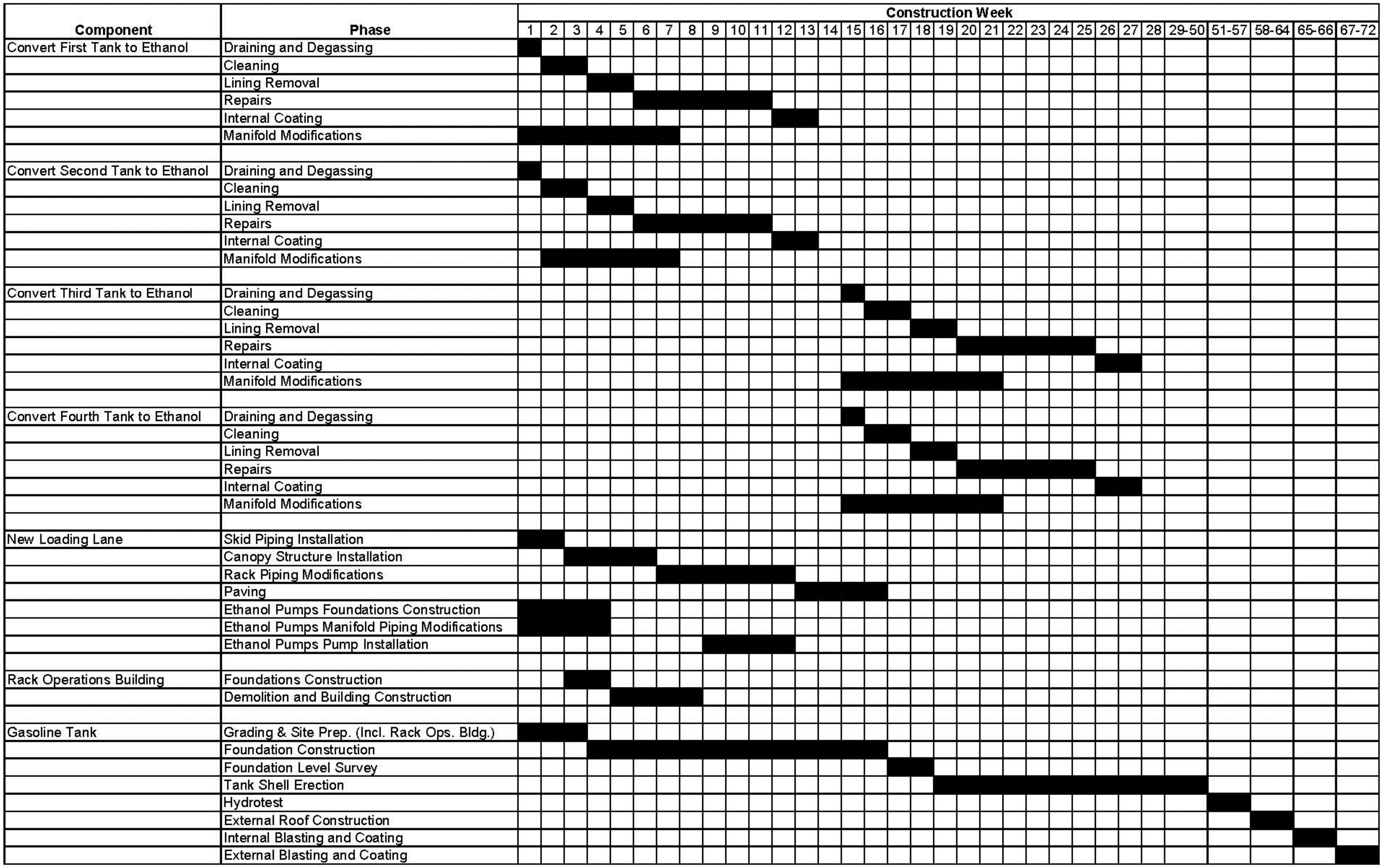


Figure 4.2-1 Construction Schedule by Construction Phase

Table 4.2-2
Peak Daily Construction Emissions

Activity	VOC (lb/day)	CO (lb/day)	NOx (lb/day)	SOx (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)
Construction Equipment Exhaust	72.8	250.0	551.6	0.7	25.6	23.6
On-Site Motor Vehicle Exhaust	0.7	4.2	5.2	0.0	0.3	0.2
On-Site Motor Vehicle Fugitive PM	--	--	--	--	52.7	5.6
Earthwork Fugitive PM	--	--	--	--	7.8	1.6
Architectural Coating VOC	28.9	--	--	--	--	--
Asphaltic Paving VOC	0.0	--	--	--	--	--
Tank Degassing	0.0	0.0	0.0	0.0	0.0	0.0
On-Site Total[a]	**102.4**	**254.3**	**556.8**	**0.7**	**86.4**	**31.0**
Off-Site Motor Vehicle Exhaust	22.5	133.4	188.4	0.3	9.6	8.1
Off-Site Motor Vehicle Fugitive PM	--	--	--	--	6.9	0.0
Off-Site Total[a]	**22.5**	**133.4**	**188.4**	**0.3**	**16.5**	**8.1**
Total[a]	**124.9**	**387.7**	**745.2**	**1.0**	**103.0**	**39.1**
SCAQMD Significance Threshold[b]	55	550	55	150	150	55
Significant?	YES	NO	YES	NO	NO	NO

[a] Totals may not match sums of individual values due to rounding.
[b] Because construction emissions overlap with operation emissions, operational significance thresholds are used to determine the significance.

Peak daily construction emissions for the proposed project are also compared with the SCAQMD's daily operational emissions regional significance threshold levels in Table 4.2-2. Although the overall air quality significance determinations for the proposed project are based on overlapping construction and operation emissions, construction emissions only are compared to the significance thresholds to identify appropriate measures to mitigate emissions from the construction emissions generating sources. As shown in Table 4.2-2, peak daily construction emissions during the construction phase of the proposed project are not expected to exceed the operational significance thresholds for CO, SOx, PM10, and PM2.5, but peak daily construction emissions during the construction phase of the proposed project are anticipated to exceed the operational significance thresholds for VOC and NOx

Because emissions from the interim operational phases of the proposed project would occur throughout the construction period, the significance determination for regional impacts during the construction period are based on the sum of construction and operational emissions analyzed in Subsection 4.2.2.4.

Localized Construction Impacts

Impacts from On-Site Construction

Potential localized air quality impacts from emissions during construction of the proposed project were analyzed. The purpose of the analyses was to determine whether or not construction of the proposed project could cause or contribute to an exceedance of the most stringent ambient air quality standard for the pollutants under consideration at the nearest sensitive receptor. Localized air quality impacts from construction activities only are analyzed in this subsection. Localized air quality impacts from overlapping construction and operational activities are analyzed in Subsection 4.2.2.4. When analyzing overlapping construction and operation localized air quality impacts, significance is determined by comparing the results to the operational localized significance thresholds.

Air quality dispersion modeling was used to estimate impacts of emissions. Peak daily on-site CO, NOx, PM10 and PM2.5 construction emissions were calculated for the dispersion modeling. Construction activities for the proposed project would occur in the following three different areas within the Carson Facility (see Figure 2-3): 1) the area where existing storage tanks would be converted from gasoline to ethanol service; 2) the ethanol loading rack area, which includes the proposed new single-lane ethanol loading rack and the rack operations building; and 3) the area where the new gasoline storage tank would be constructed. The methodology and assumptions used to calculate peak daily on-site emissions within each construction area were the same as the calculation methodology used to quantify total peak daily emissions, except that only emissions from on-site construction activities and sources during each construction phase were included. Daily emissions of each pollutant were calculated for each week for all construction phases by summing the daily on-site emissions anticipated to occur during each week during each construction phase and within each construction area. The peak daily emissions within each construction area used for the dispersion modeling were the maximum daily construction emissions from all of the weeks. It was then assumed for the dispersion modeling that the peak daily on-site emissions within the construction areas would all occur at the same time. Detailed on-site construction emission calculations are in Appendix II-A.

The AMS/EPA Regulatory Model (AERMOD, v09292), the air dispersion model currently preferred by U.S. EPA and approved by the SCAQMD, was used for the analysis. Details of the analyses are provided in Appendix II-C. Receptors for the analysis include residences for PM10 and PM2.5 and residences, commercial or industrial locations for CO and NOx. The significance thresholds for PM10 and PM2.5 are 24-hour average concentrations. Because individuals could remain at a residence for 24 hours, and it is unlikely that they would remain at a commercial or industrial location for 24 hours, only residential receptors are used for PM10 and PM2.5. Residential, commercial and industrial receptors are used for CO and NOx because the significance thresholds for these pollutants are based on shorter averaging times (one hour for NO_2 and one and eight hours for CO), and individuals could remain at these locations for these shorter time periods.

The methodology to determine localized air quality impacts is based on whether or not the pollutant under consideration is an attainment pollutant for all standards, e.g., CO and NO_2, or whether the pollutant is a nonattainment pollutant, e.g., PM10 and PM2.5 To determine whether or not CO and NO_2, which are in attainment with federal and state ambient air quality standards, concentrations could exceed the applicable localized significance thresholds, modeled emission concentration impacts from construction of the proposed project were added to the maximum ambient concentrations measured at the South Coastal Los Angeles County 1 Monitoring Station between 2006 and 2010 (see Table 3.2-2) and compared with the most stringent standards (see Table 4.2-1). For PM10 and PM2.5, which are nonattainment pollutants, modeled emission concentration impacts from the proposed project were compared with the significance thresholds in Table 4.2-1.

The construction emission modeling results are shown in Table 4.2-3. The maximum modeled 1-hour and 8-hour average CO concentrations and 1-hour average NO_2 concentration were located in a commercial area, approximately 13 meters north of the location of the proposed new gasoline storage tank. The maximum modeled 24-hour average PM10 and PM2.5 concentrations and annual PM10 and NO_2 concentrations were located at residences approximately 118 meters south of the southernmost existing gasoline storage tanks proposed to be converted to ethanol service.

Table 4.2-3
Construction Ambient Air Quality Impacts Evaluation

Pollutant	Avg. Period	Modeled Impact (μg/m^3)	Ambient Back-ground Conc. (μg/m^3)[a]	Total Conc. (μg/m^3)	Most Stringent Air Quality Standard (μg/m^3)	Significance Threshold (μg/m^3)	Exceeds Threshold ?
CO	1-hour	385	4,600	4,985	23,000	--	NO
	8-hour	156	3,900	4,056	10,000	--	NO
NO_2	1-hour	273	244	517	339	--	YES
	Annual	7.7	40.4	48.1	57	--	NO
PM10	24-hour	14.0	--	--	--	2.5	YES
	Annual	1.49	--	--	--	1.0	YES
PM2.5	24-hour	3.5	--	--	--	2.5	YES

[a] Highest concentration measured at South Coastal Los Angeles County 1 Monitoring Station between 2006 and 2010

Construction emissions modeling results for the proposed project are also compared with the SCAQMD's operational emissions localized significance threshold levels in Table 4.2-3. Although the overall air quality significance determinations for the proposed project are based on overlapping construction and operation emissions, impacts from construction emissions only are compared to the significance thresholds to identify appropriate measures to mitigate emissions from the construction emissions generating sources. Table 4.2-3 shows that the respective 1-hour and 8-hour CO and annual NO_2 significance thresholds are not exceeded, but the respective

1-hour average NO_2, 24-hour average and annual average PM10 and 24-hour average PM2.5 significance thresholds are exceeded.

Because emissions from the interim operational phases of the proposed project would occur throughout the construction period, the significance determination for localized impacts during the construction period are based on the sum of construction and operational emissions analyzed in Subsection 4.2.2.4.

Carbon Monoxide Impacts from Off-Site Construction Traffic

Increases in traffic from a project might lead to impacts of CO emissions on sensitive receptors if the traffic increase worsens congestion on roadways or at intersections. A CO Hot Spots Analysis of these impacts is required if:

- The project is anticipated to increase the volume-to-capacity ratio of an intersection rated C, resulting in a change of LOS from C to D or worse; or
- The project is anticipated to increase the volume-to-capacity ratio of an intersection rated D or worse by 0.02.

As indicated in the transportation/traffic impacts analysis in Subsection 4.7 of this ~~Draft~~ EIR, off-site traffic associated with construction of the proposed project is not expected to reduce the LOS of intersections rated C or worse, nor is it expected to increase the volume-to-capacity ratio of an intersection rated D or worse by 0.02. Therefore, a CO Hot Spots analysis is not required, and it is presumed that the proposed project would not create a significant adverse CO emissions impact from off-site construction traffic.

4.2.2.3 Operational Impacts

Operational Emission Sources

The following emissions are expected during the operational phase of the proposed project:

- Fugitive VOC emissions from components associated with the ethanol loading rack and the new gasoline storage tanks;
- Fugitive VOC emissions from the new gasoline storage tank;
- Fugitive VOC emissions from the storage tanks that would be converted from gasoline to ethanol service;
- Fugitive VOC emissions from tanker trucks while they are being loaded;
- Combustion emissions from the thermal oxidizer used to control emissions from tanker truck loading;
- Exhaust emissions from tanker trucks; and
- Fugitive dust emissions associated with tanker truck travel on paved roads.

The proposed project would not affect the operational emissions of other existing sources at the Carson Facility. Additionally, because no additional employees would be required on-site to operate any new equipment as a result of implementing the proposed project, operation of the proposed project would not cause an increase in emissions from employee commuting. Daily emissions were calculated for each of the sources identified in the above bullet points. Detailed operational emission calculations are provided in Appendix II-B and are described in the following paragraphs.

Calculations of peak daily emissions during operation of the proposed project are based on a permitted maximum daily ethanol loading rate of 52,500 bbl/day and a maximum daily number of tanker trucks loaded with ethanol of 276 trucks loaded per day. As indicated in Subsection 5.3.5, Mitigation Measure G-1 would limit on an annual basis the total ethanol loading for the existing two-lane tanker truck loading rack and the proposed new single-lane tanker truck loading rack to no more than 16,972,500 barrels in any calendar year to ensure that greenhouse gas emissions from the proposed project do not exceed the SCAQMD’s greenhouse gas significance threshold for industrial projects. Although the annual ethanol loading limit in Mitigation Measure G-1 is equivalent to an average daily limit of 46,500 bbl/day (16,972,500 bbl/year / 365 days/year), Mitigation Measure G-1 would not reduce the permitted maximum daily volume of ethanol loaded during operation of the proposed project from 52,500 bbl/day. Therefore, 52,500 bbl/day was used in the calculations of peak daily operational emissions. Additionally, although an average daily ethanol loading limit of 46,500 bbl/day corresponds to loading an average of 245 trucks per day (46,500 bbl/day / 190 bbl/truck), Mitigation Measure G-1 does not reduce the maximum daily number of tanker trucks loaded with ethanol, and, therefore, 276 trucks loaded per day (which would generate 552 one-way tanker truck trips) was used to calculate peak daily emissions.

<u>Fugitive Emissions from Components</u>

The new gasoline storage tank and the new single-lane ethanol truck loading rack would require the installation of new components, such as pumps, valves and flanges, in streams containing organic compounds. Leaks from these components would generate fugitive VOC emissions. Fugitive emission rates depend on the type of component.

New and modified equipment at the Carson facility would be required to comply with BACT requirements for new components that are a potential source of fugitive VOC emissions. For example, all new valves would be installed with leakless bellows seals except as exempted by SCAQMD guidelines (e.g., torsional stem motion, control valves, instrumentation valves, etc.). Additionally, all components with fugitive VOC emissions would be inspected according to the existing SCAQMD Rule 1173 - Control of Volatile Organic Compound Leaks and Releases from Components at Petroleum Facilities and Chemical Plants, Inspection and Maintenance Program for the Carson Facility.

Fugitive VOC emissions from new components were estimated using default emission factors provided by SCAQMD permitting staff and estimates of the number and types of new components provided by Carson Facility staff.

Fugitive VOC Emissions from New Gasoline Storage Tank

Vapor leaks from the primary and secondary seals, deck fittings, etc., of the new gasoline storage tank would generate fugitive VOC emissions. BACT requirements for the new gasoline storage tank would be satisfied by the construction of an internal floating roof tank with Category A tank seals in compliance with applicable SCAQMD rules (e.g., Rule 463 - Storage of Organic Liquids and Rule 1178 - Further Reduction of VOC Emissions from Storage Tanks at Petroleum Facilities). Emissions from the new gasoline storage tank were estimated using version 4.09d of the U.S. EPA TANKS program.

Fugitive VOC Emissions from Storage Tanks Converted from Gasoline to Ethanol Service

The existing storage tanks to be converted from gasoline to ethanol service would generate fugitive VOC emissions. Fugitive emissions from storage tanks are influenced by the vapor pressure and molecular weight of the liquid stored in the tanks (e.g., there are higher emissions for liquids with higher vapor pressures and higher molecular weights). Since the vapor pressure and molecular weight for ethanol are lower than for gasoline, converting the storage tanks from gasoline to ethanol service is expected to result in a reduction of fugitive VOC emissions from the storage tanks. However, depending on future operational needs at the facility and market conditions, Shell may decide to change the service of the storage tanks from ethanol to a different product in the future. Depending on the physical and chemical characteristics of potential future storage products, if they have vapor pressures equal to or less than gasoline, permit modifications would not likely be necessary. To plan for the possibility of storing products other than ethanol in the future, fugitive VOC emissions reductions from converting the tanks from gasoline to ethanol service have not been included in the calculation of operational emissions for the proposed project. If future products stored in the affected tanks have a higher vapor pressure than gasoline, permit modifications would likely be necessary and additional CEQA analyses would likely be required. Because the project proponent has not identified any future products for storage in the affected tanks, impacts from future products that may have a higher vapor pressure than gasoline are not considered to be reasonably foreseeable and, therefore, would be speculative at this time to analyze.

Fugitive VOC Emissions from Tanker Truck Loading

The air in the cargo spaces of the empty tanker trucks when they arrive at the Carson Facility has vapors which contain VOCs from the trucks' previous loads. Ethanol displaces this air as it is loaded into the tanker trucks. The displaced air is collected by vapor recovery hoses connected to the trucks during the loading process, stored in a bladder tank, and then sent to a thermal oxidizer, where the organic vapors are burned to control VOC emissions. Although the vapors in the empty tanker truck cargo spaces are collected by vapor recovery hoses, the pressure inside the cargo spaces increases during the truck loading process. This increase in pressure can generate fugitive VOC emissions from fittings on the tanker trucks.

The tanker trucks are not subject to BACT requirements for these fugitive VOC emissions, because the tanker trucks are not considered to be stationary sources. However, in California, the leak tightness of tanker truck cargo tanks is required to be certified annually. The certification testing involves pressurizing and sealing the cargo and then measuring the drop in pressure that occurs after five minutes. The drop in pressure must be less than specified limits for the cargo tank to be certified. Operators of the Carson Facility will not load any cargo tank with an expired certification.

The fugitive VOC emissions from tanker truck loading were estimated using: 1) a leakage rate from Section 5.2 of AP-42 that was developed for cargo tanks that are subject to California annual leak tightness certification requirements; 2) the calculated VOC concentration in the vapors; and, 3) the increase in maximum daily ethanol loading during operation of the proposed project. Although most of the tanker trucks that are loaded with ethanol at the Carson Facility are expected to contain ethanol vapors in their cargo spaces when they arrive at the facility, some may contain other types of vapors from previous loads. As a "worst-case," peak daily emissions were calculated assuming the empty tanker truck cargo space is saturated with gasoline vapors, since gasoline vapors have the highest VOC concentration that would result in the highest, most conservative VOC emission rate. The increase in maximum daily ethanol loading volume was calculated by subtracting the average daily volume loaded during the baseline period (25,344 bbl/day between January 15, 2010 and April 14, 2010[14]) from the maximum daily volume that would be loaded during operation of the proposed project (52,500 bbl/day).

Thermal Oxidizer Combustion Emissions

The existing thermal oxidizer used to control VOC emissions from the ethanol loading rack would generate combustion emissions. The thermal oxidizer would be subject to BACT and lowest achievable emission rate (LAER) requirements for VOC emissions. Current air quality BACT guidelines indicate a BACT standard for "gasoline load racks" of 0.02 pound VOC per 1,000 gallons product loaded because this rate has been achieved in practice in California and other similar loading rack projects in the district have this condition. Although this rack would load only ethanol, due to the potential for emissions of gasoline vapors from the incoming trucks, SCAQMD permitting staff indicated that this BACT standard would apply[15] because it has been achieved in practice. BACT is also triggered for NOx as NOx emissions would be greater than one pound per day. No low-NOx technologies exist for a thermal oxidizer serving a load rack; BACT for this unit is proposed as the continued exclusive use of PUC quality natural gas in the assist gas burner and the requirement to perform vendor recommended routine maintenance; no other controls or technologies are technologically feasible for this type of operation.

The increase in VOC emissions from the thermal oxidizer was calculated using the proposed VOC emission limit and the net increase in maximum daily ethanol loading during operation of the proposed project. The increase in SO_x emissions from the combustion of sulfur compounds in the gasoline vapors was calculated using an emission factor calculated from the sulfur concentration in the vapors and the increase in maximum daily ethanol loading volume. Other criteria pollutant emission increases were calculated using emission factors in units of pounds emitted per million British thermal units of heat input (lb/MMBtu) to the thermal oxidizer.

[14] This time period was used for the baseline period because complying with the 2007 RFG Phase 3 amendments required fuel producers to increase the percentage of ethanol blended into gasoline by December 31, 2009. As a result, levels of activities at the Carson Facility associated with ethanol loading and delivery prior to January 15, 2010 were not representative of current market demand.

[15] Personal communication, Mr. Thomas Liebel, Senior Air Quality Engineer, SCAQMD, December 2009.

Emission factors for CO, SOx and particulate matter from Section 1.4 of AP-42 were used. NOx emissions were measured during annual source tests conducted between 2004 and 2010. NOx emission factors derived from the source test results ranged from 0.02 lb/MMBtu to 0.14 lb/MMBtu and averaged 0.08 lb/MMBtu. Because of the large variability in the results for individual source tests, the thermal oxidizer manufacturer's guaranteed NOx emission rate of 0.15 lb/MMBtu, which is slightly higher than the highest rate from the source tests, was used to calculate the increase in NOx emissions.

The net increase in daily heat input was calculated from the thermal oxidizer capacity, in MMBtu per hour, and the net increase in maximum daily operating hours for the thermal oxidizer during operation of the proposed project. The net increase in maximum daily operating hours was calculated by subtracting the average daily operating hours during the baseline period (six hours per day) from the maximum daily operating hours during operation of the proposed project (24 hours per day).

<u>Exhaust and Fugitive Dust Emissions from Tanker Trucks</u>

Exhaust and roadway fugitive dust emissions from tanker trucks traveling to and from the facility were calculated using the same emission factors that were used to calculate motor vehicle exhaust and fugitive dust emissions during the construction phase for the proposed project. The maximum total ethanol throughput during operation of the proposed project would be 52,500 bbl/day, and the corresponding maximum number of trucks loaded per day would be 276 trucks per day (52,500 bbl/day / 190 bbl/truck = 276.3). The average number of trucks loaded per day during the baseline period was 132 trucks per day, resulting in a net increase in the maximum number of trucks loaded per day of 144 trucks per day. The round-trip travel distance for each truck was estimated to be 56 miles, based on past ethanol delivery locations.

As discussed in the NOP/IS (see Appendix I-A) and in Subsection 4.10.11, once the new gasoline storage tank is constructed and in service, the tank would be required to be emptied and inspected approximately every 20 years, in accordance with industry standards. Based on historic averages, approximately 370 cubic yards of hydrocarbon contaminated solids that would have been expected to have settled to the bottom of the tank would need to be removed when the storage tank is emptied prior to each inspection. This waste would require disposal at a hazardous waste facility. Transporting this waste to a hazardous waste facility would require approximately 21 trucks during one day, which would increase the maximum daily number of truck trips during operation of the proposed project from 144 round-trips (288 one-way trips) per day to 165 round-trips (330 one-way trips) per day during one day. Because these increased truck trips would not occur until approximately 20 years after the new gasoline storage tank has been in operation, the emission factors for the trucks would be lower than the emission factors for trucks when the maximum increase in ethanol loading from the proposed project would begin because emission factors decrease with time as older truck are replaced with newer trucks that meet more stringent emission standards. As a result, estimated maximum daily truck trips, 165 round-trips per day, and truck emissions at the time the solids from the new gasoline storage tank are transported to a hazardous waste facility 20 years after operation of the project begins would be lower than maximum daily truck trips, 144 round-trips per day, and truck emissions when the maximum increase in ethanol loading occurs at the beginning of full project operation.[16] This result is primarily based on the fact that emissions from future vehicle fleets are expected to be substantially lower than current fleets due to advances in technology over time. Therefore, the analysis of operational air quality impacts considers ethanol tanker truck emissions when the proposed maximum ethanol loading increase occurs at the beginning of full project operation.

Regional Operational Emissions Impacts

As discussed in Subsection 2.8 and shown in Table 2-2, operation of the proposed project would be implemented in two interim phases prior to achieving the final proposed project operation. Further, operation of the proposed project would overlap with construction activities. The net increases in criteria pollutant emissions during full operation of the proposed project are summarized in Table 4.2-4. Although the overall air quality significance determinations for the proposed project are based on overlapping construction and operation emissions, operation emissions only are compared to the appropriate significance thresholds in Table 4.2-4 to identify appropriate measures to mitigate emissions from the appropriate emissions generating equipment. A discussion of the overlapping construction and operation emissions is in Subsection 4.2.2.4. Detailed emission calculations are in Appendix II-B. The primary sources of VOC emissions are on-site fugitive VOC emissions from tanker truck loading and from the new gasoline storage tank, on-site combustion emissions from the thermal oxidizer, and off-site emissions from tanker truck exhaust. Off-site tanker truck exhaust is the primary source of CO, NOx, SOx, PM10 and PM2.5 emissions.

Emission offsets are required for nonattainment pollutants and their precursors from newly permitted and modified permitted emission sources by SCAQMD Regulation XIII - New Source Review, to comply with state and federal New Source Review (NSR) offset requirements and to minimize the impacts associated with emissions from stationary sources. The Carson Facility is also subject to SCAQMD Regulation XX - Regional Clean Air Incentives Market (RECLAIM), which is a pollution cap-and-trade program which applies to the largest sources of NOx and SOx emissions within the jurisdiction of the SCAQMD. Regulation XX requires operators of RECLAIM facilities to hold sufficient RECLAIM Trading Credits (RTCs) to offset annual SOx and NOx emissions from permitted stationary sources at a 1.0-to-1.0 ratio (i.e., 10 pounds of offsets must be held to offset 10 pounds of emissions increases.

Offsets are not required for net CO emission increases because CO is an attainment pollutant and is not defined as a precursor to any other criteria pollutants. Additionally, offsets are not required for emissions from the unpermitted sources.

The project proponent would be required to provide emission offsets for VOC emissions from the newly permitted sources, which include the new gasoline storage tank and associated new components. As required by SCAQMD Rule 1303 subparagraph (b)(2)(A), these emissions must be offset at a ratio of 1.2-to-1.0 (i.e., 1.2 pounds of offsets must be provided for each pound of

[16] Daily tanker truck emissions including truck trips to transport the gasoline storage tank waste to a hazardous waste facility are calculated in Appendix II-B and compared with ethanol tanker truck emissions when the maximum daily increase in ethanol loading would first occur.

emissions increase). The project proponent will provide emission reduction credits (ERCs) for these offsets.

Table 4.2-4
Peak Daily Operational Criteria Pollutant Emissions from the Proposed Project

Source	VOC (lb/day)	CO (lb/day)	NOx (lb/day)	SOx (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)
ON-SITE EMISSIONS						
Stationary Sources						
Ethanol Loading Rack Components Fugitive VOC	8.2	--	--	--	--	--
Gasoline Storage Tank Components Fugitive VOC	0.3	--	--	--	--	--
Gasoline Storage Tank Fugitive VOC	10.1	--	--	--	--	--
Thermal Oxidizer Combustion	22.8	26.7	48.6	0.3	2.4	2.4
Stationary Source Total	**41.5**	**26.7**	**48.6**	**0.3**	**2.4**	**2.4**
Non-Stationary On-Site Sources						
Tanker Truck Loading Fugitive VOC	117.4	--	--	--	--	--
ON-SITE TOTAL	**158.9**	**26.7**	**48.6**	**0.3**	**2.4**	**2.4**
OFF-SITE EMISSIONS						
Tanker Truck Exhaust	20.4	82.4	249.4	0.3	12.1	10.4
Tanker Truck Fugitive Particulate Matter	--	--	--	--	4.4	0.0
OFF-SITE TOTAL	**20.4**	**82.4**	**249.4**	**0.3**	**16.5**	**10.4**
PEAK DAILY TOTAL (a)	**179.3**	**109.1**	**298.0**	**0.6**	**18.9**	**12.8**
Offset requirements (b)[1]	12.5	N.R.	48.6	0.3	N.R.	N.R.
Emissions following Offsets (a – b)	**166.8**	**109.1**	**249.4**	**0.3**	**18.9**	**12.8**
SCAQMD Significance Threshold	55	550	55	150	150	55
Significant after Offsets?	YES	NO	YES	NO	NO	NO

[1] VOC offsets are required by Rule 1303 for gasoline storage tank and associated component VOC emissions at a ratio of 1.2-to-1.0 and will be provided by the project proponent. NOx and SOx RTCs are required by Regulation XX for the thermal oxidizer and will be provided at a 1.0-to-1.0 ratio by the project proponent. N.R. = Offsets not required

Totals may not match sums of individual values due to rounding.

For modified permitted sources, which include the loading rack components and the thermal oxidizer, the increase in emissions that must be offset is determined in accordance with

SCAQMD Rule 1306 subparagraph (d)(2)(A) by subtracting the sources' pre-modification permitted or allowable emissions from the post-modification potential emissions. This calculation of net emissions increases is different from the calculation of net emissions increases for evaluation under CEQA, which subtracts actual emissions during the baseline period from potential emissions after the modification.

SCAQMD permitting staff calculated pre-modification allowable VOC emissions from the thermal oxidizer by multiplying the current permitted maximum tanker truck loading rate (30,000 bbl/day) by the current maximum allowable VOC emission rate of 0.08 lb/1,000 gallons loaded. Post-modification potential VOC emissions were calculated by multiplying the proposed maximum tanker truck loading rate (52,500 bbl/day) by the post-modification maximum allowable VOC emissions rate of 0.02 lb/1,000 gallons loaded. The resulting net change in VOC emissions is a decrease of -56.7 lb/day. When added to the increase in fugitive VOC emissions from loading rack components, the net change in emissions is a decrease of -48.69 lb/day. Therefore, the project proponent would not be required to provide emission offsets for VOC emissions from the thermal oxidizer and ethanol loading rack components.

SCAQMD permitting staff calculated pre-modification allowable PM10 and PM2.5 emissions from the thermal oxidizer by multiplying PM10 and PM2.5 emission factors by the current daily potential operating time (24 hours/day) and the thermal oxidizer capacity (18 MMBtu/hour). Since the thermal oxidizer would operate up to 24 hours/day after the modification, post-modification potential PM10 and PM2.5 daily emissions would be the same as pre-modification allowable emissions. Therefore, offsets are not required for PM10 and PM2.5 emissions from the thermal oxidizer.

The net increases in criteria pollutant emissions during the interim operational phases of the proposed project and during full operation, accounting for reductions from required offsets, are summarized in Table 4.2-5.

Table 4.2-5
Criteria Pollutant Emissions during Operation of the Proposed Project

Operational Phase[1]	VOC (lb/day)	CO (lb/day)	NOx (lb/day)	SOx (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)
Interim Phase 1	57.2	56.4	90.1	0.1	8.4	6.2
Interim Phase II	168.8	109.1	249.4	0.3	18.9	12.8
Full Operation	166.8	109.1	249.4	0.3	18.9	12.8
SCAQMD Significance Threshold	55	550	55	150	150	55
Significant?	YES	NO	YES	NO	NO	NO

[1] See Section 2.9 for a description of the interim operational phases.

Once quantified, operational emissions for the proposed project are compared to the SCAQMD's daily regional operational emissions significance thresholds. Because peak daily operational

CO, NOx, SOx, PM10 and PM2.5 emissions during full operation of the proposed project, which would occur after construction activities are completed, equal or exceed operational emissions during the interim operational phases, the significance determination for operational emissions only of these pollutants is based on peak daily operational emissions during full operation of the proposed project. Peak daily emissions of these pollutants during full operation of the proposed project are compared to the SCAQMD's daily regional operational emissions significance thresholds in Tables 4.2-4 and 4.2-5. Because peak daily operational VOC emissions during interim Phase II exceed peak daily operational VOC emissions during interim Phase I (see Section 2.9 for a description of the interim operational phases) and during full operation, the significance determination for operational emissions only of VOC is based on peak daily operational emissions during interim operational Phase II of the proposed project. Peak daily VOC emissions during interim operational Phase II of the proposed project are compared to the SCAQMD's daily regional operational emissions significance thresholds in Table 4.2-5. Peak daily emissions during the operational phase of the proposed project are not expected to exceed the significance thresholds for CO, SOx, PM10, and PM2.5, but emissions during the operational phase of the proposed project are anticipated to exceed the significance thresholds for VOC and NOx.

Because VOC and NOx are precursors to ozone, which is a regional pollutant, the VOC offsets and NOx RTCs, which are based on established NSR offset requirements in SCAQMD Rule 1303 and Regulation XX, respectively, would reduce the proposed project's net VOC and NOx emissions, as shown in Table 4.2-4. However, even with providing offsets, VOC and NOx emissions would still exceed their respective daily regional operational significance thresholds and, therefore, are concluded to be significant.

Operational Localized Ambient Air Quality Impacts

Potential localized air quality impacts from emissions during operation of the proposed project were analyzed. The purpose of the analyses was to determine whether or not operation of the proposed project could cause or contribute to an exceedance of the most stringent ambient air quality standard for the pollutants under consideration at the nearest sensitive receptor. Once localized air quality impacts are quantified, they are compared to the applicable localized significance thresholds in Table 4.2-1. Localized air quality impacts from operational activities only are analyzed in this subsection. Localized air quality impacts from overlapping construction and operational activities are analyzed in Subsection 4.2.2.4.

Air quality dispersion modeling was used to estimate impacts of CO, NOx, PM10 and PM2.5 emissions during full operation of the proposed project from the following sources:

- Combustion emissions from the thermal oxidizer;
- Exhaust emissions from tanker trucks traveling to and from the ethanol loading rack area within the facility; and
- Exhaust emissions from tanker trucks traveling to and from the I-710, I-405 and SR-91 freeways on roadways outside the facility.

The same air dispersion model used to analyze impacts from construction emissions (AERMOD, v09292), as discussed in Subsection 4.2.2.2, was used for the analysis. Additionally, as was done for the analysis of impacts from construction emissions, receptors for the analysis include residences for PM10 and PM2.5 and residences, commercial or industrial locations for CO and NOx. Details of the analyses are provided in Appendix II-C.

The operational emission modeling results are shown in Table 4.2-6. The maximum modeled 1-hour and 8-hour average CO concentrations and 1-hour average NO_2 concentration were located in a commercial area, approximately 18 meters south of the Carson Facility fence line and 140 meters west of the intersection of Dominguez Street and Wilmington Avenue. The maximum modeled 24-hour average PM10 and PM2.5 concentrations and annual PM10 and NO_2 concentrations were located at residences approximately 18 meters south of the Carson Facility fence line and 400 meters west of the intersection of Dominguez Street and Wilmington Avenue.

Table 4.2-6
Operational Ambient Air Quality Impacts Evaluation

Pollutant	Avg. Period	Modeled Impact ($\mu g/m^3$)	Ambient Back-ground Conc. ($\mu g/m^3$)[a]	Total Conc. ($\mu g/m^3$)	Most Stringent Air Quality Standard ($\mu g/m^3$)	Significance Threshold ($\mu g/m^3$)	Exceeds Threshold ?
CO	1-hour	10.6	4,600	4,611	23,000	--	NO
	8-hour	4.9	3,900	3,905	10,000	--	NO
NO_2	1-hour	16.2	244	260	339	--	NO
	Annual	3.46	40.4	43.9	57	--	NO
PM10	24-hour	0.34	--	--	--	2.5	NO
	Annual	0.23	--	--	--	1.0	NO
PM2.5	24-hour	0.34	--	--	--	2.5	NO

[a] Highest concentration measured at South Coastal Los Angeles County 1 Monitoring Station between 2006 and 2008

Operational emissions modeling results for the proposed project are also compared with the SCAQMD's daily operational emissions localized significance threshold levels in Table 4.2-6. Although the overall air quality significance determinations for the proposed project are based on overlapping construction and operation emissions, impacts from operational emissions only are compared to the significance thresholds to identify appropriate measures to mitigate emissions from the construction emissions generating sources. Table 4.2-6 shows that none of the localized significance thresholds are exceeded.

4.2.2.4 Impacts from Overlapping Construction and Operation

Regional Emissions Impacts from Overlapping Construction and Operation

As described in Subsection 2.9 and shown in Table 2-2, operation of the proposed project would be implemented in two interim phases prior to full implementation of project operations. The first interim operational phase would occur during the first four months of construction activities, and the second interim operational phase would occur during the remainder of the construction period. Because operational emissions during these interim phases would overlap with construction emissions during the entire construction period, daily operational and construction emissions during the time period of each interim operational phase were summed and are summarized in Table 4.2-7. Details of the construction emission calculations are in Appendix II-A, and details of the operational emission calculations are in Appendix II-B.

Table 4.2-7
Total Emissions (Construction plus Operation) during the Construction Period for the Proposed Project

Interim Operational Phase[1]	VOC (lb/day)	CO (lb/day)	NOx (lb/day)	SOx (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)
Interim Phase 1						
Maximum Daily Construction Emissions	124.9	387.7	745.2	1.0	103.0	39.1
Maximum Daily Operational Emissions	57.2	56.4	90.1	0.1	8.4	6.2
Total Maximum Daily Emissions	**182.1**	**444.1**	**835.3**	**1.1**	**111.3**	**45.3**
Interim Phase II						
Maximum Daily Construction Emissions	74.8	220.9	417.5	0.6	58.1	22.4
Maximum Daily Operational Emissions	168.8	109.1	249.4	0.3	18.9	12.8
Total Maximum Daily Emissions	**243.6**	**329.9**	**666.9**	**0.9**	**77.0**	**35.2**
Peak Daily Emissions	**243.6**	**444.1**	**835.3**	**1.1**	**111.3**	**45.3**
SCAQMD Significance Threshold	55	550	55	150	150	55
Significant?	YES	NO	YES	NO	NO	NO
[1] See Subsection 2.9 for a description of the interim operational phases.						

Total emissions during the construction period of the proposed project are also compared with the SCAQMD's daily operational emissions regional significance threshold levels in Table 4.2-7. Total emissions during the construction period of the proposed project are not expected to exceed the significance thresholds for CO, SOx, PM10, and PM2.5, but emissions during the construction period of the proposed project are anticipated to exceed the significance thresholds for VOC and NOx. Therefore, the air quality impacts during the construction period for the proposed project are considered significant.

Localized Ambient Air Quality Impacts from Overlapping Construction and Operation

Air quality dispersion modeling was used to estimate localized impacts of overlapping construction and operational CO, NOx, PM10 and PM2.5 emissions during the construction period of the proposed project. The dispersion modeling analysis included peak daily on-site construction emissions, as discussed in Subsection 4.2.2.2, and peak daily operational emissions during full implementation of the proposed project, as discussed in Subsection 4.2.2.3.

The overlapping construction and operational emission modeling results are shown in Table 4.2-8. The maximum modeled 1-hour and 8-hour average CO concentrations and 1-hour average NO_2 concentration were located in a commercial area, approximately 13 meters north of the location of the proposed new gasoline storage tank. The maximum modeled 24-hour average PM10 and PM2.5 concentrations and annual PM10 and NO_2 concentrations were located at residences approximately 118 meters south of the southernmost existing gasoline storage tanks proposed to be converted to ethanol service.

Table 4.2-8
Overlapping Construction and Operation Ambient Air Quality Impacts Evaluation during the Construction Period for the Proposed Project

Pollutant	Avg. Period	Modeled Impact (μg/m³)	Ambient Back-ground Conc. (μg/m³)[a]	Total Conc. (μg/m³)	Most Stringent Air Quality Standard (μg/m³)	Significance Threshold (μg/m³)	Exceeds Threshold ?
CO	1-hour	385	4,600	4,985	23,000	--	NO
	8-hour	156	3,900	4,056	10,000	--	NO
NO_2	1-hour	273	244	517	339	--	YES
	Annual	7.8	40.4	48.2	57	--	NO
PM10	24-hour	14.0	--	--	--	2.5	YES
	Annual	1.49	--	--	--	1.0	YES
PM2.5	24-hour	3.5	--	--	--	2.5	YES

[a] Highest concentration measured at South Coastal Los Angeles County 1 Monitoring Station between 2006 and 2008

Overlapping construction and operational emissions modeling results for the proposed project are also compared with the SCAQMD's daily operational emissions localized significance threshold levels in Table 4.2-8. Table 4.2-8 shows that the respective 1-hour and 8-hour CO and annual NO_2 significance thresholds are not exceeded, but the respective 1-hour average NO_2, 24-hour average and annual average PM10 and 24-hour average PM2.5 significance thresholds are exceeded. Therefore, the localized ambient air quality impacts during the construction period for the proposed project are considered significant.

4.2.2.5 Toxic Air Contaminant Emissions Impacts

For construction projects lasting less than nine years, the SCAQMD does not typically perform a health risk assessment (HRA) for the following reasons. The primary TAC emitted during construction is diesel particulate matter from off-road construction equipment and on-road heavy heavy-duty haul trucks. However, construction equipment operating parameters are not conducive to analyzing air toxic impacts. For example, construction equipment does not operate continuously, but starts and stops during a single day, week or month over the year. Further, construction equipment locations typically change over the course of a year so sensitive receptors are continuously changing. Finally, since carcinogenic diesel particulate matter health risk is estimated using the annual average concentration over long exposure periods (40 to 70 years), the Office of Environmental Health Hazard Assessment (OEHHA) does not suggest estimating carcinogenic health risk for exposure periods less than nine years. The construction phase for the proposed project, approximately 17 months, is substantially less than the nine year exposure period indicated by OEHHA.

A HRA was performed to determine if emissions of TACs generated by the operation of the proposed project would exceed the SCAQMD thresholds of significance for cancer and non-cancer health risks. The HRA estimated potential cancer risks caused by long-term exposure to TAC emissions, non-cancer risks caused by long-term (chronic) exposure, and non-cancer risks caused by short-term (acute) exposure. The HRA is provided in Appendix II-D.

<u>Risk Assessment Approach</u>

Except as noted, the HRA was performed following the OEHHA Air Toxics Hot Spots Program Risk Assessment Guidelines (OEHHA, 2003). As recommended by these guidelines, the CARB Hotspots Analysis and Reporting Program (HARP) (CARB, 2010c) was used to perform a refined health risk assessment for the project's stationary sources. HARP includes two modules: a dispersion module and a risk module. The HARP dispersion module currently incorporates the U.S. EPA Industrial Source Complex - Short Term Version 3 (ISCST3) air dispersion model, and the HARP risk module implements the Risk Assessment Guidelines developed by OEHHA. However, as allowed by current SCAQMD modeling guidelines (SCAQMD, 2009), the AERMOD (v09292) air dispersion model was used for this HRA, instead of using the ISCST3 dispersion model.

Cancer risk from diesel exhaust particulate matter (DPM) emissions from tanker trucks were calculated using an approach consistent with SCAQMD guidance for projects that generate a large number of trips of diesel-fueled mobile sources to a facility (SCAQMD 2003, 2005). According to this approach, AERMOD was used to calculate the concentrations of DPM from mobile source diesel exhaust and the resulting DPM concentrations were used to calculate the cancer risk at each receptor.

Hazard Identification

Hazard identification involved identifying the proposed project's potential sources of TAC emissions, estimating TAC emissions, and determining whether each TAC is a carcinogen or is associated with acute or chronic non-cancer health effects. Increases in TAC emissions from the following sources during operation of the proposed project were included in the HRA:

- TACs in fugitive VOC emissions from components associated with the ethanol loading rack and the new gasoline storage tank;
- TACs in fugitive VOC emissions from the new gasoline storage tank;
- TACs in fugitive VOC emissions from tanker trucks while they are being loaded;
- TACs in emissions from the thermal oxidizer used to control emissions from tanker truck loading; and
- TACs in exhaust emissions from tanker trucks.

The TAC emissions component of fugitive VOC emissions from the proposed project were calculated by multiplying the VOC emissions by the mass fractions of the TACs in the VOC emissions. VOC streams associated with the ethanol loading rack are primarily denatured ethanol. Therefore, TAC mass fractions in denatured ethanol were used to calculate fugitive TAC emissions from loading rack components. Fugitive VOC emissions from the new gasoline storage tank consist of gasoline vapors, so the TAC mass fractions in gasoline vapors were used to calculate fugitive TAC emissions from the new gasoline storage tank and from components associated with the storage tank. As a “worst-case,” it was assumed that the tanker truck cargo compartments contain gasoline vapors, because the concentrations of TACs are higher in gasoline vapors than in vapors from other products, such as ethanol. Therefore, TAC mass fractions in gasoline vapors were used to calculate fugitive TAC emissions from tanker truck loading and to calculate TAC emissions from VOC that is not destroyed by the thermal oxidizer.

Because TAC concentrations in gasoline and gasoline vapors are higher than in denatured ethanol and ethanol vapors, fugitive TAC emissions from the existing gasoline storage tanks that will be converted to ethanol service will decrease. However, depending on future operational needs of the facility, operators of the Carson Facility may decide to change the service of the storage tanks from ethanol to a different product in the future. Since no future products have been identified that could be stored in affected tanks, it would be speculative at this time to attempt to analyze impacts from such future products. Therefore, the reduction in fugitive TAC emissions from converting the tanks from gasoline to ethanol service has not been included in the calculation of TAC emissions for the proposed project.

DPM is used in HRAs to represent TAC emissions from diesel-fueled engines. Unlike other TACs analyzed in the HRA, emission factors for heavy heavy-duty diesel trucks (HHDT), which include tanker trucks, will decrease in the future as more stringent emission standards and regulations take effect and as older vehicles with higher emissions are retired and replaced with newer vehicles with lower emissions. Since cancer risks and chronic non-cancer risks are estimated from exposures to emissions that occur over periods of 70 years for residents and 40 years for off-site workers, DPM emissions from tanker trucks were calculated using averages over the next 70 years and the next 40 years of HHDT PM10 emission factors, respectively, using the EMFAC2007 model.

Because cancer risks and chronic non-cancer risks are estimated from long-term exposures to TACs, annual VOC emissions from the thermal oxidizer and fugitive VOC emissions from tanker truck loading used to calculate the increases in annual TAC emissions from the proposed project were calculated using the difference between the annual ethanol loading rate during operation of the proposed project, which will be limited to 16,972,500 bbl/year by mitigation measure G-1, and the annualized loading rate during the baseline period (25,344 bbl/day x 365 days/year = 9,250,560 bbl/year). Similarly, annual DPM emissions rates from tanker trucks were calculated using the difference between the annual number of tanker trucks loaded during operation of the proposed project (16,972,500 bbl/year / 190 bbl/truck = 89,329 trucks/year) and the annualized number of trucks loaded during the baseline period (132 trucks/day x 365 days/year = 48,180 trucks/year)[17]. Details of the TAC emission calculations are in Appendix II-D. Increases in TAC emissions from on-site sources for the proposed project are listed in Table 4.2-9. Because dose-response values to quantify health effects from exposure to 1,2,4-trimethylbenzene and cyclohexane have not been adopted, these chemicals were not included in the HRA.

Table 4.2-9
Toxic Air Contaminant Emissions from Proposed Project On-Site Sources

Chemical	Emissions (lb/hr)	Emissions (lb/yr)
1,2,4-Trimethylbenzene[1]	2.99E-03	23.8
Benzene	2.31E-02	138
Cyclohexane[1]	4.77E-03	28.4
Ethylbenzene	3.23E-03	22.0
Hexane (-n)	3.98E-02	236
Isopropylbenzene	2.56E-04	1.88
Methyl alcohol	3.39E-03	20.1
Naphthalene	2.82E-04	2.43
Styrene	1.62E-04	1.15
Toluene	3.73E-02	233
Xylenes (mixed isomers)	1.68E-02	132

[1] Not included in HRA because health risk dose-response values have not been adopted

[17] As discussed in Subsection 4.2.2.3, approximately 21 trucks would be needed for disposal of hydrocarbon contaminated solids that have settled to the bottom of the proposed new gasoline storage when the storage tank is emptied. The 42 one-way trips generated by these trucks would only occur on one day approximately once every 20 years. Since these trips would only occur once every 20 years, emissions from these truck trips over the 40-year and 70-year exposure periods assumed for the HRA would be negligible compared with the emissions from ethanol tanker truck trips that would occur every day. Therefore, emissions from these additional waste disposal truck trips were not included in the HRA.

Exposure Assessment

The exposure assessment includes air dispersion modeling, identification of exposure routes, and estimation of exposure levels.

Emission Locations

Emissions from on-site sources were modeled as releases from fixed locations. Exhaust DPM emissions from tanker trucks were distributed along the on-site routes used by the tanker trucks within the Carson Facility and on the off-site routes used by the tanker trucks to travel to and from the I-710, I-405 and SR-91 freeways. The geographic distribution of tanker truck emissions is shown in Figure 4.2-2.

Receptor Locations

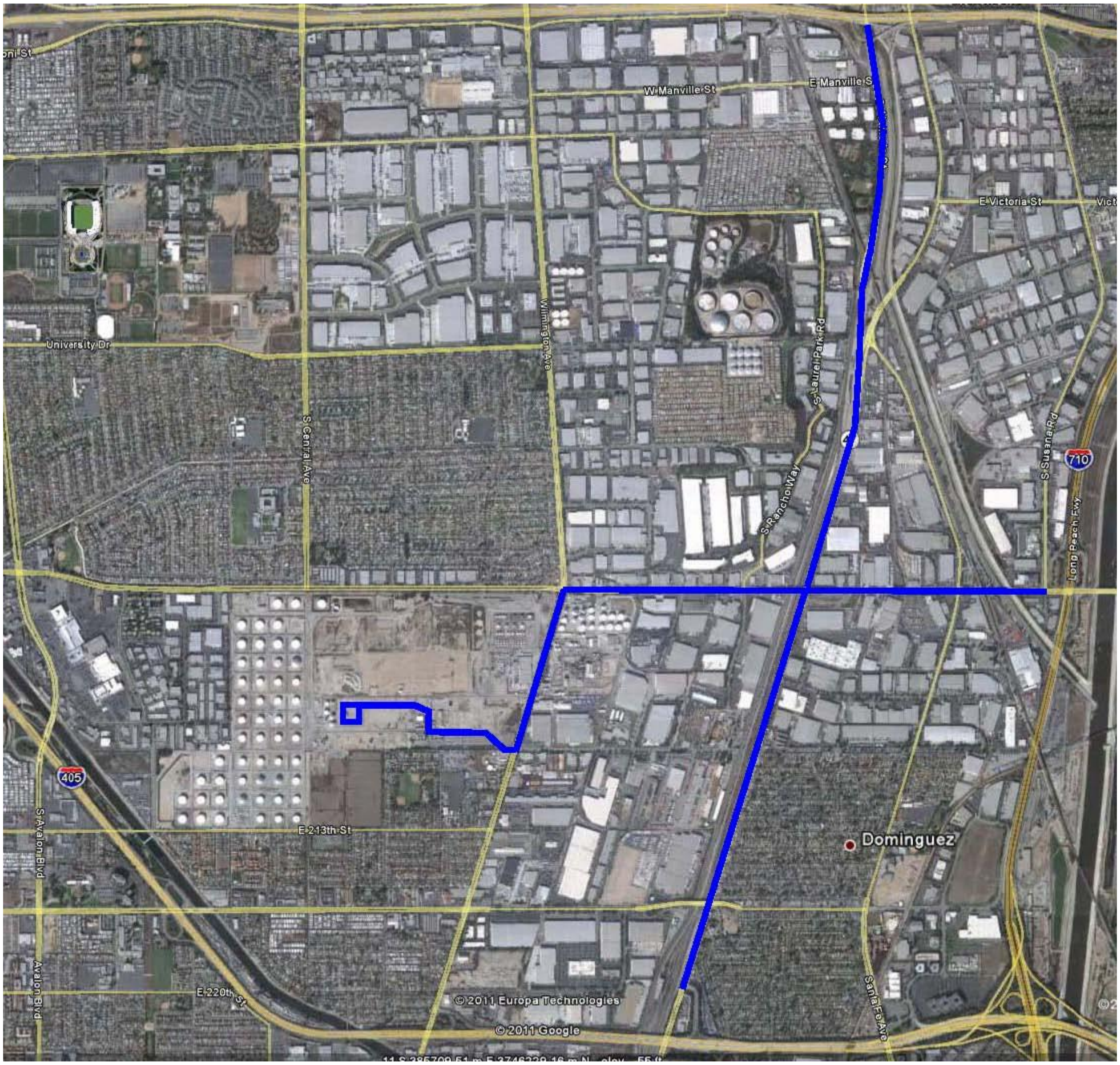
The dispersion modeling calculated ground-level atmospheric concentrations of the TACs at various locations, called receptors. Receptors of primary interest are those at residential locations, at sensitive population locations, and at off-site worker locations. However, in order to get a more complete picture of the patterns of exposure, concentrations and risks were also calculated along the facility boundary and at regularly spaced grid points.

The receptors used to analyze project impacts include:

- Fence line receptors spaced at 25 meters or less;
- Receptors spaced at 50 meters covering an area that extends 1.5 km in the east and west directions and 1.0 km in the north and south directions from a central location within the Carson Facility;
- Houses nearest to the facility in all directions and near the streets on which tanker trucks will travel between the freeways and the facility; and
- Sensitive receptors nearest to the facility in all directions and near the streets on which trucks will travel between the freeways and the facility.
- The residential and sensitive receptor locations are shown in Figure 4.2-3, and the non-residential sensitive receptors are listed in Table 4.2-10.

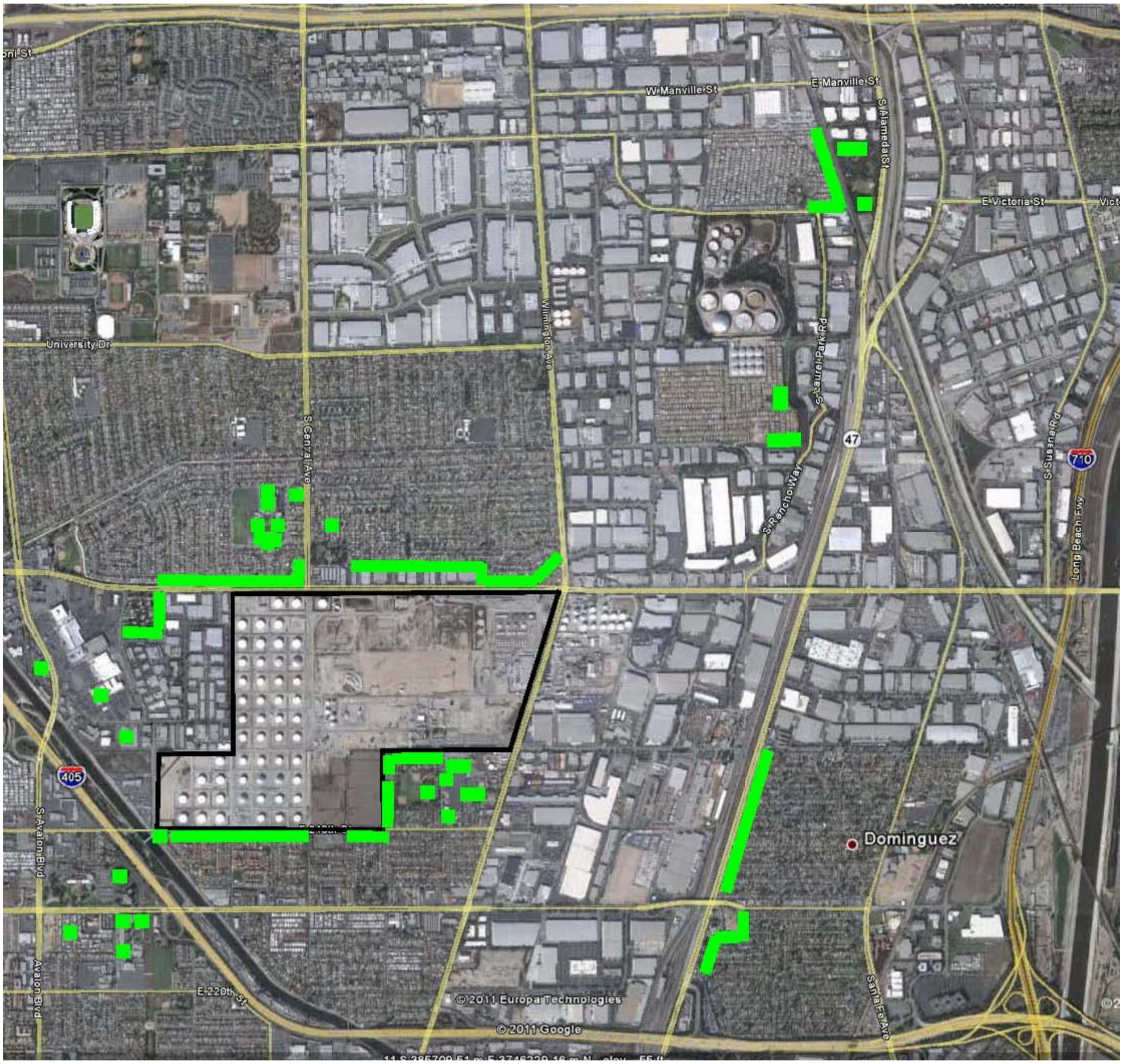
Human Exposure Routes

Exposure to all TACS occurs through inhalation. Exposure to TACs that can deposit on surfaces, such as soil, water bodies, and food sources, can occur through other routes, such as ingestion of fruits and vegetables onto which TACs have deposited. Exposure through non-inhalation pathways occurs for semi-volatile organic chemicals and heavy metals. Because none of the TACs included in the HRA are semi-volatile organic chemicals or heavy metals, exposure to TACs from the proposed project only occurs through inhalation.



Note: Blue lines are tanker truck routes.

Figure 4.2-2 Tanker Truck Routes for HRA



Note: Green lines and rectangles are receptors.

Figure 4.2-3 Nearest Residential and Sensitive Receptor Locations for HRA

Table 4.2-10
Non-Residential Sensitive Receptors Included in the HRA for the Proposed Project

Name	Address	Approximate Distance to Closest Facility Boundary (miles)	Approximate Distance to Closest Facility Boundary (feet)[1]	Approximate Distance to Closest Project Stationary Emission Source (feet)[1]
Peace & Joy Christian School	940 East Dominguez St., Carson	0.08	420	940
Friendship Children's Center	1717 East Carson St., Carson	0.24	1,270	3,220
Dominguez Seminary	18127 South Alameda St., Compton	1.64[2]	8,660	12,450
Del Amo Elementary School	21228 Water St., Carson	0.07	370	1,780
Dolphin Park Children's Center	21205 Water St., Carson	0.14	740	1,210
Magnolia Science Academy	1254 East Helmick St., Carson	0.16	840	3,060
Curtiss Middle School	1254 East Helmick St., Carson	0.32	1,690	3,910
Eternal Word Graduate School	19819 Midtown Ave., Carson	0.26	1,370	3,370
Golden Wings Academy	20715 Avalon Blvd., Carson	0.46	2,430	2,870
New Millennium Secondary School	20700 Avalon Blvd., Carson	0.25	1,320	1,900
Carson Montessori Academy	812 East Carson St., Carson	0.34	1,800	2,890
InterCoast College	One Civic Plaza, Carson	0.18	950	1,950
Carnegie Middle School	21820 Bonita St., Carson	0.28	1,480	3,750
First Lutheran School	19707 South Central Avenue, Carson	0.30	1,580	3,570

[1] Rounded to 10 feet
[2] Location is adjacent to truck route to SR-91

Dose Assessment

Based on the estimated TAC concentrations in the air from the proposed project, the HARP software calculates potential exposure levels to people. The software uses the algorithms identified in the OEHHA Air Toxics Hot Spots Program Risk Assessment Guidelines (OEHHA, 2003). HARP was used for stationary source emissions only. The assessment of tanker truck DPM health risks used concentrations calculated by AERMOD. HARP was not used to calculate exposure levels from DPM emissions from tanker trucks because several hundred individual sources were used to represent the tanker truck emissions along the truck routes for the dispersion modeling and HARP is not well-suited to calculate doses and risks from this large number of emission sources.

Dose-Response

The dose-response assessment describes the quantitative relationship between the amount of exposure of a person to a substance (the dose) and the incidence or occurrence of an adverse health impact (the response). For carcinogens, this information is quantified as a cancer potency slope. In the analyses of non-carcinogenic health effects, it is generally assumed that a threshold exists below which no health impacts are expected. For non-carcinogens, this threshold level is characterized by a reference exposure level (REL).

Risk Characterization

By combining the results from the exposure assessment and dose-response assessment, the HARP software estimates potential cancer risk and non-cancer risks. More specifically, the calculated doses and exposure pathway information are used with the cancer potency factors and RELs to quantify cancer and non-cancer health impacts.

The cancer health impacts are characterized as a cancer risk that represents the chances per million people of developing cancer. The cancer risk from each substance is added together to arrive at a total cancer risk. For residential and sensitive receptors, this analysis assumes exposure to substances for 24 hours per day, 350 days per year over a 70-year period as recommended by OEHHA. For off-site worker receptors, the HARP analysis uses the standard default OEHHA assumption that a worker is exposed eight hours per day, 245 days per year for 40 years from a facility that operates continuously.

For the determination of health risks due to mobile source DPM emissions, the approach utilized for this assessment also assumed continuous 70-year exposure for residential and sensitive receptors by applying a Unit Risk Value of 318.5×10^{-6} $(\mu g/m^3)^{-1}$ to determine cancer risk. For worker exposure, a Unit Risk Value of 62.9×10^{-6} $(\mu g/m^3)^{-1}$ was used, which is consistent with exposure for eight hours per day, 245 days per year for 40 years to emissions from continuous operations. These Unit Risk Values were calculated by the SCAQMD (SCAQMD, 2005a) in a manner consistent with current OEHHA risk assessment procedures.

Non-cancer health impacts are characterized through a hazard index (HI), which is the dose divided by the REL. The HI for each toxicological endpoint or target organ system is calculated for each applicable substance. The total HI for each target organ system is equal to the sum of the HI from each substance. An HI of one or less indicates that adverse non-cancer health impacts are not anticipated. The chronic HI calculations are based on an annual average exposure duration and the chronic REL. The acute HI calculations are based on the peak hourly ground level concentration and the acute REL.

Summary of HRA Results

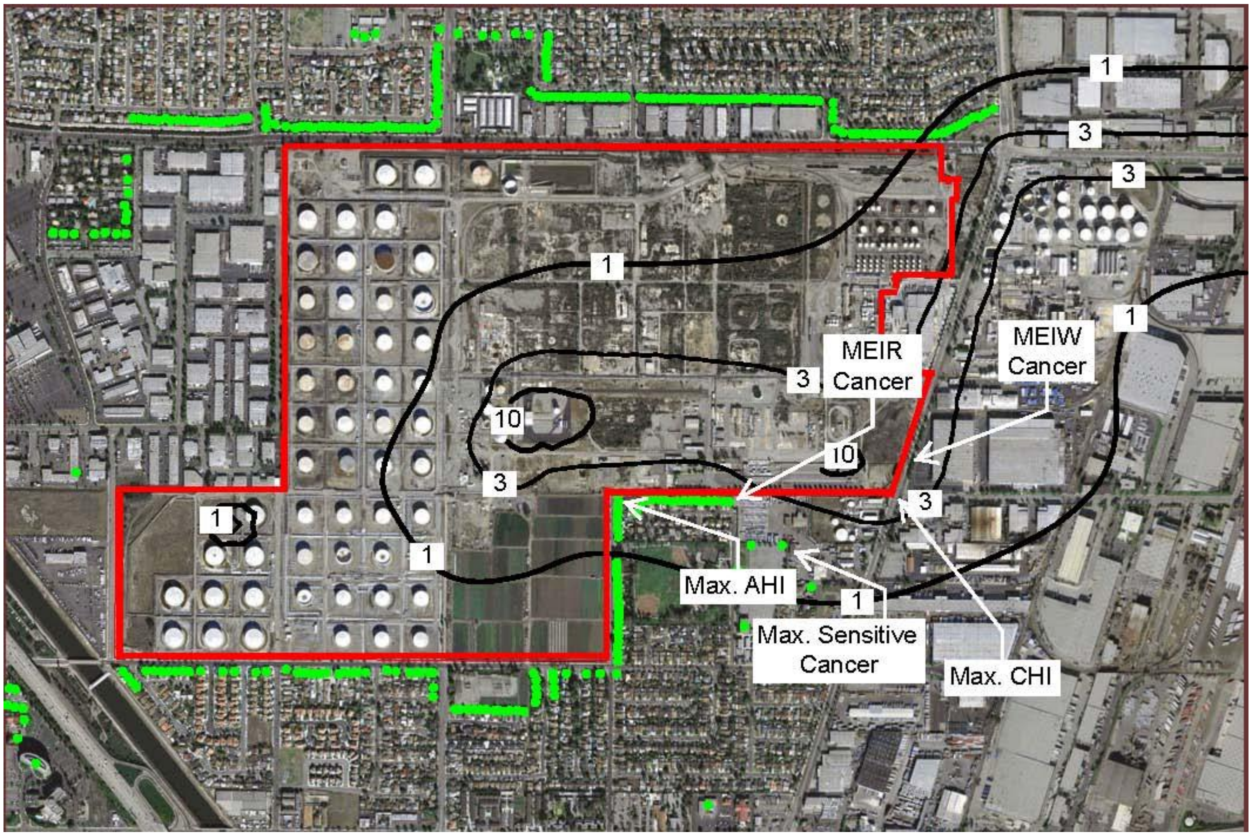
The estimated cancer, chronic non-cancer and acute risks at the maximum exposed individual resident (MEIR), maximum exposed individual worker (MEIW) and at the sensitive receptor with the highest risk results are summarized in Table 4.2-11.

Table 4.2-11
Summary of Proposed Project Toxic Air Contaminant Risks

Receptor	Incremental Cancer Risk (per million)	Increase in Chronic Non-Cancer Hazard Index	Increase in Acute Hazard Index
Maximum Exposed Individual Resident	2.11	0.0070	0.0020
Maximum Exposed Individual Worker	1.55	0.0196	0.0020
Maximum Sensitive Receptor[1]	1.61	0.0055	0.0006
Significance Threshold	10	1.0	1.0
Significant?	NO	NO	NO
[1] Maximum sensitive receptor is Del Amo Elementary School			

Based on the air quality modeling and related assumptions consistent with SCAQMD HRA policy, the cancer risks to the MEIR, MEIW and the maximum sensitive receptor associated with the proposed project were calculated to be 2.11 in one million, 1.55 in one million and 1.61 in one million, respectively. These results do not exceed the SCAQMD's cancer risk significance threshold of 10 in one million (Table 4.2-1); therefore, the carcinogenic impacts associated with exposure to TACs from the proposed project are less than significant.

Cancer risk isopleths for incremental carcinogenic risks from the proposed project, based on residential exposures, and the locations of the MEIR, MEIW and maximum sensitive receptor locations are shown in Figure 4.2-4. The numbers embedded in each isopleth represent the approximate cancer risk at that isopleth. The MEIR is the residence located closest to the on-site tanker truck travel route. The MEIW is located on the eastern side of Wilmington Avenue, adjacent to the off-site route used by the tanker trucks. The sensitive receptor with the highest cancer risk is Del Amo Elementary School, approximately 0.07 mile (370 feet) south of the facility boundary.



Note: Contours are risks per million for a 70-year residential exposure. Green circles are residential and sensitive receptors. Health risks inside the facility boundary are not included in the evaluation of significance.

Figure 4.2-4 Cancer Risk Isopleths and Locations of MEIR, MEIW and Maximum Sensitive Receptor for Cancer Risk and Maximum Chronic Hazard Index (CHI) and Maximum Acute Hazard Index (AHI) for Non-Cancer Risks

The chronic non-cancer hazard indices at the MEIR, MEIW and the maximum sensitive receptor associated with the proposed project were calculated to be 0.0070, 0.0196 and 0.0055, respectively. These results do not exceed the SCAQMD's chronic non-cancer risk significance threshold of 1.0 (see Table 4.2-1); therefore, the chronic non-cancer impacts associated with exposure to TACs from the proposed project are less than significant.

The maximum acute hazard index (AHI) associated with the proposed project was calculated to be 0.0023. It is located on the facility boundary, at the northern end of Martin Street (see Figure 4.2-4). The acute hazard indices at the MEIR, MEIW and the maximum sensitive receptor associated with the proposed project were calculated to be 0.0020, 0.0020 and 0.0006, respectively. These results do not exceed the SCAQMD's acute significance threshold of 1.0 (see Table 4.2-1); therefore, the acute impacts associated with exposure to TACs from the proposed project are less than significant.

4.2.2.6 Discussion of CARB's PM Mortality Quantification Methodologies

Epidemiological analyses have consistently linked air pollution, especially particulate matter, with excess mortality and morbidity. Health studies have shown both short-term and long-term exposures to ambient particulate matter concentrations are associated with increased mortality and morbidity. To estimate potential air quality impacts from a particular facility, an air quality dispersion model could be used to provide PM2.5 concentration levels at a set of receptor points. A concentration-response equation could be developed using the modeled air quality impacts and existing mortality to determine the relative change in mortality associated with the estimated changes in annual PM2.5 levels. The log-linear form of the concentration response equation is:

$$\Delta \text{ Mortality} = y_0 \left(e^{\beta \Delta PM2.5} - 1\right) \text{ population}$$

where

y0 = county level all-cause annual death rate per person for ages 30 and older,

β = PM2.5 coefficient from health study,

ΔPM = change in annual mean PM2.5 concentration, and

Population = population of ages 30 and older.

By applying census tract-level mortality and population data for all census tracts within the modeling domain, the overall change in mortality expected to result from PM2.5 emissions from the facility could be estimated.

Although this methodology has been applied by CARB to estimate numbers of premature deaths that may occur statewide from exposure to fine particulate matter, the methodology has not been peer-reviewed or approved for application to relatively small projects at the local level like the proposed Carson Facility project (CARB, 2008a). CARB also reported that, as part of its methodology development process, it will make its recommended approach available for peer review and public review. In a recent telephone conversation, the primary author of the CARB 2008 report, Dr. Hien Tran, reiterated the statement in the CARB 2008 report that CARB does not currently have an approved approach it considers valid for quantifying premature mortality from particulate emissions from small project sources affecting small geographic areas, and he also noted that CARB does not anticipate the release of a draft of such an approach in the near future. Until a final particulate matter morbidity/mortality methodology is adopted by CARB, any application of the concentration response to estimate premature mortality from relatively small projects at the local level remains speculative and the results unreliable. For example, peer-reviewers of the CARB study noted specific concerns about applying the CARB methodology to specific emission sources (even large-scale sources such as the ports). As noted in the 2008 CARB study:

- Small population samples may introduce systemic uncertainties in exposure and susceptibility, and the age/sex distribution of the population should be adjusted if the county-wide incidence rate is applied to smaller areas;

- Population demographics should be the same as those in the concentration-response function;
- The effect of population size is important and is a function of variability and confidence intervals of the underlying epidemiological studies; and
- The concentration-response function will vary based on the source of PM and other caveats, including those above.

4.2.2.7 Summary of Health Impacts

Criteria Pollutants

The primary health effects associated with exposure to O_3 NO_2, CO, PM10, and PM2.5 are respiratory impacts including decreased lung function, aggravation of chronic respiratory conditions, and aggravation of heart disease conditions (see Table 3.2-1).

Peak daily mass emissions during the construction and operational periods were analyzed to evaluate potential regional impacts to criteria pollutant concentrations. The analyses indicated that peak daily emissions when considering construction and operational periods of the proposed project separately are not expected to exceed the significance thresholds for CO, SOx, PM10 and PM2.5, but emissions during both the construction and operational periods of the proposed project are anticipated to exceed the significance thresholds for VOC and NOx. Since the peak daily emissions of CO, SOx, PM10 and PM2.5 would not exceed the mass daily significance thresholds during any project phase, no significant regional adverse health impacts associated with construction and/or operational CO, SOx, PM10 or PM2.5 emissions are expected. However, since peak daily emissions during the construction and operational periods of the proposed project when considered separately and when overlapping construction and operation emissions may occur may exceed the mass daily significance criteria for VOC and NOx, which are precursors to the formation of O_3, significant adverse impacts associated with construction VOC and NOx emissions may occur.

Air quality dispersion modeling analyses were conducted to evaluate potential localized air quality PM10 and PM2.5 concentrations impacts at the nearest sensitive receptors. The analyses indicated that localized PM10 and PM2.5 concentrations when considering the construction emissions separately and when considering overlapping construction and operation emissions may exceed the applicable LST criteria. The analyses also indicated that localized PM10 and PM2.5 impacts when considering operation of the proposed project separately are expected to be below the applicable significance criteria. Because the basin is classified as nonattainment for PM10 and PM2.5, the LST significance criteria for PM10 and PM2.5 are based on an exceedance of a Rule 1303-equivalent threshold for PM10 and PM2.5. Since construction and overlapping construction and operation emissions of the proposed project may exceed the LST significance criteria for PM10 and PM2.5, significant adverse impacts associated with construction and overlapping construction and operation PM10 and PM2.5 emissions may occur. Since operation PM10 and PM2.5 emissions from the proposed project anticipated to occur after construction of the proposed project is completed are not expected to exceed the LST significance criteria, no significant adverse impacts associated with operation PM10 and PM2.5 emissions after construction is completed are anticipated to occur.

Dispersion modeling analyses were also conducted to evaluate potential localized air quality CO and NO_2 concentration impacts at the nearest sensitive receptors. The analyses indicated that localized CO concentrations when considering construction and operational periods separately and when considering overlapping construction and operational emissions would be below the LST criterion, but localized NO_2 concentrations when considering construction emissions separately and when considering overlapping construction and operation emissions would contribute to an exceedance of the LST criterion. The analyses also indicated that localized NO_2 impacts when considering operation of the proposed project separately are expected to be below the significance criterion. The LST significance criteria for CO and NO_2 are based on emissions from a project causing or contributing to an exceedance of the most stringent ambient air quality standard for CO and NO_2. Since CO concentrations when considering construction and operational periods separately and when considering overlapping construction and operational emissions would be below the LST criterion no significant adverse health impacts associated with construction and/or operation CO emissions are expected. Since operation NOx emissions from the proposed project anticipated to occur after construction of the proposed project is completed are not expected to exceed the LST significance criterion, no significant adverse impacts associated with operation NO_2 emissions after construction is completed are anticipated to occur. However, since construction and overlapping construction and operation emissions of the proposed project may exceed the LST significance criterion for NO_2, significant adverse impacts associated with construction and overlapping construction and operation NOx emissions may occur.

<u>Toxic Air Contaminants</u>

An HRA was not performed to evaluate exposure to TACs during construction for the reasons discussed in Subsection 4.2.2.5.

The long-term air quality impacts from exposure to TACs were evaluated through the preparation of an HRA. The HRA evaluated the emissions associated with the operation of the proposed project and compared them to carcinogenic and non-carcinogenic significance thresholds to determine potential health impacts. As demonstrated in the HRA, the carcinogenic and non-carcinogenic impacts for all receptors are expected to be less than the significance thresholds. Therefore, no significant adverse carcinogenic or non-carcinogenic health impacts associated with the operation of the proposed project are expected.

4.2.3 MITIGATION MEASURES

Mitigation measures are required, if feasible, to minimize the significant air quality impacts associated with the construction and operation phases of the proposed project since VOC, NOx, PM10 and PM2.5 emissions were concluded to be significant during the construction period and VOC and NOx emission were concluded to be significant during full operation.

4.2.3.1 Construction Mitigation Measures

The proposed project has the potential to generate significant adverse air quality impacts due to VOC, NOx, PM10 and PM2.5 emissions during the construction period. VOC emissions are anticipated to be primarily from construction equipment exhaust and architectural coating, NOx and PM2.5 emissions are anticipated to be primarily from construction equipment exhaust and on-road motor vehicle exhaust and PM10 emissions are anticipated to be primarily from construction equipment exhaust and on-site fugitive dust generated by vehicles traveling on unpaved surfaces. The following mitigation measures will be imposed on the proposed project to reduce VOC, NOx, PM10 and PM2.5 emissions associated with construction activities.

Construction Equipment:

A-1 During project construction, all internal combustion engines/construction equipment operating on the project site shall meet EPA-Certified Tier 3 emissions standards, or higher, according to the following:

- From January 1, 2012 to December 31, 2014: All off-road diesel-powered construction equipment greater than 50 hp shall meet Tier 3 offroad emissions standards. In addition, all construction equipment shall be outfitted with control technologies certified by CARB. Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 3 diesel emissions control strategy for a similarly sized engine as defined by CARB regulations

- On or after January 1, 2015: All off-road diesel-powered construction equipment greater than 50 hp shall meet the Tier 4 emission standards, where available. In addition, all construction equipment shall be outfitted with control technologies certified by CARB. Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 3 diesel emissions control strategy for a similarly sized engine as defined by CARB regulations.

- A copy of each unit's certified tier specification, control technology documentation, and CARB or SCAQMD operating permit shall be provided at the time of mobilization of each applicable unit of equipment.

- Encourage construction contractors with fleets less than 20,000 horsepower to voluntarily apply for SCAQMD's "SOON" funds. Incentives could be provided for those construction contractors who apply for SCAQMD "SOON" funds. The "SOON" program provides funds to accelerate clean up of off-road diesel vehicles, such as heavy duty construction equipment. More information on this program can be found at the following website: http://www.aqmd.gov/tao/Implementation/SOONProgram.htm

A-2 In the event a Tier 3 engine is not available for any off-road engine larger than 50 hp, that engine shall be equipped with a diesel particulate filter (soot filter), unless certified by engine manufacturers that the use of such devices is not practical for specific engine types. For purposes of this condition, the use of such devices is "not practical" if, among other reasons:

(1) There is no available soot filter that has been certified by either CARB or USEPA for the engine in question; or

(2) The construction equipment is intended to be on-site for ten (10) days or less.

The use of a soot filter may be terminated immediately if one of the following conditions exists:

(1) The use of the soot filter is excessively reducing normal availability of the construction equipment due to increased downtime for maintenance, and/or reduced power output due to an excessive increase in backpressure;

(2) The soot filter is causing or is reasonably expected to cause significant engine damage; or

(3) The soot filter is causing or is reasonably expected to cause a significant risk to workers or the public.

A-3 All construction equipment shall be properly maintained and the engines tuned to the engine manufacturer's specifications.

A-4 Prohibit construction equipment from idling longer than five minutes and post signs prohibiting idling longer than five minutes at the facility entrance and near areas where construction equipment is operating.

A-5 The engine size of construction equipment shall be the minimum practical size to support the required scope of work for the equipment.

A-6 Use electric welders instead of gas or diesel welders in portions of the facility where electricity is available.

A-7 Use on-site electricity rather than temporary power generators in portions of the facility where electricity is available.

A-8 Suspend all construction activities that generate air pollutant emissions during first stage smog alerts.

A-9 Use electricity or alternate fuels for on-site mobile equipment instead of diesel equipment to the extent feasible.

On-Site Vehicles Traveling on Unpaved Surfaces

A-10 Unpaved surfaces on which vehicles travel shall be watered three times per day.

On-Road Mobile Sources:

A-11 Prior the start of construction, develop a Construction Emission Management Plan for each affected facility to minimize emissions from vehicles including, but not limited to: consolidating truck deliveries; scheduling deliveries to avoid peak hour traffic conditions; describing truck routing; describing deliveries including logging delivery times; describing entry/exit points; identifying locations of parking; identifying construction schedule; and prohibiting truck idling in excess of five consecutive minutes or another time-frame as allowed by the California Code of Regulations, Title 13 §2485 - CARB's Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling.

No additional feasible mitigation measures have been identified for the emissions from on-road vehicle trips. CEQA Guidelines §15364 defines feasible as ". . . capable of being accomplished in a successful manner." Health and Safety Code §40929 prohibits the air districts and other public agencies from requiring an employee trip reduction program, making such mitigation infeasible.

Other mitigation measures were considered but were rejected because they would not further mitigate the potential significant impacts. These mitigation measures included: 1) implement a shuttle service to and from retail services during lunch hours (most workers eat lunch on-site and lunch trucks will visit the construction site); and 2) use natural gas, propane or butane-powered construction equipment (equipment is not CARB-certified or commercially available).

Mitigation measures A-1 through A-10 will be implemented by Shell during construction of the proposed project. Mitigation measure A-11 will be implemented by Shell prior to the start of construction.

4.2.3.2 Operational Mitigation Measures

The proposed project has the potential to generate significant adverse air quality impacts due to VOC and NOx emissions during operation. VOC emissions are anticipated to be primarily from fugitive emissions from tanker truck loading, emissions from the thermal oxidizer and exhaust emissions from tanker trucks. NOx emissions are anticipated to be primarily from tanker truck exhaust. VOC emissions would be offset through emission credits required for permitted sources pursuant to SCAQMD Rule 1303 and NOx and SOx emissions would be offset through RTCs required for permitted sources. The emission credits and RTCs are based on an established NSR program. However, VOC and NOx emissions after applying emission credits and RTCs to permitted sources would remain significant because VOC and NOx emissions from non-permitted sources are anticipated to exceed the respective significance thresholds.

No additional feasible mitigation measures for VOC and NOx have been identified. Fugitive VOC emissions during tanker truck loading are caused by leaks from fittings on the tanker trucks. Mitigation measures to eliminate or to reduce these leaks have not been identified.

The thermal oxidizer would be required to meet BACT emission limits for VOC and NOx. Since these limits represent the lowest achievable emission rate, it is not feasible to reduce these emissions further.

VOC and NOx emissions from tanker truck exhaust would be reduced if all tanker trucks delivering ethanol from the Carson Facility were late-model trucks that have lower emissions than the average emissions from heavy heavy-duty vehicles in southern California. However, as discussed previously, the tanker trucks that deliver ethanol from the facility are operated by Shell’s customers or by operators under contract to Shell’s customers. Therefore, it is not be feasible for Shell to require all tanker trucks that deliver ethanol from the facility to be late-model trucks.

4.2.4 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Construction emissions for the proposed project for VOC, NOx, PM10 and PM2.5 are expected to remain significant following mitigation. The construction emissions associated with CO and, SOx are expected to be less than significant and, therefore, mitigation would not be required. Construction emissions are expected to be short-term and they would be eliminated following completion of the construction phase.

The mitigation measures (Subsection 4.2.3.1) are expected to result in additional emission reductions and reduce the potentially significant adverse impacts associated with VOC, NOx, PM10 and PM2.5 emissions; however, sufficient emission reductions are not expected to reduce the significant VOC, NOx, PM10 and PM2.5 emissions to less than significant. CO and SOx emissions would remain less than significant.

Potential localized significant impacts from construction activities were analyzed for NO_2, CO, PM10, and PM2.5. The construction activities associated with the proposed project are not expected to cause a significant adverse localized air quality impact to nearby sensitive receptors for CO, and no mitigation would be required. However, the modeling analysis concluded that construction emissions of NOx, PM10 and PM2.5 may cause the NO_2, PM10 and PM2.5 LSTs (Table 4.2-1) to be exceeded. Construction mitigation measures (Subsection 4.2.3.1) are expected to result in additional NOx, PM10 and PM2.5 emission reductions and reduce the potentially significant adverse localized NO_2, PM10 and PM2.5 impacts associated with NOx, PM10 and PM2.5 emissions; however, the impacts are expected to remain significant.

The proposed project is not expected to generate significant CO, SOx, PM10, or PM2.5 impacts during operation. The operational impacts of the proposed project exceed the applicable VOC and NOx significance thresholds and, therefore, have the potential to generate significant adverse VOC and NOx impacts. Increases in VOC and NOx emissions are required to be offset for stationary sources pursuant to SCAQMD Rule 1303 and Regulation XX, respectively. The offsets for VOC and NOx would reduce the proposed project's net VOC and NOx emissions, respectively, but the VOC and NOx emissions are expected to remain above their respective significance thresholds. No additional feasible mitigation measures to reduce VOC or NOx emissions during operation of the proposed project were identified. Therefore, impacts from VOC and NOx emissions are expected to remain significant.

An LST analysis was conducted to evaluate impacts to ambient CO, NO_2, PM10 and PM2.5 air quality during operation of the proposed project. The modeling analysis, which included emissions from both on-site sources and from tanker trucks travelling off-site to and from the facility, indicated that impacts to ambient CO, NO_2, PM10 and PM2.5 air quality would be below the corresponding significance criteria. Therefore, localized ambient air quality impacts during operation of the proposed project are expected to be less than significant, so mitigation would not be required.

The proposed project was analyzed for cancer and non-cancer human health impacts and determined to be less than significant. The estimated cancer risk due to the operation of the proposed project is expected to be less than the significance criterion of 10 in one million. The chronic non-cancer hazard index and the acute hazard index are both expected to be below the hazard index threshold of 1.0. Therefore, the proposed project operation is not expected to cause a potentially significant adverse impact associated with exposure to toxic air contaminants, so mitigation would not be required.

4.3 BIOLOGICAL RESOURCES

The NOP/IS (see Appendix I-A) determined that the proposed project at the Carson Facility has the potential to generate significant adverse impacts on biological resources. Specifically, the NOP/IS identified the potential for the proposed project to have a substantial adverse effect on species identified as a candidate, sensitive, or special-status species.

4.3.1 SIGNIFICANCE CRITERIA

The impacts on biological resources would be considered significant if any of the following criteria apply:

- The project results in a loss of plant communities or animal habitat considered to be rare, threatened or endangered by federal, state or local agencies.

- The project interferes substantially with the movement of any resident or migratory wildlife species.

- The project adversely affects aquatic communities through construction or operation of the project.

4.3.2 ENVIRONMENTAL IMPACTS

The following subsections evaluate potentially significant adverse impacts to species identified as a candidate, sensitive, or special-status species that could occur as a result of implementing the proposed project.

4.3.2.1 Construction Impacts

As discussed in Section 3.3, no candidate, sensitive or special-status species were observed during a survey of locations within the Carson Facility where construction for the proposed project would occur, and there is no suitable habitat to support these species within the construction footprint of the proposed project. However, three special-status species, including the Monarch butterfly, burrowing owl and western yellow bat, have been previously recorded in the region and, based on habitat conditions, could potentially utilize habitat within a 500-foot buffer area from the proposed project areas. Nesting birds, which are protected under the MBTA, could also utilize this habitat.

Monarch Butterfly

The small grove of eucalyptus trees located approximately 400 feet west of the proposed gasoline storage tank construction could provide wintering roosts for Monarch butterflies. No direct impacts to this roosting habitat would occur, since construction of the proposed project would not require the removal of these trees. The proposed gasoline storage tank construction would also be more than 200 feet from the grove. The City of Goleta used a buffer of 200 feet from construction activities during active roosting to avoid disturbing an active roost or aggregation of butterflies (see Subsection 3.3.2.1). Assuming the buffer determined by the City of Goleta would be appropriately protective of monarch butterflies at the Carson Facility, because the construction would occur more than 200 feet away from the trees, there would be no adverse indirect impacts to potentially roosting butterflies from added noise and vehicle activity should the monarch butterflies be present during construction.

Burrowing Owl

During the biological survey of the project locations, a single burrow that could potentially be utilized by the western burrowing owl was detected approximately 50 feet north of the proposed construction lay down area. Although no owls were seen occupying this burrow and there were no signs of recent use, future occupancy of this burrow by an owl cannot be precluded. Burrowing owls were observed within the Carson Facility in October, 2007, during field surveys conducted by SWCA biologists (SWCA, 2007). The presence of an owl or the presence of an occupied burrow within the vicinity of a construction area poses some potential risk to individual owls in the form of direct mortality or accidental injury from construction vehicles, or entrapment inside the burrows during grading, as they are ground-dwelling species. Seeking protection, owls may also instinctively enter the burrow with the onset of construction activities. Noise and vehicular activities during construction may also indirectly affect their breeding and feeding behavior. Therefore, construction of the proposed project could potentially cause significant adverse impacts to the burrowing owl in this area.

Western Yellow Bat

To date, western yellow bats have not been identified on the Carson Facility. Western yellow bats are known to use palm trees for roosting and could potentially roost in the fan palms approximately 250 feet from the proposed lay down area. No direct impacts to this roosting habitat would occur, since construction of the proposed project would not require the removal of these trees. The proposed lay down area would also be more than 100 feet from the palm trees, and would therefore be beyond a buffer limit that Caltrans uses for roosting bats to avoid disturbing a roost (see Subsection 3.3.2.3). Thus, there would be no adverse indirect impacts to potentially roosting western yellow bats.

Nesting Birds

Bird species identified during the survey of the proposed project areas (Subsection 3.1.2) include passerine (perching) birds (northern mocking bird (*Mimus polyglottos*), mourning dove (*Zenaida macroura*), rock dove (*Columba livia*), Anna's hummingbird (*Calypte anna*) and house sparrow (*Passer domesticus*)) and one raptor species (American kestrel (*Falco sparverius*)). Although no nesting birds were observed during the survey, the grove of eucalyptus trees, as well as the stands of fan palms, located approximately 250 feet east of the proposed laydown area, have the potential to support nesting passerine birds and raptors. No direct impacts to these potential nesting habitats would occur, since construction of the proposed project would not require removing these potential habitats. However, noise and vehicular activities during construction activities could result in indirect adverse impacts to nesting birds if construction activities occur within the nesting season. These impacts may include the interruption of courtship and breeding activities and result in nest abandonment. Therefore, construction of the proposed project could potentially cause significant adverse impacts to nesting birds in this area.

4.3.2.2 Operational Impacts

As discussed in Section 3.3, no candidate, sensitive or special-status species were observed during the survey of the locations within the Carson Facility where new or modified equipment or structures would be located for the proposed project, and there is no suitable habitat to support these species within these locations. Therefore, operation of the proposed project would not directly impact sensitive or special-status species.

The proposed new gasoline storage tank would not generate noise during operation, and facility personnel would only visit the storage tank as required for routine inspections and necessary maintenance, as is currently the case for existing tanks in the same general area. Thus, operation of the gasoline storage tank would not have the potential to disturb nesting birds in the grove of eucalyptus trees west of the gasoline storage tank location.

Activities during operation of the other components of the proposed project would be similar in nature to those that currently occur, except that the daily maximum number of ethanol tanker truck loading trips associated with the proposed project would be approximately twice the daily average number of trips during the baseline period (e.g., 552 one-way trips per day vs. 264 one-way trips per day). The ethanol loading rack is located approximately 650 feet from the stands of fan palms, which is farther than the 300-foot and 500-foot buffer distances for nesting non-raptors and raptors, respectively, but the on-site ethanol tanker truck routes are approximately 340 feet from the stands of fan palms, which is closer than the 500-foot buffer distance for nesting raptors. However, due to the degraded nature of the habitat and the ongoing activity within the Carson Facility, the area is not expected to support a significant number of sensitive species. There are already high levels of disturbance that minimize the use of the habitat by potentially affected species. Therefore, the additional activity associated with operation of the proposed project would not likely change current use patterns, if any. Thus, operation of the other components would not have the potential to disturb nesting birds in the stands of fan palms.

Based on these considerations, operation of the proposed project would not cause significant adverse impacts to biological resources.

4.3.3 MITIGATION MEASURES

Mitigation measures are required, if feasible, to minimize the potentially significant biological resources impacts associated with the construction phase of the proposed project, since sensitive or special-status species may be indirectly disturbed. Therefore, the following mitigation measures will be imposed on the project to reduce potential impacts to biological resources during construction:

Burrowing Owl Avoidance

B-1 Within 30 days prior to construction activities, a survey of the proposed construction footprint and surrounding areas up to 300 feet shall be conducted by a third-party qualified professional biologist to identify potential burrows and determine if any burrows are occupied by burrowing owls. As directed by the Mitigation Guidelines presented in the Burrowing Owl Consortium's guidance document "Burrowing Owl Survey Protocol and Mitigation Guidelines" (Burrowing Owl Consortium, 1993), construction activities shall not occur within 160 feet of occupied burrows during the non-breeding season (September 1 through February 14) or within 250 feet during the breeding season (February 15 through August 31). If potential burrows remain present, a follow up clearance survey shall be conducted by a third-party qualified professional biologist in accordance with the 1995 Department of Fish and Game Staff Report on Burrowing Owls, which recommends repeat surveys if construction activities have been suspended for more than 30 days from the date the clearance survey is completed.

Nesting Bird Avoidance

B-2 Within 30 days of construction activities, a pre-construction nesting bird survey of the potential nesting habitat (eucalyptus trees and fan palms) shall be conducted by a third-party qualified professional biologist. If construction will occur during the nesting bird season (generally considered to be from February 15 through August 31), a third-party qualified professional biologist shall conduct a survey once per week to inspect for potential nesting activity, particularly in areas such as trees and native scrub.

B-3 In accordance with regulatory agency standards, if any active, non-raptor nest is detected within 300 feet of the construction footprint, then a 300-foot buffer shall be established, and no construction activities shall occur within this zone until a third-party qualified professional biologist determines that the nest has been abandoned and any chicks that may have hatched have fledged.

B-4 In accordance with regulatory agency standards, if any active raptor nest is detected, a 500-foot "no construction zone" shall be established. Ongoing monitoring of any identified raptor nest shall be conducted by a third-party qualified professional biologist to determine if noise or construction activities are negatively affecting any nest through observation of behavioral cues and to determine when the young have fledged, the nest becomes inactive, and project activities within the buffer can resume.

Mitigation measures B-1 through B-4 will be implemented by Shell according to the schedules specified in the mitigation measures.

4.3.4 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Implementation of these mitigation measures would reduce impacts to sensitive and special-status wildlife species during construction of the proposed project to a less than significant level. As explained in Subsection 4.3.2.2, impacts to sensitive and special-status wildlife species during operation of the proposed project would be less than significant, and no mitigation measures would be required.

4.4 HAZARDS AND HAZARDOUS MATERIALS

Operation of the proposed project would not involve the use and storage of flammable substances or materials that are not currently already used at the Carson Facility nor would it involve the use and storage of flammable substances in areas of the facility where they are not currently used and stored. However, the NOP/IS (see Appendix I-A) determined that the proposed project at the Carson Facility has the potential to generate significant adverse hazards and hazardous materials impacts. The hazard and hazardous materials impacts associated with the operation of the proposed project are potentially significant and the impacts are evaluated in this section.

4.4.1 SIGNIFICANCE CRITERIA

Impacts associated with hazards from the proposed project will be considered significant if any of the following occur:

- Non-compliance with any applicable design code or regulation.
- Non-conformance to National Fire Protection Association (NFPA) standards.
- Non-conformance to regulations or generally accepted industry practices related to operating policy and procedures concerning the design, construction, security, leak detection, spill containment or fire protection.
- Exposure to hazardous chemicals in concentrations equal to or greater than the Emergency Response Planning Guideline (ERPG) 2 levels.

4.4.2 ENVIRONMENTAL IMPACTS

4.4.2.1 Compliance with Design Codes, Regulations and Standards

The proposed project would be required to comply with various applicable regulations to minimize the potential impacts associated with hazardous materials. These regulations, which are described in detail in Subsection 3.4.3, include:

- OSHA regulations (29 CFR Part 1910);
- Process Safety Management of Highly Hazardous Chemicals (29 CFR Part 1910.119);
- Title 8 of the CCR, General Industry Safety Order §5189;
- U.S. EPA's EPCRA;
- SPCC Plan requirements (40 CFR, Section 112);
- Federal regulations for the qualification and maintenance of cargo tanks (40 CFR Part 180, Subpart E);
- The HMT Act ;
- Caltrans standards for trucks in California; and
- Hazardous Materials Business Plan requirements (AB 2185).

Consistent with all applicable regulatory requirements, Shell operators will incorporate modern industrial technology and design standards, regulatory health and safety codes, and training, operating, inspection, and maintenance procedures into the proposed project to reduce the risk and severity of potential upset conditions.

Proposed New Single-Lane Ethanol Loading Rack

The following components of the design and operation of the proposed new single-lane ethanol loading rack are included as part of the project description for the proposed project and, therefore, will be requirements and would be expected to reduce the risk and potential consequences of an ethanol spill:

- Shell will train tanker truck drivers in the proper operation of the loading equipment, including procedures to prevent and to respond to spills;
- Tanker trucks loading at the new rack will be required to be equipped with overfill protection that will automatically shut-down the filling operation when a compartment becomes full;
- The tanker truck loading arms will be equipped with couplings to reduce the potential for leakage while connecting and disconnecting the hoses;

- There will be emergency push buttons to immediately shutoff the flow of ethanol in case of problems; and

- In the event an ethanol spill occurs, it will drain into a containment sump. When the sump is full, its contents will be pumped to the facility's Contact Water Tank, which stores any water that could have come into contact with hydrocarbons. The contents of the Contact Water Tank, which is mostly water with some hydrocarbon materials, will be processed on-site by a third-party company to remove hydrocarbons. The treated water will then be discharged into the sanitary sewer system. Most of the hydrocarbon materials removed from the treated water will be sold to a third party and transported by truck to be processed and recycled. Waste materials that are not sold will be disposed of by a licensed waste handler in accordance with applicable regulations.

The following fire suppression systems are included as part of the project description for the proposed project and, therefore, will be required to be installed for the proposed new single-lane ethanol loading rack:

- The loading rack will be served by a 3,000 gallon foam tank that will automatically release a foam/water mixture in the event of a fire;

- Fire suppression spray nozzles, designed in accordance with NFPA standards, will be located in the loading lane to supply the required flow rate of the foam/water mixture; and

- Existing fire water monitors, which are fixed devices designed to provide a high-flow rate water stream for use by properly trained individuals until the fire department arrives with additional equipment, will allow application of additional fire water as required to suppress a fire or to provide cooling water to equipment adjacent to a fire.

Proposed New Gasoline Storage Tank

The following safety design components of the proposed new gasoline storage tank are included as part of the project description for the proposed project and, therefore, will be required to be installed:

- The tank will be constructed, inspected and maintained according to current industry standards established by the American Petroleum Institute (API) (API 650 and 653);

- The integrity of the tank will be verified by filling with water (hydrostatic testing) with settlement monitoring prior to connecting and commissioning new piping;

- Overfilling will be prevented by an automated level gauge system that transmits readings to the control center. Independent high-level alarms will be used for additional protection from overfill;

- Experienced, qualified personnel will conduct API 653 inspections at the intervals specified by API 653 over the operating life of the tank;

- The storage tank will be surrounded by a dike sized to contain the larger of 110 percent of the entire tank contents or the entire tank contents plus 24-hours of precipitation from a 25-year storm event; and

- The facility SPCC Plan will be updated to include the new storage tank.

The proposed new gasoline storage tank would incorporate an on-site semi-fixed foam system containing 3,450 gallons for fire suppression. This system will adhere to and be in compliance with the requirements and standards established by the NFPA and the Los Angeles County Fire Department (LACFD) "PetroChem Division." Sufficient foam would be provided for 55 minutes of continuous operation in accordance with NFPA standards. The system would be utilized for fire suppression by the LACFD foam engine, located at the Del Amo Fire Station Number 10. The response time from the Del Amo Fire Station is less than four minutes to the facility.

The Carson Facility also implements a tanker truck and cargo tank certification program for tanker trucks that load ethanol at the facility. Prior to loading at the facility for the first time, each cargo tank must pass an initial inspection performed by trained Shell loading rack operators. This inspection includes verifying that the cargo tank has been certified to comply with the requirements of 49 CFR §180.407 for design specifications, liquid and vapor tightness, and maintaining design pressure. Each tanker truck, including its cargo tank(s), is also inspected for proper safety control devices, including overfill protection, grounding, brake interlocks and emergency shutdown systems. If the tanker truck does not pass all of the inspections, it will not be allowed to load at any Shell facility until the proper repairs have been made and it has been re-inspected by the loading rack operator. Records are maintained in a computerized terminal management system of vehicles that have been authorized to load at the facility. This terminal management system automatically verifies that the vehicle's inspections and certifications have not expired prior to authorizing the driver to load. The Carson Facility also conducts a minimum of 10 random inspections per month of tanker trucks entering the facility to verify that the safety and environmental controls are operating properly.

4.4.2.2 Hazard Analysis

Potential hazard impacts are considered to be significant if an accidental release of a hazardous material results in off-site exposure to one or more individuals. The potential for a hazards impact is a function of both the consequence of the release and the probability of the release scenario occurring. The consequence of a hazardous materials release is the actual hazard effects posed to an individual exposed to the released material. The probability that the accident occurs is estimated from the individual and combined probabilities based on available data of the given accident scenarios. Few accidents involve a single initiating event. Rather, it is more common that a chain of events must occur, each with its own probability, for the accident to occur. Stopping any one of the elements in the chain would prevent the accident from happening or would mitigate the consequence of the accident that does occur, in many cases reducing its severity.

Consistent with applicable CEQA requirements, the hazards analysis addresses only hazards from new or modified equipment associated with the proposed project. The analyses concentrate on potential upset scenarios that may result in risk of off-site exposures. The primary focus of the hazard impacts analysis for the proposed project is on the change in potential impacts to the environment or the community outside of the facility that could result from the existing storage tanks that would be converted from gasoline to ethanol service, the proposed new single-lane ethanol loading rack, and the proposed new gasoline storage tank. The potential change in impacts is evaluated by comparing impacts that could occur from the proposed project with impacts that could occur from existing conditions. The range (distance) of the impact beyond the facility's fence line is estimated for each scenario.

The likelihood of occurrence for the scenarios analyzed herein was based on reliability data available from the American Institute of Chemical Engineers (AIChe, 1989) and other published research and survey data.

Hazard Scenarios

A scenario involving a spill of flammable liquid was considered for each of the three components of the proposed project that involves handling or storage of flammable liquid (i.e., the existing storage tanks converted from gasoline to ethanol service, the new gasoline storage tank and the new single-lane loading rack). Two possible outcomes were identified and analyzed for each of the scenarios. The first outcome involves contact of the spilled liquid with an ignition source to cause a pool fire. The second outcome involves evaporation of a portion of the liquid to produce a vapor cloud, which then comes into contact with an ignition source to cause a vapor cloud explosion.

These are considered "worst-case" scenarios, because they assume that all systems and procedures in place to prevent catastrophic releases and subsequent ignition, including tank shell integrity inspections, emergency shut-off systems and fire suppression systems, fail. For the "worst-case" scenarios evaluated to occur, all of the following conditions must be met: 1) a catastrophic failure of a storage tank or a catastrophic ethanol loading accident occurs; 2) all release prevention and response mechanisms fail; 3) the release contacts an ignition source; 4) the wind speed is low (less than three miles per hour); and 5) the atmosphere is calm.

The three scenarios to be analyzed are described in more detail in the following paragraphs.

<u>Potential Scenario 1: Catastrophic Failure of a Converted Storage Tank</u>

This scenario assumes that there would be a catastrophic breach of one of the existing storage tanks that gets converted from gasoline to ethanol service. All of the flammable liquid within the storage tank would spill and fill the entire 104,000 square-foot secondary containment berm surrounding the storage tank. The flammable liquid would either ignite and cause a pool fire, or the liquid would evaporate for 10 minutes, and then the vapors would ignite to cause a vapor cloud explosion. The analysis for the accumulation of the vapors to cause a vapor cloud explosion includes the conservative assumption that there would be calm wind conditions, so that the evaporating vapors do not disperse. The hazard impacts analysis assumes that the baseline hazard impacts would occur from a storage tank containing gasoline compared to the hazard impacts analysis for the proposed project, which assumes the storage tank contains ethanol.

Potential Scenario 2: Catastrophic Failure of a the Proposed New Gasoline Storage Tank

This scenario assumes a catastrophic breach of the proposed new gasoline storage tank. In the event of a breach, all of the gasoline being stored in the tank (158,000 bbl or 6,636,000 gallons) would spill into the entire 104,000 square-foot secondary containment berm surrounding the storage tank. The gasoline would either ignite and cause a pool fire, or the gasoline would evaporate for 10 minutes, and the gasoline vapors would ignite and cause a vapor cloud explosion. The analysis for the accumulation of the vapors that would cause a vapor cloud explosion includes the conservative assumption that there would be calm wind conditions, so that the evaporating vapors do not disperse. The hazard impacts analysis assumes that the baseline hazard impacts would occur from existing storage tanks whose potential off-site hazard impacts could overlap with potential off-site hazard impacts from the proposed new gasoline storage tank..

Potential Scenario 3: Ethanol Loading Rack Accident Causing an Ethanol Release

This scenario assumes that there would be a tanker-truck loading accident resulting in the release of the entire contents (190 bbl or 8,400 gallons) of a full tanker truck load of ethanol. Instead of draining into the loading rack area sump, the ethanol is assumed to spread out until its depth is 0.03 feet, covering an area of approximately 34,230 square feet. The ethanol would either ignite and cause a pool fire, or the ethanol would evaporate for 10 minutes, and then the ethanol vapors would ignite and cause a vapor cloud explosion. The analysis for the accumulation of the vapors to cause a vapor cloud explosion includes the conservative assumption that there would be calm wind conditions, so that the evaporating vapors do not disperse. Because the proposed single-lane ethanol loading rack is a new loading rack, there are no existing hazard analyses to compare with.

Probability of Hazard Scenarios

Storage Tank Failure (Potential Scenarios 1 and 2)

The American Institute of Chemical Engineers (AIChE) defines a catastrophic failure of a storage tank as a breach in tank integrity of one-quarter inch or greater. For an aboveground metallic tank or vessel operating at atmospheric pressure, the average rate for catastrophic failure is 0.985 per million hours (one failure per approximately 116 years), based on AIChE historical statistical data (AIChE, 1989). The bounds of the failure rate in the AIChE data set for aboveground metallic atmospheric pressure storage tanks range from a lower bound probability of 0.127 catastrophic failures per million hours to an upper bound probability of 3.02 failures per million hours. These bounds correspond to a rate of failure between approximately once per 38 years and once per 900 years.

Ethanol Loading Rack Accident (Potential Scenario 3)

The most likely causes of an ethanol release at the loading rack would be a spill during a hose connection or disconnection activity or shearing of the valve due to movement of the loading arm or truck. As described previously, the loading equipment has safety interlocks to verify that the liquid transfer and vapor return hoses are properly connected before the transfer pumps can start, has overfill protection to confirm that the pumps shut down before an overfill can occur and has excess flow valves that close if excess flow is detected. The loading rack area is surrounded by containment for an ethanol spill with drainage to an underground sump for liquid collection. It would take both equipment mechanical failure and human error (i.e., failure to respond properly) to produce a scenario in which the entire contents of a tanker truck would spill. Furthermore, a fire has never occurred at the existing two-lane tanker truck loading rack.

The State of New Jersey Department of Environmental Protection and Energy (1993) has indicated that the probability of human error causing one incorrect hose connection is 0.0045. Three loading arms would be used to load ethanol into each tanker truck, so the probability of an incorrect hose connection caused by human error during the loading of a single truck would be 0.0135 (3 x 0.0045). For a flow-sensing switch, the average rate for failure is 4.20 per million hours, based on AIChE historical statistical data (AIChE, 1989). The bounds of the failure rate in the AIChE data set for flow sensing switches range from a lower bound probability of 0.165 failures per million hours to an upper bound probability of 15.7 failures per million hours. Loading a tanker truck would require approximately 15 minutes, so the average probability of a flow switch failing to detect excess flow when a single truck is loaded would be 1.05×10^{-6} (15 minutes / 60 minutes per hour / 1,000,000) with a range from 4.13×10^{-8} to 3.93×10^{-6}. The average probability of both an incorrect hose connection and a failure of the flow sensing switch occurring when a tanker truck is loaded would therefore be 1.42×10^{-8} ($0.0135 \times 1.05 \times 10^{-6}$) with a range from 5.58×10^{-10} to 5.31×10^{-8}.

The proposed project would increase the maximum total permitted ethanol throughput for the existing two-lane truck loading rack and the new single-lane ethanol truck loading rack to 52,500 bbl/day. The corresponding maximum number of trucks loaded per day would increase to 276 trucks (52,500 bbl/day / 190 bbl/truck = 276.3). The average probability of both an incorrect hose connection and a failure of the flow sensing switch occurring during a year would therefore be 0.00143 per year (1.42×10^{-8} per truck x 276 trucks per day x 365 days/year) with a range from 0.000562 per year to 0.0053 per year. These bounds correspond to a rate of failure between approximately once per 1,800 years and once per 189 years.

Impacts of Releases

The consequence modeling for the pool fire and vapor cloud explosion scenarios was based on methodologies contained in the U.S. EPA document "Risk Management Program Guidance for Off-Site Consequence Analysis" (EPA, 1999). Details of the modeling performed for the proposed project are in Appendix II-F of this EIR. The modeling results identify the distances from the edge of the pool fire or vapor cloud explosion at which the impacts drop below defined thresholds. The threshold for a pool fire is defined by the U.S. EPA for the Risk Management Program (EPA, 1999) to be a thermal flux of 5,000 Watts per square meter (W/m^2) for 40 or more seconds. A thermal flux of this magnitude and duration is capable of producing second degree burns to exposed skin. The threshold value for a vapor cloud explosion is defined by the U.S. EPA for the Risk Management Program (EPA, 1999) to be an overpressure of 1.0 pound per square inch above atmospheric pressure (pound-per-square-inch-gauge, psig). An overpressure of this magnitude is capable of producing structural damage, including breaking windows, with the resultant flying debris and broken glass.

The results of the consequence modeling are summarized in Table 4.4-1.

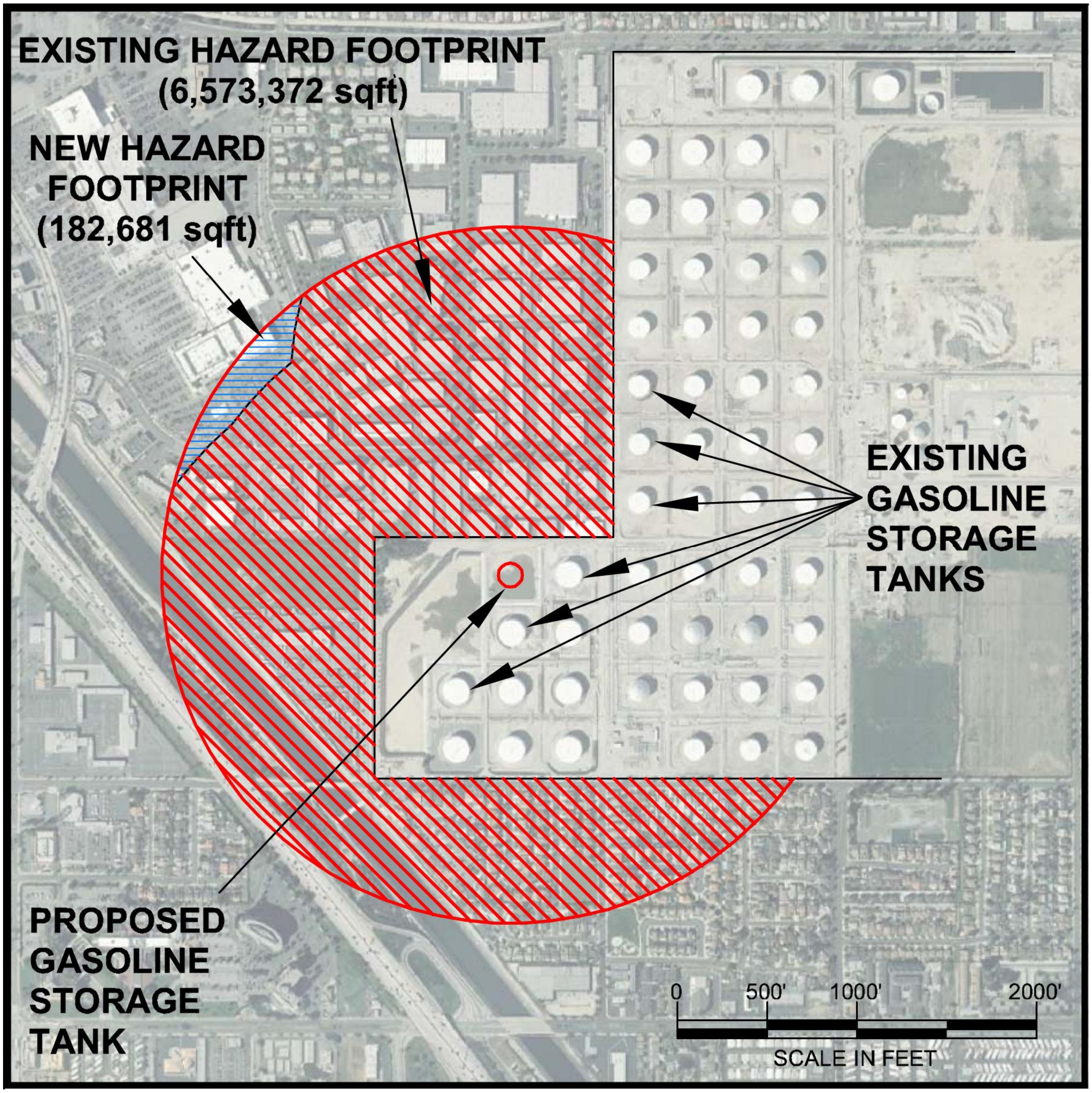
Table 4.4-1
Maximum Hazard Distances for Hazard Scenarios

Project Component	Pool Fire (threshold is 5,000 W/m^2)			Vapor Cloud Explosion (threshold is 1.0 psig)		
	Distance to Threshold (feet)	Distance to Facility Boundary (feet)	Off-Site Distance to Threshold (feet)	Distance to Threshold (feet)	Distance to Facility Boundary (feet)	Off-Site Distance to Threshold (feet)
Existing Storage Tank (gasoline)[1]	1,710	360[2]	1,350	1,940	360[2]	1,580
Converted Storage Tank (ethanol)[1]	760	360[2]	400	820	360[2]	460
Existing Gasoline Storage Tanks	1,710	Varies by Tank	Varies by Tank	1,940	Varies by Tank	Varies by Tank
New Gasoline Storage Tank	1,710	30	1,680	1,940	30	1,910
New Single-Lane Ethanol Loading Rack	430	750	0	260	750	0

[1] Gasoline represents existing conditions for tanks to be converted to ethanol service, and ethanol represents proposed project for converting tanks to ethanol service
[2] Shortest distance to property boundary for tanks to be converted to ethanol service

The proposed project would reduce the potential hazards associated with the existing storage tanks that would be converted from gasoline to ethanol service. Although potential impacts would extend off-site for both existing conditions and the proposed project, changing the storage tank contents from gasoline to ethanol would reduce the off-site distances to the threshold levels from 1,350 feet to 400 feet for a pool fire and from 1,580 feet to 460 feet for a vapor cloud explosion, thus, reducing the number of potential off-site exposures to pool fire or vapor cloud explosion incidents.

The new gasoline storage tank has the potential to create an off-site hazard. The off-site distances to the thresholds for a pool fire and for a vapor cloud explosion would be 1,680 feet and 1,910 feet, respectively. Existing gasoline storage tanks also have the potential to create off-site hazard impacts that would overlap with potential off-site hazard impacts caused by the new gasoline storage tank. The off-site areas that would potentially exceed the threshold for a vapor cloud explosion for the proposed new gasoline storage tank are shown in Figure 4.4-1. The areas potentially impacted by a vapor cloud explosion are shown in Figure 4.4-1 because the off-site distance to the threshold is larger for a vapor cloud explosion than for a pool fire. The off-site



The circle is the boundary of the off-site area with potential impacts above the threshold for the proposed new gasoline storage tank. The area in red is the off-site area with potential impacts above the threshold for existing gasoline storage tanks and that overlaps with the area potentially impacted by the new gasoline storage tank. The area in blue is the potential off-site impact area from the proposed new gasoline storage tank that does not overlap with potential impacts from existing gasoline storage tanks.

Figure 4.4-1 Off-Site Areas with Vapor Cloud Explosion Impacts above Significance Threshold for Existing and Proposed New Gasoline Storage Tanks

areas that would potentially exceed the threshold for a vapor cloud explosion for existing gasoline storage tanks and that would overlap with the off-site area potentially impacted by the proposed new gasoline storage tank are also shown in Figure 4.4-1. Figure 4.4-1 shows that the off-site area potentially impacted by the existing gasoline storage tanks and that overlaps with the area potentially impacted by the new gasoline storage tank is 6,573,372 square feet and that the off-site area potentially impacted by the proposed new gasoline tank that does not overlap with the area impacted by the existing tanks is 182,681 square feet. Thus, the off-site area potentially impacted by the new gasoline storage tank would be approximately 2.8 percent larger than the off-site area potentially impacted by the existing gasoline storage tanks. Therefore, the potential hazard impacts associated with the proposed project exceed the significance thresholds for fires and vapor cloud explosions.

The new single-lane ethanol loading rack would not create an off-site hazard. The distances to the thresholds for a pool fire and a vapor cloud explosion would be 430 feet and 260 feet, respectively, which do not pose a significant adverse off-site hazard.

Transportation Hazards

Operation of the proposed project would increase the number of ethanol tanker trucks delivering ethanol from the facility. The worst-case accident scenario for ethanol transport would involve the release of a full truckload onto a public roadway resulting from a traffic incident, followed by ignition resulting in a fire or explosion. Because the capacity of the ethanol tanker trucks would not change, the consequences of a worst-case transportation accident would not change compared to the existing baseline conditions.

The “worst-case” potential impacts of a transportation accident leading to a pool fire or vapor cloud explosion would be similar to the “worst-case” potential impacts of an ethanol loading rack accident. This scenario assumes that there would be an accident resulting in the release of the entire contents (190 bbl or 8,400 gallons) of a full tanker truck load of ethanol. The ethanol is assumed to spread out until its depth is 0.03 feet, covering an area of approximately 34,230 square feet. The ethanol would either ignite and cause a pool fire, or the ethanol would evaporate for 10 minutes, and then the ethanol vapors would ignite and cause a vapor cloud explosion. The analysis for the accumulation of the vapors to cause a vapor cloud explosion includes the conservative assumption that there would be calm wind conditions, so that the evaporating vapors do not disperse. The distances to the thresholds for a pool fire and a vapor cloud explosion would be 430 feet and 260 feet, respectively (see Table 4.4-1).

Because operation of the proposed project would increase the number of ethanol tanker truck trips, the annual mileage traveled by ethanol tanker trucks would increase, which would increase the probability of an accident. The daily average number of ethanol tanker trucks loaded at the Carson Facility during the baseline period (January 15, 2010 through April 14, 2010)[18] was 132 trucks per day. The average one-way travel distance for an ethanol tanker truck from the Carson Facility to its destination is approximately 28 miles. Thus, the annualized loaded ethanol tanker truck mileage during the baseline period was approximately 1.47 million miles per year (132 trucks/day x 28 miles/day x 365 days per year = 1.35 million miles per year). As discussed in

[18] This time period was used for the baseline period because complying with the 2007 RFG Phase 3 amendments required fuel producers to increase the percentage of ethanol blended into gasoline by December 31, 2009. As a result, levels of activities at the Carson Facility associated with ethanol loading and delivery prior to January 15, 2010 were not representative of current market demand.

Subsection 3.4.2, the frequency of accidents involving release of hazardous materials and resulting fire or explosion is 0.026 per million miles traveled. Therefore, the annualized probability of an accident involving a release of ethanol resulting in a fire or explosion during the baseline period is 0.035 per year (0.026 per million miles x 1.35 million miles per year).

The proposed project would increase the maximum total permitted ethanol throughput for the existing two-lane truck loading rack and the new single-lane ethanol truck loading rack to 52,500 bbl/day. The corresponding maximum number of trucks loaded per day would increase to 276 trucks (52,500 bbl/day / 190 bbl/truck = 276.3), and the annual ethanol tanker truck mileage would increase to approximately 2.82 million miles per year (276 trucks/day x 28 miles/day x 365 days per year = 2.82 million miles per year). The annual probability of an accident involving a release of ethanol resulting in a fire or explosion would increase to 0.073 per year (0.026 per million miles x 2.82 million miles per year).

The incremental increase in the annual probability of an accident involving a release of ethanol resulting in a fire or explosion would be 0.038 per year (0.073 per year - 0.035 per year). This accident probability is equivalent to a transportation accident with a resultant fire or explosion every 26 years. Thus, the incremental probability of a transportation accident and a resultant fire or explosion during operation of the proposed project is small and, therefore, concluded to be less than significant.

4.4.2.3 Excavation of Contaminated Soils

Approximately 13,000 cubic yards of soil are expected to be excavated during construction, including approximately 10,000 cubic yards for construction of foundations for the proposed new gasoline storage tank and approximately 3,000 cubic yards for the construction of other components of the proposed project. Given the heavily industrialized nature of the Carson Facility and the fact that refining and petroleum storage/distribution activities have been conducted at the site for a number of years, some or all of this excavated soil may be contaminated and classified as a hazardous waste, which would require disposal at a hazardous waste facility.

Preliminary sampling and analysis of soils at the location within the Carson Facility where the new gasoline storage tank will be constructed has been conducted. The following samples were collected:

- One sample at each of four locations at 0.5 feet below ground surface (bgs);
- One sample at each of five locations at one foot bgs;
- One sample at each of five locations at four feet bgs;
- One sample at each of four locations at five feet bgs; and
- One sample at each of four locations at 10 feet bgs.

The samples from each depth were composited and analyzed for the substances specified in Title 22, Chapter 11, Article 3, §66261.20 of the California Code of Regulations (CCR), which specifies regulatory limits for the classification of materials as hazardous wastes. The lead concentration in the composite of the samples collected at 0.5 feet bgs was 1,050 milligrams per kilogram (mg/kg), which exceeds the Total Threshold Limit Concentration (TTLC) of 1,000 mg/kg. The organic lead concentration in the same composite sample was 25.3 mg/kg, which exceeds the TTLC of 13 mg/kg. Lead concentrations in the other composite samples were below the regulatory limits, as were the concentrations of all the other substances. Based on these preliminary results, the soils where the new gasoline storage tank will be constructed would potentially be considered hazardous waste.

There are two Class I landfills in California that are approved to accept hazardous wastes. Chemical Waste Management Corporation in Kettleman City, California, is a treatment, storage, and disposal facility that has a permitted capacity of approximately 10.7 million cubic yards. Its expected closure date is currently unknown. Clean Harbors operates a Class I landfill in Buttonwillow, California, that has a total permitted capacity of 14.3 million cubic yards and a daily permitted capacity of 10,482 tons/day. Its expected closure date is 2040. The combined capacity of these two facilities exceeds the anticipated amount of hazardous waste that may be generated during construction.

Shell will be required to notify appropriate regulatory agencies, including the RWQCB and DTSC, and comply with all applicable rules and regulations regarding excavation and disposal of this soil at a permitted facility, based on its proper waste classification.

If contaminated soils containing volatile organic compounds are encountered during the project construction, the soils would be removed for proper disposal in accordance with SCAQMD's Rule 1166 - Volatile Organic Compound Emissions from Decontamination of Soil, and requirements of other agencies such as the Regional Water Quality Control Board.

A work plan will be required to be prepared that addresses the identification, sampling, characterization, handling, segregation, storage, and disposal of contaminated soils consistent with regulatory requirements. The work plan will contain a pre-excavation sampling plan. A communication and notification process will be included in the work plan to ensure the appropriate agency or agencies are notified in accordance with local, State, and federal requirements.

There are numerous local, state (Title 22 of the California Code of Regulations) and federal rules which regulate the characterization, handling, transportation, and ultimate disposition of contaminated soils. Title 22 of the California Code of Regulations establishes many requirements for hazardous waste characterization, handling, transport and disposal, including the requirements in Title 22, CCR, §66261.20 and §66265.250 to §66265.260 pertaining to characterization of hazardous wastes, storage of hazardous wastes in piles and requirements to use approved disposal/treatment facilities, use certified hazardous waste transporters, and use manifests to track hazardous materials, among many other requirements. Soil sampling and analysis will be conducted in the excavation areas pursuant to the requirements for hazardous waste characterization in Title 22, CCR, §66261.20, and Shell will comply with all applicable rules and regulations.

Preparing and implementing a work plan that addresses the identification, sampling, characterization, handling, segregation, storage, and disposal of contaminated soils consistent with regulatory requirements are expected to prevent significant adverse impacts from excavation and disposal of potentially contaminated soils.

4.4.2.4 Impacts on Water Quality

A spill of either gasoline or ethanol at the Carson Facility could occur under upset conditions, such as tank rupture or tank overflow. Spills also could occur from corrosion of piping and process equipment and from leaks from seals or gaskets at pumps and flanges. A major earthquake could be a potential cause of a large spill or release. Other causes could include human error or mechanical failure. The new gasoline storage tank and foundation would be constructed in accordance with the Uniform Building Code Seismic Zone 4 requirements, which are designed for structures to withstand major earthquakes without collapse, with the potential for some structural and non-structural damage. The facility has emergency spill containment equipment and would implement the spill control measures in the event of an earthquake or other upset event resulting in a large spill or release.

As described in Subsection 4.4.2.1, the ethanol loading rack area is designed as a containment area with drainage to an underground sump for liquid collection, and the new gasoline storage tank would be constructed with a secondary containment capable of containing the entire tank contents plus 24-hours of precipitation. Because of these containment systems, spills are not expected to migrate from the facility.

The paved ethanol loading rack area is designed to prevent spills in the loading area from affecting groundwater. A leak would be detected during weekday visual inspections and while conducting normal operations. As required by the Facility Response Plan prepared for the Carson Facility pursuant to the requirements of 40 CFR §112.20(h), recovery of spilled gasoline from the proposed new gasoline storage tank would commence expeditiously by a contracted oil spill response organization (OSRO). Vacuum trucks would be used to recover gasoline on the surface of the containment area, and, if necessary, excavation would be used to remove soil within the containment area that is contaminated by the release. Sampling and laboratory testing would be conducted to ensure that contaminated soil is removed and that the released material has not migrated into groundwater. Spilled gasoline would be pumped to an appropriate tank if it can be reused. If there is waste material from a spill that cannot be reused, it would be classified as either hazardous or non-hazardous and sent to a Shell-approved disposal facility in accordance with applicable regulatory requirements.

Implementing spill containment and removal measures that are part of the proposed project are expected to prevent spills from migrating from the facility or contaminating groundwater. Therefore, potential adverse water quality impacts from an on-site hazardous materials release are concluded to be less than significant.

4.4.3 MITIGATION MEASURES

Mitigation measures are required, if feasible, to minimize the potentially significant "worst-case" off-site hazard impacts associated with the proposed new gasoline storage tank. No feasible mitigation measures have been identified, over and above the extensive safety regulations that currently apply to the Carson Facility. However, there are a number of rules, regulations, and laws governing the Carson Facility that are intended to minimize the potential adverse impacts associated with hazards at the facility and which would minimize the hazards associated with the new gasoline storage tank. Under federal OSHA, regulations have been promulgated that require the preparation and implementation of a Process Safety Management (PSM) Program (40 CFR Part 1910, Section 119, and Title 8, CCR, Section 5189).

A PSM that meets the requirements of the regulations and is appropriately implemented is intended to prevent or minimize the consequences of a release involving a toxic, reactive, flammable, or explosive chemical. A PSM review for the new gasoline storage tank and the new single-lane loading rack would be required as part of the proposed project. The primary components of a PSM include the following:

- Compilation of written process safety information to enable the employer and employees to identify and understand the hazards posed by the process;

- Performance of a process safety analysis to determine and evaluate the hazard of the process being analyzed;

- Development of operating procedures that provide clear instructions for safely conducting activities involved in each process identified for analysis;

- Training in the overview of the process and in the operating procedures for facility personnel and contractors. The training would emphasize the specific safety and health hazards, procedures, and safe practices; and,

- A pre-start up safety review for new facilities and for modified facilities where a change is made in the process safety information.

The above requirements of the required PSM will serve to minimize potential hazard impacts from the proposed project. In addition, the following mitigation measure will be imposed:

HHM-1 Prior to the start of grading or soil excavation a Construction Contaminated Soils Management Plan (SMP) that addresses the identification, sampling, characterization, handling, segregation, storage, and disposal of contaminated soils in compliance with local, state, and federal regulations shall be prepared and implemented. The SMP shall contain a pre-excavation sampling plan and state the mechanism(s) used to identify impacted soils during the actual excavations. A communication and notification process shall be included in the Construction Contaminated Soils SMP to ensure the appropriate agency or agencies are notified in accordance with local, state, and federal requirements.

Mitigation measure HHM-1 will be implemented by Shell prior to the start of grading or soil excavation.

4.4.4 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Although compliance with existing regulations and implementation of the proposed project safety measures are intended to minimize the potential impacts associated with a release, such compliance is not expected to completely eliminate the potential hazard impacts associated with pool fires and vapor cloud explosions. Therefore, hazards and hazardous material impacts generated by the proposed project, specifically pool fires and vapor cloud explosions associated with the new gasoline storage tank, are expected to remain significant.

Other potential hazard impacts analyzed herein were concluded to be less than significant or can be mitigated to less than significant.

4.5 HYDROLOGY AND WATER QUALITY

The NOP/IS (see Appendix I-A) determined that the proposed project at the Carson Facility may generate significant adverse impacts on hydrology and water quality. Specifically, the use of potable water for hydrostatic testing during construction and operation of the proposed project may cause significant adverse water supply impacts. Therefore, the proposed project's water supply impacts are evaluated in this section.

4.5.1 SIGNIFICANCE CRITERIA

The proposed project's impacts on hydrology and water quality would be considered significant if:

<u>Water Quality:</u>

- The project will cause degradation or depletion of ground water resources substantially affecting current or future uses.
- The project will cause the degradation of surface water substantially affecting current or future uses.
- The project will result in a violation of NPDES permit requirements.
- The capacities of existing or proposed wastewater treatment facilities and the sanitary sewer system are not sufficient to meet the needs of the project.
- The project results in substantial increases in the area of impervious surfaces, such that interference with groundwater recharge efforts occurs.
- The project results in alterations to the course or flow of floodwaters.

<u>Water Demand:</u>

- The existing water supply does not have the capacity to meet the increased demands of the project, or the project would use a substantial amount of potable water. For the purposes of this analysis, substantial amount of potable water demand is defined as the amount of water necessary to supply 500 dwelling units or approximately 133,911 to 223,186 gallons of potable water per day.

- The project increases the demand for total water by more than five million gallons per day.

4.5.2 ENVIRONMENTAL IMPACTS

The NOP/IS for the proposed project (see Appendix I-A) concluded that the proposed project would not result in significant adverse impacts on hydrology and water quality because the proposed project is not expected to generate any impacts that would exceed the following significance criteria:

Water Quality:

- The proposed project will not cause degradation or depletion of ground water resources substantially affecting current or future uses because the Carson Facility does not have on-site wells.

- The proposed project will not cause the degradation of surface water substantially affecting current or future uses because industrial wastewater from the facility would continue to be discharged to the Los Angeles County Sanitation District's sanitary sewer system in accordance with the facility's current industrial user permit. Storm water is also generally discharged to the sanitary sewer system, but during extreme storm events, when the capacity of the sewer system is reached, and the on-site storm water retention/detention basin is full, the Carson Facility is permitted to discharge treated storm water to the Dominguez Channel under its existing NPDES permit.

- The project will not result in a violation of NPDES permit requirements because discharge of waste water and storm water during construction and operation of the proposed project would be in compliance with the facility's existing NPDES permit. In particular, the Carson Facility's existing NPDES permit allows the discharge of water from hydrostatic testing with potable water, and there would not be a requirement to amend the existing NPDES permit for the discharge of water from hydrostatic testing of the proposed new gasoline storage tank with potable water.

- The capacities of existing or proposed wastewater treatment facilities and the sanitary sewer system are sufficient to meet the needs of the project because the proposed project would not cause a substantial increase in discharges to the sanitary sewer system.

- Because of the nature of the soils at the Carson Facility, very minimal amounts of storm water infiltrate the ground to recharge the aquifer. In addition, the proposed project is expected to result in conversion of only about 0.7 acre of bare, unpaved dirt to covered surface. Therefore, the project would not result in substantial increases in the area of impervious surfaces, such that interference with groundwater recharge efforts occurs.

- The Carson Facility has an existing storm water management program. The areas within the facility where the proposed new single-lane truck loading rack, the proposed ethanol loading rack operations building expansion and the proposed new gasoline storage tank would be constructed are currently connected to the existing storm water management system and will continue to be connected to the existing system after construction is completed. Therefore, the proposed project would not result in alterations to the course or flow of floodwaters.

Therefore, water quality impacts are not further analyzed in this EIR.

4.5.2.1 Construction Impacts

During construction activities, the proposed project would use water for dust suppression and soil compaction associated with site preparation and grading in compliance with the dust suppression requirements of SCAQMD Rule 403 - Fugitive Dust. In addition, the proposed new gasoline storage tank and new piping associated with the proposed project would require the use of water for hydrostatic testing during construction.

Site preparation and grading for the construction of the proposed new gasoline storage tank and the proposed expansion of the rack operations building would disturb a total area of approximately two acres over five working days. Based on an estimated use of 0.3 gallon water per square yard per hour for dust suppression (EPA, 1992[19]) and a maximum of 1,936 square yards disturbed during a 10-hour construction day (2 acres x 43,560 square feet/acre / 9 square feet/square yard / 5 days = 1,936 square yards), a maximum of approximately 5,808 gallons per day (0.3 gallons/square yard per hour x 10 hours per day x 1,936 square yards = 5,808 gallons per day) would be needed for dust suppression.

The maximum working volume for the proposed new gasoline storage tank would be 158,000 barrels, which is equivalent to approximately 6.6 million gallons (158,000 bbl x 42 gallons/bbl). For safety reasons, such as avoiding overfilling, the maximum working volume of the proposed new tank is less than the total volume of the tank. However, the total volume of the proposed new tank would need to be filled with water during hydrostatic testing to test the tank's structural integrity. The proposed new tank would have a diameter of 160 feet and a height of 51.5 feet, resulting in a volume of approximately 7.7 million gallons (π x (160 feet diameter)^2 x 51.5 feet high x 7.48 gallons/cubic foot). Therefore, hydrostatic testing of the new gasoline storage tank is expected to require a total of approximately 7.7 million gallons of water. The testing would be conducted over four or more days, with a maximum daily use of less than two million gallons.

Reclaimed water is not currently available for use at the Carson Facility. Although the Shell operators are in the process of arranging for the availability of reclaimed water at the Carson Facility, it is currently unknown if or when reclaimed water may become available (see Subsection 3.5.2). Therefore, potable water may need to be used during the construction period for dust suppression and soil compaction activities, as well as for hydrostatic testing.

[19] EPA (1992) provides an estimate of 0.2 gallon water per square yard per hour. This estimate has been increased by 50 percent to account for watering unpaved areas on which vehicles travel three times per day as required by mitigation measure A-10.

A request was sent to the Carson Facility's water supplier, Cal Water, requesting confirmation that Cal Water has the ability to provide a reliable water supply to the proposed project. The request, which is in Appendix II-G, included a description of the proposed potable water use and a copy of the NOP/IS. Cal Water indicated in its response to the request that the increased water use for the proposed project can be supplied (see Appendix II-G). Thus, the existing water supply has the capacity to meet the increased demands of the proposed project.

Even though the existing water supply has the capacity to meet the increased demands of the proposed project for potable water during the construction phase, and the increased demand for total water would be less than five million gallons per day, the maximum daily usage of potable water during construction of the proposed project would exceed the lower range of the daily threshold for potable water of 133,911 gallons per day if reclaimed water is not available for hydrostatic testing. Therefore, impacts to water supply during construction of the proposed project exceed the SCAQMD's potable water demand significance threshold.

4.5.2.2 Operational Impacts

The proposed project is not expected to increase water demand on a continual basis during the operational period, as gasoline storage tanks and ethanol loading racks do not require water for their operation.

If major repairs to the proposed new gasoline storage tank are made sometime in the future, hydrostatic testing of its structural integrity may be required after the repairs are completed. However, new storage tanks, such as the proposed new gasoline storage tank, are not expected to require major repairs for at least 20 years. For example, API 653 does not require an out-of-service[20] inspection for a new storage tank to identify the need for major repairs until the tank has been in service for 20 years. Thus, it is expected that major repairs and possible hydrostatic testing would not be required for at least 20 years, and future hydrostatic testing of the proposed gasoline storage tank may not be required at all.

If hydrostatic testing were required in the future, the amount of water required for this additional hydrostatic testing would be similar to the amount of water required for hydrostatic testing during construction of the proposed gasoline storage tank. Although reclaimed water is not currently available at the Carson Facility, it may become available within the next 20 years. If reclaimed water becomes available before additional hydrostatic testing of the proposed gasoline storage tank is conducted, potable water would not be needed for the testing. If additional hydrostatic testing of the proposed new gasoline storage tank is needed in the future and reclaimed water is not available, the maximum daily usage of potable water would exceed the SCAQMD's significance threshold for potable water consumption.

4.5.3 MITIGATION MEASURES

Mitigation measures are required, if feasible, to minimize the significant water supply impacts associated with the construction and operation phases of the proposed project since the quantity of potable water required for hydrostatic testing of the proposed gasoline storage tank would

[20] Out-of-service means that the storage tank is emptied.

exceed the significance threshold during construction and may also exceed the significance threshold during operation.

As discussed in Subsection 3.5.2, the Shell operators are in the process of arranging for the availability of reclaimed water at the Carson Facility. If reclaimed water were to be available in sufficient quantities and at a sufficient pressure when hydrostatic testing of the new gasoline storage tank would be conducted, it could potentially be used instead of potable water. However, it is currently unknown if or when reclaimed water would become available. Additionally, it is not known if it would be available in sufficient quantities and a sufficient pressure for hydrostatic testing of the proposed new gasoline storage tank.

The Carson Facility currently discharges water from hydrostatic testing with potable water to both the Los Angeles County Sanitation District's sanitary sewer system under its industrial user permit and to the Dominguez Channel under its NPDES permit. The NPDES permit would need to be amended to allow the discharge of reclaimed water used for hydrostatic testing.

Because of the aforementioned uncertainties regarding the availability of reclaimed water for hydrostatic testing of the proposed new gasoline storage tank and the requirement to amend the Carson Facility's NPDES permit, use of reclaimed water for hydrostatic testing is not considered a feasible mitigation measure at this time.

No other feasible mitigation measures to avoid exceeding the potable water supply significance threshold have been identified because hydrostatic testing is required during construction of the proposed gasoline storage tank to test its structural integrity to help ensure that leaks of gasoline will not occur after the tank is filled.

4.5.4 LEVEL OF SIGNIFICANCE AFTER MITIGATION

No feasible mitigation measures have been identified to avoid exceeding the potable water supply significance threshold during construction of the proposed project or during operation of the proposed project if additional hydrostatic testing of the proposed gasoline storage tank is required in the future.

4.6 NOISE

The NOP/IS (see Appendix I-A) determined that the proposed project at the Carson Facility has the potential to generate significant adverse noise impacts during construction and operation. Construction activities associated with implementing the proposed project may generate some noise associated with the use of construction equipment and construction-related traffic. Operation of the proposed project could cause noise associated with the new loading rack operations, as well as increased truck traffic accessing the site. Therefore, the proposed project's noise impacts during construction and operation are evaluated in this section.

4.6.1 SIGNIFICANCE CRITERIA

The proposed project's potential to generate noise impacts would be considered significant if:

- Construction noise levels exceed the City of Carson's noise ordinance or, if the noise threshold is currently exceeded, project noise sources increase ambient noise levels by more than three A-weighted decibels (dBA) at the site boundary. Construction noise levels will be considered significant if they exceed federal Occupational Safety and Health Administration (OSHA) noise standards for workers.

- The proposed project operational noise levels exceed any of the local noise ordinances at the site boundary or, if the noise threshold is currently exceeded, project noise sources increase ambient noise levels by more than three dBA at the site boundary

4.6.2 ENVIRONMENTAL IMPACTS

4.6.2.1 Construction Impacts

Construction Equipment

The overall project construction period is expected to last a total of 17 months. Construction is anticipated to take place 10 hours per day, from 7:00 a.m. to 5:00 p.m., five or six days per week, Monday through Friday and occasionally on Saturday. Thus, there would be no construction activities that would generate noise during the nighttime.

Construction activities would generate noise from fixed pieces of construction equipment, such as generators, compressors, concrete mixers, and cranes; from slow-moving construction equipment, such as backhoes and loaders; and from hand-held equipment, such as pneumatic tools. Mobile noise sources would include delivery and haul trucks. All of this equipment would generate both steady state and episodic short-term noise that could be heard both on and outside of the Carson Facility but would cease upon completion of construction activities for each project component.

Examples of noise levels from construction equipment are presented in Table 4.6-1. As shown, maximum noise levels generated by heavy equipment can range from approximately 70 dBA to 95 dBA when measured at 50 feet. However, these noise levels would diminish at a rate of approximately 6.0 dBA per doubling of distance. Furthermore, these noise levels would only occur during the percent of time that the equipment is assumed to be operating at full power during an individual hour while working on site (acoustic usage factor).

Construction activities would occur at three locations within the Carson Facility (see Figure 2-3): 1) the area where existing storage tanks will be converted from gasoline to ethanol service; 2) the ethanol loading rack area, which includes the proposed new single-lane ethanol loading rack and the rack operations building; and 3) the location of the new gasoline storage tank.

Table 4.6-1
Typical Maximum Construction Equipment Noise Levels

Equipment	Noise Level at 50 ft (dBA L_{max})	Acoustic Usage Factor[1]	Vibration Level at 25 ft (PPV, in/sec)
Backhoe	80	40 percent	N/A[2]
Compactor (ground)	80	20 percent	N/A[2]
Compressor (air)	80	40 percent	N/A[2]
Concrete Mixer Truck	85	40 percent	N/A[2]
Concrete Pump	82	20 percent	N/A[2]
Concrete Saw	90	20 percent	N/A[2]
Crane (mobile or stationary)	85	20 percent	N/A[2]
Dozer	85	40 percent	0.003-0.089
Dump Truck	84	40 percent	0.076
Excavator	85	40 percent	N/A[2]
Front End Loader	80	40 percent	N/A[2]
Generator (25 KVA or less)	70	50 percent	N/A[2]
Generator (more than 25 KVA)	82	50 percent	N/A[2]
Grader	85	40 percent	N/A[2]
In situ Soil Sampling Rig	84	20 percent	N/A[2]
Jackhammer	85	20 percent	0.035
Paver	85	50 percent	N/A[2]
Pneumatic Tools	85	50 percent	N/A[2]
Pumps	77	50 percent	N/A[2]
Roller	74	40 percent	N/A[2]
Tractor	84	40 percent	N/A[2]
Vibratory Concrete Mixer	80	20 percent	N/A[2,3]
Welder	76	50 percent	N/A[2]

Source: FTA (2006), Thalheimer (2000)

[1] Acoustic Usage Factor represents the percent of time that equipment is assumed to be operating at full power during an individual hour while working on site

[2] N/A = equipment does generate significant vibration levels

[3] Vibratory concrete mixers use mechanical vibration to consolidate freshly poured concrete so that trapped air and excess water are released and the concrete settles firmly in place in the formwork. They are generally hand-held and do not come into contact with the ground, and, therefore, do not generate significant ground-borne vibration levels.

KVA = kilovolt amperes

dBA = A-weighted decibels

L_{max} = Maximum noise level

PPV = Peak particle velocity

The types of construction equipment that would be used during the conversion of the existing storage tanks to ethanol service would include generators, backhoes, front-end loaders, cranes, compressors and pumps. Much of the work during the conversions would be inside the tanks, which would serve to dampen noise from the conversion activities, so it is not likely to be audible beyond the boundaries of the Carson Facility. Noise from the generators, backhoes, loaders, compressors and pumps, however, could generate maximum noise levels from 77 to 85 dBA L_{max} at 50 feet during peak construction activities.

The types of construction equipment that would be used to construct the new single-lane ethanol loading rack and for the expansion of the loading rack operations building would include cranes, backhoes, front-end loaders, welders, concrete pumps and a paving machine. Maximum noise levels from this equipment would range from approximately 80 to 85 dBA L_{max} at 50 feet during peak construction activities.

The types of construction equipment that would be used to construct the new gasoline storage tank would include cranes, backhoes, front-end loaders, welders, concrete pumps, vibratory concrete mixers, generators and air compressors. Maximum noise levels would be in the range of 77 to 85 dBA L_{max} at a distance of 50 feet during peak construction activities.

Sound levels during construction activities were estimated for three noise-sensitive receptor locations: 1) residences closest to the existing storage tanks that would be converted to ethanol service, which are located south of the storage tanks on East 213th Street; 2) residences closest to the ethanol loading area, which are located southeast of the ethanol loading area, at the northern end of Martin Street; and 3) residences closest to the location of the new gasoline storage tank, which are located south of the new storage tank location on East 213th Street. These receptor locations are shown in Figure 4.6-1.

Predicted maximum construction sound levels conservatively assume that the construction sound levels would be 85 dBA L_{eq} at a distance of 50 feet at all three construction areas at the same time. Sound levels were calculated at each receptor site using the distance from the work site to the receptor site and standard free-field hemispheric sound propagation (six dBA of reduction per doubling of distance). Predicted maximum construction sound levels at the receptors are conservatively estimated in that estimates do not include additional sound level reductions due to molecular absorption and anomalous atmospheric absorption. Predicted construction sound levels also conservatively assume only a minimal line-of-sight sound reduction from existing barriers to sound propagation (-3 dBA) instead of actual sound level reductions that can range up to more than -10 dBA depending on barrier height. These existing barriers include existing storage tanks south of the storage tanks to be converted to ethanol service and south of the location of the new gasoline storage tank.

The predicted sound levels are summarized in Table 4.6-2. As presented in Subsection 3.6, the City of Carson's noise ordinance prohibits noise levels during construction from exceeding 65 dBA between 7:00 a.m. and 8:00 p.m. Monday through Saturday. Table 4.6-2 shows that construction noise levels at the three receptors nearest construction sites would not exceed this limit.

Figure 4.6-1. Receptors for Construction Noise Impacts

Table 4.6-2
Estimated Project Construction Noise Impacts

Construction Area	Receptor		
	1 (Closest to Converted Storage Tanks)	**2 (Closest to Ethanol Loading Area)**	**3 (Closest to New Gasoline Storage Tank)**
Converted Storage Tanks			
Sound Level at 50 feet (dBA)	85	85	85
Distance to Receptor (feet)	380	1,920	1,000
Reduction for Line-of-Sight Obstructions	-3	-3	-3
Sound Level at Receptor (dBA)[1]	64	50	56
Loading Rack and Operations Building			
Sound Level at 50 feet (dBA)	85	85	85
Distance to Receptor (feet)	2,080	630	3,030
Reduction for Line-of-Sight Obstructions	0	0	0
Sound Level at Receptor (dBA)[1]	53	63	49
New Gasoline Storage Tank			
Sound Level at 50 feet (dBA)	85	85	85
Distance to Receptor (feet)	1,310	3,010	1,000
Reduction for Line-of-Sight Obstructions	-3	-3	-3
Sound Level at Receptor (dBA)[1]	54	46	56
Total Construction Sound Level at Receptor (dBA)[2]	**65**	**63**	**59**

[1] Sound level at receptor = Sound level at 50 ft. - 20 log(Distance to receptor / 50) - Reduction for line-of-site obstruction

[2] Total construction level at receptor = 10 log ($10^{\text{Sound level from tank conversion/10}}$ + $10^{\text{Sound level from ethanol loading area/10}}$ + $10^{\text{Sound level from new gasoline tank/10}}$) (NIOSH, 1978)

dBA = A-weighted decibels

The City of Carson Noise Control Ordinance also prohibits the operation of any device that creates vibration which is above a motion velocity of 0.01 inch per second (in/sec) over the range of one hertz (Hz) to 100 Hz, which is equivalent to 0.10 in/sec peak particle velocity (PPV). Project construction would not require the use of most of the types of equipment that cause ground vibrations, such as pile drivers, clam shovels, hydro mills, or large bulldozers. However, construction would require use of loaded trucks. Loaded trucks would result in a maximum vibration level of 0.076 in/sec PPV or less at 25 feet (FTA, 2006). This vibration level is below the limit in the City of Carson Noise Control Ordinance. Because the nearest receptor is approximately 380 feet away, impacts from ground-borne construction vibration would be less than significant.

Construction Period Traffic

During the construction period, there would be a temporary increase in heavy-duty truck traffic and associated noise during delivery of construction equipment and materials to the Carson Facility and to haul away demolition and construction wastes. During peak construction activities, approximately 115 heavy-duty construction trucks per day are expected to arrive at and leave the site (230 daily one-way trips). Since these truck trips would mainly consist of material deliveries, they would be spread throughout the 10-hour workday. Thus, the hourly number of construction truck trips was estimated by dividing the 230 daily one-way trips by 10 hours per day, which results in 23 hourly one-way trips. In order to account for variations in truck trips during the 10-hour work day, it was assumed that one additional one-way trip could occur during an hour, which results in 24 hourly one-way trips.

In addition to construction truck traffic, the number of ethanol tanker trucks delivering ethanol from the facility would increase during construction of the proposed project. As discussed in Section 2.9, the increase in ethanol loading capability resulting from the increased permitted throughput for the existing two-lane loading rack would result in an increase of 104 ethanol tanker truck one-way trips over the average baseline number during the peak construction traffic period. These trips are anticipated to be spread evenly over a 24-hour period, so the hourly increase in ethanol tanker truck trips was estimated by dividing the 104 daily one-way trips by 24, which results in four additional hourly one-way trips.

The peak total estimated increase in hourly truck trips during the construction period would be 28 one-way trips per hour (24 construction truck trips per hour + four ethanol tanker truck trips per hour). See Subsection 4.7.2.1 and Appendix II-A for the calculation of traffic during the construction period.

Ethanol tanker trucks would use the routes currently specified in the Design Overlay Review (DOR) for the Carson Facility, which would include Wilmington Avenue between Dominguez Street and Del Amo Boulevard, Del Amo Boulevard east of Wilmington Avenue and Alameda Street north and south of Del Amo Boulevard. Some construction trucks are anticipated to use the same routes as ethanol tanker trucks, while other construction trucks are anticipated to use routes that include Wilmington Avenue south of Dominguez Street. Noise-sensitive receptors along these routes include residences at the northwest corner of Wilmington Avenue and Del Amo Boulevard, residences on the west side of Wilmington Avenue south of Dominguez Street and residences east of Alameda Street south of Dominguez Street. The residences at the northwest corner of Wilmington Avenue and Del Amo Boulevard are set back and separated from the intersection by a restaurant and a rail spur, and the residences east of Alameda Street are separated from Alameda Street by commercial buildings. Masonry walls are located along the rear lot lines of the residences at the northwest corner of Wilmington Avenue and Del Amo Boulevard and along the rear lot lines of the residences west of Wilmington Avenue.

Additionally, an estimated peak of 195 construction workers per day would enter the site during the morning and leave the site during the afternoon. See Subsection 4.7.2.1 and Appendix II-A for the calculation of traffic during the construction period. Construction worker traffic is expected on roadways in the project study area adjacent to noise-sensitive receptors. These roadways include Del Amo Boulevard west of Wilmington Avenue, Wilmington Avenue north of Del Amo Boulevard and south of Dominguez Street, and Carson Street west of Wilmington Avenue (see Appendix II-I). Based on data from the traffic analysis for the proposed project (see Appendix II-I), construction worker traffic would generate the following trips:

- 10 morning and 10 afternoon trips on Wilmington Avenue north of Del Amo Boulevard;
- 177 morning and 128 afternoon peak-period trips along Wilmington Avenue south of Dominguez Street;
- 83 morning and 34 afternoon peak-period trips along Wilmington Avenue south of Carson Street;
- 29 morning and 29 afternoon peak-period trips along Del Amo Boulevard west of Wilmington Avenue; and
- 65 morning and 65 afternoon peak-period trips along Carson Street west of Wilmington Avenue.

Noise-sensitive receptors along these routes include residences adjacent to the roadways. Masonry walls are located between the roadways and the residences.

Analyses in the recirculated Draft EIR for the City of Carson General Plan (City of Carson, 2003) estimated that the CNEL at the residences along the potential truck and worker commuting routes was between 65 dBA and 70 dBA in 2001 and was anticipated to increase but remain below 70 dBA by 2020. These noise levels exceed the daytime noise standard for single-family residences of 50 dBA (see Table 3.6-4). Thus, noise impacts from increased truck and worker commuting traffic during the construction period would be considered significant if the truck and worker commuting traffic increased noise levels at these residences by more than three dBA.

Potential noise impacts from increased truck traffic and from construction worker commute trips were analyzed by assuming that the estimated peak increase of 28 truck trips per hour during the construction period and all 195 construction worker commute trips per hour would all occur on the same route. This is considered a conservative assumption because ethanol tanker truck trips would not use most of the roadways that would be used by construction worker commuting trips.

Noise levels at the residences caused by the increased traffic during the construction period were estimated using the Federal Highway Administration (FHWA) Transportation Noise Model (TNM) Version 2.5 Lookup Tables (FHWA, 2004). The lookup tables were developed by the FHWA by using Version 2.5 of the TNM to calculate noise levels caused at various distances from roadway centerlines by several different types of vehicles (automobiles, medium trucks, heavy trucks, motorcycles and buses) traveling at several different speeds. The lookup tables also include noise levels for several different noise barrier heights.

Hourly equivalent noise levels caused by increased traffic during construction of the proposed project were estimated from the lookup tables using the following inputs:

- 195 automobiles per hour;
- 28 heavy trucks per hour;
- Vehicle speed of 43 miles per hour (70 km per hour) based on roadway speed limits; and
- 6.6 foot (2 meter) high sound barrier 33 feet (10 meters) from roadway centerline based on height and location of masonry walls.

The calculations using the lookup tables are in Appendix II-H. The estimated maximum hourly equivalent noise level beyond the sound barrier caused by the construction traffic was 59 dBA at 66 feet (20 meters) from the roadway centerline. The resulting noise levels at the residences would increase by one dBA, from 65 dBA to 66 dBA, which is less than the three dBA significance threshold. Therefore, noise impacts at the noise-sensitive receptors from increased truck and worker commuting traffic during the construction period would be less than significant.

4.6.2.2 Operational Impacts

Operation of the proposed project would not require any new on-site employees at the Carson Facility (see Section 2.9). Therefore, an increase in noise levels would not be caused by an increase in employee commuting traffic during operation of the proposed project.

The number of ethanol tanker trucks loaded at the Carson Facility would increase during operation of the proposed project, resulting in the generation of additional noise at the ethanol loading area from truck loading activities. Noise generated by ethanol tanker trucks traveling within the Carson Facility and to and from the facility would also increase.

The proposed project would increase the maximum total permitted ethanol throughput for the existing two-lane truck loading rack and the new single-lane ethanol truck loading rack to 52,500 bbl/day. The corresponding maximum number of trucks loaded per day would increase to 276 trucks (52,500 bbl/day / 190 bbl/truck = 276.3). The daily average number of ethanol tanker trucks loaded at the Carson Facility during the baseline period (January 15, 2010 through April 14, 2010) was 132 trucks per day. The resulting increase in ethanol tanker trucks above the average during the baseline period would be 144 trucks per day (276 trucks per day - 132 trucks per day). Since tanker truck loading occurs nearly uniformly during a 24-hour period, the number of trucks loaded each hour is expected to increase from approximately six trucks per hour to approximately 12 trucks per hour. The number of truck trips to and from the tanker truck loading rack would therefore increase by approximately 12 trips per hour.

The closest noise-sensitive receptors to the ethanol loading area and to the on-site routes traveled by the tanker trucks are the residences southeast of the ethanol loading area, adjacent to the southern boundary of the facility. The closest residence to the ethanol loading is approximately 830 feet from the existing two-lane tanker truck loading rack and the proposed new single lane tanker truck loading rack. The shortest distance between a residence and the on-site route traveled by tanker trucks is approximately 620 feet.

The maximum hourly daytime and nighttime noise measurement results at the residences adjacent to the southern boundary of the facility were 53 dBA L_{eq} and 48 dBA L_{eq}, respectively (see Subsection 3.6.1). As discussed in Subsection 3.6.2, the City of Carson daytime noise standard for single-family residential properties, 50 dBA, would be applicable to these residences because they are adjacent to the boundary between an industrial and residential zone. The maximum daytime measurement result exceeded this standard, and the maximum nighttime result was below it. Therefore, noise impacts from operation of the proposed project would be significant if operation of the proposed project would cause the existing daytime noise level to increase by more than three dBA or the existing nighttime noise level to exceed 50 dBA at these residences.

Noise levels at the residences caused by the increased on-site tanker truck traffic during the operational phase were estimated using the FHWA TNM Version 2.5 Lookup Tables (FHWA, 2004). Hourly equivalent noise levels at the closest residence to the on-site tanker truck route caused by increased on-site tanker truck traffic during operation of the proposed project were estimated from the lookup tables using the following inputs:

- 12 heavy trucks per hour;
- Vehicle speed of 15 miles per hour (24 km per hour) based on facility speed limit;
- Distance to noise receptor of 623 feet (190 meters); and
- No noise barriers.

The calculations using the lookup tables are in Appendix II-H. The estimated maximum hourly equivalent noise level from the increased on-site tanker truck trips at the closest residence was 54 dBA. The resulting daytime noise levels at the residence would increase by one dBA, from 53 dBA to 54 dBA, which is less than the three dBA significance threshold. The resulting nighttime noise levels at the residence would increase by two dBA, from 48 dBA to 50 dBA, which does not exceed the 50 dBA noise standard. Therefore, on-site operation of the proposed project would not cause significant adverse daytime or nighttime noise impacts.

As indicated previously, noise-sensitive receptors along the off-site routes that would be used by the ethanol tanker trucks include residences at the northwest corner of Wilmington Avenue and Del Amo Boulevard and residences east of Alameda Street south of Dominguez Street. The residences at the northwest corner of Wilmington Avenue and Del Amo Boulevard are approximately 260 feet from the intersection,, and the residences east of Alameda Street are separated from Alameda Street by one block of commercial buildings and masonry walls between the residences and the commercial buildings.

Analyses in the recirculated Draft EIR for the City of Carson General Plan (City of Carson, 2003) estimated that the CNEL at the residences along the potential truck routes was between 65 dBA and 70 dBA in 2001 and was anticipated to increase but remain below 70 dBA by 2020.

These noise levels exceed the daytime noise standard for single-family residences of 50 dBA (see Table 3.6-4). Thus, noise impacts from increased ethanol tanker truck traffic during operation of the proposed project would be considered significant if the truck traffic increased noise levels at these residences by more than three dBA.

Noise levels caused by the increased tanker truck trips during operation of the proposed project would be higher at the residences northwest of the intersection of Wilmington Avenue and Del Amo Boulevard than at the residences east of Alameda Street because the residences east of Alameda Street are separated from Alameda Street by commercial buildings and masonry walls, which would be expected to provide substantial sound reduction, while there are effectively no sound barriers between the intersection of Wilmington Avenue and Del Amo Boulevard and the residences northwest of the intersection. Noise levels at the residences caused by the increased traffic during the construction period were estimated using the FHWA TNM Version 2.5 Lookup Tables (FHWA, 2004). Hourly equivalent noise levels at the residences caused by increased tanker traffic during operation of the proposed project were estimated from the lookup tables using the following inputs:

- 12 heavy trucks per hour;
- Vehicle speed of 43 miles per hour (70 km per hour) based on roadway speed limits;
- Distance to noise receptor of 262 feet (80 meters); and
- No noise barriers.

The calculations using the lookup tables are in Appendix II-H. The estimated maximum hourly equivalent noise level at the residences caused by the increased tanker truck trips was 51 dBA. The resulting noise levels at the residences would increase by less than one dBA,, which is less than the three dBA significance threshold. Therefore, noise impacts at the noise-sensitive receptors from off-site trucks during operation of the proposed project would be less than significant.

4.6.3 MITIGATION MEASURES

Based on the above analyses, no significant adverse noise impacts during construction or operation are expected as a result of the activities associated with the proposed project. Therefore, no mitigation measures would be required.

4.7 TRANSPORTATION AND TRAFFIC

The NOP/IS (see Appendix I-A) determined that the proposed project at the Carson Facility has the potential to generate significant adverse transportation and traffic impacts during construction and operation. Construction activities resulting from implementing the proposed project would generate a temporary increase in traffic in the vicinity of the Carson Facility associated with construction workers and construction haul and delivery trucks. During operation, the increase in ethanol loading would result in additional truck traffic on area roadways. Therefore, the proposed project's impacts on the transportation system during construction and operation are evaluated in this section.

4.7.1 SIGNIFICANCE CRITERIA

The proposed project's impacts on transportation and traffic would be considered significant if any of the following SCAQMD significance criteria occurs:

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

The City of Carson has also established a significance criterion to determine significant traffic impacts of a proposed project in its jurisdiction. According to the City's significance criterion, an intersection would be significantly impacted if the V/C ratio increases by 0.02 or more when the LOS is already E or F. This criterion is less stringent than the second SCAQMD CEQA significance criterion. Therefore, the SCAQMD significance criterion is used to evaluate impacts in this EIR.

4.7.2 ENVIROMENTAL IMPACTS

The NOP/IS for the proposed project (see Appendix I-A) concluded that the proposed project would not result in significant adverse impacts on transportation and traffic because the proposed project is not expected to generate any impacts that would exceed the following significance criteria:

- The proposed project would not necessitate that a major roadway be closed to all through traffic;
- The Carson Facility has sufficient on-site parking to accommodate the increased vehicles during project construction, and no additional parking would be needed after construction because the work force at the Carson Facility is not expected to increase as a result of the proposed project;

- The proposed project does not require the transport of materials to or from the Carson Facility via air, rail, or water; and

- The proposed project is consistent with existing ongoing operations of the Carson Facility and surrounding land uses and would not involve the construction of roads or the use of incompatible equipment on roads that would result in traffic hazards.

Therefore, traffic impacts associated with these significance criteria are not further analyzed in this EIR.

To address the potentially significant adverse traffic impacts from the proposed project, analyses were performed to evaluate potential impacts on the traffic system during the morning (A.M.) and evening (P.M.) peak traffic periods. Details of the analyses are in Appendix II-I.

4.7.2.1 Construction Impacts

The following section discusses proposed project impacts on traffic and circulation during project construction. A two-step process was used to estimate the project-related traffic volumes at various points on the transportation system in the vicinity of the Carson Facility. First, the amount of traffic that would be generated during project construction was determined. Second, the trips were assigned to specific roadways. The impacts on the assigned intersections and on the freeway system of the additional trips generated by construction of the proposed project were then determined.

Trip Generation

The overall project construction period is expected to last a total of 17 months. Construction is anticipated to take place 10 hours per day, from 7:00 a.m. to 5:00 p.m., five or six days per week, Monday through Friday or occasionally on Saturday.

Anticipated peak daily construction manpower by construction month is listed in Table 4.7-1 (see Appendix II-A for details of construction manpower by construction phase and month). Construction personnel would commute to work in private automobiles, although carpooling would be encouraged. For purposes of a worst-case analysis, a vehicle occupancy rate of 1.0 person per vehicle was used in the analysis, which means that there would be one vehicle trip for each construction worker at the beginning and at the end of a construction shift.

The A.M. peak period of the adjacent street system surrounding the Carson Facility is from 7:00 a.m. to 9:00 a.m. (Los Angeles County MTA, 2010). Because the construction shift is anticipated to start at 7:00 a.m., worker commuting traffic attributable to project construction is not anticipated to affect the A.M. peak period conditions. However, impacts from construction worker commuting during the A.M. peak period were evaluated to allow for unanticipated changes to the daily construction schedule.

The P.M. peak period is from 4:00 p.m. to 6:00 p.m. (Los Angeles County MTA, 2010). Because the construction shift is anticipated to end at 5:00 p.m., construction workers for the proposed project would leave during the P.M. peak period. Therefore, the analysis examined impacts from construction worker commuting during the P.M. peak period.

Anticipated peak daily construction haul and delivery trucks by construction month are listed in Table 4.7-2 (see Appendix II-A for details of construction trucks by construction phase and month). Each truck would generate two one-way trips per day, one inbound and one outbound, so the daily number of construction truck trips was calculated by multiplying the daily number of construction trucks by two. Since these truck trips would mainly consist of material deliveries, they would be spread throughout the 10-hour workday. Thus, the hourly number of construction truck trips was calculated by dividing the daily number of trips by 10 hours per day. In order to account for variations in truck trips during the 10-hour work day, it was assumed that one additional one-way trip would occur each hour during the A.M. and P.M. peak traffic periods. A passenger car equivalent (PCE) factor of 2.0 (ITE, 1982) was applied to the A.M. and P.M. peak period truck trips to account for the greater impact that trucks have on the traffic system than passenger vehicles.

In addition to construction worker and construction truck traffic, the number of ethanol tanker trucks delivering ethanol from the facility would increase during construction of the proposed project. The increase in ethanol loading capability resulting from the increased permitted throughput for the existing two-lane loading rack would result in an increase in ethanol tanker truck trips over baseline levels. Construction is not required to increase the throughput of the existing two-lane truck ethanol loading rack, so the throughput would increase when the existing permits are revised, which is expected to occur prior to the beginning of the construction period. After the permitted throughput for the existing two-lane loading rack is increased to 35,000 bbl/day, the maximum number of trucks loaded per day would increase to 184 trucks per day (35,000 bbl/day / 190 bbl/truck = 184.2) , which would generate 368 one-way trips per day. The daily average number of tanker trucks loaded at the Carson Facility during the baseline period (January 15, 2010 through April 14, 2010) was 132 trucks per day. The resulting increase in ethanol tanker trucks above the average during the baseline period would be 52 trucks per day (184 trucks per day - 132 trucks per day).

Construction of the new single-lane truck loading rack would be completed, and the new loading rack would be in operation, approximately four months after the beginning of construction for the proposed project (see Figure 2-4). Operation of the new loading rack would result in an additional increase in ethanol tanker truck trips, which would overlap with the remainder of the construction activities. The permitted ethanol loading capacity for the new loading rack would be 17,500 bbl/day, enabling an additional 92 ethanol tanker trucks to be loaded each day (17,500 bbl/day / 190 bbl/truck = 92.1), which would generate an increase of 184 one-way trips per day.

The increase in daily ethanol tanker trucks is listed by construction month in Table 4.7-3. Each tanker truck would generate two one-way trips per day, one inbound and one outbound, so the daily increase in ethanol tanker truck trips was calculated by multiplying the daily number of trucks by two. These truck trips would be spread throughout the 24-hour period. Thus, the hourly number of ethanol tanker truck trips that would occur during the A.M. and P.M. peak traffic periods was calculated by dividing the daily number of trips by 24 hours per day. A PCE factor of 2.0 was applied to the A.M. and P.M. peak period tanker truck trips to account for the greater impact that trucks have on the traffic system than passenger vehicles.

The hourly increases in PCE trips during the A.M. and P.M. peak traffic periods are listed by construction month in Table 4.7-4. The table shows that the peak increase is anticipated to be 251 PCE trips per hour, occurring during the first month of construction. During the A.M. peak traffic period, the increase would include 195 inbound construction worker commuting trips, 24 inbound and 24 outbound PCE construction truck trips, and four inbound and four outbound PCE ethanol tanker truck trips. During the P.M. peak traffic period, the increase would include 195 outbound construction worker commuting trips, 24 inbound and 24 outbound PCE construction truck trips, and four inbound and four outbound PCE ethanol tanker truck trips.

Trip Distribution

Construction workers, construction trucks and ethanol tanker trucks would enter and leave the facility via the facility entrance at the intersection of East Dominguez Street and Wilmington Avenue. Construction workers were assumed to travel to and from the project site from sub-regional and regional residential communities using both the freeways, primarily the I-405 Freeway, and major arterials. Ethanol tanker truck trips and construction truck trips were assigned to the street network based on the anticipated origin and destination of ethanol trucks in the sub-region, regional and sub-regional truck routes, and turn restrictions at intersections in the vicinity of the Carson Facility. Figure 4.7-1 shows the construction period-only traffic volumes for the proposed project.

Project Traffic Impacts

Table 4.7-5 shows the predicted proposed project LOS analysis and volume-to-capacity ratios due to peak construction activities (see Appendix II-I for the complete traffic analysis). As shown in Table 4.7-5, construction traffic for the proposed project would not cause the LOS to degrade to LOS D at any of the intersections listed in the table. The proposed project may cause an increase of 3.8 percent at the Wilmington Avenue/I-405 South-bound On-/Off-Ramp intersection during the P.M. peak period. This intersection operates at LOS E during the PM peak period. Therefore, construction traffic for the proposed project could result in significant adverse impacts to this intersection during the P.M. peak period during project construction.

The traffic analysis shows that the intersection of Wilmington Avenue and Dominguez Street may show a change in LOS from A to B during the P.M. peak period and the intersections of Wilmington Avenue and Carson Street may show a change in LOS from A to B during the A.M. peak period. However, LOS B is considered acceptable; therefore this change in LOS is not considered a significant adverse impact. No other intersections are anticipated to show a change from one LOS level to a worse LOS level.

Table 4.7-1
Peak Daily Construction Manpower by Construction Month

Component	Construction Month																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Storage Tank Conversions	80	100	50	80	100	50	0	0	0	0	0	0	0	0	0	0	0
New Loading Lane	65	25	50	25	0	0	0	0	0	0	0	0	0	0	0	0	0
Operations Building Expansion	25	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
New Gasoline Storage Tank	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
Total	**195**	**175**	**125**	**130**	**125**	**75**	**75**	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**

Table 4.7-2
Peak Daily Construction Trucks by Construction Month

Component	Construction Month																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Storage Tank Conversions	30	40	20	30	40	20	0	0	0	0	0	0	0	0	0	0	0
New Loading Lane	30	20	35	35	0	0	0	0	0	0	0	0	0	0	0	0	0
Operations Building Expansion	20	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
New Gasoline Storage Tank	35	35	35	35	35	35	35	35	35	35	35	35	5	25	25	10	10
Total	**115**	**115**	**90**	**100**	**75**	**55**	**55**	**35**	**25**	**25**	**25**	**25**	**5**	**25**	**25**	**10**	**10**

Table 4.7-3
Increase in Daily Ethanol Tanker Trucks by Construction Month

Loading Rack	Construction Month																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Existing Loading Rack	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52
New Loading Rack	0	0	0	0	92	92	92	92	92	92	92	92	92	92	92	92	92
Total	**52**	**52**	**52**	**52**	**144**	**144**	**144**	**144**	**144**	**144**	**144**	**144**	**144**	**144**	**144**	**144**	**144**

Table 4.7-4
Increase in Hourly Passenger Car Equivalent Trips During Peak Traffic Periods by Construction Month

Vehicle Type	Construction Month																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Worker Commute[1]	195	175	125	130	125	75	75	25	25	25	25	25	25	25	25	25	25
Construction Truck	48	48	34	40	32	24	24	16	12	12	12	12	12	12	12	12	12
Ethanol Tanker Truck	8	8	8	8	24	24	24	24	24	24	24	24	24	24	24	24	24
Total	**251**	**231**	**167**	**178**	**181**	**123**	**123**	**65**	**61**	**61**	**61**	**61**	**61**	**61**	**61**	**61**	**61**

[1]All worker commute trips are assumed to occur in one hour for both arriving to work (inbound) in the A.M. and leaving work (outbound) in the P.M.

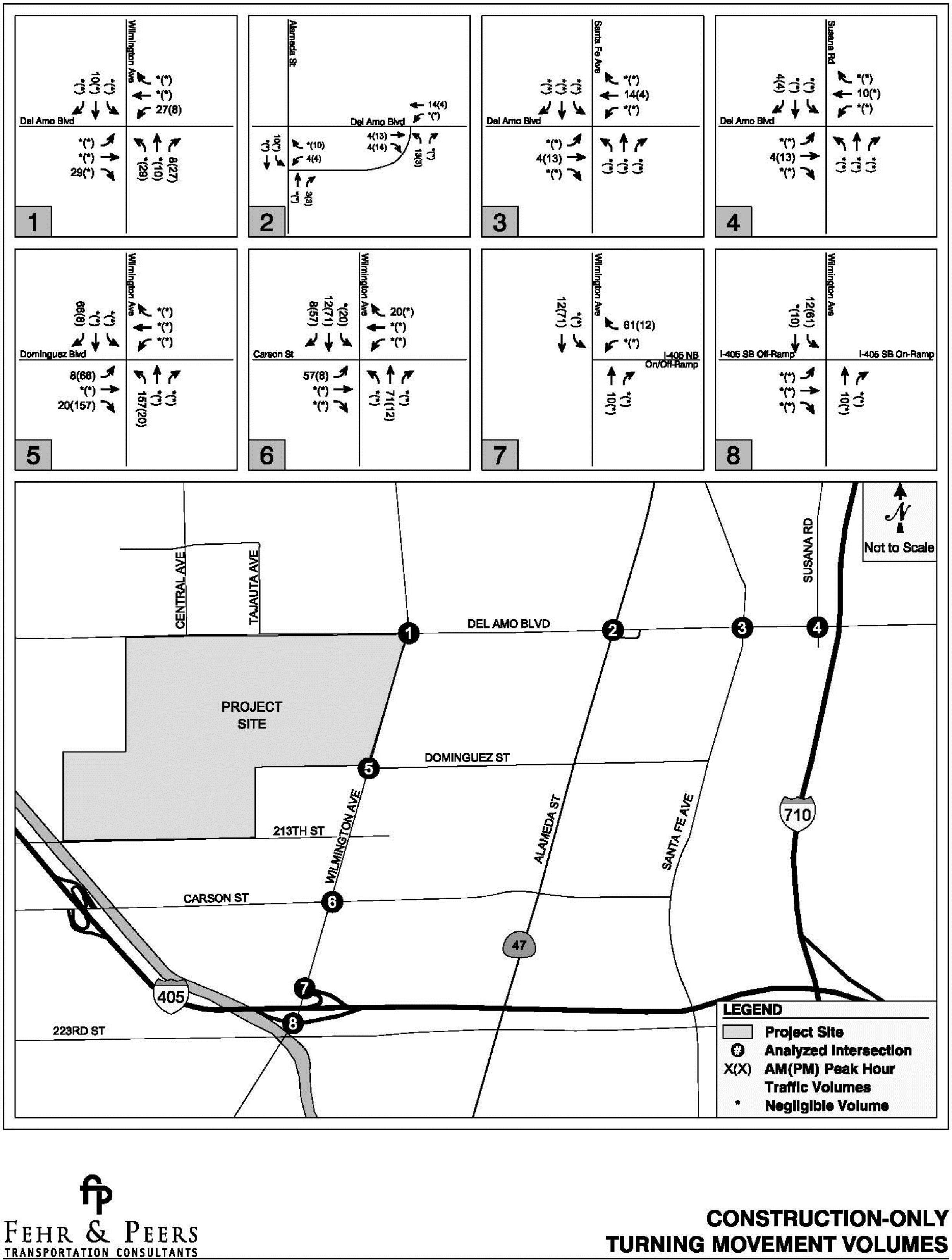


Figure 4.7-1. Construction Period-Only Turning Movement Volumes

Table 4.7-5
Construction Traffic Intersection Impacts Level-of-Service Analysis and Volume-To-Capacity Ratios

Intersection	Peak Period	Existing LOS	Existing V/C	Existing Plus Project LOS	Existing Plus Project V/C	Existing Plus Project Change in V/C	Significant Impact?
1. Wilmington Avenue & Del Amo Boulevard	A.M. P.M.	B B	0.627 0.612	B B	0.629 0.635	0.002 0.023	No No
2. Alameda Street & Del Amo Boulevard (location to the East) Alameda Street & Del Amo Boulevard (location to the West)	A.M. P.M. A.M. P.M.	A A A A	0.500 0.567 0.386 0.468	A A A A	0.508 0.569 0.392 0.471	0.008 0.002 0.006 0.003	No No No No
3. Santa Fe Avenue & Del Amo Boulevard	A.M. P.M.	C C	0.722 0.773	C C	0.726 0.775	0.004 0.002	No No
4. Susana Road & Del Amo Boulevard	A.M. P.M.	D C	0.804 0.765	D C	0.809 0.768	0.005 0.003	No No
5. Wilmington Avenue & Dominguez Street	A.M. P.M.	A A	0.395 0.473	A B	0.424 0.625	0.029 0.152	No No
6. Wilmington Avenue & Carson Street	A.M. P.M.	A A	0.577 0.571	B A	0.636 0.593	0.059 0.022	No No
7. Wilmington Avenue & I-405 NB On-/Off-Ramp	A.M. P.M.	B B	0.665 0.694	B B	0.668 0.694	0.003 0.000	No No
8. Wilmington Avenue & I-405 SB On-/Off-Ramp	A.M. P.M.	C E	0.767 0.911	C E	0.774 0.949	0.007 0.038	No Yes
Notes: V/C = Volume-to-capacity ratio (capacity utilization ratio); LOS = Level of Service							

The volume-to-capacity ratio may increase by more than two percent at the intersections of Wilmington Avenue and Del Amo Boulevard, Wilmington Avenue and Dominguez Street, and Wilmington Avenue and Carson Street. However, these intersections would operate at LOS A, B or C. The volume-to-capacity ratio is not expected to increase by more than two percent at any other intersection listed in Table 4.7-5 except the Wilmington Avenue/I-405 South-bound On-/Off-Ramp intersection, as previously noted. Therefore, construction traffic for the proposed project is not expected to result in significant adverse impacts to any of the intersections other than the Wilmington Avenue/I-405 South-bound On-/Off-Ramp intersection during the P.M. peak period.

The potential impacts of construction-related traffic on the I-405 and I-710 Freeways were also examined during the A.M. and P.M. peak periods. Based on the estimated distribution of traffic during construction of the proposed project, approximately 57 PCE trips would be added to the I-405 Freeway north of Carson Street. They would travel southbound during the A.M. peak period and northbound during the P.M. peak period. Approximately 61 trips were estimated to be added to the I-405 Freeway south of the I-710 Freeway. They would be northbound during the A.M. peak period and southbound during the P.M. peak period. Approximately 49 southbound trips were estimated to be added to the I-710 Freeway south of Del Amo Boulevard during the P.M. peak period.

The existing and existing-plus-project freeway conditions are summarized in Table 4.7-6 for the peak traffic during project construction. As shown in Table 4.7-6, the freeway segments that were analyzed are currently operating at LOS E or F. Construction traffic for the proposed project is not anticipated to cause the LOS to degrade to a lower level for any of the segments, and it is not anticipated to cause an increase of two percent or more for any segment. Therefore, construction traffic for the proposed project would not cause a significant adverse impact to traffic on the I-405 or I-710 Freeways.

Table 4.7-6
Construction Traffic Freeway Impacts Level-of-Service Analysis and Volume-To-Capacity Ratios

				Existing		Existing Plus Project				
Freeway Segment	**Dir.**	**Peak Period**	**Freeway Capacity (PCE/hr)[a]**	**V/C Ratio[a]**	**LOS[a]**	**Project Traffic**	**Peak Hour Volume**	**V/C Ratio**	**LOS**	**Project Impact**
I-405 N. of Carson Street	SB	A.M.	10,000	0.954	E	57	9,599	0.960	E	0.006
	NB	P.M.	10,000	0.954	E	57	9,599	0.960	E	0.006
I-405 S. of I-710	NB	A.M.	10,000	0.954	E	61	9,603	0.961	E	0.007
	SB	P.M.	10,000	1.147	F	61	11,531	1.153	F	0.006
I-710	SB	P.M.	8,000	0.990	E	49	7,966	0.996	E	0.006

[a] Source: Draft 2010 Congestion Management Program for Los Angeles County (Los Angeles County MTA, 2010), Appendix A, 2007 Freeway Monitoring Stations and Level of Service, with 0.5 percent annual growth applied for 2007 to 2010.

Notes: V/C = Volume-to-capacity ratio (capacity utilization ratio); LOS = Level of Service

4.7.2.2 Operational Impacts

The following section discusses proposed project impacts on traffic and circulation during project operation. During operation, the increase in ethanol loading would result in additional truck traffic on area roadways. Similar to the analysis of proposed project impacts on traffic during construction, a two-step process was used to estimate the project-related traffic volumes at various points on the transportation system in the vicinity of the Carson Facility. First, the amount of traffic that would be generated during project operation was determined. Second, the trips were assigned to specific roadways. The impacts on the assigned roadways of the additional trips generated by operation of the proposed project were then determined.

Project Traffic Volumes

No additional employees would be required on-site to operate any new equipment as a result of implementing the proposed project. Therefore, employee commuting trips would not increase during operation of the proposed project.

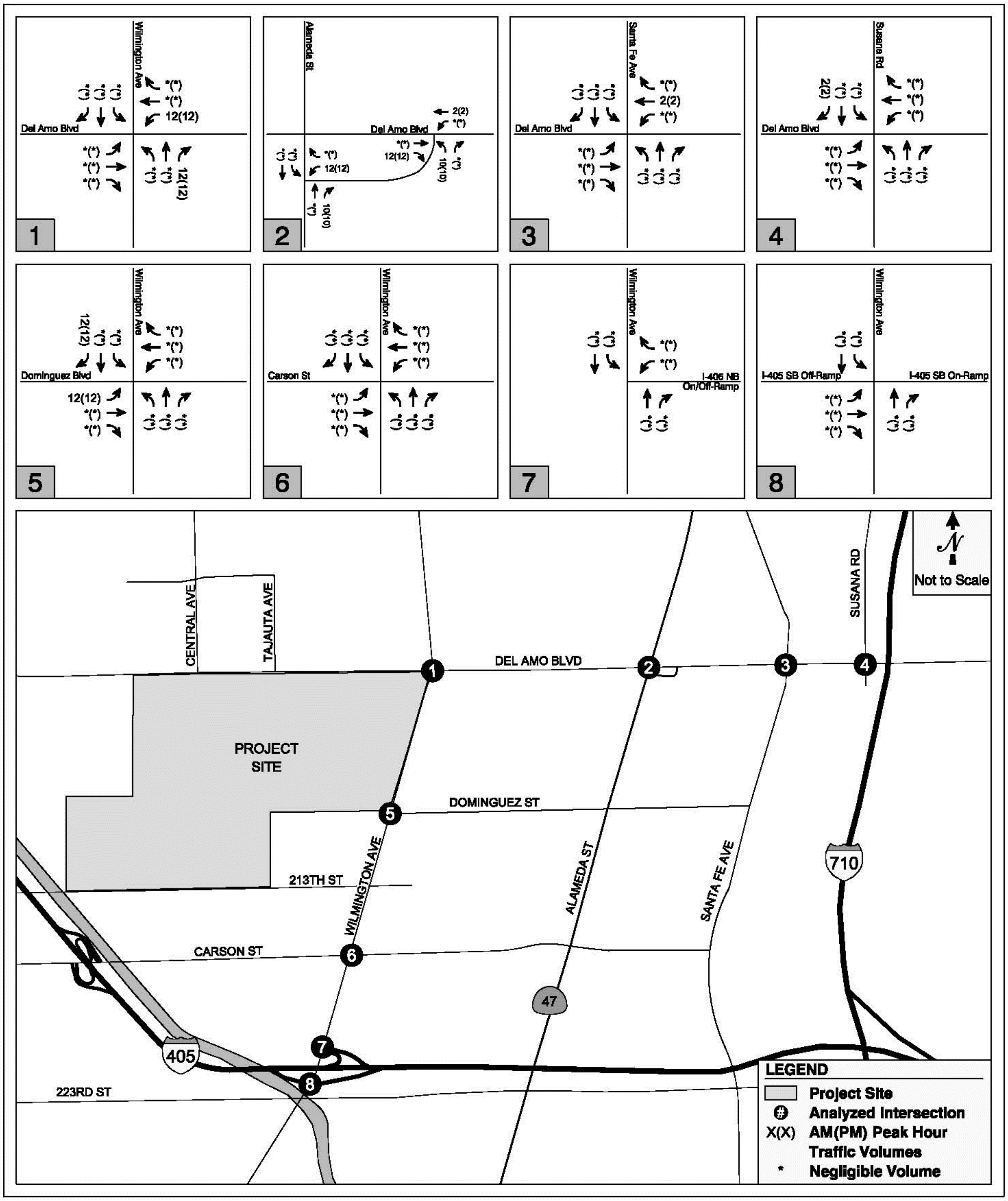
The proposed project would increase the maximum total permitted ethanol throughput for the existing two-lane truck loading rack and the new single-lane ethanol truck loading rack to 52,500 bbl/day. The corresponding maximum number of trucks loaded per day would increase to 276 trucks per day (52,500 bbl/day / 190 bbl/truck = 276.3). The daily average number of ethanol tanker trucks loaded at the Carson Facility during the baseline period (January 15, 2010 through April 14, 2010) was 132 trucks per day. The resulting increase in ethanol tanker trucks above the average during the baseline period would be 144 trucks per day (276 trucks per day - 132 trucks per day), which corresponds to an increase of 144 inbound and 144 outbound truck trips per day.

The additional truck trips are expected to be spread evenly throughout a 24-hour period. Thus, operation of the proposed project is estimated to generate a total of 12 hourly trips (six inbound and six outbound) during each of the morning and evening peak periods. After applying the PCE factor of 2.0, operation of the proposed project is estimated to generate a total of 576 additional daily PCE trips, of which 24 hourly PCE trips (12 inbound/12 outbound) would occur during the morning and evening peak hours.

As discussed in the NOP/IS (see Appendix I-A) and in Subsection 4.10.11, once the new gasoline storage tank is constructed and in service, the tank would be required to be emptied and inspected approximately every 20 years, in accordance with industry standards. Approximately 370 cubic yards of hydrocarbon contaminated solids that have settled to the bottom of the tank would need to be removed when the storage tank is emptied prior to each inspection. This waste would require disposal at a hazardous waste facility. Transporting this waste to a hazardous waste facility would require approximately 21 trucks during one day. These truck trips would be scheduled to avoid the peak traffic periods. Therefore, they were not included in the analysis of operational traffic impacts.

Trip Distribution

Ethanol tanker truck trips were assigned to the street network based on the anticipated origin and destination of ethanol trucks in the sub-region, regional and sub-regional truck routes, and turn restrictions at intersections in the vicinity of the Carson Facility. The tanker trucks would continue to use the route required by the DOR approved by the City of Carson for the proposed project: Wilmington Avenue between Dominguez Street and Del Amo Boulevard, Del Amo Boulevard between Dominguez Street and the I-710 Freeway, and Alameda Street north and south of Del Amo Boulevard. The distribution of ethanol tanker truck trips is shown in Figure 4.7-2



FEHR & PEERS
TRANSPORTATION CONSULTANTS

PROJECT-ONLY TURNING MOVEMENT VOLUMES

Figure 4.7-2. Project-Only Turning Movement Volumes

Project Traffic Impacts

Table 4.7-7 shows the predicted proposed project LOS analysis and volume-to-capacity ratios due to increased ethanol truck trips (see Appendix II-I for the complete traffic analysis). As shown in Table 4.7-7, operational traffic for the proposed project would not cause the LOS to change or cause the V/C ratio to increase by two percent or more at any of the intersections listed in Table 4.7-7. Therefore, operational traffic for the proposed project would not cause significant adverse impacts to these intersections.

Table 4.7-7
Operational Traffic Intersection Impacts Level-of-Service Analysis and Volume-To-Capacity Ratios

Intersection	Peak Period	Existing LOS	Existing V/C	Existing Plus Project LOS	Existing Plus Project V/C	Existing Plus Project Change in V/C	Significant Impact?
1. Wilmington Avenue & Del Amo Boulevard	A.M.	B	0.627	B	0.630	0.003	No
	P.M.	B	0.612	B	0.619	0.007	No
2. Alameda Street & Del Amo Boulevard (location to the East)	A.M.	A	0.500	A	0.505	0.005	No
	P.M.	A	0.567	A	0.567	0.000	No
Alameda Street & Del Amo Boulevard (location to the West)	A.M.	A	0.386	A	0.392	0.006	No
	P.M.	A	0.468	A	0.472	0.004	No
3. Santa Fe Avenue & Del Amo Boulevard	A.M.	C	0.722	C	0.722	0.000	No
	P.M.	C	0.773	C	0.773	0.000	No
4. Susana Road & Del Amo Boulevard	A.M.	D	0.804	D	0.805	0.001	No
	P.M.	C	0.765	C	0.765	0.000	No
5. Wilmington Avenue & Dominguez Street	A.M.	A	0.395	A	0.402	0.007	No
	P.M.	A	0.473	A	0.481	0.008	No
6. Wilmington Avenue & Carson Street	A.M.	A	0.577	A	0.577	0.000	No
	P.M.	A	0.571	A	0.571	0.000	No
7. Wilmington Avenue & I-405 NB On-/Off-Ramp	A.M.	B	0.665	B	0.665	0.000	No
	P.M.	B	0.694	B	0.694	0.000	No
8. Wilmington Avenue & I-405 SB On-/Off-Ramp	A.M.	C	0.767	C	0.767	0.000	No
	P.M.	E	0.911	E	0.911	0.000	No
Notes: V/C = Volume-to-capacity ratio (capacity utilization ratio); LOS = Level of Service							

The transportation impact analysis procedures outlined in the 2004 Congestion Management Program for Los Angeles County (Los Angeles County MTA, 2004) were used to determine the proposed project's impacts on the regional transportation system. The Congestion Management Program (CMP) requires that traffic and transit impact analyses be conducted for select regional facilities based on the quantity of project traffic expected to use these facilities. In order to determine the geographic scope for the CMP analysis, CMP guidelines require that the analysis include the following to determine the study area for CMP arterial monitoring intersections and freeway monitoring locations:

- All CMP arterial monitoring intersections where the proposed project will add 50 or more trips during either the A.M. or P.M. weekday peak periods of adjacent street traffic; and

- All CMP mainline freeway monitoring locations where the proposed project will add 150 or more trips, in either direction, during either the A.M. or P.M. weekday peak periods.

There are no CMP arterial monitoring intersections within the City of Carson. As a result, no CMP arterial monitoring analysis is required, and the proposed project's impact on the CMP arterial system during operation is less than significant.

The mainline freeway monitoring locations nearest to the project site are the I-405 Freeway north of the I-110 Freeway and the I-710 Freeway north of the I-405 Freeway. Because the proposed project would add 24 PCE trips per hour during each of the A.M. and P.M. peak periods, the increase would be below the minimum criterion of 150 vehicles. Therefore, no further CMP freeway analysis is required, and the proposed project's impact on the CMP freeway system during operation is determined to be less than significant.

4.7.3 MITIGATION MEASURES

Mitigation measures are required, if feasible, to minimize the potentially significant traffic impacts associated with the construction phase of the proposed project, since the construction traffic for the proposed project may cause significant adverse impacts to the Wilmington Avenue/I-405 South-bound On-/Off-Ramp intersection during the P.M. peak period. Therefore, the following mitigation measure will be imposed on the project to reduce potential impacts to traffic during construction:

T-1 Shell will require that construction workers not use the Wilmington Avenue/I-405 South-bound On-/Off-Ramp intersection to access the southbound I-405 Freeway when they leave the facility at the end of the construction shift. Instead, construction workers who want to travel south on the I-405 Freeway will be required to travel north on Wilmington Avenue to Del Amo Boulevard, east on Del Amo Boulevard to the Southbound I-710 Freeway, and south on the I-710 Freeway to the southbound I-405 Freeway. In the event that portions of this route are temporarily blocked, such as by a traffic accident, construction workers will be required to use alternate routes to the Southbound I-710 Freeway that bypass the blockage and still avoid using the Wilmington Avenue/I-405 South-bound On-/Off-Ramp intersection. In the event that a long-term closure of portions of this route is scheduled, such as for street repairs/construction, Shell shall consult with the City of Carson to identify an alternate route to be used by construction workers.

To ensure that project construction employees comply with the requirement from Shell regarding the travel routes to the Southbound I-405 Freeway, Shell will implement measures including:

- Contractually requiring adherence to the required route to the Southbound I-405;

- Posting signs in the construction worker parking area reminding them of the requirement;
- Reminding construction workers of the requirement in daily briefings; and
- Requiring construction workers to have colored stickers in their back windows and periodically conducting visual audits to determine if any cars with the stickers get onto the South-bound I-405 Freeway at Wilmington Avenue.

If a worker is seen to enter the South-bound I-405 Freeway at Wilmington Avenue, Shell will take one or more of the following actions:

- Issue a warning to the worker following the first violation and not allow the worker on the Carson Facility following a second violation;
- Deduct a specified amount to be negotiated with contractors prior to contract execution from the payment to the contractors who employ the workers for each violation; and
- Stop construction work and conduct a 30-minute meeting with all contractor employees on the project regarding the importance of following the directive, at the contractor’s expense (i.e. Shell will not pay the contractor for the project delay).

Shell will implement mitigation measure T-1 during construction of the proposed project.

4.7.4 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Analyses were performed to evaluate potential impacts on the traffic system during construction of the proposed project with implementation of Mitigation Measure T-1. Table 4.7-8 shows the predicted proposed project LOS analysis and volume-to-capacity ratios due to increased traffic during construction with implementation of Mitigation Measure T-1. As shown in Table 4.7-8, with the implementation of Mitigation Measure T-1, construction traffic for the proposed project would not cause the LOS to change or cause the V/C ratio to increase by two percent or more at any of the intersections listed in Table 4.7-8. Therefore, with implementation of Mitigation Measure T-1, construction traffic for the proposed project would not cause significant adverse impacts to these intersections.

Although operation of the proposed project would generate a maximum increase of approximately 288 one-way ethanol tanker truck trips per day, these increased trips would be spread out over a 24-hour period, and the increase in hourly one-way tanker truck trips during the A.M. and P.M. peak traffic periods would be approximately 12 trips per hour. As explained in Section 4.7.2.2, impacts to transportation and traffic during operation of the proposed project would be less than significant, and no mitigation measures would be required.

Table 4.7-8
Construction Traffic Intersection Impacts Level-of-Service Analysis and Volume-To-Capacity Ratios (Mitigated)

Intersection	Peak Period	Existing		Existing Plus Project			Significant Impact?
		LOS	V/C	LOS	V/C	Change in V/C	
1. Wilmington Avenue & Del Amo Boulevard	A.M. P.M.	B B	0.627 0.612	B B	0.629 0.635	0.002 0.023	No No
2. Alameda Street & Del Amo Boulevard (location to the East) Alameda Street & Del Amo Boulevard (location to the West)	A.M. P.M. A.M. P.M.	A A A A	0.500 0.567 0.386 0.468	A A A A	0.508 0.580 0.392 0.471	0.008 0.013 0.006 0.003	No No No No
3. Santa Fe Avenue & Del Amo Boulevard	A.M. P.M.	C C	0.722 0.773	C C	0.726 0.786	0.004 0.013	No No
4. Susana Road & Del Amo Boulevard	A.M. P.M.	D C	0.804 0.765	D C	0.809 0.768	0.005 0.003	No No
5. Wilmington Avenue & Dominguez Street	A.M. P.M.	A A	0.395 0.473	A B	0.424 0.625	0.029 0.152	No No
6. Wilmington Avenue & Carson Street	A.M. P.M.	A A	0.577 0.571	B A	0.636 0.578	0.059 0.007	No No
7. Wilmington Avenue & I-405 NB On-/Off-Ramp	A.M. P.M.	B B	0.665 0.694	B B	0.668 0.694	0.003 0.000	No No
8. Wilmington Avenue & I-405 SB On-/Off-Ramp	A.M. P.M.	C E	0.767 0.911	C E	0.774 0.919	0.007 0.008	No No
Notes: V/C = Volume-to-capacity ratio (capacity utilization ratio); LOS = Level of Service							

4.8 GROWTH INDUCING IMPACTS

CEQA defines growth-inducing impacts as those impacts of a proposed project that "could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included in this are projects which would remove obstacles to population growth" (CEQA Guidelines §15126.2(d)).

The proposed project is not expected to foster population growth in the area, nor would additional housing or infrastructure be required. The project involves the modification of an existing industrial facility. No new services would be required; therefore, no infrastructure development or improvement would be required, and no population growth would be encouraged as a result of the project. It is expected that construction workers necessary to build new or modify existing equipment would be largely drawn from the existing workforce pool in southern California. Further, operation of the proposed project is not expected to require additional on-site workers at the Carson Facility.

The proposed facility modifications are associated with increasing the Carson Facility's ethanol tanker-truck loading capacity to allow the facility to continue to reliably support the market's increased demand for ethanol in response to the 2007 amendments to the CARB RFG Phase 3 requirements. The purpose of the 2007 amendments to the CARB RFG Phase 3 requirements is to reduce air pollutant emissions from motor vehicles. The proposed project would allow marketing of gasoline that complies with existing CARB RFG Phase 3 requirements. As a result the proposed project does not directly or indirectly increase the supply of gasoline or the demand for gasoline in the future. Further, reducing emissions from motor vehicles would not induce population growth. Therefore, the proposed project is not expected to result in growth-inducing impacts.

4.9 SIGNIFICANT ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED AND SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES

CEQA requires an EIR to discuss significant environmental effects (CEQA Guidelines §15126.2(b)) and irreversible environmental changes (CEQA Guidelines §15126.2(c)), which would result from a proposed project, should it be implemented. Significant environmental impacts are impacts that would exceed established significance threshold levels (e.g., construction and operational air pollutant emissions, operational hazard impacts and construction and operational potable water use would exceed SCAQMD established threshold levels). Irreversible changes include a large commitment of nonrenewable resources, committing future generations to specific uses of the environment (e.g., converting open spaces into urban development), or enduring environmental damage due to an accident.

It was determined that implementation of the proposed project would result in potentially significant adverse VOC, NOx, PM10 and PM2.5 air quality impacts during construction; these impacts would remain significant following mitigation. Significant construction emissions are temporary and would cease following completion of construction activities. Operational VOC and NOx air quality impacts are also expected to exceed applicable operational significance thresholds, and these impacts would remain significant following mitigation.

The proposed project could result in significant impacts related to the "worst-case" hazards associated with the new gasoline storage tank. No feasible mitigation measures were identified to reduce these potentially significant hazard impacts. However, there are a number of rules and regulations that the Carson Facility must comply with and a number of safety measures that the facility would implement that serve to minimize the potential for hazards at the Carson Facility, but in spite of these rules and regulations, hazard impacts would remain significant.

It was determined that implementation of the proposed project would result in an exceedance of the significance threshold for water supply during construction and operation. No feasible mitigation measures to avoid those exceedances were identified. Water demand impacts during construction are temporary and would cease following hydrostatic testing of the proposed new gasoline storage tank during construction. Potential use of potable water for future additional hydrostatic testing of the proposed new gasoline storage tank may also result in an exceedance of the significance threshold for water supply, if a hydrostatic test is ever needed.

The proposed project involves modifications to an existing distribution facility, located within an industrial area, which has been operating for decades. Therefore, there is no major commitment of nonrenewable resources or changes that would commit future generations to specific uses of the environment associated with the proposed project.

4.10 ENVIRONMENTAL EFFECTS NOT FOUND TO BE SIGNIFICANT

The environmental effects of the Shell Carson Facility Ethanol (E10) Project are identified and discussed in detail in the preceding portions of Chapter 4 of this ~~Draft~~ EIR and in the Initial Study (see Appendix I-A) per the requirements in ~~of the~~ CEQA Guidelines ~~(~~§15128~~)~~. The following topics of analysis in this ~~Draft~~ EIR were found to have no potentially significant adverse effects:

- Biological Resources (after mitigation)
- Noise
- Traffic and Transportation (after mitigation)

The following topics of analysis were found to have no potentially significant adverse effects in the Initial Study (see Appendix I-A):

- Aesthetics
- Agricultural Resources
- Cultural Resources
- Energy
- Geology and Soils
- Land Use and Planning
- Mineral Resources
- Population and Housing
- Public Services
- Recreation
- Solid and Hazardous Waste

The following is a brief discussion of each topic found not to be significant in the NOP/IS.

4.10.1 AESTHETICS

The proposed project is located within an existing petroleum products distribution facility and is consistent with the current ongoing operations at the facility. Converting the storage tanks from gasoline to ethanol service would not alter the tanks' appearances. The new single-lane ethanol truck loading rack and loading lane would be located adjacent to the existing two-lane ethanol truck loading rack and loading lanes and would be similar in appearance to the existing loading rack and lanes. The expanded ethanol loading rack operations building would be larger than the existing building, but the construction materials and the building height would be consistent with the existing structure. The new single-lane ethanol truck loading rack and the expanded loading rack operations building would not be visible from outside the Carson Facility as they would be located in the central portion of the facility. Although the new gasoline storage tank would be larger than existing storage tanks adjacent to it, it would only be readily visible from light industrial facilities on the western side of the facility; existing storage tanks located south of the new gasoline storage tank would largely block views of the new storage tank from residences located south of the Carson Facility.

Because the Carson Facility is located in a heavily industrialized area, no scenic vistas or scenic resources are located in the vicinity of the Carson Facility. Therefore, the proposed project would not affect scenic vistas or scenic resources.

Construction activities associated with the proposed project are not expected to adversely impact views and aesthetics resources since the construction activities are expected to occur within the confines of the Carson Facility, a heavy industrial facility, and are expected to introduce only minor visual changes to areas outside the facility, if at all. Except for the use of approximately four cranes, the majority of the construction equipment is expected to be low in height and not substantially visible to the surrounding area due to existing fencing along the property lines and existing structures currently within the facility that would buffer the views of the construction activities. Further, the construction activities would be temporary in nature and would cease following completion of the construction activities.

Construction activities are only anticipated to take place during daylight hours. Therefore, construction activities would not create a substantial new source of light. New lighting would be provided as necessary for operation of the proposed project, in accordance with applicable safety standards. Additional lighting for the new ethanol truck loading rack and for the expanded loading rack operations building would be consistent with existing lighting and is not expected to be distinguishable from existing lighting when viewed from outside the Carson Facility. Thus, operation of these components of the proposed project would not introduce substantial new sources of light. The new lighting required for the gasoline storage tank would consist of a manually-operated gauging light used for illumination at the top of the storage tank during manual measurements of the height of the surface of the gasoline stored in the tank. This light is similar to what is present on existing nearby storage tanks. It would only operate intermittently and would only be visible from light industrial facilities on the western side of the facility. The nearest residential or sensitive receptors are residences located approximately 1,100 feet south of the location of the new storage tank. Views of the new storage tank from these residences would be blocked by existing storage tanks between the residences and the new tank. Therefore, the proposed project would not create a new source of substantial light or glare visible from residential or sensitive receptors.

Based upon these considerations, significant aesthetics impacts are not expected from construction and operation of the proposed project.

4.10.2 AGRICULTURE AND FOREST RESOURCES

All construction and operational activities that would occur as a result of implementing the proposed project would occur within the confines of the existing Carson Facility. The proposed project would be consistent with the zoning requirements for the facility, and there are no agricultural resources or operations on or near the Carson Facility. No agricultural resources, including Williamson Act contracts, are located within or would be impacted by construction activities at the Carson Facility. Therefore, the proposed project would not result in any new construction of buildings or other structures that would convert farmland to non-agricultural use or conflict with zoning for agricultural use or a Williamson Act contract.

The proposed project would also not result in any new construction of buildings or other structures that would cause the loss of forest land or conversion of forest land to non-forest use. Because there are no forestry resources or operations on or near the affected facilities, the proposed project would not conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code §12220(g)), timberland (as defined by Public Resources Code §4526), or timberland zoned Timberland Production (as defined by Government Code §51104(g)).

Lastly, since the proposed project would not substantially change the Carson Facility or processes at the Carson Facility, there are no provisions in the proposed project that would affect land use plans, policies, or regulations. Land use and other planning considerations are determined by local governments, and no land use or planning requirements relative to agriculture and forest resources would be altered by the proposed project. Therefore, for these aforementioned reasons, the proposed project is not expected to create significant adverse agriculture and forest resource impacts.

4.10.3 CULTURAL RESOURCES

Buildings, structures, and other potential culturally significant resources that are less than 50 years old are generally excluded from listing in the National Register of Historic Places, unless they are shown to be exceptionally important. The proposed project would not impact any existing structures at the Carson Facility that are more than 10 years old, that have contributed to California history, or that possess high artistic values. Therefore, the proposed project is not expected to cause any impacts to significant historic cultural resources.

All construction and operational activities that would occur as a result of implementing the proposed project would occur within the confines of the existing Carson Facility. The proposed project would be consistent with the zoning requirements for the facility. The areas within the facility where construction for the proposed project would take place have previously been disturbed. No human remains or cultural artifacts were discovered when the existing two-lane truck loading rack was constructed in 2003. Additionally, a cultural resources records search for the Carson Facility was conducted at the South Central Costal Information Center at California State University, Fullerton, in September 2007. The records search found that no cultural resources had been recorded within the Carson Facility.

While the likelihood of encountering previously unknown cultural or paleontological resources during the construction of the proposed project is low, the potential does exist that buried resources may be uncovered. Any such impact would be reduced to less than significant by using the following construction practices that would avoid adverse impacts on cultural resources if they are discovered and by complying with all laws and regulations:

- Shell Carson will require cultural resources training for construction workers involved in excavation activities. This training will help workers identify the kinds of resources that could be uncovered, and the appropriate steps to take should such resources be discovered.

- Shell Carson will require that construction cease if potential Native American cultural resources are exposed during excavation and will require that a representative of the Gabrielino/Tongva tribe will be available prior to restarting construction to monitor further excavation activities, assess findings, and help develop a mitigation plan.

- Shell Carson will require that construction cease and will contact the Los Angeles County Coroner's office if human remains are unearthed. The remains will be evaluated with respect to origin and disposition. Shell Carson will notify the Native American Heritage Commission if the remains are determined to be of Native American decent.

Based upon these considerations, significant cultural resources impacts are not expected from construction and operation of the proposed project.

4.10.4 ENERGY

The proposed project is not subject to any adopted energy conservation plans, so it would not conflict with energy conservation plans. Any new electrical equipment installed for the proposed project would be required to comply with established energy standards.

It is not expected that natural-gas fired construction equipment or vehicles would be used during construction for the proposed project. Diesel-fueled generators would be used to provide electricity to electrically powered construction equipment because electrical outlets are not available at the locations where electrically powered construction equipment would be used. Thus, there would not be a need for new or substantially altered electrical power or natural gas utility systems during construction.

New electrically powered pumps, valves and other electrically powered equipment, such as control systems, are anticipated to increase the demand for electricity during operation of the proposed project by approximately 480 kilowatts (kW). The maximum total electrical power consumed by the Carson Facility during 2008 was approximately 3,360 kW. Thus, the increased demand for electricity during operation of the proposed project is about 14 percent of the current total demand, and this increase would not require alterations to the existing electricity infrastructure at the facility. Additionally, the increased daily operating time of the vapor control combustion system may increase daily natural gas consumption by about 324 million British thermal units (MMBtu) per day, but it would not increase the natural gas consumption rate when the combustion system is in operation. Therefore, the natural gas infrastructure at the facility would not need to be modified, since it currently accommodates the consumption rate when the system is in operation.

Although construction equipment and vehicles would use diesel fuel and gasoline, use of these resources in this manner is not considered a wasteful use of energy resources. Thus, construction for the proposed project would create less than significant impacts on local and regional energy supplies. Additionally, the relatively small increases in electricity and natural gas consumption during operation of the proposed project would not create any significant negative impacts on local or regional energy supplies and would not create a significant effect on either peak or base-load energy demand.

There would be an increase in diesel fuel usage caused by the increase in ethanol tanker truck trips during operation of the proposed project. While diesel fuel is a non-renewable resource, the use of diesel fuel to transport additional ethanol to gasoline distribution facilities to enable them to comply with the requirements of the 2007 amendments to the CARB Phase 3 Reformulated Gasoline regulations is not considered a wasteful or inefficient use of energy resources.

Based upon these considerations, significant impacts to energy from the construction or operation of the proposed project are not expected.

4.10.5 GEOLOGY AND SOILS

The proposed project is located within the existing Carson Facility, which is located within a seismically active region of Southern California. A Regional Fault Map in the most recent City of Carson General Plan lists one active fault located within the City, the Avalon-Compton fault zone, which is part of the larger Newport-Inglewood fault zone. The Newport-Inglewood fault zone is considered capable of generating an earthquake of magnitude 7.0 on the Richter scale, while the Avalon-Compton fault is considered capable of generating an earthquake of magnitude 4.0 or greater.

According to the Safety Element of the City of Carson General Plan, the project site, as well as most of the City of Carson, is located in an area susceptible to liquefaction. Liquefaction is a process by which water-saturated soil transforms from a solid to a liquid state because of a sudden shock, such as from an earthquake. Basic conditions necessary for liquefaction to occur (the right soil condition, water saturation, and a source of shaking, such as an earthquake) all are present at the Carson Facility.

The proposed project is not located within a hillside area that could be susceptible to landslides. The probability of seismically-induced landslides affecting the proposed project area is considered to be negligible due to the lack of topographic relief across the area.

Potential adverse impacts from seismic events, including liquefaction, are anticipated to be less than significant because the proposed project is required to comply with the Uniform Building Code and all other applicable state and local building codes and standards. As part of the issuance of building permits, the City of Carson is responsible for assuring that the proposed project complies with the Uniform Building Code and can conduct inspections to ensure compliance. The Uniform Building Code is considered to be a standard safeguard against major structural failures and loss of life. The basic formulas used for the Uniform Building Code seismic design require determination of the seismic zone and site coefficient, which represents the foundation condition at the site. The Uniform Building Code requirements also consider liquefaction potential and establish stringent requirements for building foundations in areas potentially subject to liquefaction. Thus, compliance with the Uniform Building Code would limit the potential adverse effects of the proposed project and, as a result, the proposed project is not expected to alter the exposure of people or property to geological hazards such as earthquakes, landslides, mudslides, ground failure, or other natural hazards. Based on this information, substantial exposure of people or structures to the risk of loss, injury, or death involving the rupture of an earthquake fault, seismic ground shaking, ground failure or landslides is not anticipated to be significant.

During construction of the proposed project, a slight possibility exists for temporary erosion resulting from excavation and grading activities. These activities are expected to be minor as the Carson Facility is generally flat and has previously been graded. Wind erosion is not expected to occur to any appreciable extent, as the proposed project would be required to comply with SCAQMD Rule 403 - Fugitive Dust, which requires the application of best available control measures (BACM) to minimize fugitive dust emissions, including fugitive dust emissions caused by wind erosion of disturbed surfaces.

The project would be located at the Carson Facility, which is connected to the sewer system. The Carson Facility does not use a septic or other alternative wastewater disposal method. Furthermore, no increase in wastewater is expected as a result of operation of the proposed project.

Based upon these considerations, significant impacts to geology or soils are not expected to occur as a result of the proposed project.

4.10.6 LAND USE AND PLANNING

The proposed project would be located entirely within the existing Carson Facility, and would not physically divide any community. The proposed project is consistent with the land use designations and zoning in the City of Carson and for the Carson Facility. The Carson Facility is zoned Manufacturing, Heavy (MH), and the City of Carson General Plan has the site divided into three land use designations: Heavy Industrial (HI), Business Park (BP), and Light Industrial (LI). The proposed project would occur in portions of the facility that are designated HI. Therefore, the proposed project would be consistent with the current zoning and land use plan.

The Carson Facility currently operates under a Design Overlay Review (DOR) granted by the City of Carson that regulates the truck traffic associated with the two existing loading lanes. The DOR limits truck trips to a maximum of 180 trucks per individual day and to a maximum monthly average of 150 truck trips per day. The proposed increase in maximum daily ethanol loading to a total of 52,500 bbl/day is expected to increase both the maximum number of truck trips per individual day and the maximum monthly average truck trips per day to 276 truck trips per day. A modification would be required to the DOR to allow for the increased truck traffic associated with the proposed project.

There are no habitat conservation plans or natural community conservation plans that are applicable to the Carson Facility or the proposed project. Therefore, the proposed project is not expected to conflict with any conservation plans.

Based upon these considerations, the impact of the proposed project on land use and planning is expected to be less than significant.

4.10.7 MINERAL RESOURCES

The proposed project would take place entirely at the existing Carson Facility, a heavy industrial site. There are no known mineral resources or mineral resource extraction operations at the Carson Facility. There are no provisions in the proposed project that would result in the loss of availability of a known mineral resource of value to the region and the residents of the state such as aggregate, coal, clay, shale, etc., or of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan. Based upon these considerations, impacts to mineral resources are not expected from the construction and operation of the proposed project.

4.10.8 POPULATION AND HOUSING

At the peak of construction for the proposed project, approximately 195 temporary construction jobs would be created by the proposed project. Because of the large size of the construction work force available in the southern California area, all 195 temporary construction jobs are expected to be filled from the existing regional labor pool. Once construction is completed, no additional staff is expected to be needed at the Carson Facility for long-term operation of the proposed project. Thus, the proposed project would not induce substantial growth either directly or indirectly.

Because the proposed project would occur within an existing facility located in a highly urbanized area, no additional housing would be necessary to accommodate the labor force needed during construction, and, further, no existing housing would be displaced. Substantial housing growth in the area would not occur as a result of the proposed project. Therefore, no impacts are expected to result from the proposed project.

Based upon these considerations, no significant impacts on population and housing are expected as a result of the proposed project.

4.10.9 PUBLIC SERVICES

The Carson Facility will continue to be served by the Los Angeles County Fire Department. The Fire Department has indicated that it has sufficient resource capacity to handle the minimal increase in potential fire threat associated with the proposed project, and, therefore, no additional fire protection services would be required.

The Carson Facility is a secured-access facility, and a 24-hour security force is maintained and will continue to be maintained at the site in the foreseeable future. Entry and exit of the construction work force would be monitored by the existing security force, so there is expected to be no need for new or expanded police protection during construction. Because the proposed project would not change staffing at the Carson Facility or substantially expand the existing facilities within the Carson Facility, there is expected to be no need for new or expanded police protection during operation of the proposed project.

Construction activities for the proposed project at the Carson Facility would not involve the relocation of individuals, impact housing or change the distribution of the population, and an increase in the number of permanent workers is not required for operation of the proposed project. Therefore, the proposed project would not affect the maintenance of public facilities, nor would it create an increase in demand for public services.

Based upon these considerations, no significant impacts on public services are expected as a result of the proposed project.

4.10.10 RECREATION

There would be no changes in population size or densities resulting from the proposed project, and, thus, implementation of the proposed project would not cause an increase in the use of existing neighborhood and regional parks or other recreational facilities. Further, the proposed project would be located at an established industrial facility and would have no effect on existing nearby parks or other recreational facilities. The proposed project also would not require the construction or expansion of recreational facilities and, thus, would not have an adverse physical effect on the environment. Based upon these considerations, no significant impacts on recreation are expected from the proposed project.

4.10.11 SOLID AND HAZARDOUS WASTE

Construction activities associated with the proposed project would increase the amount of solid/hazardous waste generated and disposed. Approximately 13,000 cubic yards of soil are expected to be excavated during construction, including approximately 10,000 cubic yards for construction of foundations for the proposed new gasoline storage tank and approximately 3,000 cubic yards for construction of other components of the proposed project. Given the heavily industrialized nature of the Carson Facility and the fact that refining and petroleum storage/distribution activities have been conducted at the site for a number of years, some or all of this excavated soil may be contaminated and classified as a hazardous waste, which would require disposal at a hazardous waste facility.

If contaminated soils containing volatile organic compounds are encountered during the project construction, the soils would be removed for proper disposal in accordance with SCAQMD's Rule 1166 - Volatile Organic Compound Emissions from Decontamination of Soil, and requirements of other agencies such as the Regional Water Quality Control Board.

Construction activities are also expected to generate approximately 120 cubic yards of construction debris, 400 cubic yards of used copper slag and steel abrasive blasting media used for preparing the storage tanks to be converted to ethanol service and the new gasoline storage tank for painting, and 150 gallons of residual coatings and coating thinner. The construction debris is expected to be non-hazardous and would be recycled to the greatest extent practical. If it is not able to be recycled, approximately 120 cubic yards of this material would require disposal at a non-hazardous waste facility. The used abrasive blasting media and residual coatings and coating thinner may or may not be hazardous, and the classification of these wastes would be determined prior to disposal. If the excavated soil, abrasive blasting media, and residual coatings and coating thinners are all determined to be hazardous, approximately 13,600 cubic yards (approximately 17,000 tons) of hazardous waste would require disposal at a hazardous waste facility. If they are not determined to be hazardous, they would be disposed at a non-hazardous waste facility.

Once the new gasoline storage tank is constructed and in service, the tank would be required to be emptied and inspected every 10 to 20 years, in accordance with industry standards. Approximately 370 cubic yards (approximately 450 tons) of hydrocarbon contaminated solids that have settled to the bottom of the tank would need to be removed when the storage tank is emptied prior to each inspection. This waste would require disposal at a hazardous waste facility.

The Los Angeles County Sanitation District maintains three active Class III landfills that would likely receive non-hazardous waste from the Carson Facility and can handle a total of approximately 20,000 tons per day of non-hazardous solid waste. These landfills include Puente Hills Landfill, Scholl Canyon Landfill, and Calabasas Landfill. Projected closure dates for the three landfills range from 2013 at the Puente Hills Landfill to 2028 at the Calabasas Landfill. Permitted daily capacity ranges from 3,400 tons per day at the Scholl Canyon Landfill on the low end to 13,200 tons per day at the Puente Hills Landfill on the high end. The combined capacity of these three landfills exceeds the anticipated amounts of non-hazardous waste that may be generated during construction of the proposed project.

There are two Class I landfills in California that are approved to accept hazardous wastes. Chemical Waste Management Corporation in Kettleman City, California, is a treatment, storage, and disposal facility that has a permitted capacity of approximately 10.7 million cubic yards. Its expected closure date is currently unknown. Clean Harbors operates a Class I landfill in Buttonwillow, California, that has a total permitted capacity of 14.3 million cubic yards and a daily permitted capacity of 10,482 tons/day. Its expected closure date is 2040. The combined capacity of these two facilities exceeds the anticipated amounts of hazardous waste that may be generated during construction and operation of the proposed project.

Because local landfills can accommodate non-hazardous waste generated by the proposed project and state landfills can accommodate hazardous wastes from the proposed project, no significant impacts on solid/hazardous waste are expected from the proposed project.

This Page Intentionally Blank

CHAPTER 5

CUMULATIVE IMPACTS

This Page Intentionally Blank

5.0 CUMULATIVE IMPACTS

5.1 INTRODUCTION

CEQA Guidelines §15130(a) requires an EIR to discuss the cumulative impacts of a project when the project's incremental effect is cumulatively considerable, as defined in §15064(h)(1). The only potentially significant adverse project-specific impacts identified for the proposed project were for air quality during construction and operation activities, for hazards/hazardous materials during operation and for hydrology and water quality during construction and operation.

There are a number of projects proposed for development in the vicinity of the Carson Facility which may contribute to cumulative impacts in addition to those generated by the proposed project. These include refinery, industrial, and residential and commercial projects planned in the City of Carson. Figure 5-1 shows the locations of the projects that may contribute to cumulative impacts in the City of Carson. 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 as if the major portion of construction for the other projects would occur during the same construction period as the proposed project unless construction for the other projects has already been completed.

Public agencies were contacted to obtain information on projects within the City of Carson. As part of the cumulative impact analysis, the SCAQMD typically includes projects within about one mile of the proposed project. 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. Localized impacts were assumed to include projects which would occur within the same timeframe as the proposed project and which are within about a one-mile radius of the Carson Facility. Although a refinery modification project is anticipated to occur at the Tesoro Refinery in the City of Wilmington (the Tesoro Reliability Improvement and Regulatory Compliance Project[21]), and a number of projects are proposed within the Ports of Long Beach and Los Angeles, the Tesoro Refinery and the Ports are over two miles from the Carson Facility and are, thus, outside of the scope of the cumulative analysis for this EIR. Further, because of the distance, no overlap in related impacts is expected. For example, the other projects are separated by about two miles so that any construction traffic associated with the Carson Facility proposed project is expected to remain within the vicinity to the north of the I-405 Freeway, while the traffic associated with the Tesoro Refinery and Port projects would be further south, thereby affecting different intersections. Because the projects identified above are located about two miles away from the Carson Facility, localized construction air quality impacts that could contribute to cumulative impacts would be avoided. The cumulative projects are described in more detail in Section 5.2.

[21] The SCAQMD certified the Final EIR (SCH No.2008021099) for the Tesoro project on April 10, 2009.

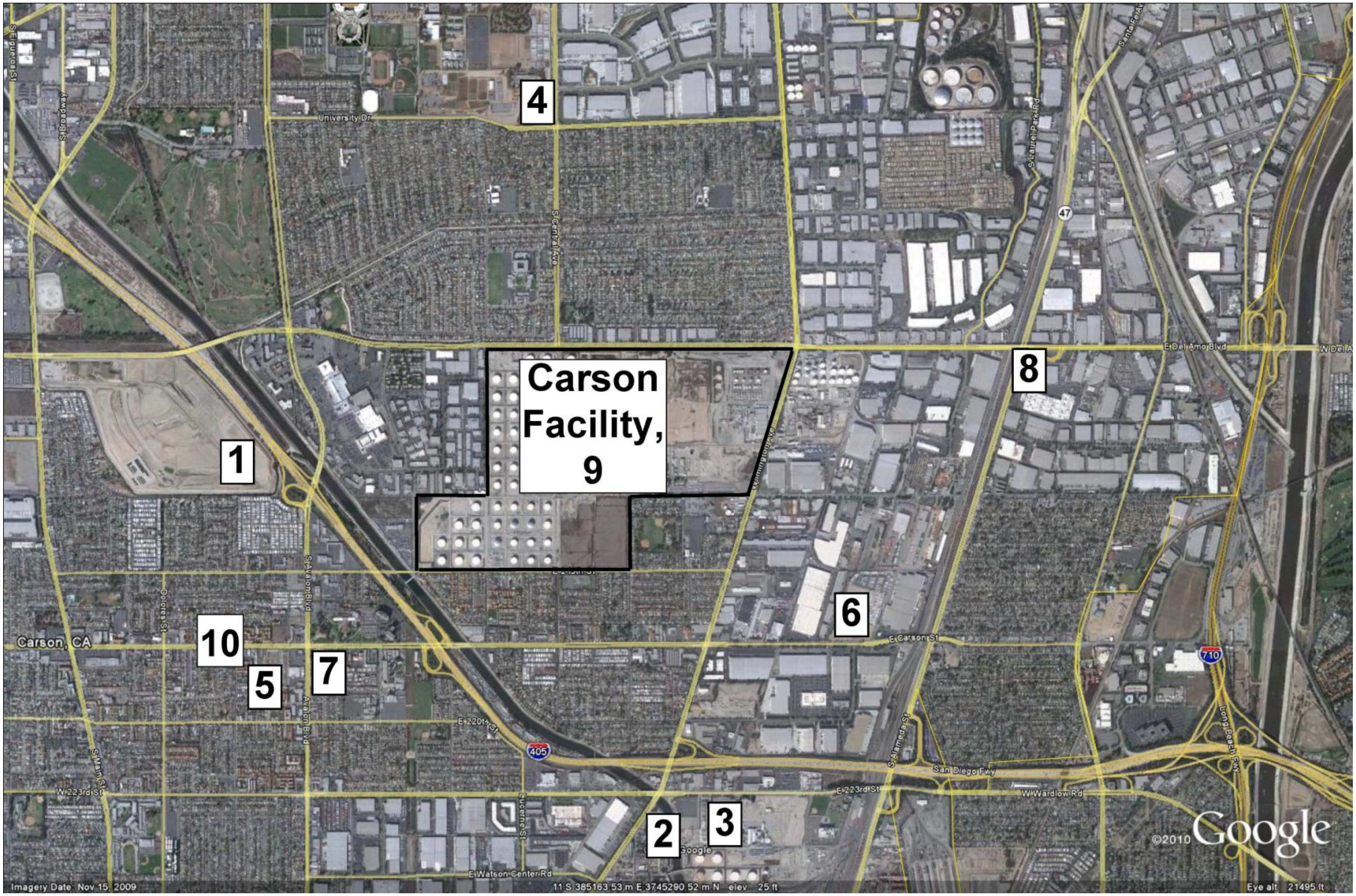


Figure 5-1 Cumulative Projects Locations

5.2 POTENTIALLY RELATED PROJECTS

The projects that were identified for possible inclusion in the evaluation of cumulative impacts are described below. The number in parentheses listed after each project corresponds with the numbers on the location map in Figure 5.1.

5.2.1 THE BOULEVARDS AT SOUTH BAY (FORMERLY CARSON MARKETPLACE) (#1)

This project has been approved for development of an existing 157-acre landfill property located to the south of Del Amo Boulevard and to the west of the I-405 Freeway and an 11-acre property located to the north of Del Amo Boulevard. At completion, the project will have 1,150 residential ownership units, 400 residential rental units, 374,000 square feet of commercial, recreation and entertainment, 130,000 square feet of neighborhood commercial use, 141,125 square feet of restaurant use, a 300-room hotel, and 1,150,000 square feet of regional commercial use. The City of Carson certified the Final EIR (SCH No. 2005051059) for the project in 2006 (Carson Redevelopment Agency, 2006), and a gas collection system and a liner for the landfill are currently under construction. Construction and operation of this project may overlap with construction and operation of the Carson Facility proposed project.

5.2.2 BP CARSON REFINERY SAFETY, COMPLIANCE AND OPTIMIZATION PROJECT (#2)

BP's proposed project involves physical changes and additions to multiple process units and operations as well as operational and functional improvements within the confines of its existing Carson Refinery. The SCAQMD certified the Final EIR (SCH No. 2005111057) for the BP project on September 15, 2006 (SCAQMD, 2006). Construction of the project is complete; operation of this project will overlap with the Carson Facility proposed project.

5.2.3 BP SHOP BUILDING PROJECT (#3)

BP proposed a new 127,273 square-foot building to serve multiple uses such as a shop, warehouse and change room on a 14-acre lot within the BP Carson Refinery site. The building will be used for existing personnel and equipment, which will be relocated from other areas throughout the refinery and consolidated into the new building. This project has been approved by the City of Carson. It was assumed for the analysis of cumulative impacts that construction and operation of this project could overlap with the Carson Facility proposed project.

5.2.4 CALIFORNIA STATE UNIVERSITY DOMINGUEZ HILLS MASTER PLAN (#4)

California State University Dominguez Hills (CSUDH) has prepared a campus master plan to guide future development. The master plan anticipates a build-out of 20,000 full-time equivalent (FTE) students by 2089. Currently the university has 9,554 FTE students and 1,328 FTE faculty and personnel. Near-term development includes the construction of new academic buildings for health and science, a new campus entrance on Central Avenue to the east, student and faculty/staff housing, a student recreation center/gymnasium, and a cogeneration plant. This near-term phase is expected to be developed by 2017 contingent upon student enrollment and funding availability. Long-term development may take several decades and includes academic/administrative facilities; campus life and student support facilities; access, circulation, and parking projects; campus infrastructure; and athletic fields. CSUDH certified the Final EIR (SCH #2007031129) for the project in September 2009 (CSUDH, 2009). Construction and operation of this project may overlap with the Carson Facility proposed project.

5.2.5 CITYVIEW PROJECT (#5)

The Carson Redevelopment Agency has an exclusive negotiating agreement with a developer, Cityview, to develop a property formerly used as a mobile home park. The property is 9.63 acres, and the proposed project is a 152-unit mixed use development, which includes three housing types of various densities with mixed use buildings located along Carson Street. The mixed use buildings will be four stories with 14,000 square feet of retail commercial uses at ground level and 46 units above. The central portion of the property includes 77 townhomes and a recreation area. The rear of the property would include 29 single-family detached units. A formal application was submitted to the City of Carson Planning Division in March 2010, and the City of Carson released a Draft Mitigated Negative Declaration for this project on October 29, 2010 (City of Carson, 2010d) The Mitigated Negative Declaration was certified on February 16, 2011. It was assumed for the analysis of cumulative impacts that construction and operation of this project could overlap with the proposed Carson Facility project.

5.2.6 PROLOGIS PROJECT (#6)

ProLogis is proposing to construct a 273,323 square-foot, multi-tenant, warehouse building. Upon completion, the project will provide 213 vehicle parking spaces, 51 truck parking spaces, and 58 dock-high loading bays to receive and deliver products. The City of Carson (2007) prepared an Initial Study and a Mitigated Negative Declaration for the project, and the project was approved by the City of Carson Planning Commission in 2007. Construction of the project has been completed, but operations have not yet begun. It was assumed for the analysis of cumulative impacts that operation of this project could overlap with the Carson Facility proposed project.

5.2.7 SAFRAN CITY CENTER PROJECT (#7)

Thomas Safran and Associates proposes to construct a 236-unit residential, mixed-use development project. The project features 150 residential condominium units at market rate and 86 affordable, residential senior housing units. The mixed-use project comprises five levels, including approximately 8,500 square feet of restaurant use, 20,000 square feet of retail use, and a subterranean garage. The 4.29 acre project site consists of seven parcels located at the southeast corner of Carson Street and Avalon Boulevard. Construction of Phase I (northern portion) of the project was completed in March of 2010. Construction of Phase II began in the fall of 2010 and is expected to be completed in the spring of 2012. Phase II construction and operation of this project may overlap with the Carson Facility proposed project. The City of Carson released a Draft Mitigated Negative Declaration for this project on January 27, 2008 (City of Carson, 2008), and the Mitigated Negative Declaration was certified on February 26, 2008.

5.2.8 ALAMEDA STREET SOUND WALL (#8)

The City of Carson has been evaluating the potential installation of a sound wall to provide noise mitigation for train and diesel truck noise along Alameda Street between Dominguez Street and the I-405 Freeway. Alternative locations of the sound wall are being investigated because of the potential closure of several streets in order to develop such a wall. In addition, alternatives to the sound wall, e.g., sound insulation programs, are also being investigated. While preliminary designs for the wall have been discussed, detailed plans and environmental documents have not been prepared. Therefore, the extent of the impacts cannot be determined at this time and are considered speculative.

5.2.9 SHELL CARSON REVITALIZATION PROJECT (#9)

Shell has proposed the Carson Revitalization Project (CRP), which is a long-term master plan for the revitalization of the Carson Facility. Although the Shell Carson Ethanol (E10) Project and the CRP will both occur at the Carson Facility, the two projects are independent of each other because they have separate objectives that are not interrelated and because neither project is dependent on the other.

The City of Carson, as the lead agency for the CRP, prepared and released for a 30-day public review and comment period a NOP/IS on October 6, 2010[22]. Development of the EIR for the CRP is in process, although a firm schedule for the release of a draft to the public has not been published. Initial development associated with the CRP is anticipated to occur within five to seven years of receipt of entitlements for the CRP. Construction activities for the Shell Carson Facility Ethanol (E10) Project are expected to be completed, and the proposed project is expected to be fully operational, prior to the start of construction activities for the CRP. A detailed project description for the CRP is currently being developed by Shell, but it has not yet been completed. Because construction activities for the CRP are not anticipated to begin before construction activities for the proposed project are completed and because there is insufficient information and data available that could be used to perform a cumulative impacts analysis that includes the CRP, evaluating cumulative impacts from the CRP and the Shell Carson Facility Ethanol (E10) Project at this time would be premature. However, cumulative impacts from the Shell Carson Facility Ethanol (E10) Project will presumably be analyzed in the CRP EIR since there will be sufficient information to analyze the Shell Carson Facility Ethanol (E10) Project by the time that EIR is prepared.

5.2.10 RELATED (#10)

The Carson Redevelopment Agency is working with a developer, Related, to develop a new four-story, 65-unit affordable housing community on a 1.75-acre vacant lot. The development includes live-work units along Carson Street and a podium design in which parking will be interior at grade with a courtyard located above. The City approved the project in June 2010 and construction began in April 2011. The City determined that the proposed project is an affordable housing community and exempt from environmental review under CEQA in accordance with Public Resources Code § 21159.23. It was assumed for the analysis of cumulative impacts that

[22] http://ci.carson.ca.us/content/department/eco_dev_service/shellproject.asp

construction and operation of this project could overlap with the Carson Facility proposed project.

5.3 AIR QUALITY AND GREENHOUSE GASES

5.3.1 CONSTRUCTION IMPACTS

As indicated in Chapter 3, the Basin is classified as non-attainment for ozone, PM10, and PM2.5. The Carson Facility proposed project could result in significant adverse project-specific emissions impacts for VOC, NOx and PM2.5 during the construction period (see Tables 4.2-2 and 4.2-3). Therefore, the project-specific air quality impacts associated with project construction are considered significant.

The projects identified in Section 5.2 have the potential for construction activities that could overlap with the construction activities for the Carson Facility proposed project. Table 5-1 summarizes the available construction emissions data for the related projects. Emission estimates from other CEQA documents are listed, when they were available. When estimates from other CEQA documents were not available, emission estimates were based on the sizes of the projects using the California Emissions Estimator Model (CalEEMod, 2011) with default assumptions in the model and no mitigation measures applied. Construction emissions were not quantified for the Alameda Street Sound Wall (#8) because there are no plans or environmental documents available to assess the extent of impacts. Similarly, construction emissions were not quantified for the Shell Carson Revitalization Project (#9) because there is insufficient information and data available to quantify construction emissions.

Estimated construction emissions for the Carson Facility proposed project exceed the mass daily thresholds established by the SCAQMD for VOC and NOx, and ambient air quality impacts exceed the localized significance thresholds established by the SCAQMD for NO_2, PM10 and PM2.5. Therefore, the construction air quality impacts are considered cumulatively considerable for VOC, NOx, PM10 and PM2.5 and are concluded to be cumulatively significant. The construction emissions for the Carson Facility proposed project are not expected to exceed the thresholds established by the SCAQMD for CO and SOx. As stated in CEQA Guidelines §15064(h)(4)), the "mere existence of significant cumulative impacts caused by other projects alone shall not constitute substantial evidence that the proposed project's incremental effects are cumulatively considerable." Therefore, the air quality construction impacts for the proposed project are not cumulatively considerable for CO and SOx.

Table 5-1
Cumulative Construction Air Quality Impacts

No.	Project	Type of Project	VOC (lb/day)	CO (lb/day)	NOx (lb/day)	SOx (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)
1	The Boulevards at South Bay[1]	Mixed Use	1,662	1,121	851	<1	1,275	265[2]
2	BP Carson Refinery Safety, Compliance and Optimization Project	Refinery	--[3]	--[3]	--[3]	--[3]	--[3]	--[3]
3	BP Shop Building Project[4]	Building	148	59	111	<1	14	9
4	CSUDH Master Plan[5]	University	117	126	69	<1	51	15
5	Cityview Project[6]	Mixed Use	49	9	55	<1	52	10
6	ProLogis Project	Warehouse	--[3]	--[3]	--[3]	--[3]	--[3]	--[3]
7	Safran City Center Project[7]	Mixed Use	14	27	59	<1	3	1[2]
10	Related Project[4]	Residential	51	22	28	<1	3	2
Emissions from Cumulative Projects			**2,041**	**1,364**	**1,173**	**<1**	**1,398**	**302**

[1] Carson Redevelopment Agency (2005)

[2] PM2.5 emissions not provided. Estimated PM10 emissions are dominated by fugitive dust. Therefore, PM2.5 emissions were estimated from the fraction of PM2.5 in PM10 emissions from construction dust (20.8 percent, SCAQMD, 2006b).

[3] Construction has been completed

[4] Emissions estimated using the CalEEMod model with default construction assumptions

[5] CSUDH (2009)

[6] City of Carson (2010d)

[7] City of Carson (2008)

5.3.2 OPERATIONAL EMISSIONS IMPACTS

The projects identified in Section 5.2 have the potential for operational activities that could overlap with the operational activities for the Carson Facility proposed project. Table 5-2 summarizes the available operational emissions data for the related projects. Emission estimates from other CEQA documents are listed, when they were available. When estimates from other CEQA documents were not available, emission estimates were based on the sizes of the projects using the CalEEMod model (CalEEMod, 2011) with default assumptions and no mitigation measures applied. Operation emissions were not quantified for the Alameda Street Sound Wall (#8) because there are no plans or environmental documents available to assess the extent of impacts. Similarly, operation emissions were not quantified for the Shell Carson Revitalization Project (#9) because there is insufficient information and data available to quantify operation emissions.

Table 5-2
Cumulative Operational Air Quality Impacts

No.	Project	Type of Project	VOC (lb/day)	CO (lb/day)	NOx (lb/day)	SOx (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)
1	The Boulevards at South Bay[1]	Mixed Use	506	4,449	719	17	595	422[2]
2	BP Carson Refinery Safety, Compliance and Optimization Project[3]	Refinery	52	13	20	0.4	15	11[2]
3	BP Shop Building Project[4]	Building	9	60	15	<1	9	1
4	CSUDH Master Plan[5]	University	102	615	109	4	175	35
5	Cityview Project[6]	Mixed Use	13	146	55	<1	52	10
6	ProLogis Project[4]	Warehouse	12	43	11	<1	7	<1
7	Safran City Center Project[7]	Mixed Use	24	282	26	<1	22	16[2]
10	Related Project[4]	Residential	11	55	8	<1	8	4
Emissions from Cumulative Projects			**729**	**5,663**	**963**	**21**	**883**	**499**

[1] Carson Redevelopment Agency (2005)
[2] PM2.5 emissions not provided. Estimated PM10 emissions are dominated by on-road mobile sources. Therefore, PM2.5 emissions were estimated from the fraction of PM2.5 in PM10 emissions from construction dust (71 percent, SCAQMD, 2006b).
[3] SCAQMD (2006a)
[4] Emissions estimated using the CalEEMod model with default operational assumptions
[5] CSUDH (2009)
[6] City of Carson (2010d)
[7] City of Carson (2008)

Estimated operational emissions for the Carson Facility proposed project would exceed the thresholds established by the SCAQMD for VOC and NOx. Therefore, the operational air quality impacts are considered cumulatively considerable for VOC and NOx and are concluded to be cumulatively significant. The operational emissions for the Carson Facility proposed project are not expected to exceed the thresholds established by the SCAQMD for CO, SOx, PM10 and PM2.5. As stated in CEQA Guidelines §15064(h)(4)), the "mere existence of significant cumulative impacts caused by other projects alone shall not constitute substantial evidence that the proposed project's incremental effects are cumulatively considerable." Therefore, the air quality operational impacts for the proposed project are not cumulatively considerable for CO, SOx, PM10, and PM2.5.

5.3.3 TOXIC AIR CONTAMINANTS

The proposed Carson Facility project may result in a short-term increase in TAC emissions related to construction activities. These emissions should cease following completion of construction. The main contaminant of concern associated with construction activities is DPM, which has been listed as a TAC by CARB. While carcinogenic and chronic non-carcinogenic health risk values have been established for DPM, no acute diesel exhaust health risk values have been established to evaluate acute (i.e., short-term) health effects related to DPM. Since construction for the proposed project is considered to be short-term (i.e., because it is projected to last less than two years), for the reasons discussed in Subsection 4.2.2.5, an HRA was not prepared for the construction phase of the proposed project.

The HRA results for operational activities were below the significance thresholds (see Table 4.2-9). Therefore, no significant adverse project-specific health effects are expected from the proposed project.

The potential impacts from toxic air contaminants are localized impacts. Most of the potential carcinogenic health risk impacts from the HRA for the Carson Facility proposed project were associated with DPM emissions from the increase in tanker truck trips, with the risks increasing in areas adjacent to the Carson Facility in the vicinity of the on-site route followed by the tanker trucks. The other proposed projects in the area may result in overall TAC emission increases. However, the cumulative projects are located one-half mile or more from the Carson Facility and toxic air contaminant emissions are not expected to overlap due to the distance from the Carson Facility and the dispersion from the sources, which dilutes toxic emission impacts. For example, on-site DPM emissions concentrations are expected to decline by approximately 90 percent at a distance between 300 to 500 feet from the site (SCAQMD, 2005b).

Most of the cumulative projects are not expected to generate substantial numbers of diesel truck trips during operation, with the possible exception of the ProLogis warehouse project because diesel truck trips can be associated with warehouses. During operation of the proposed Carson Facility project, ethanol tanker trucks would continue to use the route required by the DOR and approved by the City of Carson for the proposed project: Wilmington Avenue between Dominguez Street and Del Amo Boulevard, Del Amo Boulevard between Dominguez Street and the I-710 Freeway, and Alameda Street north and south of Del Amo Boulevard (see Subsection

4.7.2.2). Based on the locations of the Prologis warehouse project and the local freeways, diesel trucks associated with operation of the ProLogis project may also travel north and south on Alameda Street between the I-405 and SR-91 Freeways to access these freeways and possibly east on Del Amo Boulevard between Alameda Street and the I-710 Freeway to access the I-710 Freeway. Thus, it is possible that DPM emissions from trucks associated with the ProLogis project may occur on some of the same roadways as DPM emissions from ethanol tanker trucks for the proposed Carson Facility project. Health risks from DPM emissions from trucks associated with the ProLogis project have not been estimated so it is not known if they may cause significant adverse impacts that could overlap with impacts from the proposed Carson Facility project. However, the HRA results for operational activities at the proposed Carson Facility project were below the significance thresholds (see Table 4.2-9). Most of the air toxics impacts at the Carson Facility were generated by the additional truck trips generated by the proposed project. Since trucks arriving at and leaving from the Carson Facility would travel over at least seven different roadways (see Subsection 4.7.2.2) potential air toxics impacts from trucks on the roads are expected to be substantially less than the air toxics impacts generated on-site at the Carson Facility. Since health risk impacts from truck travel generated by the ProLogis project were not calculated, it is unknown whether health risk impacts would be significant. Even if the truck trips from the ProLogis project are significant, as stated in CEQA Guidelines §15064(h)(4)), the "mere existence of significant cumulative impacts caused by other projects alone shall not constitute substantial evidence that the proposed project's incremental effects are cumulatively considerable." Therefore, no significant cumulative adverse impacts from toxic air contaminants are expected from the proposed project.

5.3.4 GREENHOUSE GASES

5.3.4.1 Environmental Setting

Gases that trap heat in the atmosphere are often called greenhouse gases (GHGs), comparable to a greenhouse, which captures and traps radiant energy. GHGs are emitted by natural processes and human activities. The accumulation of greenhouse gases in the atmosphere regulates the earth's temperature. Global warming is defined as the observed increase in average temperature of the earth's surface and atmosphere. GHG concentrations in the atmosphere have been identified as a cause of global warming. The six major GHG pollutants are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), sulfur hexafluoride (SF_6), hydrofluorocarbons (HFCs), and perfluorocarbons (PFCs). The GHG pollutants absorb longwave radiant energy emitted by the Earth, which warms the atmosphere. The GHG pollutants also absorb and emit longwave radiation both upward to space and back down toward the surface of the Earth. The downward part of this longwave radiation emitted by the atmosphere is known as the "greenhouse effect." Emissions from human activities such as electricity production and vehicles have elevated the concentration of these gases in the atmosphere.

CO_2 is an odorless, colorless natural greenhouse gas. Natural sources include the following: decomposition of dead organic matter; respiration of bacteria, plants, animals, and fungus; evaporation from oceans; and volcanic outgassing. Anthropogenic (human caused) sources of CO_2 are from burning coal, oil, natural gas and wood. CO_2 emissions in the Basin were determined for the year 2002, which was the base year used in determining GHG emissions for the 2007 AQMP. The total CO_2 emissions in the Basin were estimated to be about 153 million metric tons (SCAQMD, 2007) of which:

- 48 percent was contributed by on-road mobile sources;
- 34 percent was contributed by point sources;
- 12 percent was contributed by area sources; and
- Six percent was contributed by off-road mobile sources.

CH_4 is a flammable gas and is the main component of natural gas. N_2O, also known as laughing gas, is a colorless greenhouse gas. Some industrial processes such as fossil fuel-fired power plants, nylon production, nitric acid production and vehicle emissions also contribute to the atmospheric load of N_2O. HFCs are synthetic man-made chemicals that are used as a substitute for chlorofluorocarbons (whose production was stopped as required by the Montreal Protocol) for automobile air conditioners and refrigerants. The two main sources of HFCs are primary aluminum production and semiconductor manufacturing. SF_6 is an inorganic, odorless, colorless, nontoxic, nonflammable gas. SF_6 is used for insulation in electric power transmission and distribution equipment, in the magnesium industry, in semiconductor manufacturing, and as a tracer gas for leak detection.

Scientific consensus, as reflected in recent reports issued by the United Nations Intergovernmental Panel on Climate Change, is that the majority of the observed warming over the last 50 years can be attributable to increased concentrations of GHGs in the atmosphere due to human activities. Industrial activities, particularly increased consumption of fossil fuels (e.g., gasoline, diesel, wood, coal, etc.), have heavily contributed to the increase in atmospheric levels of GHGs. As reported by the California Energy Commission (CEC), California contributes 1.4 percent of the global and 6.2 percent of the national GHG emissions (CEC, 2006). The most recent GHG emissions inventory for California is presented in Table 5-3 (CARB, 2010c).

Table 5-3
California Greenhouse Gas Emissions Summary for 2000 and 2008

Source Category	2000 (million metric tons CO_2e)	2008 (million metric tons CO_2e)
Transportation	**171.13**	**174.99**
On Road	159.40	163.30
Passenger Vehicles	*126.91*	*128.51*
Heavy Duty Trucks	*32.49*	*34.79*
Ships & Commercial Boats	3.77	4.32
Aviation (Intrastate)	2.68	2.42
Rail	1.86	2.52
Unspecified	3.41	2.44

Table 5-3 (continued)
California Greenhouse Gas Emissions Summary for 2000 and 2008

Source Category	2000 (million metric tons CO_2e)	2008 (million metric tons CO_2e)
Electric Power	**103.92**	**116.35**
In-State Generation	59.93	55.12
Natural Gas	*51.06*	*48.07*
Other Fuels	*8.87*	*7.05*
Imported Electricity	43.99	61.24
Unspecified Imports	*13.83*	*35.19*
Specified Imports	*30.16*	*26.05*
Commercial and Residential	**42.93**	**43.13**
Residential Fuel Use	30.13	28.45
Natural Gas	*28.52*	*26.10*
Other Fuels	*1.61*	*2.35*
Commercial Fuel Use	11.69	14.31
Natural Gas	*10.24*	*12.51*
Other Fuels	*1.45*	*1.80*
Commercial Cogeneration Heat Output	1.11	0.37
Industrial	**97.27**	**92.66**
Refineries	33.25	35.65
General Fuel Use	18.76	14.82
Natural Gas	*13.82*	*9.14*
Other Fuels	*4.94*	*5.69*
Oil & Gas Extraction	18.41	17.04
Fuel Use	*17.72*	*16.27*
Fugitive Emissions	*0.69*	*0.78*
Cement Plants	9.41	8.61
Clinker Production	*5.43*	*5.31*
Fuel Use	*3.97*	*3.30*
Cogeneration Heat Output	11.96	10.47
Other Process Emissions	5.49	6.06
Recycling and Waste	**6.20**	**6.71**
Landfills	6.20	6.71
High GWP	**10.95**	**15.65**
Ozone Depleting Substance (ODS) Substitutes	8.55	13.89
Electricity Grid SF6 Losses	1.14	0.96

Table 5-3 (concluded)
California Greenhouse Gas Emissions Summary for 2000 and 2008

Source Category	2000 (million metric tons CO_2e)	2008 (million metric tons CO_2e)
Semiconductor Manufacturing	1.26	0.80
Agriculture	**25.44**	**28.06**
Livestock	13.61	16.28
Enteric Fermentation (Digestive Process)	*7.49*	*8.70*
Manure Management	*6.12*	*7.58*
Crop Growing & Harvesting	8.01	7.95
Fertilizers	*6.55*	*6.72*
Soil Preparation and Disturbances	*1.37*	*1.15*
Crop Residue Burning	*0.09*	*0.09*
General Fuel Use	3.82	3.82
Diesel	*2.51*	*2.93*
Natural Gas	*1.00*	*0.72*
Gasoline	*0.31*	*0.17*
Other Fuels	*0.01*	*0.00*
Forestry	**0.19**	**0.19**
Wildfire (CH_4 & N_2O Emissions)	0.19	0.19
Total Gross Emissions	**458.03**	**477.74**
Forestry Net Emissions	**-4.72**	**-3.98**
Total Net Emissions	**453.31**	**473.76**

Source: CARB (2010d)

Approximately 80 percent of GHGs in California are from fossil fuel combustion and over 70 percent of GHG CO_2-equivalent (CO_2e) emissions are CO_2 emissions.

In June 2005, Governor Schwarzenegger signed Executive Order #S-3-05 which established the following greenhouse gas reduction targets:

- By 2010, reduce GHGs to 2000 emission levels,
- By 2020, reduce GHGs to 1990 emission levels, and
- By 2050, reduce GHGs to 80 percent below 1990 emission levels.

On September 27, 2006, Assembly Bill (AB) 32, the California Global Warming Solutions Act of 2006, was enacted by the State of California and signed by Governor Schwarzenegger. AB 32 expanded on Executive Order #S-3-05. The legislature stated that “global warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California.” AB 32 represents the first enforceable state-wide program in the United States to cap all GHG emissions from major industries that includes penalties for non-compliance. While acknowledging that national and international actions will be necessary to fully address the issue of global warming, AB 32 lays out a program to inventory and reduce greenhouse gas emissions in California and from power generation facilities located outside the state that serve California residents and businesses.

AB 32 requires CARB to:

- Establish a statewide GHG emissions cap for 2020, based on 1990 emissions by January 1, 2008;

- Adopt mandatory reporting rules for significant sources of GHG by January 1, 2008;

- Adopt an emissions reduction plan by January 1, 2009, indicating how emissions reductions will be achieved via regulations, market mechanisms, and other actions; and

- Adopt regulations to achieve the maximum technologically feasible and cost-effective reductions of GHG emissions by January 1, 2011.

The combination of Executive Order #S-3-05 and AB 32 will require significant development and implementation of energy efficient technologies and shifting of energy production to renewable sources.

Consistent with the requirement to develop an emission reduction plan, CARB prepared a Scoping Plan indicating how GHG emission reductions will be achieved through regulations, market mechanisms, and other actions. The Scoping Plan was released for public review and comment in October 2008 and approved by CARB on December 11, 2008. The Scoping Plan calls for reducing greenhouse gas emissions to 1990 levels by 2020. This means cutting approximately 30 percent from business-as-usual (BAU) emission levels projected for 2020, or about 15 percent from today’s levels. Key elements of CARB staff’s recommendations for reducing California’s greenhouse gas emissions to 1990 levels by 2020 contained in the Scoping Plan include the following:

- Expansion and strengthening of existing energy efficiency programs and building and appliance standards;

- Expansion of the Renewables Portfolio Standard to 33 percent;

- Development of a California cap-and-trade program that links with other Western Climate Initiative (WCI) Partner programs to create a regional market system;

- Establishing targets for transportation-related greenhouse gases and pursuing policies and incentives to achieve those targets;

- Adoption and implementation of existing State laws and policies, including California's clean car standards, goods movement measures, and the Low Carbon Fuel Standard; and

- Targeted fees, including a public good charge on water use, fees on high global warming potential (GWP) gases and a fee to fund the state's long-term commitment to AB 32 administration.

In response to the comments received on the Draft Scoping Plan and at the November 2008 public hearing, CARB made a few changes to the Draft Scoping Plan, primarily to:

- State that California "will transition to 100 percent auction" of allowances and expects to "auction significantly more [allowances] than the Western Climate Initiative minimum;"

- Make clear that allowance set-asides could be used to provide incentives for voluntary renewable power purchases by businesses and individuals and for increased energy efficiency;

- Make clear that allowance set-asides can be used to ensure that voluntary actions, such as renewable power purchases, can be used to reduce greenhouse gas emissions under the cap;

- Provide that allowances are not required from carbon neutral projects; and

- Mandate that commercial recycling be implemented to replace virgin raw materials with recyclables.

On August 24, 2007, Governor Schwarzenegger signed into law Senate Bill (SB) 97 – CEQA: Greenhouse Gas Emissions stating, "This bill advances a coordinated policy for reducing greenhouse gas emissions by directing the Office of Planning and Research (OPR) and the Resources Agency to develop CEQA guidelines on how state and local agencies should analyze, and when necessary, mitigate greenhouse gas emissions." Specifically, SB 97 requires OPR, by July 1, 2009, to prepare, develop, and transmit guidelines to the Resources Agency for the feasible mitigation of greenhouse gas emissions or the effects of greenhouse gas emissions, as required by CEQA, including, but not limited to, effects associated with transportation or energy consumption. The Resources Agency would be required to certify and adopt those guidelines by January 1, 2010. The OPR would be required to periodically update the guidelines to incorporate new information or criteria established by CARB pursuant to the California Global Warming Solutions Act of 2006. SB 97 also identifies a limited number of types of projects that would be exempt under CEQA from analyzing GHG emissions.

Consistent with SB 97, on June 19, 2008, OPR released its "Technical Advisory on CEQA and Climate Change," which was developed in cooperation with the Resources Agency, the California Environmental Protection Agency (CalEPA) and CARB. According to OPR, the "Technical Advisory" offers the informal interim guidance regarding the steps lead agencies should take to address climate change in their CEQA documents, until CEQA guidelines are developed pursuant to SB 97 on how state and local agencies should analyze, and when necessary, mitigate GHG emissions.

According to OPR, lead agencies should determine whether GHGs may be generated by a proposed project, and if so, quantify or estimate the GHG emissions by type and source. Second, the lead agency must assess whether those emissions are individually or cumulatively significant. When assessing whether a project's effects on climate change are "cumulatively considerable" even though the GHG contribution may be individually limited, the lead agency must consider the impact of the project when viewed in connection with the effects of past, current, and probable future projects. Finally, if the lead agency determines that the GHG emissions from the project as proposed are potentially significant, it must investigate and implement ways to avoid, reduce, or otherwise mitigate the impacts of those emissions.

On April 13, 2009, OPR submitted to the Natural Resources Agency its proposed amendments to the CEQA Guidelines for GHG emissions. The proposed amendments provided guidance to public agencies regarding the analysis and mitigation of the effects of GHG emissions in draft CEQA documents. The Natural Resources Agency conducted a formal rulemaking process and on December 20, 2009, it adopted amendments to the CEQA Guidelines for GHG emissions as directed by SB97. On February 16, 2010, the Office of Administrative Law approved the amendments, and filed them with the Secretary of State for inclusion in the California Code of Regulations (CCR). The amendments became effective on March 18, 2010.

The SCAQMD has established a policy, adopted by the SCAQMD Governing Board at its September 5, 2008 meeting, to actively seek opportunities to reduce emissions of criteria, toxic, and climate change pollutants. The policy includes the intent to assist businesses and local governments implementing climate change measures, decrease the agency's carbon footprint, and provide climate change information to the public. To implement the policy, the SCAQMD would take the following actions:

1. Work cooperatively with other agencies/entities to develop quantification protocols, rules and programs related to greenhouse gases;

2. Share experiences and lessons learned relative to the Regional Clean Air Incentives Market (RECLAIM) to help inform state, multi-state and federal development of effective, enforceable cap-and-trade programs. To the extent practicable, staff will actively engage in current and future regulatory development to ensure that early actions taken by local businesses to reduce greenhouse gases will be treated fairly and equitably. SCAQMD staff will seek to streamline administrative procedures to the extent feasible to facilitate the implementation of AB 32 measures;

3. Review and comment on proposed legislation related to climate change and greenhouse gases, pursuant to the 'Guiding Principles for SCAQMD Staff Comments on Legislation Relating to Climate Change' approved at the Governing Board Special Meeting in April 2008;

4. Provide higher priority to funding Technology Advancement Office (TAO) projects or contracts that also reduce greenhouse gas emissions;

5. Develop recommendations through a public process for an interim greenhouse gas CEQA significance threshold, until such time that an applicable and appropriate statewide

greenhouse gas significance level is established. Provide guidance on analyzing greenhouse gas emissions and identify mitigation measures. Continue to consider GHG impacts and mitigation in SCAQMD lead agency documents and in comments when SCAQMD is a responsible agency;

6. Revise the SCAQMD's Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning to include information on greenhouse gas strategies as a resource for local governments. The Guidance Document will be consistent with state guidance, including CARB's Scoping Plan;

7. Update the Basin's greenhouse gas inventory in conjunction with each Air Quality Management Plan. Information and data used will be determined in consultation with CARB, to ensure consistency with state programs. Staff will also assist local governments in developing greenhouse gas inventories;

8. Bring recommendations to the Board on how the agency can reduce its own carbon footprint, including drafting a Green Building Policy with recommendations regarding SCAQMD purchases, building maintenance and other areas of products and services. Assess employee travel as well as other activities that are not part of a GHG inventory and determine what greenhouse gas emissions these activities represent, how they could be reduced and what it would cost to offset the emissions;

9. Provide educational materials concerning climate change and available actions to reduce greenhouse gas emissions on the SCAQMD website, in brochures and other venues to help cities and counties, businesses, households, schools and others learn about ways to reduce their electricity and water use through conservation or other efforts, improve energy efficiency, reduce vehicle miles traveled, access alternative mobility resources, utilize low emission vehicles and implement other climate friendly strategies; and

10. Conduct conferences, or include topics in other conferences, as appropriate, related to various aspects of climate change, including understanding impacts, technology advancement, public education and other emerging aspects of climate change science.

5.3.4.2 Significance Criteria

The analysis of GHGs is a much different analysis than the analysis of criteria pollutants for the following reasons. For criteria pollutants, significance thresholds are based on daily emissions because attainment or non-attainment is primarily based on daily exceedances of applicable ambient air quality standards. Further, several ambient air quality standards are based on relatively short-term exposure effects on human health, e.g., one-hour and eight-hour. Since the half-life of CO_2 in the atmosphere is approximately 100 years, for example, the effects of GHGs are longer-term, affecting global climate over a relatively long time frame. As a result, the SCAQMD's current position is to evaluate GHG effects over a longer timeframe than a single day.

On December 5, 2008, the SCAQMD adopted an interim GHG Significance Threshold for industrial projects where it is the lead agency using a tiered approach for determining significance. The SCAQMD's interim GHG significance threshold proposal was developed by identifying a 90 percent GHG emission capture rate for new or modified stationary source projects over a two-year period. A GHG significance threshold based on a 90 percent GHG emission capture rate is considered to be more appropriate to address the long-term adverse impacts associated with global climate change because most projects will be required to implement GHG reduction measures. Further, a 90 percent GHG emission capture rate sets the emission threshold low enough to capture a substantial fraction of future stationary source projects that will be constructed to accommodate future statewide population and economic growth, while setting the emission threshold high enough to exclude small projects that will in aggregate contribute a relatively small fraction of the cumulative statewide GHG emissions or have few options for reducing GHG emissions. The following bullet points describe the basic structure of SCAQMD's tiered interim GHG significance threshold for stationary sources (SCAQMD, 2008c).

- Tier 1 – consists of evaluating whether or not the project qualifies for any applicable exemption under CEQA. For example, SB 97 specifically exempts a limited number of projects until it expires in 2010. If the project qualifies for an exemption, no further action is required. If the project does not qualify for an exemption, then it would move to the next tier.

- Tier 2 – consists of determining whether or not the project is consistent with a GHG reduction plan that may be part of a local general plan, for example. The concept embodied in this tier is equivalent to the existing consistency determination requirements in CEQA Guidelines §§15064(h)(3), 15125(d), or 15152(a). The GHG reduction plan must, at a minimum, comply with AB 32 GHG reduction goals; include an emissions inventory agreed upon by either CARB or the SCAQMD; have been analyzed under CEQA and have a certified Final CEQA document; and have monitoring and enforcement components. If the proposed project is consistent with the qualifying local GHG reduction plan, it is not significant for GHG emissions. If the project is not consistent with a local GHG reduction plan, there is no approved plan, or the GHG reduction plan does not include all of the components described above, the project would move to Tier 3.

- Tier 3 – establishes a screening significance threshold level to determine significance using a 90 percent GHG emission capture rate. The 90 percent capture rate GHG significance screening level in Tier 3 for stationary sources was derived using the following methodology. Using the SCAQMD's Annual Emission Reporting (AER) Program, the reported annual natural gas consumption for 1,297 permitted facilities for 2006 through 2007 was compiled and the facilities were rank-ordered to estimate the 90th percentile of the cumulative natural gas usage for all permitted facilities. Approximately 10 percent of facilities evaluated comprise more than 90 percent of the total natural gas consumption, which corresponds to 10,000 metric tons of CO_2-equivalent emissions per year ($MTCO_2e/yr$) (the majority of combustion emissions are comprised of CO_2). Screening significance threshold levels have been proposed by staff for residential and commercial projects, but have not yet been adopted by the SCAQMD Governing Board.

If a project's GHG emissions exceed the GHG screening threshold, the lead agency may conclude that the project is significant or the project would move to Tier 5.

- Tier 4 – would establish performance standards. This tier is currently under development.

- Tier 5 – would require projects that implement offsite GHG mitigation that includes purchasing offsets to reduce GHG emission impacts, to purchase sufficient offsets for the life of the project (30 years) to reduce GHG emissions to less than the applicable GHG screening threshold level.

For detailed information on the interim GHG significance threshold proposal adopted by the Governing Board, please see the December 5, 2008, public hearing agenda item #31 at www.aqmd.gov/hb/2008/December/081231a.htm.

The interim GHG significance threshold that was adopted by the SCAQMD Governing Board only applies to stationary source/industrial projects where the SCAQMD is the lead agency under CEQA. The types of projects that the significance threshold applies to include: SCAQMD rules, rule amendments, and plans, e.g., Air Quality Management Plans. In addition, the SCAQMD may be the lead agency under CEQA for projects that require discretionary approval, i.e., projects that require air quality permits from the SCAQMD and that allow the SCAQMD to exercise discretion with regard to imposing permit conditions, like the currently proposed Carson Facility project (SCAQMD, 2008c).

GHGs do not have human health effects like criteria pollutants. Rather, it is the increased accumulation of GHGs in the atmosphere that may result in global climate change. Due to the complexity of conditions and interactions affecting global climate change, it is not possible to predict the specific impact, if any, attributable to GHG emissions associated with a single project. Furthermore, the proposed project's GHG emissions will be small relative to total global or even statewide GHG emissions. Thus, the significance of potential impacts from GHG emissions related to the proposed project has been analyzed for long-term operations on a cumulative basis, as discussed further in the following subsections.

5.3.4.3 Carson Facility Historical Greenhouse Gas Emissions

Operation of the existing Carson Facility results in GHG emissions. The Carson Facility is not required to report GHG emissions by either federal or California regulations because GHG emissions from stationary sources do not exceed the federal thresholds established in 40 CFR Part 98 or the California thresholds established in Title 17 §95101 of the California Code of Regulations. However, GHG emissions for 2009 and 2010 have been estimated and are shown in Table 5-4. Emissions in Table 5-4 were estimated as follows:

- GHG emissions from on-site fuel combustion were estimated using emission factors from Tables C-1 and C-2 of 40 CFR 98, Subpart C and facility records of fuel use;

- Emissions from off-site mobile sources, which include off-site tanker trucks and employee commuting vehicles, were estimated from facility records of the number of tanker trucks loaded and the number of employees using emission factors based on the CARB EMFAC 2007 model;

- Indirect GHG emissions from the generation of purchased electricity were estimated using emission factors for GHG emissions from electrical generation from the California Emission Estimator Model (CalEEMOD, 2011) for Southern California Edison (the utility that supplies electricity to the facility) and estimated electrical power use; and

- Indirect GHG emissions from generating the electrical energy required to convey water consumed by the facility were estimated from estimates of the quantity of potable water consumed, electrical energy usage rate for conveying potable water from Table 1-3 of the Final Staff Report for California's Water – Energy Relationship (CEC, 2005) and the GHG emission factors for Southern California Edison from CalEEMOD (2011).

Table 5-4
Shell Carson Facility Annual Greenhouse Gas Emissions - Baseline

Reporting Period/ Sources	Total GHG Emissions (MT CO_2e)[1]
2009/On-site fuel combustion	1,106.4
2009/Off-site Mobile	4,144.4
2009/Electrical power use	9,107.5
2009/Water conveyance electrical power use	48.1
2009/Total	**14,406.3**
2010/On-site fuel combustion	1,138.2
2010/Off-site Mobile	5,085.7
2010/Electrical power use	9,107.5
2010/Water conveyance electrical power use	48.1
2010/Total	**15,379.5**
Two-Year Average/Total	**14,892.9**
[1] MT = metric ton = 1,000 kilograms = 2,205 pounds; CO_2e = carbon dioxide equivalent	

5.3.4.4 Environmental Impacts

Project Greenhouse Gas Emissions

CARB believes that indirect energy usage provides a more complete picture of the emissions footprint of a facility. Similarly, as part of the design criteria associated with developing the SCAQMD's interim GHG significance threshold proposal, SCAQMD staff recommends that a GHG analysis that is included in a CEQA document should evaluate direct and indirect GHG emissions from project construction (amortized over 30 years), operation, transportation, etc., as well as indirect energy usage. Therefore, direct and indirect emissions have been calculated for the proposed project, consistent with existing CEQA requirements.

During construction of the proposed project, combustion GHG emissions in the form of CO_2, CH_4, and N_2O will be generated by construction equipment, motor vehicles and the thermal oxidizer used to control emission during storage tank degassing. GHG emissions from construction equipment and motor vehicles were estimated using emission factors from the CARB OFFROAD2007 and EMFAC2007 models. GHG emissions from the thermal oxidizer were estimated using a CO_2 emission factor for gasoline combustion from Table C.7 of the California Climate Action Registry Reporting Protocol, Version 3.1 (CCAR, 2009). Additionally, there will be indirect GHG emissions from generating the electrical energy required to convey the water that would be needed for hydrostatic testing of the new gasoline storage tank to the facility. The electrical energy required to convey potable water to the facility was estimated from the quantity of potable water that would be needed and an electrical energy usage rate for conveying potable water from Table 1-3 of the Final Staff Report for California's Water – Energy Relationship (CEC, 2005). Indirect GHG emissions from the generation of purchased electricity are not expected during construction of the proposed project because construction is not anticipated to require additional purchased electrical power. Total GHG emissions during construction of the proposed project are summarized in Table 5-5. Details of the emission calculations are in Appendix II-A. Total GHG emissions during construction of the proposed project are 4,435.9 MT CO_2e. Per the requirements of the SCAQMD's adopted GHG significance threshold, the GHG construction emissions are amortized for a period of 30 years, resulting in an estimated 147.9 MT CO_2e/year.

Table 5-5
Construction Greenhouse Gas Emissions Summary

Source	Total GHG Emissions (MT CO_2e)[1]
Construction Equipment Exhaust	2,454.8
On-Site Motor Vehicle Exhaust	48.5
Thermal Oxidizer (during construction)	25.3
Off-Site Motor Vehicle Exhaust	1,878.3
Water conveyance electrical power use	29.1
Total Emissions (MT)	**4,435.9**
Emissions amortized over 30 years (MT/year)	**147.9**

[1] MT = metric ton = 1,000 kilograms = 2,205 pounds; CO_2e = carbon dioxide equivalent

During operation of the proposed project, combustion GHG emissions in the form of CO_2, CH_4, and N_2O will be generated by the thermal oxidizer used to control emissions during tanker truck loading and by tanker truck travel to and from the Carson facility. No other GHGs are expected to be emitted on-site because the proposed project does not affect other existing equipment or operations and there is no equipment on-site that have the potential to emit other GHGs such as

SF_6 or HFCs. Additionally, there will be indirect GHG emissions from increased electrical energy required to operate new electrically powered pumps, valves and other electrically powered equipment, such as control systems. Operation of the proposed project is not anticipated to generate indirect GHG emissions from electrical energy required to convey potable water to the facility because operation of the proposed project is not anticipated to require an ongoing increase in potable water use.

GHG emissions from the thermal oxidizer include CO_2 generated by combustion of the carbon in the vapors displaced from the tanker truck cargo spaces and CO_2, CH_4 and N_2O generated by combustion of the natural gas assist fuel. CO_2 emissions from combustion of the carbon in the vapors were estimated using: 1) the VOC concentration in the vapors calculated as described in Section 5.2 of AP-42; 2) the VOC carbon mass fraction; 3) that ratio of the molecular weight of CO_2 to the atomic weight of carbon; and 4) the increase in annual ethanol loading during operation of the proposed project. Although most of the tanker trucks that are loaded with ethanol at the Carson Facility are expected to contain ethanol vapors in their cargo spaces when they arrive at the facility, some may contain other types of vapors from previous loads. As a "worst-case," CO_2 emissions from combustion of the vapors were calculated assuming the empty tanker truck cargo space would be saturated with gasoline vapors, since gasoline vapors have the highest VOC concentration and VOC carbon mass fraction, which would result in the highest, most conservative CO_2 emission rate. The increase in annual ethanol loading volume was calculated by subtracting the average daily volume loaded during the baseline period (25,344 bbl/day between January 15, 2010 and April 14, 2010) from the maximum daily volume that would be loaded during operation of the proposed project (52,500 bbl/day) and multiplying the difference by 365 days/year.

GHG emissions from combustion of the natural gas assist fuel were calculated using GHG emission factors for natural gas combustion from Tables C-1 and C-2 to Subpart C of 40 CFR Part 98. The anticipated annual average increase in thermal oxidizer natural gas combustion was calculated from the average volume of natural gas combusted per volume of ethanol loaded at the existing two-lane ethanol loading rack from April 2008 through March 2010 and the increase in annual ethanol loading.

Emission factors based on the CARB EMFAC 2007 model (available on the SCAQMD web site at http://www.aqmd.gov/ceqa/handbook/onroad/onroad.html) were used to calculate tanker truck exhaust GHG emissions. The annual increase in miles traveled by the tanker trucks during operation of the proposed project was multiplied by these emission factors to calculate the increase in GHG emissions. The increase in annual mileage was calculated by multiplying the increase in daily tanker trucks loaded by the average mileage traveled by each tanker truck and then by 365 days per year. The increase in daily tanker trucks loaded was calculated by subtracting the average daily number loaded during the baseline period (132 trucks/day) from the maximum daily number that will be loaded during operation of the proposed project (276 trucks/day). The average daily mileage is estimated to be 56 one-way miles per truck loaded, based on past delivery locations.

Indirect GHG emissions from the generation of purchased electricity were estimated using emission factors for GHG emissions from electrical generation from the California Emission

Estimator Model (CalEEMOD, 2011) for Southern California Edison (the utility that supplies electricity to the facility) and the anticipated increase in electrical power use.

Annual GHG emissions from implementation and operation of the proposed project, including GHG emissions during the construction phase amortized over 30 years, are summarized in Table 5-6. Details of the operational GHG emission calculations are in Appendix II-B.

Table 5-6
Greenhouse Gas Emissions Summary

Source	**GHG Emissions (MT CO_2e/year)[1]**
Temporary Construction Activities[2]	147.9
Thermal Oxidizer (during operation)	5,326.0
Tanker Trucks (during operation)	5,644.3
Electrical Power Use[3] (during operation)	1,230.7
Total	**12,348.9**

[1] MT = metric ton = 1,000 kilograms = 2,205 pounds; CO_2e = carbon-dioxide equivalent
[2] Total construction GHG emissions amortized over 30 years
[3] The proposed project requires purchase of approximately 480 kW of electrical power.

GHG Emissions Significance Evaluation

The significance of GHG emissions from the proposed project was evaluated using the SCAQMD's tiered interim GHG significance threshold, described in Subsection 5.3.4.2. Based on the characteristics of the proposed project, the Tier 3 numerical threshold approach was concluded to be the most appropriate GHG significance threshold.

Based on this evaluation, it is expected that GHG emissions from the proposed project would exceed the SCAQMD's GHG significance threshold for industrial projects of 10,000 MT CO_2e/year and would, therefore, be considered cumulatively considerable.

Table 5-7 summarizes the available operational GHG emissions data for the related projects. Emission estimates from other CEQA documents are listed if the information was available. When estimates from other CEQA documents were not available, emission estimates were based on the sizes of the projects using the CalEEMod model (CalEEMod, 2011) with default assumptions and no mitigation measures applied. Operation GHG emissions were not quantified for the Alameda Street Sound Wall (#8) because there are no plans or environmental documents available to assess the extent of impacts. Similarly, operation GHG emissions were not quantified for the Shell Carson Revitalization Project (#9) because there is insufficient information and data available to quantify operation GHG emissions.

Table 5-7
Cumulative Operational GHG Emissions

No.	Project	Type of Project	GHG Emissions (MT CO_2e/year)[1]
1	The Boulevards at South Bay[2]	Mixed Use	115,956
2	BP Carson Refinery Safety, Compliance and Optimization Project[3]	Refinery	516
3	BP Shop Building Project[2]	Building	7,922
4	CSUDH Master Plan[4]	University	422,751
5	Cityview Project[2]	Mixed Use	2,635
6	ProLogis Project[2]	Warehouse	9,019
7	Safran City Center Project[2]	Mixed Use	4,974
10	Related[2]	Residential	799
Emissions from Cumulative Projects			**564,572**

[1] MT = metric ton = 1,000 kilograms = 2,205 pounds; CO_2e = carbon-dioxide equivalent
[2] Emissions estimated using the CalEEMod model with default operational assumptions
[3] Emissions calculated from operational activity levels from SCAQMD, 2006a
[4] CSUDH (2009)

GHG emissions from the proposed project were concluded to be cumulatively considerable and, therefore, cumulatively significant. When added to GHG emission impacts from the projects identified in Table 5-7, the proposed project contributes to overall cumulative operational GHG emissions impacts that are concluded to be significant.

5.3.5 MITIGATION MEASURES

As indicated in Table 5-1, construction activities from the proposed project and the cumulatively related projects may have significant adverse cumulative air quality impacts for VOC, NOx, PM10 and PM2.5. Mitigation measures to reduce cumulative VOC, NOx, PM10 and PM2.5 emissions impacts during construction of the proposed project were identified in Subsection 4.2.3. No additional feasible project-specific mitigation measures for emissions during construction have been identified. The Final EIR for the Boulevards at South Bay Project (Carson Redevelopment Agency, 2006) identified several mitigation measures to reduce construction emissions. Examples of these measures include: 1) implementing a fugitive dust control program pursuant to SCAQMD Rule 403; 2) properly tuning and maintaining construction equipment; 3) turning off truck engines when not in use in loading and unloading queues; 4) phasing construction to minimize emission peaks; 5) using electricity from power poles instead of generators to the extent feasible; 6) using alternative clean fuels, oxidation catalysts and particulate traps in heavy-duty construction equipment, to the extent feasible; 7) using coatings and solvents with lower VOC content than required by SCAQMD Rule 1113; 8) washing vehicle tires prior to exiting the construction site; and 9) covering haul truck loads. The Draft Mitigated Negative Declaration for the Safran City Center Project (City of Carson, 2008) identified construction mitigation measures similar to those identified for the Boulevards at South Bay Project with an additional mitigation measure to require the use of coatings without VOCs. The Final EIR for the CSUDH Master Plan (CSUDH, 2009) identified the following mitigation measure to reduce emissions during construction: (1) using construction equipment that meets Tier 2 emission standards or better; and (2) using coatings and solvents with lower VOC content than required by SCAQMD Rule 1113. No additional mitigation measures beyond those identified for the potential cumulative projects and for the proposed project have been identified. Therefore, adverse cumulative air quality impacts during construction would remain significant.

As indicated in Subsection 5.3.2, operation of the proposed project may have significant adverse cumulative air quality impacts for VOC and NOx. VOC emissions will be reduced through offsets required for permitted sources pursuant to SCAQMD Rule 1303, and NOx and SOx emissions will be reduced through RECLAIM Trading Credits (RTCs) required for permitted sources. However, VOC and NOx emissions after reduction by the offsets and RTCs will remain significant because VOC and NOx emissions from non-permitted sources are anticipated to exceed the respective significance thresholds. No additional feasible project-specific mitigation measures were identified that could further reduce VOC and NOx emissions.

The Final EIR for the Boulevards at South Bay project (Carson Redevelopment Agency, 2006) identified several mitigation measures to reduce operational emissions. Examples of these measures include: 1) requiring BACT for all new point sources as required by permits to be issued by the SCAQMD; 2) limiting land uses on the project site to those that do not emit high levels of potentially toxic contaminants or odors; 3) requiring all residential and non-residential buildings to meet California Title 24 Energy Efficiency Standards for water heating, space heating and cooling to the extent feasible; 4) installing automatic devices to turn off outdoor lighting in common areas when not needed; 5) providing convenient access to bus stops and public transportation facilities; 6) paying a fair-share contribution to a low emissions shuttle service between the project site and major activity centers within the project vicinity; and 7) providing bicycle racks, bicycle paths and pedestrian access throughout the project site. The Final EIR for the CSUDH Master Plan (CSUDH, 2009) identified several mitigation measures to reduce operational emissions. Examples of these measures include: 1) synchronizing traffic lights on streets affected by development; 2) contributing or dedicating land for off-site bicycle trails to link the facility to designated bicycle commuting routes; 3) providing preferential parking spaces for carpools and vanpools; 4) providing on-site child care and after-school facilities or contributing to off-site development within walking distance; 5) constructing on-site or off-site bus turnouts, passenger benches or shelters; 6) using solar or low-emission water heaters, central water heating systems and built-in energy-efficient appliances; 7) providing shade trees to reduce building heating/cooling needs; 8) using energy-efficient and automated controls for air conditioning, double-pane glass windows, energy-efficient low-sodium parking lot lights, lighting controls and energy-efficient lighting; 9) orienting buildings to the north for natural cooling and including passive solar design (e.g., day lighting); 10) using light-colored roof materials to reflect heat; and 11) increasing walls and attic insulation beyond Title 24 requirements. The Mitigated Negative Declaration for the Prologis Project included the following mitigation measures to reduce operational emissions: 1) installing filters throughout the building in order to minimize emissions generated from manufacturing activities; 2) conducting regular inspections and monitoring of emissions generated from manufacturing activities; 3) consolidating truck deliveries when possible; 4) providing alternative fuel vehicle parking spaces for employees and customers of the office building; and 5) setting aside up to 10 percent of all employee parking for carpools and vanpools, unless an alternative is approved by the City. Most of these mitigation measures are applicable to land use developmental projects and would not be applicable to the proposed project at the Carson Facility. No additional mitigation measures beyond those identified for the potential cumulative projects and for the proposed project have been identified. Therefore, adverse cumulative air quality impacts during operation will remain significant.

As indicated in Table 5-5, the proposed project has the potential to generate emissions that exceed the SCAQMD's GHG significance threshold for industrial projects of 10,000 MT CO_2e/year, which are considered to be cumulatively considerable and, therefore, cumulatively significant. The following mitigation measures will be imposed on the proposed project to reduce annual GHG emissions:

G-1 During project operation, Shell shall limit total ethanol loading for the existing two-lane tanker truck loading rack and the proposed new single-lane tanker truck loading rack to no more than 16,972,500 barrels in any calendar year. To assure compliance with this mitigation, the SCAQMD will impose all necessary permit conditions on the project's combustion equipment by defining the proper types of fuel meters, meter accuracy and calibration requirements, monthly and annual recordkeeping requirements, and standards for records retention.

G-2 Nothing in mitigation measure G-1 allows the number of ethanol truck trips to the facility to exceed 276 trips per day.

Mitigation measure G-1 would limit the quantity of ethanol loaded during a calendar year to 16,972,500 bbl/year. This quantity is equivalent to a daily average over a calendar year of 46,500 bbl/day (16,972,500 bbl/year / 365 days/year = 46,500 bbl/~~year~~day), which is the minimum daily average over a calendar year which Shell considers to be economically viable for the proposed project. The limit of 16,972,500 bbl/year is less than the 19,162,500 bbl/year that would be loaded if the proposed maximum daily loading rate of 52,500 bbl/day were to occur every day during a 365-day period. This reduction in annual loading would reduce annual GHG emissions from the combustion of natural gas assist fuel and displaced vapors from tanker truck cargo spaces. It would also reduce the annual number of tanker trucks loaded, which would reduce annual GHG emissions from tanker truck exhaust. Mitigation measure G-1 does not affect the proposed maximum daily loading rate of 52,500 bbl/day nor does it affect the proposed maximum daily number of tanker trucks that would be loaded (276 trucks/day) as long as the project proponent does not exceed the number of barrels loaded annually as required by mitigation measure G-1.

5.3.6 LEVEL OF SIGNIFICANCE AFTER MITIGATION

The estimated cumulative adverse air quality impacts due to construction activities associated with the proposed project are expected to exceed the SCAQMD significance thresholds for VOC, NOx, PM10 and PM2.5 emissions, and thus, are considered to be cumulatively considerable, even after mitigation. The construction emissions for the proposed project are not expected to exceed the thresholds established by the SCAQMD for CO and SOx. Per the requirements of CEQA Guidelines §15064(h)(4)), the "mere existence of significant cumulative impacts caused by other projects alone shall not constitute substantial evidence that the proposed project's incremental effects are cumulatively considerable." Therefore, the air quality construction impacts are not cumulatively considerable for CO and SOx.

The estimated cumulative adverse air quality impacts associated with the operation of the proposed project are expected to exceed the SCAQMD significance thresholds for VOC and NOx emissions, and thus, are considered to be cumulatively considerable, even after mitigation. The operational emissions for the proposed project are not expected to exceed the thresholds established by the SCAQMD for CO, SOx, PM10 and PM2.5. Per CEQA Guidelines §15064(h)(4)), the "mere existence of significant cumulative impacts caused by other projects alone shall not constitute substantial evidence that the proposed project's incremental effects are cumulatively considerable." Therefore, the air quality operational impacts are not cumulatively considerable for CO, SOx, PM10, and PM2.5.

Mitigated annual GHG emissions from implementation of the proposed project, including GHG emissions during the construction phase amortized over 30 years, are summarized in Table 5-8 and compared to the SCAQMD's interim significance threshold for industrial projects. Details of the mitigated operational GHG emission calculations are in Appendix II-B. As shown in Table 5-8, mitigated GHG emissions from the proposed project are not expected to exceed the significance threshold. Therefore, the proposed project's GHG emissions with mitigation are not cumulatively considerable and do not contribute to overall significant cumulative GHG impacts.

Table 5-8
Greenhouse Gas Emissions Summary (Mitigated)

Source	GHG Emissions (MT CO_2e/year)[1]
Temporary Construction Activities[2]	147.9
Thermal Oxidizer (during operation)	4,149.2
Tanker Trucks (during operation)	4,409.2
Electrical Power Use[3] (during operation)	1,230.7
Total	**9,937.1**
SCAQMD Significance Threshold	10,000
Significant?	No

[1] MT = metric ton = 1,000 kilograms = 2,205 pounds; CO_2e = carbon-dioxide equivalent
[2] Total construction GHG emissions amortized over 30 years
[3] The proposed project requires purchase of approximately 480 kW of electrical power.

5.4 BIOLOGICAL RESOURCES

5.4.1 CONSTRUCTION IMPACTS

Potential impacts on biological resources during the construction phase of the proposed project are expected to be less than significant with the application of mitigation measures identified in Subsection 4.3.3. The impacts on biological resources during construction of the proposed project would be caused by the potential disturbance of special status species or nesting birds if they are present inside the facility during the construction activities. The Final EIR for the CSUDH Master Plan (CSUDH, 2009) concluded that construction activities to implement the CSUDH Master Plan could have potentially significant adverse impacts on burrowing owls and nesting raptors (among other biological resources), although with the implementation of the identified mitigation measures the residual impacts would not be significant. Other projects identified above in Section 5.2 did not identify project-specific significant impacts to biological resources.

Because the potential impacts during construction for both the proposed Carson Facility project and the CSUDH Master Plan are expected to occur entirely within the confines of the respective facilities, they are not expected to impact most biological resources outside the facilities. However, it is recognized that birds can move from site to site. A relatively minor loss of habitat from multiple sites could result in the eventual loss of significant amounts of habitat to the species or group of species overall. It is important to note that the potential impacts from the proposed project to burrowing owls and migratory birds could result from the temporary disturbance of these birds rather than the long-term loss of potential habitat. Because these temporary impacts would be fully mitigated and there would be no long-term loss of potential habitat as a result of the proposed project, there would be no cumulative biological resources impacts from construction of the proposed project when considered with the projects identified in Section 5.2.

5.4.2 OPERATIONAL IMPACTS

As indicated in Subsection 4.3.2.2, operation of the proposed project is not expected to cause significant adverse impacts on biological resources because there are already high levels of disturbance that minimize the use of potential habitat for nesting birds by potentially affected species. Therefore, the additional activity associated with operation of the proposed project would not likely change current use patterns, if any, and operation of the proposed project would not have the potential to disturb nesting birds. Therefore, operation of the proposed project would not be expected to generate cumulatively considerable impacts, and, therefore, the proposed project would not be expected to generate significant adverse cumulative impacts on biological resources.

5.4.3 MITIGATION MEASURES

Project-specific mitigation measures to reduce impacts on biological resources during the construction phase for the proposed project to less than significant levels were identified in

Subsection 4.3.3. Because operation of the proposed project is not expected to cause impacts on biological resources, no mitigation measures during the operational phase are required. The Final EIR for the CSUDH Master Plan (CSUDH, 2009) identified mitigation measures to reduce potentially significant adverse impacts on biological resources. These mitigation measures include: 1) if feasible, altering the footprint of a portion of the proposed project to avoid any direct impacts on a seasonally wet depression or its watershed that may provide habitat for fairy shrimp; 2) initiating consultation with the U.S. Fish and Wildlife Service (USFWS) under the federal Endangered Species Act if the seasonally wet depression or its watershed cannot be avoided, obtaining permits or approvals (i.e., take authorization) from the USFWS for potential impacts and identifying conservation measures to be implemented to ensure significant adverse impacts do not occur; 3) conducting a raptor nesting preconstruction survey and establishing a construction buffer zone if active nests are found; and 4) conducting surveys for burrowing owls and, if burrowing owls are identified, implement a passive relocation program for burrowing owls if burrowing owls are present outside of the breeding season or establish a no-construction buffer around the burrows if burrowing owls are present during the breeding season. With the application of these mitigation measures, the Final EIR for the CSUDH Master Plan (CSUDH, 2009) concluded that the "project-level impacts on burrowing owls would be reduced to less than significant." While this statement is under the cumulative impacts discussion, the EIR does not explicitly state that there would not be cumulative impacts from that project on burrowing owls. Rather in the summary table in the EIR (Table S-1, page S-13), potentially significant cumulative impacts are identified as remaining even after the implementation of the mitigation measures if burrowing owls are found on site.

Because construction and operation of the proposed project are not expected to cause significant adverse cumulative impacts on biological resources, no additional mitigation measures are required.

5.4.4 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Project-specific impacts on biological resources after the application of the project-specific mitigation measures during construction as identified in Subsection 4.3.3 would be less than significant. Therefore, the proposed project's biological impacts during construction are not considered to be cumulatively considerable and, therefore, the proposed project is not expected to generate significant adverse cumulative biological resources impacts.

5.5 HAZARDS AND HAZARDOUS MATERIALS

5.5.1 CONSTRUCTION IMPACTS

No project-specific significant adverse impacts due to hazards and hazardous materials have been identified for the proposed project during construction. This means that the effects of hazards or hazardous materials impacts from the proposed project would not overlap with potential hazards or hazardous materials impacts from other projects. Therefore, the proposed project's hazards and hazardous materials impacts during construction are not cumulatively considerable and, therefore, the proposed project is not expected to generate significant adverse cumulative hazards and hazardous materials impacts.

5.5.2 OPERATION IMPACTS

During operation of the proposed project, a "worst-case" accident causing the release of the entire contents of the new gasoline storage tank followed by a pool fire or a vapor cloud explosion could cause a significant adverse off-site impact. However, none of the potentially related projects identified in Section 5.2, except the BP Carson Refinery Safety, Compliance and Optimization Project, is expected to use or store hazardous materials in quantities that could cause potentially significant hazards or hazardous materials impacts. The other projects identified in Section 5.2 did not identify project-specific significant hazards or hazardous materials impacts during operation. It is extremely unlikely that upset conditions would occur at both the Carson Facility and the BP Carson Refinery at the same time. Furthermore, the potential vapor cloud explosion hazard assumed in the "worst-case" analysis is expected to travel less than 2,000 feet from the new gasoline storage tank location, and all of the potentially related projects are more than 2,000 feet from the location of the new gasoline storage tank. In particular, the location of the project at the BP Carson Refinery is more than 6,000 feet from the location of the new gasoline storage tank at the Carson Facility. The Final EIR for the BP Carson Refinery project (SCAQMD, 2006) concluded that the maximum off-site impact distance for a "worst-case" accident during operation would be less than 1,700 feet. Thus, even if upset conditions were to occur at both the Carson Facility and the BP Carson Refinery at the same time, off-site hazards or hazardous materials impacts are not expected to overlap. Therefore, the proposed project is not expected to contribute to significant cumulative hazards and hazardous materials impacts.

5.5.3 MITIGATION MEASURES

Because construction of the proposed project is not expected to cause project-specific impacts due to hazards and hazardous materials, no mitigation measures during the construction phase are required. However, the proposed project operational impacts due to hazards and hazardous materials are considered to be significant. While there are no feasible mitigation measures that have been identified, over and above the extensive safety regulations that currently apply to the Carson Facility, as discussed in Subsection 4.4.3, a number of existing rules and regulations apply to the Carson Facility, as well as to other industrial facilities, regarding minimizing hazards and the handling, transport and storage of hazardous materials during operation. In particular, preparation and implementation of a PSM Program is required for the BP Carson Refinery Safety, Compliance and Optimization Project, and a Risk Management Program (RMP) is also required for certain chemicals at the BP Carson Refinery under the California Health and Safety Code Section 25534, 40 CFR Part 68, and Section 112r, of the Clean Air Act. Compliance with these rules and regulations is expected to minimize industry-related hazards and hazardous materials impacts, but would not eliminate potentially significant project-specific hazards and hazardous materials impacts. No additional feasible mitigation measures were identified for the BP Carson refinery project over and above the extensive safety regulations that currently apply to the refinery facility.

5.5.4 LEVEL OF SIGNIFICANCE AFTER MITIGATION

As explained in Subsection 5.5.2, no facilities identified as cumulatively related to the proposed project, except for the BP Carson Refinery project, were identified as using hazardous materials.

However, no project-specific operational impacts of the BP Carson Refinery project on the Carson Facility proposed project due to hazards and hazardous materials are expected because hazards at the BP Carson Refinery are not expected to overlap with hazards at the Carson Facility and vice versa, primarily because of the distance (6,000 feet) between the two facilities. Thus, any adverse operational hazards and hazardous materials impacts that may result from the proposed project would not be considered cumulatively considerable, and, therefore, would not create significant adverse cumulative hazards or hazardous materials impacts.

5.6 HYDROLOGY AND WATER QUALITY

5.6.1 CONSTRUCTION IMPACTS

As indicated in Subsection 4.5.2.1, impacts to water supply during construction of the proposed project exceed the SCAQMD's potable water demand significance threshold. None of the CEQA documents for the potential cumulative projects identified potentially significant adverse impacts to water supply during construction. However, because the maximum daily use of potable water during construction of the proposed project exceeds the potable water significance threshold established by the SCAQMD, the impacts to potable water supply during construction are considered cumulatively considerable because it has the potential to adversely affect local water supplies to the cumulatively related facilities.

5.6.2 OPERATIONAL IMPACTS

As indicated in Subsection 4.5.2.2, impacts to water supply during operation of the proposed project may exceed the SCAQMD's potable water demand significance threshold if additional hydrostatic testing of the proposed new gasoline storage tank is needed in the future and reclaimed water is not available. None of the CEQA documents for the potential cumulative projects identified potentially significant adverse impacts to water supply during operation. However, because the maximum daily use of potable water during operation of the proposed project may exceed the potable water significance threshold established by the SCAQMD, the potential impacts to potable water supply during operation are considered cumulatively considerable because it has the potential to adversely affect local water supplies to the cumulatively related facilities.

5.6.3 MITIGATION MEASURES

As indicated in Subsections 5.6.1 and 5.6.2, construction and operational activities may have significant adverse cumulative potable water supply impacts. As indicated in Subsection 4.5.3, no feasible project-specific mitigation measures to reduce water supply impacts during the construction and operational phases for the proposed project were identified. Although the Final EIR for the Boulevards at South Bay Project (Carson Redevelopment Agency, 2006) concluded that the project would not have significant adverse impacts on potable water supply, it identified mitigation measures to reduce water demand by providing reclaimed water for the project's non-potable water uses, utilizing xeriscape (low-maintenance drought resistant) plantings for landscaping, using automated irrigation systems to minimize water loss from evaporation and recycling water used in cooling systems to the maximum extent possible. Similarly, although the Final EIR for the CSUDH Master Plan (CSUDH, 2010) concluded that the project would not have significant adverse impacts on potable water supply, it identified a mitigation measure to require the use of reclaimed water for non-potable water uses during construction. Mitigation measures for potable water supply impacts were not required for any of the other projects identified in Section 5.2.

5.6.4 LEVEL OF SIGNIFICANCE AFTER MITIGATION

The estimated cumulative adverse water supply impacts due to construction and operational activities associated with the proposed project are expected to exceed the SCAQMD significance threshold for potable water use, and thus, are considered to be cumulatively considerable, and, therefore, cumulatively significant.

5.7 NOISE

5.7.1 CONSTRUCTION IMPACTS

As indicated in Subsection 4.6.2.1, construction of the proposed project is not expected to cause project-specific significant adverse noise impacts. The CEQA documents for the Boulevards at South Bay Project (Carson Redevelopment Agency, 2006), the CSUDH Master Plan (CSUDH, 2009), the Cityview Project (City of Carson, 2010d) and the Safran City Center Project (City of Carson, 2008) concluded that on-site construction activities for these projects could cause significant adverse noise impacts. Although construction of the other potentially related projects would generate noise, impacts from construction noise are localized. The Safran City Center Project (#7 in Figure 5-1), which is the closest potentially related project to the Carson Facility, is more than 3,400 feet from the areas within the Carson Facility where on-site construction activities will occur. Noise levels from on-site construction activities for the Carson Facility project would not be expected to be audible at this distance or overlap with noise generated by the cumulatively related projects because, typically, there is approximately a 6.0 dBA reduction for every doubling of distance sound travels. Therefore, on-site construction activities for the proposed project are not expected to cause cumulatively considerable adverse noise impacts and, therefore, on-site construction activities for the proposed project are not expected to generate significant adverse cumulative noise impacts.

The CEQA documents for the Boulevards at South Bay Project (Carson Redevelopment Agency, 2006), the CSUDH Master Plan (CSUDH, 2009), the Cityview Project (City of Carson, 2010d) and the Safran City Center Project (City of Carson, 2008) did not analyze noise impacts from off-site construction traffic for these projects. However, except for the CSUDH Master Plan, the potentially related projects that may be under construction at the same time as the proposed project (#1, #3, #5, #7 and #10 in Figure 5-1) are located on the opposite side of the I-405 Freeway from the Carson Facility. Therefore, it is unlikely that traffic associated with construction of these projects would utilize the same routes to access the project locations as truck and construction worker traffic traveling to and from the Carson Facility. Although CSUDH (#4 in Figure 5-1) is located on the same side of the I-405 Freeway as the Carson Facility, the most direct route to CSUDH from the I-405 Freeway would be north on Avalon Boulevard, which does not coincide with routes anticipated to be used by traffic during construction of the proposed project at the Carson Facility. Thus, traffic during construction of the proposed project is not expected to occur on the same roadways as traffic during construction of the potentially related projects and is therefore not expected to cause cumulative noise impacts. Therefore, traffic during construction of the proposed project is not expected to cause cumulatively considerable adverse noise impacts and, therefore, traffic during construction of the proposed project is not expected to generate significant adverse cumulative noise impacts.

5.7.2 OPERATIONAL IMPACTS

As indicated in Section 4.6.2.2, operation of the proposed project is not anticipated to cause significant adverse project-specific noise impacts. The CEQA documents for the Boulevards at South Bay Project (Carson Redevelopment Agency, 2006), the Cityview Project (City of Carson, 2010d), the Prologis Project (City of Carson, 2007) and the Safran City Center Project (City of Carson, 2008) concluded that operation of these projects could cause significant adverse noise impacts. None of the CEQA documents for the other potential cumulatively related projects identified potentially significant adverse noise impacts during operation.

As indicated in Subsection 4.6.2.2, potential noise impacts during operation of the proposed project would be caused by ethanol tanker trucks traveling within and to and from the Carson Facility. None of the available CEQA documents for the potential cumulatively related projects indicated that traffic associated with operation of those projects would be in the vicinity of the Carson Facility. Therefore, noise generated by ethanol tanker trucks traveling within and in the vicinity of the Carson Facility is not expected to cause cumulative noise impacts with traffic associated with operation of the other projects.

As indicated in Subsection 5.3.3, ethanol tanker trucks would continue to use the routes required by the DOR approved by the City of Carson for the proposed project: Wilmington Avenue between Dominguez Street and Del Amo Boulevard, Del Amo Boulevard between Dominguez Street and the I-710 Freeway, and Alameda Street north and south of Del Amo Boulevard (see Subsection 4.7.2.2). These routes do not pass by any of the potential cumulatively related projects. However, based on the locations of the Prologis warehouse project and the local freeways, trucks associated with operation of the ProLogis project may also travel north and south on Alameda Street between the I-405 and SR-91 Freeways to access these freeways and possibly east on Del Amo Boulevard between Alameda Street and the I-710 Freeway to access the I-710 Freeway. Thus, it is possible that truck traffic associated with the ProLogis project may occur on some of the same roadways as ethanol tanker trucks for the proposed Carson Facility project.

As indicated in Subsection 4.6.2.2, noise-sensitive receptors along these routes include residences east of Alameda Street south of Dominguez Street, and noise impacts would be considered significant if noise levels at these residences increased by more than three dBA. The Initial Study for the Prologis Project (City of Carson, 2007) estimates that the Prologis Project is expected to generate approximately 1,631 trips per day, with 188 trips occurring during the morning peak hour and 198 trips generated during the evening peak hour. The Initial Study does not indicate the number of trips by type of vehicle (heavy duty truck, light duty automobile, etc.) nor does it indicate the distribution of these trips on local surface streets. However, if the peak hourly number of trips were comprised of heavy duty trucks traveling on Alameda Street south of Dominguez Street, they may cause noise levels at the residences east of Alameda Street to increase by more than three dBA, which would exceed the significance threshold.

Subsection 4.6.2.2 indicated that the increase in ethanol tanker truck traffic of 12 trips per hour during operation of the proposed project would increase noise levels at residences in the vicinity of the off-site tanker truck routes by less than one dBA, which is below the significance threshold. As stated in CEQA Guidelines §15064(h)(4)), the “mere existence of significant cumulative impacts caused by other projects alone shall not constitute substantial evidence that the proposed project’s incremental effects are cumulatively considerable.” Therefore, no significant cumulative adverse noise impacts are expected from off-site ethanol tanker trucks during operation of the proposed project.

5.7.3 MITIGATION MEASURES

Construction and operation of the proposed project are not expected to cause significant adverse cumulative noise impacts. Therefore, project-specific mitigation measures are not required.

The Final EIR for the Boulevards at South Bay Project (Carson Redevelopment Agency, 2006) identified several mitigation measures to reduce potentially significant adverse construction noise impacts. Examples of these measures include: 1) limiting all construction activities to occur between 7:00 a.m. and 8:00 p.m., Monday through Saturday; 2) requiring all construction equipment to be equipped with effective noise control devices, such as mufflers, and to be properly maintained; 3) requiring the use of temporary sound barriers when construction activities occur within 150 feet of residences; 4) locating loading and staging areas on-site and away from sensitive receptors; and 5) conducting a pile-driving pilot program to adjust pile driving parameters to reduce vibration levels at sensitive receptors to less than the 0.2 in/sec PPV threshold. The Final EIR for the Boulevards at South Bay Project concluded that construction noise impacts would remain significant after mitigation.

The Final EIR for the CSUDH Master Plan (CSUDH, 2009) also identified several mitigation measures to reduce potential adverse construction noise impacts. Examples of these measures include: 1) requiring all construction equipment to be equipped with effective noise control devices, such as mufflers, and to be properly maintained; and 2) locating stationary noise sources, such as generators and pumps, and staging and laydown areas at least 100 feet from sensitive receptors, as feasible. The Final EIR for the CSUDH Master Plan concluded that construction noise impacts would remain significant after mitigation.

The Draft Mitigated Negative Declaration for the Cityview Project (City of Carson, 2010d) identified the following mitigation measures to reduce potentially significant adverse construction noise impacts: 1) requiring all construction equipment to be equipped with effective noise control devices, such as mufflers, and to be properly maintained; 2) locating stationary noise sources so that emitted noise is directed away from sensitive receptors closest to the project site; 3) locating equipment staging in areas that will create the greatest distance between construction-related noise sources and noise-sensitive receptors closest to the project site; and 4) installing a temporary construction noise barrier with a minimum height of six feet along the northwestern, western and southwestern project site boundaries. The Draft Mitigated Negative Declaration for the Cityview Project concluded that construction noise impacts would be less than significant after mitigation.

Construction noise mitigation measures identified in the Mitigated Negative Declaration for the Safran City Center Project (City of Carson, 2008) include: 1) requiring all construction equipment to be equipped with effective noise control devices, such as mufflers, and to be properly maintained; 2) locating stationary noise sources more than 200 feet from the closest residential receptors or locating the noise sources behind a structure or a temporary noise barrier constructed of at least ¾-inch thick plywood. The Mitigated Negative Declaration for the Safran City Center Project concluded that construction noise impacts would be less than significant after mitigation.

The Final EIR for the Boulevards at South Bay project (Carson Redevelopment Agency, 2006) identified the following mitigation measures to reduce potentially significant adverse operational noise impacts: 1) locating parking lots near residential areas at least 150 feet from off-site residential areas unless a minimum eight-foot high wall is provided along the property boundary; 2) locating parking structures near residential areas at least 150 feet from off-site residential areas unless the exterior wall of the parking structure that faces the residential use is solid or provides acoustical louvers; 3) prohibiting truck deliveries within 250 feet of off-site residential areas between 10:00 p.m. and 7:00 a.m.; 4) requiring sound insulating windows for on-site residential uses constructed north and south of Del Amo Boulevard; 5) requiring balconies constructed for the first row of residential units facing Del Amo Boulevard or the I-405 Freeway to be constructed with a solid fence or wall with an appropriate height to reduce noise from traffic; and 6) requiring a community noise study to be completed for any noise-intensive uses to be constructed within 300 feet of off-site residential uses to demonstrate that the use would not exceed the City of Carson noise standards. The Final EIR for the Boulevards at South Bay Project concluded that operational noise impacts would be less than significant after mitigation.

The Draft Mitigated Negative Declaration for the Cityview Project (City of Carson, 2010d) identified the following mitigation measures to reduce potentially significant adverse operational noise impacts: 1) requiring outdoor active-use areas, such as patios and back yards, proposed to be constructed within 69 feet of the Carson Street centerline to include a sound wall with a minimum height of five feet; and 2) requiring mechanical ventilation for all structures located along Carson Street to ensure that windows can remain closed for a prolonged period of time in order to meet the City's interior noise standard. The Draft Mitigated Negative Declaration for the Cityview Project concluded that operational noise impacts would be less than significant after mitigation.

Operational noise mitigation measures identified in the Mitigated Negative Declaration for the Prologis Project (City of Carson, 2007) include: 1) requiring equipment on the premises to be constructed, operated, and maintained in such a manner so as to minimize noise or vibration that would be detrimental to the surrounding area; 2) requiring mufflers and other noise-reducing instruments to be used as necessary to lessen outdoor noise; and 3) limiting or mitigating nighttime activities generating outdoor noise to the satisfaction of the Planning Division. The Mitigated Negative Declaration for the Prologis Project concluded that operational noise impacts would be less than significant after mitigation.

Operational noise mitigation measures identified in the Mitigated Negative Declaration for the Safran City Center Project (City of Carson, 2008) include: 1) requiring sound walls for all exterior balconies and patios for on-site units located along Avalon Boulevard and Carson Street;

and 2) requiring mechanical ventilation for all on-site dwelling units located along Avalon Boulevard and Carson Street to ensure that windows can remain closed for a prolonged period of time in order to meet the City's interior noise standard. The Mitigated Negative Declaration for the Safran City Center Project concluded that operational noise impacts would be less than significant after mitigation.

5.7.4 LEVEL OF SIGNIFICANCE AFTER MITIGATION

The analysis of potential project-specific noise impacts during construction and operation of the proposed project concluded that significant adverse impacts would not occur. Further, potential cumulatively related projects are located at sufficient distances from the proposed project site that overlapping sound impacts are not anticipated. Therefore, for these reasons noise impacts during construction and operation of the proposed project are not cumulatively considerable and, therefore, are not expected to cause significant cumulative adverse noise impacts.

5.8 TRANSPORTATION AND TRAFFIC

5.8.1 CONSTRUCTION IMPACTS

Potential project-specific adverse impacts on traffic and transportation during the construction phase of the proposed project are expected to be less than significant with the application of mitigation measures identified in Subsection 4.7.3 (see Table 4.7-8). The Final EIR for the Boulevards at South Bay Project (Carson Redevelopment Agency, 2006) concluded that construction of the project could cause significant adverse traffic and transportation impacts caused by the closure of sidewalks during construction. None of the CEQA documents for the other potential cumulatively related projects identified potentially significant adverse traffic and transportation impacts during construction.

Except for the CSUDH Master Plan, the potentially related projects that may be under construction at the same time as the proposed project (#1, #3, #5, #7 and #10 in Figure 5-1) are located on the opposite side of the I-405 Freeway from the Carson Facility. Therefore, it is unlikely that traffic associated with construction of these projects would utilize the same routes to access the project locations as truck and construction worker traffic traveling to and from the Carson Facility. Although CSUDH (#4 in Figure 5-1) is located on the same side of the I-405 Freeway as the Carson Facility, the most direct route to CSUDH from the I-405 Freeway would be north on Avalon Boulevard, which does not coincide with routes anticipated to be used by traffic during construction of the proposed project at the Carson Facility. Thus, traffic during construction of the proposed project is not expected to occur on the same roadways as traffic during construction of the potentially related projects and is therefore not expected to cause cumulative traffic impacts. Therefore, traffic during construction of the proposed project is not expected to cause cumulatively considerable adverse traffic and transportation impacts and, therefore, traffic during construction of the proposed project is not expected to cause significant adverse cumulative transportation and traffic impacts.

5.8.2 OPERATIONAL IMPACTS

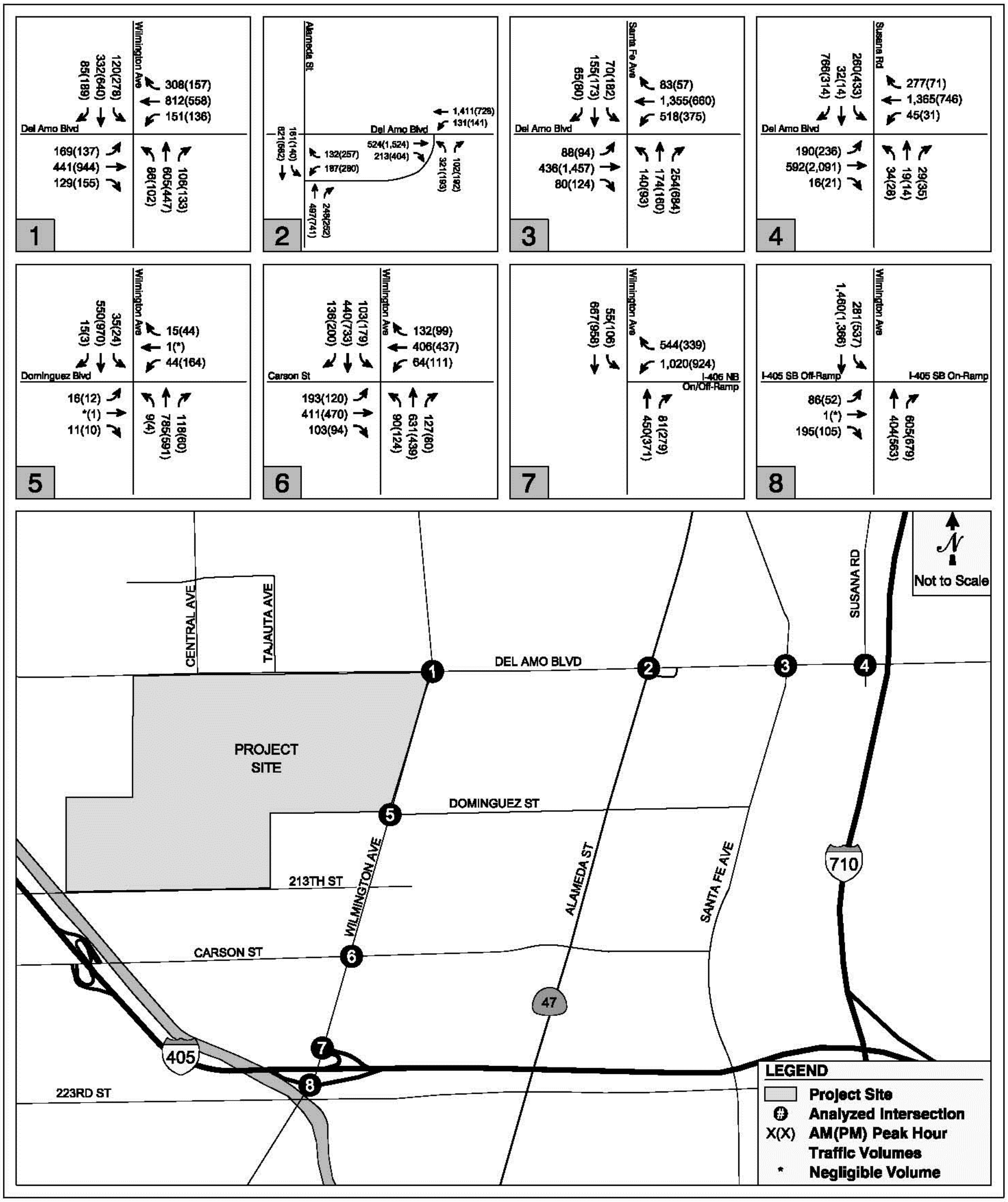
As indicated in Subsection 4.7.2.2, increased tanker truck trips to and from the Carson Facility are not expected to cause significant adverse project-specific impacts on traffic (see Table 4.7-7). The CEQA documents for the Boulevards at South Bay Project (Carson Redevelopment Agency, 2006), the CSUDH Master Plan project (CSUDH, 2009), the Cityview Project (City of Carson, 2010d), the Prologis Project (City of Carson, 2007) and the Safran City Center Project (City of Carson, 2008) concluded that operation of these projects could cause significant adverse traffic and transportation impacts.

To evaluate potential cumulative impacts during operation of the proposed project, estimates of future traffic conditions in the area, both without and with the proposed project's traffic, were developed. Estimates of growth in traffic within the area of the Carson Facility were developed to forecast future conditions without the project. This analysis is considered to be very conservative because it includes traffic growth from all projects in the area in addition to the cumulatively related projects. These forecasts included traffic increases as a result of both regional ambient traffic growth and traffic anticipated from operation of the four largest potential cumulative projects identified in Section 5.1 (The Boulevards at South Bay, Cityview, Safran City Center and ProLogis projects). These projected traffic volumes represent future conditions without the proposed project. Since the total proposed increase in permitted maximum daily ethanol loading and the resulting increase in operational ethanol tanker truck traffic is anticipated to begin during 2012, estimates of future traffic conditions were made for 2012. The traffic generated by the proposed project was then estimated and assigned to the surrounding street system. The impacts on the surrounding street system of the additional trips generated by regional and ambient growth, operation of the potential cumulative projects, and operation of the proposed project were then analyzed and compared with existing conditions to evaluate potential cumulative impacts on traffic.

Future Without-Project Traffic Volumes

A regional ambient traffic growth rate of 0.5 percent per year for a total of two years was applied to the existing traffic counts. This growth is consistent with the Southern California Association of Governments (SCAG) 2008 Regional Transportation Plan Model for the sub region. The total ambient growth adjustment applied over the two-year period (from 2010 to 2012) was one percent. Trip generation for the potential cumulative projects was estimated using Trip Generation, Eighth Edition: An ITE Informational Report (ITE, 2008).

The geographic distribution of traffic generated by the potential cumulative projects depends on several factors. These factors include the type and density of the proposed land use, the geographic distribution of the population from which employees and potential patrons of proposed commercial developments may be drawn, the geographic distribution of employment and activity centers to which residents of proposed residential developments may be drawn, the location of the project in relation to the surrounding street system, and the extent of the roadway network (e.g., its continuity), as well as other factors, such as any planned improvements to the existing roadway network. Traffic distribution was also based on any available information from published CEQA documents for the projects. Future without-project traffic volumes are shown in Figure 5-2, and the distribution of ethanol tanker truck trips is shown in Figure 4.7-2.



FEHR & PEERS
TRANSPORTATION CONSULTANTS

FUTURE (YEAR 2012) WITHOUT PROJECT TURNING MOVEMENT VOLUMES

Figure 5-2. Future (Year 2012) Without-Project Turning Movement Volumes

Table 5-9 shows the predicted cumulative LOS analysis and volume-to-capacity ratios (see Appendix II-I for the complete traffic analysis). As shown in Table 5-9, cumulative traffic increases will not cause the LOS to change or cause the V/C ratio to increase by two percent or more at any of the intersections rated D or worse listed in Table 5-9. Therefore, traffic during operation of the proposed project is not expected to cause cumulatively considerable adverse traffic impacts and, therefore, traffic during operation of the proposed project is not expected to generate significant adverse cumulative traffic impacts.

Table 5-9
Cumulative Traffic Intersection Impacts Level-of-Service Analysis and Volume-To-Capacity Ratios

Intersection	Peak Period	Existing LOS	Existing V/C	Future Plus Project LOS	Future Plus Project V/C	Future Plus Project Change in V/C
1. Wilmington Avenue & Del Amo Boulevard	A.M. P.M.	B B	0.627 0.612	B B	0.658 0.659	0.031 0.047
2. Alameda Street & Del Amo Boulevard (location to the East) Alameda Street & Del Amo Boulevard (location to the West)	A.M. P.M. A.M. P.M.	A A A A	0.500 0.567 0.386 0.468	A A A A	0.523 0.585 0.410 0.501	0.023 0.018 0.024 0.033
3. Santa Fe Avenue & Del Amo Boulevard	A.M. P.M.	C C	0.722 0.773	C C	0.736 0.789	0.014 0.016
4. Susana Road & Del Amo Boulevard	A.M. P.M.	D C	0.804 0.765	D C	0.818 0.782	0.014 0.017
5. Wilmington Avenue & Dominguez Street	A.M. P.M.	A A	0.395 0.473	A A	0.409 0.492	0.014 0.019
6. Wilmington Avenue & Carson Street	A.M. P.M.	A A	0.577 0.571	B B	0.609 0.652	0.032 0.081
7. Wilmington Avenue & I-405 NB On-/Off-Ramp	A.M. P.M.	B B	0.665 0.694	B C	0.673 0.701	0.0080 0.007
8. Wilmington Avenue & I-405 SB On-/Off-Ramp	A.M. P.M.	C E	0.767 0.911	C E	0.776 0.926	0.009 0.015
Notes: V/C = Volume-to-capacity ratio (capacity utilization ratio); LOS = Level of Service						

5.8.3 MITIGATION MEASURES

Project-specific mitigation measures to reduce impacts on traffic and transportation during the construction phase for the proposed project to less than significant levels were identified in Subsection 4.7.3. Because operation of the proposed project is not expected to cause significant project-specific adverse impacts on traffic and transportation, no mitigation measures during the operational phase are required.

The Final EIR for the Boulevards at South Bay project (Carson Redevelopment Agency, 2006) identified the following mitigation measures to reduce potentially significant adverse construction traffic and transportation impacts: 1) submitting a Construction Traffic Management Plan or Worksite Traffic Control Plan to the City and appropriate police and fire services for the purpose of minimizing pedestrian and vehicular impediments and interference with emergency vehicles; and 2) keeping at least one sidewalk on the north side or south side of Del Amo Boulevard open during construction. The Final EIR for the Boulevards at South Bay Project concluded that construction transportation and traffic impacts would be less than significant after mitigation.

The Final EIR for the Boulevards at South Bay project (Carson Redevelopment Agency, 2006) identified the following mitigation measures to reduce potentially significant adverse operational traffic and transportation impacts: 1) constructing improvements, such as installing traffic lights and adding turn lanes, to 13 intersections; 2) providing transit service stops; and 3) providing a fair-share contribution for funding the Carson North-South Shuttle operations. The Final EIR for the Boulevards at South Bay Project concluded that operational transportation and traffic impacts would remain significant after mitigation.

The Final EIR for the CSUDH Master Plan (CSUDH, 2009) identified mitigation measures that require restriping to add turn lanes at two intersections to reduce potential adverse operational traffic and transportation impacts. The Final EIR for the CSUDH Master Plan concluded that operational transportation and traffic impacts would remain significant after mitigation. The Draft Mitigated Negative Declaration for the Cityview Project (City of Carson, 2010d) identified mitigation measures that require installing a traffic signal at one intersection and incorporating bicycle racks and pedestrian walkways to reduce potentially significant adverse operational traffic and transportation impacts. The Draft Mitigated Negative Declaration for the Cityview Project concluded that operational transportation and traffic impacts would be less than significant after mitigation.

Operational traffic and transportation mitigation measures identified in the Mitigated Negative Declaration for the Prologis Project (City of Carson, 2007) include: 1) participating in the phased construction of off-site traffic improvements through payment of traffic mitigation fees to the City of Carson at the discretion of the City Engineer or City Traffic Engineer; 2) locating a transportation information area inside or near the building in a conspicuous area for employees; 3) setting aside up to 10 percent of all employee parking for carpools and vanpools, unless an alternative is approved by the City; 4) if appropriate, making improvements to bus stop areas of bus routes impacted by the proposed development; and 5) providing bicycle parking facilities. The Mitigated Negative Declaration for the Prologis Project concluded that operational transportation and traffic impacts would be less than significant after mitigation. Operational transportation and traffic mitigation measures identified in the Mitigated Negative Declaration for the Safran City Center Project (City of Carson, 2008) include constructing modifications to three intersections. The Mitigated Negative Declaration for the Safran City Center Project concluded that operational transportation and traffic impacts would be less than significant after mitigation.

5.8.4 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Project-specific impacts on transportation and traffic after the application of the project-specific mitigation measures during construction as identified in Subsection 4.7.3 would be less than significant. Therefore, the proposed project's transportation and traffic impacts during construction are not cumulatively considerable and, therefore, the proposed project is not expected to generate significant adverse cumulative transportation and traffic impacts during construction. The analysis of potential cumulative impacts during operation concluded that significant adverse impacts would not occur. Therefore, operation of the proposed project is not expected to cause significant cumulative impacts on traffic and transportation. Although traffic impacts from the Boulevards at South Bay project have the potential to contribute to overall significant cumulative traffic impacts, per CEQA Guidelines §15064(h)(4)), the "mere existence of significant cumulative impacts caused by other projects alone shall not constitute substantial evidence that the proposed project's incremental effects are cumulatively considerable."

This Page Intentionally Blank

CHAPTER 6

ALTERNATIVES

This Page Intentionally Blank

6.0 PROJECT ALTERNATIVES

6.1 INTRODUCTION

As required by the CEQA Guidelines, Chapter 6 identifies and compares the relative merits of alternatives to the proposed project. Evaluation of these alternatives includes an assessment of their ability to achieve most of the basic objectives of the proposed project and an analysis of their comparative impacts. A No Project Alternative must also be evaluated. The range of alternatives must be sufficient to permit a reasoned choice, but need not include every conceivable project alternative. CEQA Guidelines §15126.6(c) specifically notes that the range of alternatives required in a CEQA document is governed by a "rule of reason" and only necessitates that the CEQA document set forth those alternatives necessary to facilitate a reasoned choice. The key consideration is whether the selection and discussion of alternatives fosters informed decision making and meaningful public participation. A CEQA document need not consider an alternative whose effect cannot be reasonably ascertained and whose implementation is remote and speculative.

Alternatives presented in this chapter were developed by altering various components of the proposed project in an effort to reduce potentially significant adverse impacts identified for the proposed project. Consequently, each project alternative described below is similar to the proposed project in most respects. The rationale for selecting specific components of the proposed project on which to focus the alternatives analysis rests on CEQA's requirements to present a range of reasonable project alternatives that could feasibly attain most of the basic objectives of the project, but would avoid or substantially lessen any of the significant effects of the project.

The objectives of the proposed project at the Carson Facility are to:

1. Increase the Carson Facility's ethanol storage capacity by approximately 75 percent to respond to customer demand for flexible ethanol storage and handling capacity;

2. Increase the Carson Facility's ethanol tanker-truck loading capacity by at least 75 percent to respond to customer demand for consolidated distribution of ethanol;

3. Include modifications that would allow the Carson Facility to minimize impacts to its existing capacity to receive, store and deliver other petroleum products (e.g., gasoline, diesel fuel, jet fuel) at current levels for its current and future customers; and

4. Maintain operational efficiency, safety and flexibility at the Carson Facility.

Two project alternatives rejected as infeasible are discussed in the following section. Alternatives to the proposed project that are analyzed in this chapter are described in Section 6.3. Aside from the alternatives described in Section 6.3, no other project alternatives were identified that met most of the basic objectives of the proposed project, while substantially reducing significant adverse environmental impacts.

6.2 POTENTIAL ALTERNATIVES REJECTED AS INFEASIBLE

In accordance with CEQA Guidelines §15126.6(c), a CEQA document should identify alternatives that were considered by the lead agency, but were rejected as infeasible during the scoping process and briefly explain the reason underlying the lead agency's determination.

CEQA Guidelines §15126.6(c) also states that among the factors that may be used to eliminate alternatives from detailed consideration in an EIR are: 1) failure to meet most of the basic project objectives; 2) infeasibility; or 3) inability to avoid significant environmental impacts. Additionally, CEQA Guidelines §15126.6(f)(1) also lists the following factors that may be taken into account when addressing the feasibility of alternatives: 1) site suitability; 2) economic viability; and 3) availability of infrastructure. Furthermore, CEQA Guidelines §15126.6(f)(2)(B) indicates that if the lead agency concludes that no feasible alternative locations for the project exist, it must disclose the reasons for this conclusion, and should include the reasons in the EIR. Finally, CEQA Guidelines §15364 defines feasible as "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors."

The first two subsections below describe the alternatives that were rejected as infeasible, which include an alternative project location at a site different from the Carson Facility and elimination of the proposed new single-lane loading rack. The bases for determining these alternatives as being infeasible are presented in each subsection.

6.2.1 ALTERNATIVE LOCATION

In order to meet the project objectives, an alternative location for the proposed project would need to meet the following requirements:

1. The site would need to be located within southern California to provide ethanol storage and loading facilities to meet Shell's customers' requirements for supplying ethanol to their gasoline distribution terminals in southern California;

2. The site would either need to be owned by Shell or there would need to be a reasonable possibility that Shell could obtain the use of the site for the proposed project;

3. The site would need to be located in the vicinity of the dedicated ethanol pipeline between the Kinder Morgan Lomita Terminal and the Carson Facility to have a means to provide bulk ethanol to the alternative site. The pipeline route is shown in Figure 6-1; and

4. The site would need to be of sufficient size to accommodate the components that would need to be constructed to meet the project objectives, including an ethanol loading rack, a vapor emissions control system for the loading rack, a loading rack operations building, four 65,000 bbl ethanol storage tanks, a 5,000 bbl contact water tank, a fire suppression foam system and internal roadways used by tanker trucks to access the ethanol loading rack. The four 65,000 bbl ethanol storage tanks would require an area of approximately 360,000 square feet for secondary containment (600 feet on each side of a square

containment area), which is equivalent to 8.3 acres (360,000 square feet / 43,560 square feet/acre = 6.26 acres). The other components would require an additional 334,000 square feet, which is equivalent to 7.7 acres (334,000 square feet / 43,560 square feet/acre = 7.67 acres), for a total of 16.0 acres.

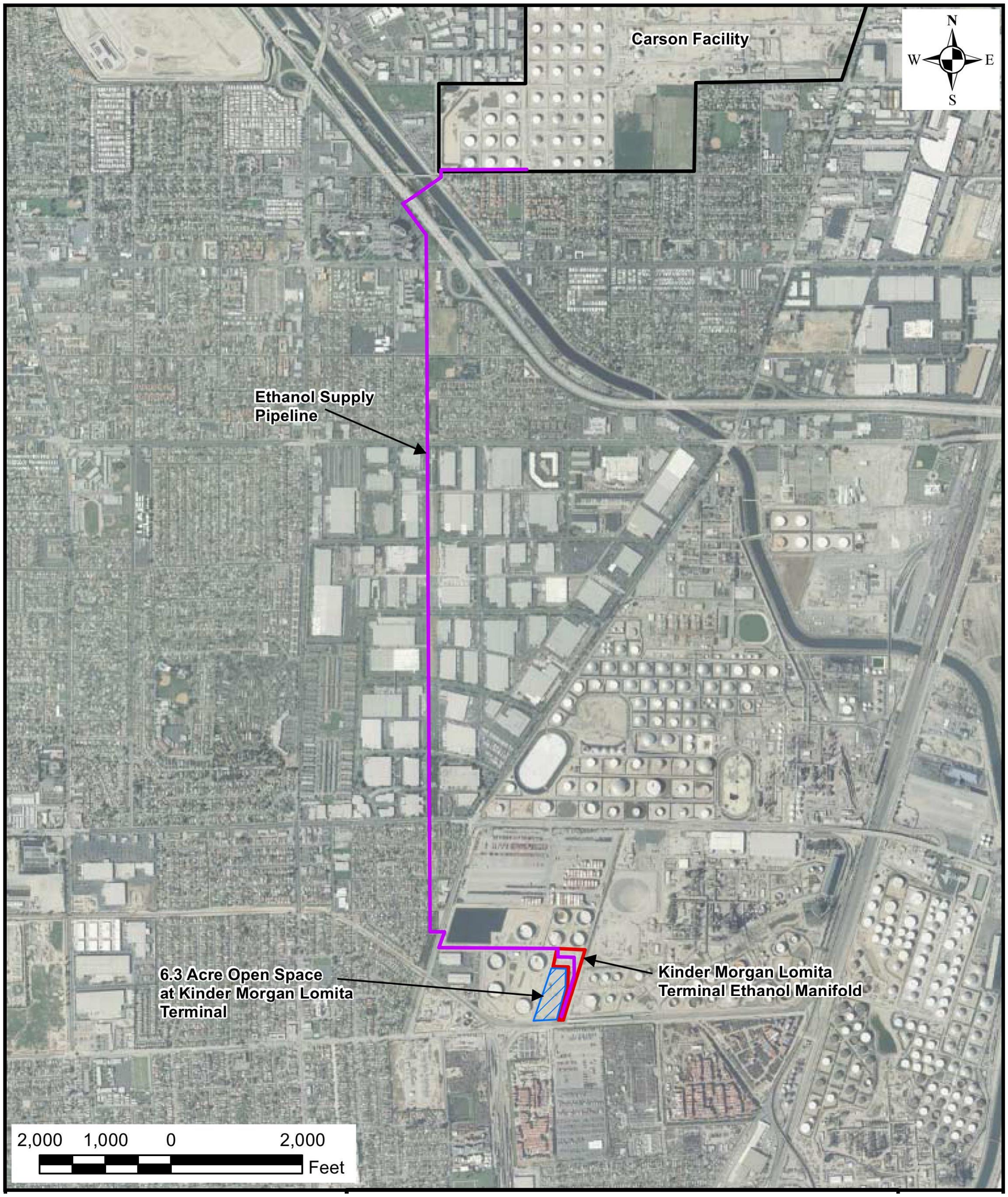


Figure 6-1. Ethanol Pipeline Route from the Kinder Morgan Lomita Terminal to the Carson Facility

In addition to the Carson Facility, Shell owns or leases four other terminals in southern California, including the Mormon Island Marine Terminal, and the Van Nuys, Signal Hill, and Colton distribution terminals. The main function of the Mormon Island Marine Terminal, located in the Port of Los Angeles, is for marine vessel offloading. The other terminals distribute gasoline and other fuels, such as diesel fuel, by tanker trucks to retail stations for sale to consumers. These terminals typically receive gasoline by pipeline and ethanol, to be blended into the gasoline prior to delivery to retail stations, by tanker trucks. These four terminals would meet the first two requirements for an alternate location for the proposed project because they are located in southern California and because Shell owns or leases them.

However, none of the terminals is located in the vicinity of the dedicated ethanol pipeline between the Kinder Morgan Lomita Terminal and the Carson Facility. The Signal Hill Terminal is approximately six miles from the pipeline, the Van Nuys Terminal is approximately 30 miles from the pipeline and the Colton Terminal is approximately 50 miles from the pipeline. Thus, none of these terminals meets the third requirement for an alternate location.

The Mormon Island Marine Terminal does not have facilities that would be required for ethanol tanker truck loading, and it does not have sufficient space available to accommodate the components that would need to be constructed to meet the project objectives. Moreover, both the Ports of Los Angeles and Long Beach have undertaken substantial projects to minimize the growth in truck traffic to and through the Ports. Siting a facility within the Port of Los Angeles to load tanker trucks with ethanol would be counter to this trend and would likely not be supported by the Port.

None of the other three terminals has the infrastructure required to load ethanol for delivery by tanker trucks to other distribution terminals, and they do not have sufficient space to accommodate the new components that would be required to load ethanol. The total contiguous areas of each of the three terminals are approximately 1.9 acres at Colton, 1.2 acres at Signal Hill and 4.3 acres at Van Nuys, all of which are less than the 16.0 acres required to meet the fourth requirement for an alternate site for the proposed project. Based on all these factors, properties currently owned or leased by Shell in southern California are too small and could not support the proposed project. Therefore, alternative locations for the proposed project would necessitate acquiring use of a property not currently owned or controlled by Shell.

One site was identified in the vicinity of the ethanol supply pipeline. This site is not owned or operated by Shell and is located adjacent to the Kinder Morgan Lomita Terminal (see Figure 6-1). However, the size of this location is only approximately 6.3 acres, which is less than the 16.0 acres that would be required for the proposed project. Therefore, the proposed project could not physically be implemented at this location.

No other locations were identified in the vicinity of the ethanol supply pipeline that Shell could potentially use for the proposed project. Thus, for the aforementioned reasons, these alternatives are rejected as infeasible.

6.2.2 ELIMINATE NEW SINGLE-LANE TRUCK LOADING RACK

Under this alternative the new single-lane truck loading rack would not be constructed. However, the permitted ethanol throughput at the existing two-lane ethanol loading rack at the Carson facility would still be increased by 5,000 bbl/day from its current level of 30,000 bbl/day to a maximum daily throughput of 35,000 bbl/day. Under this alternative, the number of existing gasoline storage tanks converted to ethanol service would be reduced from four to two because the increase in ethanol throughput would be less than in the proposed project. As in the proposed project, a new gasoline storage tank would still need to be constructed to replace the gasoline storage capacity that would be transferred to ethanol service. The increase in maximum daily tanker trucks loading ethanol would be 52 trucks per day under this alternative instead of 144 trucks per day in the proposed project.

The alternative of eliminating the new single-lane truck loading rack would contribute infrastructure in southern California for ethanol storage volumes with the conversion of two gasoline tanks to ethanol storage. Converting two tanks to ethanol service would increase the Carson Facility's ethanol storage capacity by 138,000 bbl (two converted tanks x 69,000 bbl/tank), which is an increase of 35 percent of the Carson Facility's current ethanol storage capacity of 396,000 bbl. This increase is substantially less than the 75 percent increase in the handling capacity at the Carson Facility in objective 1 to respond to customer demand for flexible ethanol storage and handling capacity. Therefore, this alternative would not meet the project's first objective.

If the new single-lane truck loading rack is not constructed, the increase in ethanol tanker truck loading capacity would be limited to the increase that would be achieved by increasing the permitted capacity of the existing two-lane tanker truck loading rack from 30,000 bbl/day to 35,000 bbl/day. The resulting increase of 5,000 bbl/day would be about 17 percent of the Carson Facility's current permitted ethanol tanker-truck loading capacity, which is much less than the 75 percent increase in the second objective of the proposed project to allow the Carson Facility to provide a reliable loading facility for ethanol. Therefore, this alternative would not meet the project's second objective.

Eliminating the new single-lane truck loading rack and converting only two storage tanks from gasoline to ethanol service constrains the Carson Facility's options for storing and loading ethanol. As a result, this alternative would not meet the fourth project objective to maintain operational efficiency and flexibility at the Carson Facility.

Therefore, this alternative is rejected as infeasible because it would not meet three of the four identified objectives for the proposed project.

6.3 DESCRIPTION OF THE PROJECT ALTERNATIVES

Two alternatives in addition to the No Project Alternative were identified that would meet most of the objectives of the proposed project and that would reduce potential significant impacts of the proposed project. These two alternatives, as well as the No Project Alternative, are described in the following subsections. These project alternatives were developed by modifying one or more components of the proposed project. Unless otherwise stated, all other components of each project alternative are identical to the proposed project. Potential impacts associated with these alternatives are compared with potential impacts from the proposed project in Section 6.4.

6.3.1 ALTERNATIVE 1 - NO PROJECT ALTERNATIVE

CEQA Guidelines §15126.6(e) requires an evaluation of a No Project Alternative. Under the No Project Alternative, no modifications would occur at the Carson Facility, and the facility would continue to operate under its current configuration and its current permitted ethanol loading capacity. Under the No Project Alternative the following proposed project modifications would not occur: increasing the maximum permitted ethanol throughput for the existing two-lane truck loading rack; converting four existing storage tanks from gasoline to ethanol service; constructing a new single-lane ethanol truck loading rack; expanding the loading rack operations building; and constructing a new gasoline storage tank.

CEQA Guidelines §15126.6(e)(3)(B) states that where failure to proceed with the project will not result in preservation of existing environmental conditions, the analysis should identify the practical result of the project's non-approval, and CEQA Guidelines §15126.6(e)(3)(C) states that the lead agency should proceed to analyze the impacts of the No Project Alternative by projecting what would reasonably be expected to occur in the foreseeable future if the project were not approved. Under the No Project Alternative, the increased demand for ethanol in southern California in response to the 2007 amendments to the CARB RFG Phase 3 requirements would have to continue to be met by other means.

For example, under the No Project Alternative, the increase in ethanol delivery that would have occurred under the proposed project would be expected to occur at other facilities that load ethanol for delivery to gasoline distribution terminals. While it is not known what modifications, if any, would be required to support increase ethanol delivery capacity at other facilities, if there is an increase in ethanol demand then there could be a need for construction of new or modifications to existing ethanol storage tanks and loading racks at other facilities. Additionally, the increases in ethanol loading and ethanol tanker truck trips to deliver ethanol at these facilities would be expected to be similar to the increases that would occur at the Carson Facility under the proposed project. Because there is a considerable amount of uncertainty about modifications that would be required at other facilities, it would be speculative to suggest how much, if any, new construction would be required at other ethanol storage and distribution facilities under the No Project Alternative.

6.3.2 ALTERNATIVE 2 – CONSTRUCT THE NEW GASOLINE STORAGE TANK AT AN ALTERNATIVE LOCATION WITHIN THE CARSON FACILITY

Under Alternative 2, the project as described in Chapter 2 would be constructed, except that the proposed new gasoline storage tank would be constructed at a location within the Carson Facility that is farther from the facility boundary to reduce potential off-site hazard impacts from operation of the gasoline storage tank. The alternative location for the gasoline storage tank is shown in Figure 6-2. This location was chosen to maximize the distance between the gasoline storage tank and the facility boundaries while avoiding the need to demolish existing structures and keeping the tank as close as possible to existing storage tanks. Placement of the tank farther to the east or south would have brought it closer to the site boundary and resulted in no reduction in off-site hazards.

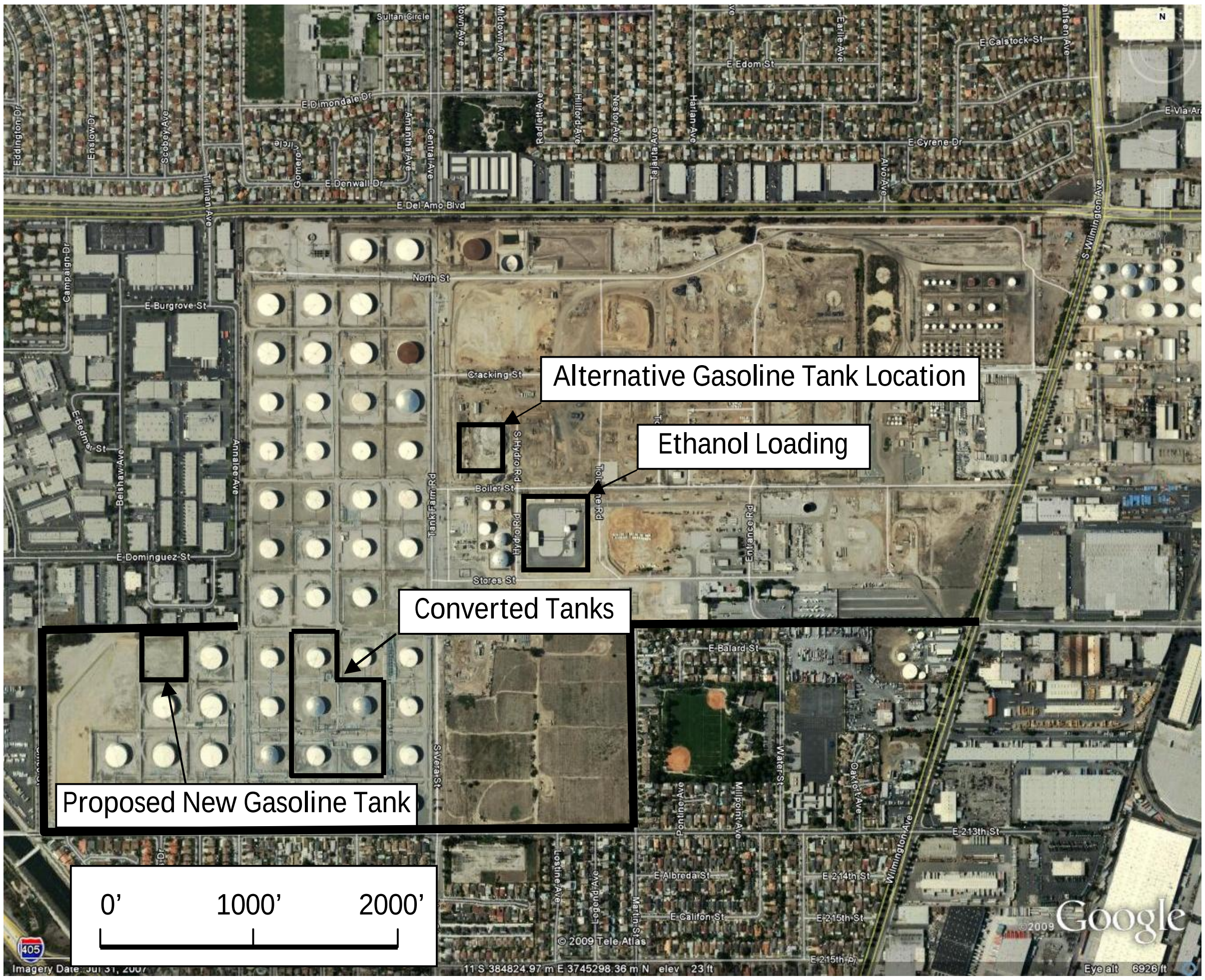


Figure 6-2. Alternative Location for New Gasoline Storage Tank

Unlike the proposed project, this alternative location is not adjacent to the facility's main manifolds of the existing internal gasoline distribution system; constructing the tank at this location would require the construction of approximately 1,500 feet of additional piping beyond what would be required under the proposed project and it would require the installation of a new pump, which would not be required for the proposed project. A secondary containment dike surrounding the new gasoline tank would also need to be constructed under this alternative, while the gasoline storage tank location for the proposed project is already surrounded by a secondary containment dike. In addition, by having the new gasoline tank located farther away from the existing gasoline storage tanks, routine inspections and other operations, such as manually checking gasoline volumes and switching of tanks, requires more staff and more procedures. This additional coordination effort would reduce the operational efficiency of the Carson Facility.

6.3.3 ALTERNATIVE 3 – ELIMINATE THE NEW GASOLINE STORAGE TANK

Under Alternative 3, the project as described in Chapter 2 would be constructed, except that there would be no construction or operation of a new gasoline storage tank and there would be no construction of the associated piping connecting the new storage tank to the rest of the internal gasoline conveyance system. Other components of the project would be the same: four existing gasoline tanks would still be converted from gasoline storage to ethanol storage; the maximum daily throughput for the existing two lane loading rack would be increased from 30,000 bbl/day to 35,000 bbl/day; the new single lane loading rack would be constructed; the Rack Operations Building would be expanded; and the associated piping to tie the system together would be constructed.

Because the new gasoline storage tank would not be constructed, hydrostatic testing would not be required. Additionally, the duration of construction would be six months rather than 17 months that would have been required for the construction of the new gasoline storage tank.

This alternative would reduce Shell's on-site storage capacity for other fuels by up to 158,000 bbls (compared to the proposed project) because none of the gasoline storage capacity lost by converting four tanks from gasoline to ethanol service would be replaced by the construction of a new gasoline storage tank. This change would reduce operational efficiency within the Carson Facility by requiring more adjustment and coordination of the remaining existing gasoline storage resources.

6.4 ENVIRONMENTAL IMPACTS FROM THE PROJECT ALTERNATIVES

6.4.1 ALTERNATIVE 1 - NO PROJECT ALTERNATIVE

6.4.1.1 Air Quality

Construction emissions associated with the proposed project were concluded to be significant for VOC, NOx, PM10 and PM2.5 emissions. Air quality impacts associated with construction of the proposed project at the Carson Facility (see Table 4.2-2) would be eliminated under the No Project Alternative, because no construction activities would be required at the Carson Facility. However, as discussed in Subsection 6.3.1, the increasing demand for ethanol in southern California in response to the 2007 amendments to the CARB RFG Phase 3 requirements would have to be met through other means. While it is not known what modifications would be required to increase ethanol delivery capacity at other facilities, it is likely that increased ethanol storage tanks and loading racks would be necessary, and constructing these modifications could lead to construction air quality impacts. It is not known whether other ethanol storage and distribution projects, in the absence of the proposed project, would be significant or not. Because construction air quality impacts would not occur under the No Project Alternative, there would be no cumulative construction air quality impacts under this alternative.

The only operational emissions associated with the proposed project that were estimated to be above the applicable regional significance thresholds were VOC and NOx emissions. Air quality impacts associated with operation of the proposed project at the Carson Facility (see Table 4.2-4) would be eliminated under the No Project Alternative, because no operational activities would occur. However, the emissions associated with the increase in tanker truck ethanol loading at the Carson Facility and with the resulting increase in tanker truck trips to deliver ethanol to gasoline distribution facilities that are estimated to occur under the proposed project may still occur at other facilities. Therefore, operation VOC and NOx emissions from other similar projects may still occur within the Basin. It is not known whether other ethanol storage and distribution projects, in the absence of the proposed project, would be significant or not. Because operation air quality impacts would not occur under the No Project Alternative, there would be no cumulative operation air quality impacts under this alternative.

The health risks from the proposed project (both carcinogenic and non-carcinogenic) were analyzed and estimated to be below the significance thresholds. The No Project Alternative would not generate the increased TAC emissions from the proposed project and the associated health risks. However, TAC emissions from increased ethanol loading and tanker truck trips might occur at other facilities. Because increased TAC emissions would not be generated under the No Project Alternative, there would be no cumulative health risk impacts under this alternative.

Subsection 5.3.5 identified a mitigation measure that was estimated to reduce impacts from GHG emissions associated with the proposed project to levels below the applicable significance threshold. Under the No Project Alternative, these emissions would not be generated. However, activities at other facilities to meet the increasing demand for ethanol in response to the 2007 amendments to the CARB RFG Phase 3 requirements under Alternative 1 may generate additional GHG emissions. If there are two or more ethanol storage and distribution facilities, overall GHG emissions at each facility could be less than the GHG significance threshold, but overall could be greater than the proposed project because of mitigation measure G-1, which reduces cumulatively significant adverse GHG emissions impacts from the proposed project to less than significant, may not necessarily be implemented at other facilities.

6.4.1.2 Biological Resources

Subsection 4.3.3 identified mitigation measures that were estimated to reduce potential impacts on biological resources associated with construction of the proposed project to levels below the applicable biological resources significance thresholds. Such potential impacts at the Carson Facility would not occur under the No Project Alternative, because no construction activities would be required at the Carson Facility. However, if modifications would be required at other facilities to meet an increasing demand for ethanol, those modifications could cause adverse impacts to biological resources if the modifications are made at locations within or near sensitive habitats.

The operational phase of the proposed project is not anticipated to generate impacts on biological resources at levels above the applicable biological resources significance thresholds. The No Project Alternative would not generate impacts on biological resources during operation, because there would be no change in operational activities at the Carson Facility.

Because impacts would not occur under the No Project Alternative, there would be no cumulative impacts to biological resources under this alternative.

6.4.1.3 Hazards and Hazardous Materials

The No Project Alternative would not generate potentially significant adverse hazards and hazardous materials impacts during construction or operation of the new gasoline storage tank compared to the proposed project, because the new gasoline storage tank would not be constructed and operated.

Because there would be no change to off-site hazards under the No Project Alternative, there would be no cumulative impacts to hazards or hazardous materials under this alternative.

6.4.1.4 Hydrology and Water Quality

As discussed in Sections 4.6 and 5.6, potential impacts to water supply from hydrostatic testing of the new gasoline storage tank at the Carson Facility would not occur under the No Project Alternative because potable water for hydrostatic testing of the new gasoline storage tank would not be required.

Because impacts to water supply would not occur under the No Project Alternative, there would be no cumulative impacts to water supply under this alternative.

6.4.1.5 Noise

Potential noise impacts from construction and operation of the proposed project were estimated to be below the noise significance threshold. Potential noise impacts from construction activities at the Carson Facility and from traffic during construction and operation of the proposed project at the Carson Facility would not occur under the No Project Alternative because no construction activities or increase in operational activities would occur at the Carson Facility.

Because significant noise impacts would not occur under the No Project Alternative, there would be no cumulative impacts for noise under this alternative.

6.4.1.6 Traffic and Transportation

Subsection 4.7.3 identified mitigation measures that were estimated to reduce potential impacts on traffic and transportation associated with construction of the proposed project to levels below the applicable traffic and transportation significance thresholds. Under the No Project Alternative traffic associated with construction of the proposed project would not occur since none of the components of the proposed project would be constructed, therefore, no additional trips would be generated.

Potential traffic impacts during operation of the proposed project were concluded to be below the applicable traffic and transportation significance thresholds. Under the No Project Alternative potential traffic impacts associated with operation of the proposed project would not occur since tanker truck trips to and from the Carson Facility would not increase.

Because significant impacts to traffic and transportation would not occur under the No Project Alternative, there would be no cumulative impacts on traffic and transportation under this alternative.

6.4.2 ALTERNATIVE 2 - CONSTRUCT THE NEW GASOLINE STORAGE TANK AT AN ALTERNATIVE LOCATION WITHIN THE CARSON FACILITY

6.4.2.1 Air Quality

Under Alternative 2, additional construction activities would be required in comparison with the proposed project because Alternative 2 would require installing an additional 1,500 feet of piping to connect the new gasoline storage tank to the facility's internal gasoline piping system, installing a new pump to transfer gasoline to and from the new gasoline storage tank, which would not be required for the proposed project, and constructing a secondary containment berm around the new gasoline storage tank, which would also not be required for the proposed project. These additional construction activities under Alternative 2 would generate emissions that would not be generated for construction of the proposed project.

As discussed in Section 2.8 and shown in Table 2-2, operation of the proposed project would be implemented in two interim phases, which would overlap with construction activities for the proposed project, prior to achieving the final proposed project operation. The first interim phase would occur during the first four months of construction of the proposed project, and the second interim phase would occur during the remainder of the construction period. These same interim operational phases would occur during the same time periods under Alternative 2. Because operational emissions during these interim phases would overlap with construction emissions during the entire construction period, significance of regional impacts from the emissions is determined by comparing the peak daily sum of overlapping construction and operational emissions to the regional operational significance thresholds.

The additional construction activities that would occur under Alternative 2 are anticipated to occur during weeks 19 through 28 of construction for Alternative 2. Thus, construction activities and the resulting construction emissions for Alternative 2 would be the same as for the proposed project during weeks one through 18 and weeks 29 through 72 and higher than for the proposed project during weeks 19 through 28. Construction emission calculations for Alternative 2, which include emissions from the additional construction activities during construction weeks 19 through 28, are in Appendix II-A. Peak daily construction emissions for Alternative 2 are shown in Table 6-1 and summarized in Table 6-2.

Constructing the new gasoline storage tank at an alternate location under Alternative 2 would not alter ethanol throughput during the interim operational phases of the proposed project so operational emissions during the interim operational phases would be the same as for the proposed project.

Daily operational and construction emissions during the time period of each interim operational phase were summed and are summarized for Alternative 2 in Table 6-1. Total emissions during the construction period for Alternative 2 are also compared with the SCAQMD's daily operational emissions regional significance threshold levels in Table 6-1. Total emissions during the construction period for Alternative 2 are not expected to exceed the significance thresholds for CO, SOx, PM10, and PM2.5, but emissions during the construction period for Alternative 2 are anticipated to exceed the significance thresholds for VOC and NOx. Therefore, the air quality impacts during the construction period for Alternative 2 are considered significant for VOC and NOx emissions.

Table 6-1
Total Emissions (Construction plus Operation) during the Construction Period for Alternative 2

Interim Operational Phase[1]	**VOC (lb/day)**	**CO (lb/day)**	**NOx (lb/day)**	**SOx (lb/day)**	**PM10 (lb/day)**	**PM2.5 (lb/day)**
Interim Phase 1						
Maximum Daily Construction Emissions	124.9	387.7	745.2	1.0	103.0	39.1
Maximum Daily Operational Emissions	57.2	56.4	90.1	0.1	8.4	6.2
Total Maximum Daily Emissions	**182.1**	**444.1**	**835.3**	**1.1**	**111.3**	**45.3**
Interim Phase II						
Maximum Daily Construction Emissions	94.6	314.2	630.6	0.8	90.5	34.5
Maximum Daily Operational Emissions	168.8	109.1	249.4	0.3	18.9	12.8
Total Maximum Daily Emissions	**263.4**	**423.3**	**879.9**	**1.2**	**109.4**	**47.3**
Peak Daily Emissions	**263.4**	**444.1**	**879.9**	**1.2**	**111.3**	**47.3**
SCAQMD Significance Threshold	55	550	55	150	150	55
Significant?	YES	NO	YES	NO	NO	NO

[1] See Subsection 2.9 for a description of the interim operational phases.

Table 6-2
Summary of Peak Daily Emissions during the Construction Periods for the Proposed Project and Alternative 2

Pollutant	Proposed Project Peak Daily Emissions (lb/day)	Alternative 2 Peak Daily Emissions (lb/day)	SCAQMD Significance Threshold (lb/day)	Significant Proposed Project/Alternative
VOC	243.6	263.4	55	Yes/Yes
CO	444.1	444.1	550	No/No
NOx	853.3	879.9	55	Yes/Yes
SOx	1.1	1.2	150	No/No
PM10	111.3	111.3	150	No/No
PM2.5	45.3	47.3	55	No/No

Emissions during the construction period for the proposed project were also considered significant for VOC and NOx emissions because total (overlapping construction and operational) peak daily VOC and NOx emissions would exceed the applicable SCAQMD operational significance thresholds. Estimated peak daily emissions during the construction period for both the proposed project and Alternative 2 are shown in Table 6-2. As shown in Table 6-2, estimated peak daily emissions of all pollutants during the construction period would be equal or higher under Alternative 2 when compared to the proposed project. In particular, estimated peak daily emissions of VOC and NOx would exceed the SCAQMD CEQA significance thresholds for the proposed project and for Alternative 2. Under Alternative 2, NOC, NOx, SOx and PM2.5 emissions during construction would be higher compared to the proposed project, while CO and PM10 emissions would be the same as the proposed project. Thus VOC and NOx emission impacts from Alternative 2 during the construction period are concluded to be significant and higher than VOC and NOx emission impacts from the proposed project.

Localized ambient air quality impacts during the construction period for the proposed project were considered significant for NOx, PM10 and PM2.5 because estimated NO_2, PM10 and PM2.5 air quality impacts would exceed the applicable localized significance thresholds. Estimated localized air quality impacts for both the proposed project and Alternative 2 are shown in Table 6-3. (Details of the analyses for Alternative 2 can be found in Appendix II-C.) As shown in Table 6-3, estimated localized impacts of CO and NO_2 would be lower under Alternative 2 when compared to the proposed project, but estimated NO_2 impacts under Alternative 2 would exceed the SCAQMD significance threshold. As shown in Table 6-3, estimated localized impacts of PM10 and PM2.5 would be higher under Alternative 2 when compared to the proposed project and would exceed the SCAQMD significance thresholds. Thus localized NOx emission impacts from Alternative 2 during the construction period would be significant but less than localized NOx emission impacts from the proposed project, and localized PM10 and PM2.5 emissions impacts during the construction period would be significant and higher than localized PM10 and PM2.5 emission impacts from the proposed project.

Table 6-3
Summary of Ambient Air Quality Impacts during the Construction Period for the Proposed Project and Alternative 2

Pollutant/Averaging Period	Proposed Project Ambient Concentration ($\mu g/m^3$)	Alternative 2 Ambient Concentration ($\mu g/m^3$)	SCAQMD Significance Threshold ($\mu g/m^3$)	Significant Proposed Project/Alternative
CO/1-hour[1]	4,985	4,806	23,000	No/No
CO/8-hour[1]	4,056	4,045	10,000	No/No
NO_2/1-hour[1]	517	387	339	Yes/Yes
NO_2/Annual[1]	48.2	47.9	57	No/No
PM10/24-hour[2]	14.0	16.4	2.5	Yes/Yes
PM10/Annual[2]	1.49	1.59	1.0	Yes/Yes
PM2.5/24-hour[2]	3.5	3.9	2.5	Yes/Yes

[1] Ambient concentrations are concentrations from proposed project and Alternative 2 emissions plus ambient background
[2] Ambient concentrations are concentrations from proposed project and Alternative 2 emissions only.

Because estimated construction emissions for Alternative 2 exceed the mass daily thresholds established by the SCAQMD for VOC and NOx, and ambient air quality impacts exceed the localized significance thresholds established by the SCAQMD for NO_2, PM10 and PM2.5, the construction air quality impacts are considered cumulatively considerable for VOC, NOx, PM10 and PM2.5 and are concluded to be cumulatively significant. The construction emissions for Alternative 2 are not expected to exceed the thresholds established by the SCAQMD for CO and SOx. As stated in CEQA Guidelines §15064(h)(4)), the "mere existence of significant cumulative impacts caused by other projects alone shall not constitute substantial evidence that the proposed project's incremental effects are cumulatively considerable." Therefore, the air quality construction impacts for Alternative 2 are not cumulatively considerable for CO and SOx.

Constructing the new gasoline storage tank at an alternate location under Alternative 2 would not alter ethanol throughput during full operation of the proposed project so operational emissions from ethanol loading and tanker truck exhaust would be the same as for the proposed project. Emissions from operation of the new gasoline storage tank would also be the same as for the proposed project, because the gasoline storage tank would be the same size and dimensions under Alternative 2 as for the proposed project. Fugitive VOC emissions would be higher under Alternative 2 because additional components that could generate fugitive VOC emissions, such as a pump and piping connections, would be installed under Alternative 2. However, fugitive VOC emissions from components associated with the gasoline storage tank under Alternative 2 would be offset as required by SCAQMD Rule 1303 (see Subsection 4.2.2.3). Thus, operational emissions under Alternative 2 would be equivalent to the proposed project and would be considered significant for VOC and NOx under Alternative 2 and for the proposed project.

Because estimated operational emissions for Alternative 2 would exceed the thresholds established by the SCAQMD for VOC and NOx, the operational air quality impacts are considered cumulatively considerable for VOC and NOx and are concluded to be cumulatively significant. The operational emissions for Alternative 2 are not expected to exceed the thresholds established by the SCAQMD for CO, SOx, PM10 and PM2.5. As stated in CEQA Guidelines §15064(h)(4)), the "mere existence of significant cumulative impacts caused by other projects alone shall not constitute substantial evidence that the proposed project's incremental effects are cumulatively considerable." Therefore, the air quality operational impacts for Alternative 2 are not cumulatively considerable for CO, SOx, PM10, and PM2.5.

TAC emissions from ethanol loading and ethanol tanker truck exhaust would be the same under Alternative 2 as for the proposed project because ethanol throughput and the resulting number of tanker truck trips to and from the facility would be the same. TAC emissions from operation of the gasoline storage tank would also be the same because TAC emissions from the storage tank are determined by VOC emissions, which would be the same under Alternative 2 as the proposed project. However, fugitive TAC emissions would be higher under Alternative 2 because fugitive VOC emissions would be higher because of the addition of a pump and longer piping requiring additional connections. Fugitive VOC emissions from components associated with the gasoline storage tank are estimated to 1.0 pound per day for Alternative 2 (see Appendix II-B for the fugitive VOC emissions calculations for Alternative 2), which is small in comparison with VOC emissions from other sources, which total 158.8 pounds per day (see Table 4.2-4). When compared to the proposed project, non-carcinogenic health risks associated with TAC emissions under Alternative 2 would be lower because TAC emissions from the gasoline storage tank would occur farther from the facility boundary, which would result in greater dispersion of the emissions before they reached the boundary. However, carcinogenic health risks would be essentially the same as for the proposed project, because the majority of estimated carcinogenic health risks are caused by DPM emissions from tanker truck exhaust. The health risks from the proposed project (both carcinogenic and non-carcinogenic) were analyzed and concluded to be below the applicable significance thresholds. Therefore, because TAC impacts from Alternative 2 would be slightly less than the proposed project, which are less than significant, TAC impacts would also be less than significant for Alternative 2.

Because TAC impacts would be less than significant under Alternative 2, there would be no cumulative health risk impacts under this alternative.

The proposed project, with mitigation measure G-1 to limit total ethanol loading for the existing two-lane tanker truck loading rack and the proposed new single-lane tanker truck loading rack to no more than 16,972,500 barrels in any calendar year, is expected to generate approximately 9,937 MT CO_2e/year of GHG emissions, which is below the SCAQMD significance threshold. Under Alternative 2, GHG emissions during construction would be higher because the construction activities would increase. GHG emissions during the construction period for Alternative 2 are estimated to be 4,932 MT CO_2e (construction GHG emission calculations for Alternative 2 are in Appendix II-A) as compared with 4,436 MT CO_2e for the proposed project.

GHG emissions during the construction period for Alternative 2, amortized over 30 years, are expected to be 164 MT CO_2e/year, and annual unmitigated GHG emissions, including amortized construction emissions, would be 12,365 MT CO_2e/year, which exceeds the SCAQMD significance threshold for industrial projects of 10,000 MT CO_2e/year. A modified version of mitigation measure G-1 with a limit on total ethanol loading of no more than 16,957,500 barrels in any calendar year would be required for Alternative 2, which would reduce GHG emissions to 9,937 MT CO_2e/year, which is the same as GHG emissions from the proposed project and below the SCAQMD significance threshold (mitigated operational GHG emission calculations for Alternative 2 are in Appendix II-B). Thus, mitigated GHG emissions under Alternative 2 would be equivalent to the proposed project and would also not be cumulatively considerable and would not contribute to overall significant cumulative GHG impacts.

6.4.2.2 Biological Resources

Potential impacts to biological resources during construction of the proposed project were considered to be significant because construction activities could potentially adversely impact burrowing owls or nesting birds within the Carson Facility. Mitigation measures were identified in Subsection 4.3.3 to reduce these impacts to less than significant. Potential impacts on biological resources associated with construction of the proposed project would be reduced under Alternative 2 because the construction activities for the gasoline storage tank, pump and piping would not occur as close to potential habitat for nesting birds. However, construction activities for the other components of the proposed project (storage tank conversions from ethanol to gasoline service, the new single-lane ethanol loading rack and expansion of the loading rack operations building) that could potentially impact biological resources would be the same as those for the proposed project and would occur at the same areas within the Carson Facility. Thus, neither the proposed project nor Alternative 2 anticipate significant adverse impacts on biological resources above the significance threshold during the construction phase with mitigation, although, biological resources impacts from Alternative 2 would be slightly less compared to the proposed project.

Operation of the proposed project is not anticipated to cause significant adverse impacts on biological resources. Impacts on biological resources during the operation phase under Alternative 2 would be equivalent to the proposed project because ethanol loading activities and the number of ethanol tanker trucks traveling within the facility would be the same. Thus, it is anticipated that neither the proposed project nor Alternative 2 would create significant adverse impacts to biological resources during the operation phase.

The absence of significant adverse impacts to biological resources under Alternative 2 would also avoid contributing to cumulative impacts to biological resources.

6.4.2.3 Hazards and Hazardous Materials

The areal extent of new potential off-site impacts from a pool fire or a vapor cloud explosion following a catastrophic failure of the new gasoline storage tank would be reduced under Alternative 2 as compared to the proposed project because the new gasoline storage tank would be located farther from the facility boundary under Alternative 2. Estimated maximum hazard distances for a pool fire and a vapor cloud explosion following a catastrophic failure of the new gasoline storage tank for both the proposed project and Alternative 2 are shown in Table 6-4.

Table 6-4
Summary of Maximum Hazard Distances for a Catastrophic Failure of the New Gasoline Storage Tank for the Proposed Project and Alternative 2

	Pool Fire (threshold is 5,000 W/m^2)			Vapor Cloud Explosion (threshold is 1.0 psig)		
	Distance to Threshold (feet)	Distance to Facility Boundary (feet)	Off-Site Distance to Threshold (feet)	Distance to Threshold (feet)	Distance to Facility Boundary (feet)	Off-Site Distance to Threshold (feet)
Proposed Project	1,710	30	1,680	1,940	30	1,910
Alternative 2	1,710	1,350	360	1,940	1,350	590
Existing Diesel Fuel Storage Tank North of Alternative 2 Tank Location	1,380	50	1,330	230	50	180
Existing Diesel Fuel Storage Tank West of Alternative 2 Tank Location	1,380	50	1,330	230	50	180
Existing Gasoline Storage Tank Southwest of Alternative 2 Tank Location	1,710	1,790	80	1,940	1,790	150

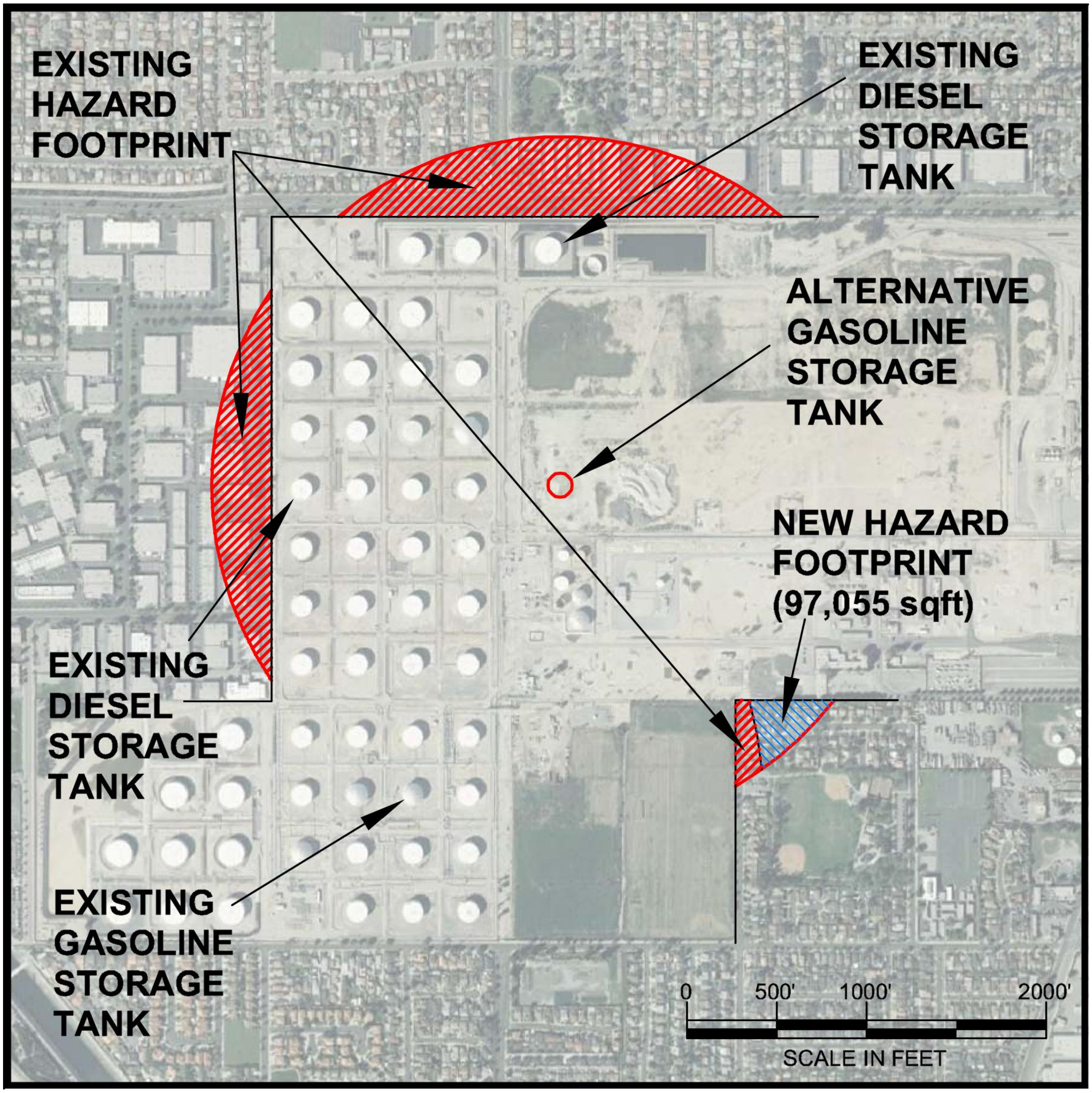
The surface area of the secondary containment area surrounding the tank would be the same under the proposed project or Alternative 2. Since the distances to the threshold values for either a pool fire or vapor cloud explosion depend on the surface area of a gasoline spill and the surface areas of the secondary containment area surrounding the tank would be the same for either the proposed project or Alternative 2, the distance to the thresholds are the same for the proposed project as Alternative 2. However, as seen in Table 6-4, the distances to the closest facility boundary would be approximately 1,350 feet under Alternative 2 and 30 feet for the proposed project. The off-site distances to the thresholds for a pool fire and for a vapor cloud explosion would be 360 feet and 590 feet, respectively, under Alternative 2.

Existing diesel fuel storage tanks located north and west of the alternative location for the new gasoline storage tank and an existing gasoline storage tank located southwest of the alternative location for the new gasoline storage tank also have the potential to create off-site hazard impacts that would overlap with potential off-site hazard impacts caused by the new gasoline storage tank. The distances to the thresholds for a vapor cloud explosion and for a pool fire for the existing gasoline and diesel fuel storage tanks are listed in Table 6-4. The off-site areas that would potentially exceed the threshold for a vapor cloud explosion for the proposed new gasoline storage tank at the alternative location are shown in Figure 6-3. The areas potentially impacted by a vapor cloud explosion are shown in Figure 6-3 because the off-site distance to the threshold is larger for a vapor cloud explosion than for a pool fire for gasoline. The off-site areas that would potentially exceed the thresholds for the existing gasoline storage tank and for the existing diesel fuel storage tanks and that would overlap with the off-site area potentially impacted by the new gasoline storage tank are also shown in Figure 6-3. The areas potentially impacted by a pool fire associated with the existing diesel fuel storage tanks are shown in Figure 6-3 because the off-site distance to the threshold is larger for a pool fire than for a vapor cloud explosion for diesel fuel.

Figure 6-3 shows that the off-site area potentially impacted by the new gasoline storage tank at the alternative location that would not overlap with areas impacted by the existing storage tank is approximately 97,055 square feet. Therefore, there would be a new off-site hazard footprint from implementation of Alternative 2 although it would be slightly more than half (53 percent) of the 182,681 square foot areal extent of the new off-site hazard area potentially impacted for the proposed project.

Potential off-site impacts from pool fires or vapor cloud explosions from the existing gasoline storage tanks converted to ethanol service and from the new single-lane ethanol loading rack under Alternative 2 would be equivalent to the proposed project and less than significant because these components of the proposed project would be the same under Alternative 2. Potential off-site impacts from an ethanol tanker truck accident under Alternative 2 would also be equivalent to the proposed project and less than significant because the ethanol throughput and the size and number of ethanol tanker trucks associated with operation of the proposed project would be the same. Potential adverse water quality impacts from an on-site hazardous materials release under Alternative 2 would be equivalent to the proposed project and less than significant because spill containment facilities would be the same and are designed to prevent off-site migration of spills and the same procedures would be employed to clean up a spill before groundwater contamination would occur.

The probability of a catastrophic failure of the new gasoline storage tank (0.127 catastrophic failures per million hours to 3.02 failures per million hours) would be the same under Alternative 2 as for the proposed project because the size, dimensions, construction and operational inspection of the gasoline storage tank would be the same.



The circle is the boundary of the off-site area with potential impacts above the threshold for alternative location for the new gasoline storage tank. The area in red is the off-site area with potential impacts above the threshold for existing storage tanks and that overlaps with the area potentially impacted by the new gasoline storage tank. The area in blue is the potential off-site impact area from the new gasoline storage tank that does not overlap with potential impacts from existing storage tanks.

Figure 6-3 Off-Site Areas with Hazard Impacts above Significance Threshold for Existing Storage Tanks and Alternative 2 Location for New Gasoline Storage Tank

The analysis of potential cumulative hazards and hazardous material impacts for the proposed project in Section 5.5 concluded that potential off-site hazard impacts caused by a pool fire or vapor cloud explosion following a catastrophic failure of the new gasoline storage tank would not overlap with potential hazards or hazardous material impacts from any of the potentially related projects identified in Section 5.2. Therefore, the proposed project is not expected to contribute to significant cumulative hazards and hazardous materials impacts. Because the off-site extent of potential hazards and hazardous material impacts under Alternative 2 is less than the proposed project, potential off-site hazard impacts caused by a pool fire or vapor cloud explosion following a catastrophic failure of the new gasoline storage tank under Alternative 2 would also not overlap with potential hazards or hazardous material impacts from any of the potentially related projects identified in Section 5.2. Therefore, Alternative 2 is also not expected to contribute to significant cumulative hazards and hazardous materials impacts.

6.4.2.4 Hydrology and Water Quality

The potential impacts on potable water supply under Alternative 2 would be equivalent to the proposed project because approximately the same volumes of potable water would still be required for hydrostatic testing of the new gasoline storage tank either during construction or during subsequent maintenance if repairs to the tank are warranted. Thus, potential project-specific and cumulative impacts on potable water supply are estimated to be significant for Alternative 2 and would be equivalent to the proposed project.

6.4.2.5 Noise

Noise impacts from on-site construction activities for the proposed project were concluded to be less than significant because noise levels at the closest off-site noise sensitive receptors are not expected to exceed the significance thresholds. Under Alternative 2, additional construction activities and construction equipment would be required in comparison with the proposed project because Alternative 2 would require installing an additional 1,500 feet of piping to connect the new gasoline storage tank to the facility's internal gasoline piping system, installing a new pump to transfer gasoline to and from the new gasoline storage tank, which would not be required for the proposed project, and constructing a secondary containment berm around the new gasoline storage tank, which would also not be required for the proposed project. These additional construction activities and construction equipment would increase the maximum on-site sound levels during construction of the new gasoline storage tank under Alternative 2 compared to the proposed project. Maximum on-site sound levels during peak construction activities for the new gasoline storage tank are estimated to be 89 dBA compared to 85 dBA for construction of the gasoline storage tank for the proposed project. Although maximum on-site sound levels during construction of the new gasoline storage tank would be higher for Alternative 2 than the proposed project, these sound levels would be generated farther from noise-sensitive receptors because the location of the new gasoline storage tank is farther from the facility boundaries under Alternative 2.

Sound levels during construction activities under Alternative 2 were estimated for two noise-sensitive receptor locations: 1) residences closest to the existing storage tanks that would be converted to ethanol service, which are located south of the storage tanks on East 213th Street; and 2) residences closest to the ethanol loading area and the location of the new gasoline storage tank, which are located southeast of the ethanol loading area, at the northern end of Martin Street. These receptor locations are shown in Figure 4.6-1.

The predicted sound levels are summarized in Table 6-5. As presented in Section 3.6, the City of Carson's noise ordinance prohibits noise levels during construction from exceeding 65 dBA between 7:00 a.m. and 8:00 p.m. Monday through Saturday. Table 6-5 shows that estimated construction noise levels at the two receptors nearest construction sites would be 65 dBA, which does not exceed this limit. Therefore, noise impacts at off-site noise-sensitive receptors would be less than significant under Alternative 2.

Table 6-5
Estimated Project Construction Noise Impacts for Alternative 2

Construction Area	**Receptor** **1 (Closest to Converted Storage Tanks)**	**Receptor** **2 (Closest to Ethanol Loading Area and New Gasoline Storage Tank)**
Converted Storage Tanks		
Sound Level at 50 feet (dBA)	85	85
Distance to Receptor (feet)	380	1,920
Reduction for Line-of-Sight Obstructions	-3	-3
Sound Level at Receptor (dBA)[1]	64	50
Loading Rack and Operations Building		
Sound Level at 50 feet (dBA)	85	85
Distance to Receptor (feet)	2,080	630
Reduction for Line-of-Sight Obstructions	0	0
Sound Level at Receptor (dBA)[1]	53	63
New Gasoline Storage Tank		
Sound Level at 50 feet (dBA)	89	89
Distance to Receptor (feet)	2,700	1,500
Reduction for Line-of-Sight Obstructions	-3	0
Sound Level at Receptor (dBA)[1]	51	59
Total Construction Sound Level at Receptor (dBA)[2]	**65**	**65**

[1] Sound level at receptor = Sound level at 50 ft. - 20 log(Distance to receptor / 50) - Reduction for line-of-site obstruction

[2] Total construction level at receptor = 10 log ($10^{\text{Sound level from tank conversion}/10} + 10^{\text{Sound level from ethanol loading area}/10} + 10^{\text{Sound level from new gasoline tank}/10}$) (NIOSH, 1978)

dBA = A-weighted decibels

As shown in Table 4.6-2, estimated noise levels at the two off-site noise sensitive receptors in Table 6-5 for the proposed project would be 65 dBA and 63 dBA. Thus, noise levels at off-site receptors caused by on-site construction activities would be slightly higher under Alternative 2 than the proposed project because noise levels at one receptor are estimated to be 65 dBA under Alternative 2 and 63 dBA for the proposed project.

Because of the distances between the proposed project and the potentially related projects identified in Section 5.2, on-site construction activities for the proposed project are not expected to cause cumulatively considerable adverse noise impacts and, therefore, on-site construction activities for the proposed project are not expected to generate significant adverse cumulative noise impacts. Because noise impacts from on-site construction activities for Alternative 2 are less than significant, on-site construction activities for Alternative 2 are not expected to contribute to cumulative significant adverse noise impacts.

Peak hourly truck and worker commuting traffic and the resulting noise impacts from off-site traffic during the construction period for the proposed project are anticipated to occur during the first month of construction and to be less than significant. The additional construction activities that would occur under Alternative 2 are anticipated to occur during weeks 19 through 28 of construction for Alternative 2. Thus, construction activities and the resulting truck and worker commuting traffic for Alternative 2 would be the same as for the proposed project during weeks one through 18 and weeks 29 through 72 and higher than for the proposed project during weeks 19 through 28.

The maximum daily number of construction workers during weeks 19 through 28 for Alternative 2 is estimated to be 165 per day, and the maximum daily number of construction trucks is estimated to be 152 per day. Additionally, the increase above the average during the baseline period in the maximum daily number of ethanol tanker trucks loaded during weeks 19 through 28 is estimated to be 144 trucks per day for Alternative 2 (see Appendix II-A for details of Alternative 2 construction traffic by construction phase and month).Construction workers would generate 165 trips per hour during the morning and during the afternoon between weeks 19 and 28 for Alternative 2. The construction trucks would generate a total of 304 one-way trips per day between weeks 19 and 28 for Alternative 2. These truck trips would be spread over the 10-hour daily construction duration, resulting in approximately 30 one-way trips per hour. In order to account for variations in truck trips during the 10-hour work day, it was assumed that one additional one-way construction truck trip could occur during an hour, which results in 31 hourly one-way trips. Ethanol tanker trucks would generate 288 one-way trips per day, which are anticipated to be spread evenly over a 24-hour period, so the hourly increase in ethanol tanker truck trips was estimated by dividing the 288 daily one-way trips by 24, which results in 12 additional hourly one-way trips. Thus, a maximum of 165 hourly automobile trips and 43 hourly truck trips would be anticipated to occur during construction weeks 19 through 28 under Alternative 2.

Analyses in the recirculated Draft EIR for the City of Carson General Plan (City of Carson, 2003) estimated that the CNEL at the residences along the potential truck and worker commuting routes was between 65 dBA and 70 dBA in 2001 and was anticipated to increase but remain below 70 dBA by 2020. These noise levels exceed the daytime noise standard for single-family residences of 50 dBA (see Table 3.6-4). Thus, noise impacts from increased truck and worker commuting traffic during the construction period would be considered significant if the truck and worker commuting traffic increased noise levels at these residences by more than three dBA.

The estimated maximum hourly equivalent noise level at residences nearest the routes used by this increased traffic is estimated to increase by one dBA, from 65 dBA to 66 dBA, which is less than the three dBA significance threshold (the noise calculations are in Appendix II-H). The estimated maximum hourly equivalent noise level at residences nearest the routes used by increased traffic during the construction period for the proposed project was also estimated to increase by one dBA, from 65 dBA to 66 dBA. Therefore, noise impacts from traffic during the construction period for Alternative 2 would be equivalent to the proposed project and less than significant.

Traffic during construction of the proposed project is not expected to occur on the same roadways as traffic during construction of the potentially related projects and is therefore not expected to cause cumulative noise impacts. Therefore, traffic during construction of the proposed project is not expected to cause cumulatively considerable adverse noise impacts and, therefore, traffic during construction of the proposed project is not expected to generate significant adverse cumulative noise impacts. Because traffic during construction of Alternative 2 would use the same roadways as traffic during construction of the proposed project and because noise impacts from traffic during construction of Alternative 2 are equivalent to noise impacts during construction of the proposed project, traffic during construction of Alternative 2 is not expected to cause cumulatively considerable adverse noise impacts and, therefore, traffic during construction of Alternative 2 is not expected to generate significant adverse cumulative noise impacts.

Operation of the proposed project is not anticipated to cause significant adverse project-specific or cumulative noise impacts. Noise impacts during the operation phase under Alternative 2 would be equivalent to the proposed project because noise generated by ethanol loading activities and the number of ethanol tanker trucks traveling within and outside the facility would be the same. Thus, it is anticipated that neither the proposed project nor Alternative 2 would create significant adverse noise impacts during the operation phase.

6.4.2.6 Traffic and Transportation

Peak hourly truck and worker commuting traffic and the resulting traffic and transportation impacts from off-site traffic during the construction period for the proposed project are anticipated to occur during the first month of construction and to be less than significant with mitigation. The additional construction activities that would occur under Alternative 2 are anticipated to occur during weeks 19 through 28 of construction for Alternative 2. Thus, construction activities and the resulting truck and worker commuting traffic for Alternative 2 would be the same as for the proposed project during weeks one through 18 and weeks 29 through 72 and higher than for the proposed project during weeks 19 through 28.

The maximum hourly passenger car equivalent trips during the A.M. and P.M. peak traffic periods from traffic during the construction period for Alternative 2 are anticipated to be lower during weeks 19 through 28 than during the first month of construction (see Appendix II-A for details of Alternative 2 construction traffic by construction phase and month). Therefore, peak hourly passenger car equivalent trips for Alternative 2 and the resulting traffic and transportation impacts would occur during the first month of construction and would be equivalent to the proposed project and less than significant with mitigation.

Traffic during construction of the proposed project is not expected to occur on the same roadways as traffic during construction of the potentially related projects and is therefore not expected to cause cumulative traffic and transportation impacts. Therefore, traffic during construction of the proposed project is not expected to cause cumulatively considerable adverse traffic and transportation impacts and, therefore, traffic during construction of the proposed project is not expected to generate significant adverse cumulative traffic and transportation impacts. Because traffic during construction of Alternative 2 would use the same roadways as traffic during construction of the proposed project and because traffic and transportation impacts from traffic during construction of Alternative 2 are equivalent to impacts during construction of the proposed project, traffic during construction of Alternative 2 is not expected to cause cumulatively considerable adverse traffic and transportation impacts and, therefore, traffic during construction of Alternative 2 is not expected to generate significant adverse cumulative traffic and transportation impacts.

Potential operational traffic impacts under Alternative 2 would be equivalent to the proposed project because ethanol throughput and the resulting number of ethanol tanker truck trips would be the same. Thus, as with the proposed project, potential project-specific and cumulative operational traffic impacts are estimated to be below the significance thresholds for Alternative 2.

6.4.3 ALTERNATIVE 3 – ELIMINATE THE NEW GASOLINE STORAGE TANK

6.4.3.1 Air Quality

Under Alternative 3, construction activities to construct a new gasoline storage tank and the associated emissions would not occur. As discussed in Section 2.8 and shown in Table 2-2, operation of the proposed project would be implemented in two interim phases, which would overlap with construction activities for the proposed project, prior to achieving the final proposed project operation. The first interim phase would occur during the first four months of construction of the proposed project, and the second interim phase would occur during the remainder of the construction period. These same interim operational phases would occur under Alternative 3. Because operational emissions during these interim phases would overlap with construction emissions during the entire construction period, significance of regional impacts from the emissions is determined by comparing the peak daily sum of overlapping construction and operational emissions to the regional operational significance thresholds. Construction emission calculations for Alternative 3 are in Appendix II-A.

Not constructing the new gasoline storage tank under Alternative 3 would not alter ethanol throughput during the interim operational phases of the proposed project so operational emissions during the interim operational phases would be the same as for the proposed project.

Daily operational and construction emissions during the time period of each interim operational phase were summed and are summarized for Alternative 3 in Table 6-6. Total emissions during the construction period for Alternative 3 are also compared with the SCAQMD's daily operational emissions regional significance threshold levels in Table 6-6. Total emissions during the construction period for Alternative 3 are not expected to exceed the significance thresholds for CO, SOx, PM10, and PM2.5, but emissions during the construction period for Alternative 3 are anticipated to exceed the significance thresholds for VOC and NOx. Therefore, the air quality impacts during the construction period for Alternative 3 are considered significant for VOC and NOx emissions.

Table 6-6
Total Emissions (Construction plus Operation) during the Construction Period for Alternative 3

Interim Operational Phase[1]	VOC (lb/day)	CO (lb/day)	NOx (lb/day)	SOx (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)
Interim Phase 1						
Maximum Daily Construction Emissions	114.9	343.9	640.8	0.9	87.7	33.5
Maximum Daily Operational Emissions	57.2	56.4	90.1	0.1	8.4	6.2
Total Maximum Daily Emissions	**172.1**	**400.4**	**730.8**	**1.0**	**96.1**	**39.6**
Interim Phase II						
Maximum Daily Construction Emissions	66.0	180.5	323.9	0.4	47.6	18.0
Maximum Daily Operational Emissions	168.8	109.1	249.4	0.3	18.9	12.8
Total Maximum Daily Emissions	**234.9**	**289.5**	**573.3**	**0.8**	**66.5**	**30.9**
Peak Daily Emissions	**234.9**	**400.4**	**730.8**	**1.0**	**96.1**	**39.6**
SCAQMD Significance Threshold	55	550	55	150	150	55
Significant?	YES	NO	YES	NO	NO	NO

[1] See Subsection 2.9 for a description of the interim operational phases.

Emissions during the construction period for the proposed project were also considered significant for VOC and NOx emissions because total (overlapping construction and operational) peak daily VOC and NOx emissions would exceed the applicable SCAQMD operational significance thresholds. Estimated peak daily emissions during the construction period for both the proposed project and Alternative 3 are shown in Table 6-7. As shown in Table 6-7, estimated peak daily emissions of all pollutants during the construction period would be lower under Alternative 3 when compared to the proposed project. In particular, estimated emissions of VOC and NOx, which exceed the SCAQMD CEQA significance thresholds for the proposed project and for Alternative 3, would be lower under Alternative 3 when compared to the proposed project. Thus VOC and NOx emission impacts from Alternative 3 during the construction period would be significant and lower than VOC and NOx emission impacts from the proposed project.

Table 6-7
Summary of Peak Daily Emissions during the Construction Periods for the Proposed Project and Alternative 3

Pollutant	Proposed Project Peak Daily Emissions (lb/day)	Alternative 3 Peak Daily Emissions (lb/day)	SCAQMD Significance Threshold (lb/day)	Significant Proposed Project/Alternative
VOC	243.6	234.9	55	Yes/Yes
CO	444.1	400.4	550	No/No
NOx	853.3	730.8	55	Yes/Yes
SOx	1.1	1.0	150	No/No
PM10	111.3	96.1	150	No/No
PM2.5	45.3	39.6	55	No/No

Localized ambient air quality impacts during the construction period for the proposed project were considered significant for NOx, PM10 and PM2.5 because estimated NO_2, PM10 and PM2.5 air quality impacts would exceed the applicable localized significance thresholds. Estimated localized air quality impacts for both the proposed project and Alternative 3 are shown in Table 6-8. (Details of the analyses for Alternative 3 can be found in Appendix II-C.) As shown in Table 6-8, estimated localized impacts of all pollutants considered in the analysis would be lower under Alternative 3 when compared to the proposed project, but estimated NO_2, PM10 and PM2.5 impacts under Alternative 3 would exceed the SCAQMD significance threshold. Thus localized NOx, PM10 and PM2.5 emission impacts from Alternative 3 during the construction period would be significant but less than localized NOx, PM10 and PM2.5 emission impacts from the proposed project.

Because estimated construction emissions for Alternative 3 exceed the mass daily thresholds established by the SCAQMD for VOC and NOx, and ambient air quality impacts exceed the localized significance thresholds established by the SCAQMD for NO_2, PM10 and PM2.5, the construction air quality impacts are considered cumulatively considerable for VOC, NOx, PM10 and PM2.5 and are concluded to be cumulatively significant. The construction emissions for Alternative 3 are not expected to exceed the thresholds established by the SCAQMD for CO and SOx. As stated in CEQA Guidelines §15064(h)(4)), the "mere existence of significant cumulative impacts caused by other projects alone shall not constitute substantial evidence that the proposed project's incremental effects are cumulatively considerable." Therefore, the air quality construction impacts for Alternative 3 are not cumulatively considerable for CO and SOx.

Table 6-8
Summary of Ambient Air Quality Impacts during the Construction Period for the Proposed Project and Alternative 3

Pollutant/Averaging Period	Proposed Project Ambient Concentration (μg/m³)	Alternative 3 Ambient Concentration (μg/m³)	SCAQMD Significance Threshold (μg/m³)	Significant Proposed Project/Alternative
CO/1-hour[1]	4,985	4,794	23,000	No/No
CO/8-hour[1]	4,056	4,043	10,000	No/No
NO_2/1-hour[1]	517	379	339	Yes/Yes
NO_2/Annual[1]	48.2	46.7	57	No/No
PM10/24-hour[2]	14.0	13.9	2.5	Yes/Yes
PM10/Annual[2]	1.49	1.46	1.0	Yes/Yes
PM2.5/24-hour[2]	3.5	3.4	2.5	Yes/Yes

[1] Ambient concentrations are concentrations from proposed project and Alternative 2 emissions plus ambient background
[2] Ambient concentrations are concentrations from proposed project and Alternative 2 emissions only.

Not constructing the new gasoline storage tank under Alternative 3 would not alter ethanol throughput during full operation of the proposed project so operational emissions from ethanol loading and tanker truck exhaust would be the same as for the proposed project. Emissions from operation of the new gasoline storage tank would not occur because the new gasoline storage tank would not be constructed. However, VOC emissions associated with the gasoline storage tank for the proposed project would be offset as required by SCAQMD Rule 1303 (see Subsection 4.2.2.3). Thus, operational emissions under Alternative 3 would be equivalent to the proposed project and would be considered significant for VOC and NOx under Alternative 3 and for the proposed project.

Because estimated operational emissions for Alternative 3 would exceed the thresholds established by the SCAQMD for VOC and NOx, the operational air quality impacts are considered cumulatively considerable for VOC and NOx and are concluded to be cumulatively significant. The operational emissions for Alternative 3 are not expected to exceed the thresholds established by the SCAQMD for CO, SOx, PM10 and PM2.5. As stated in CEQA Guidelines §15064(h)(4)), the "mere existence of significant cumulative impacts caused by other projects alone shall not constitute substantial evidence that the proposed project's incremental effects are cumulatively considerable." Therefore, the air quality operational impacts for Alternative 3 are not cumulatively considerable for CO, SOx, PM10, and PM2.5.

TAC emissions from ethanol loading and ethanol tanker truck exhaust would be the same under Alternative 3 as for the proposed project because ethanol throughput and the resulting number of tanker truck trips to and from the facility would be the same. TAC emissions from operation of the gasoline storage tank would not occur because the new gasoline storage tank would not be constructed. When compared to the proposed project, non-carcinogenic health risks associated with TAC emissions under Alternative 3 would be lower because TAC emissions from the gasoline storage tank would not occur. However, carcinogenic health risks would be essentially the same as for the proposed project, because the majority of estimated carcinogenic health risks are caused by DPM emissions from tanker truck exhaust. The health risks from the proposed project (both carcinogenic and non-carcinogenic) were analyzed and concluded to be below the applicable significance thresholds. Therefore, because TAC impacts from Alternative 3 would be less than the proposed project, they would also be less than significant.

Because TAC impacts would be less than significant under Alternative 3, there would be no cumulative health risk impacts under this alternative.

The proposed project, with mitigation measure G-1 to limit total ethanol loading for the existing two-lane tanker truck loading rack and the proposed new single-lane tanker truck loading rack to no more than 16,972,500 barrels in any calendar year, is expected to generate approximately 9,942 MT CO_2e/year of GHG emissions, which is below the SCAQMD significance threshold. Under Alternative 3, GHG emissions during construction would be lower because the construction activities to construct the new gasoline storage tank would not occur. GHG emissions during the construction period for Alternative 3 are estimated to be 2,432 MT CO_2e (construction GHG emission calculations for Alternative 3 are in Appendix II-A) as compared with 4,436 MT CO_2e for the proposed project. GHG emissions during the construction period for Alternative 3, amortized over 30 years, are expected to be 81 MT CO_2e/year, and annual unmitigated GHG emissions, including amortized construction emissions, would be 12,282 MT CO_2e/year, which exceeds the SCAQMD significance threshold for industrial projects of 10,000 MT CO_2e/year. A modified version of mitigation measure G-1 with a limit on total ethanol loading of no more than 17,033,200 barrels in any calendar year would be required for Alternative 3, which would reduce GHG emissions to 9,937 MT CO_2e/year, which is the same as GHG emissions from the proposed project and below the SCAQMD significance threshold (mitigated operational GHG emission calculations for Alternative 3 are in Appendix II-B). Thus, mitigated GHG emissions under Alternative 2 would be equivalent to the proposed project and would also not be cumulatively considerable and would not contribute to overall significant cumulative GHG impacts.

6.4.3.2 Biological Resources

Potential impacts to biological resources during construction of the proposed project were considered significant because construction activities could potentially adversely impact burrowing owls or nesting birds. Mitigation measures were identified in Subsection 4.3.3 to reduce these impacts to less than significant. Potential impacts on biological resources associated with implementation of Alternative 3 would be lower than the proposed project because the construction of the proposed new gasoline storage tank would not occur. As a result there would be no potential construction impacts to birds potentially nesting in the eucalyptus trees west of the proposed new gasoline storage tank location. The other aspects of the project (storage tank conversions from ethanol to gasoline service, the new single-lane ethanol loading rack and expansion of the loading rack operations building) would be constructed under Alternative 3 and at the same locations. Construction activities at these locations could potentially cause significant adverse impacts on burrowing owls or nesting birds if they are present within established buffer areas surrounding these locations. With the implementation of the mitigation measures identified in Section 4.3.3, significant adverse impacts are not anticipated during construction of the proposed project or Alternative 3.

Operation of the proposed project is not anticipated to cause significant adverse impacts on biological resources. Impacts on biological resources during the operation phase under Alternative 3 would be equivalent to the proposed project because ethanol loading activities and the number of ethanol tanker trucks traveling within the facility would be the same. Thus, it is anticipated that neither the proposed project nor Alternative 3 would create significant adverse impacts to biological resources during the operation phase.

The absence of significant adverse impacts to biological resources under Alternative 3 would also avoid contributing to cumulative impacts to biological resources.

6.4.3.3 Hazards and Hazardous Materials

The exceedance of the significance criterion for off-site hazards and hazardous materials impacts associated with installation of the new gasoline storage tank under the proposed project would be eliminated under Alternative 3 because the new gasoline storage tank would not be constructed.

Potential off-site impacts from pool fires or vapor cloud explosions from the existing gasoline storage tanks converted to ethanol service and from the new single-lane ethanol loading rack under Alternative 3 would be equivalent to the proposed project and less than significant because these components of the proposed project would be the same under Alternative 3. Potential off-site impacts from an ethanol tanker truck accident under Alternative 3 would also be equivalent to the proposed project and less than significant because the size of ethanol tanker trucks associated with operation of the proposed project would be the same. Similarly, the probability of an ethanol tanker truck accident would be the same under Alternative 3 because the number of tanker trucks would be the same as for the proposed project. Because spills would not be expected to migrate from the facility or to contaminate groundwater, potential adverse water quality impacts from an on-site hazardous materials release under Alternative 3 would be slightly less compared to the proposed project in the absence of a new gasoline storage tank and would also be less than significant because spill containment facilities are designed to prevent off-site migration of spills and the same procedures would be employed to clean up a spill before groundwater contamination would occur irrespective of the presence or absence of a new gasoline storage tank.

Without the presence of the new gasoline storage tank, there would be no cumulative impacts to hazards and hazardous materials from Alternative 3 because the remaining components would not contribute an increase in off-site hazards.

6.4.3.4 Hydrology and Water Quality

The exceedance of the significance criterion for potable water supply under Alternative 3 would be eliminated under Alternative 3 because potable water would not be required for hydrostatic testing of a new gasoline storage tank before operation or in later years when storage tank integrity testing may be necessary. Without the use of hydrostatic test water, there would be no cumulative impact to water supply from Alternative 3.

6.4.3.5 Noise

Noise impacts from on-site construction activities for the proposed project were concluded to be less than significant because noise levels at the closest off-site noise sensitive receptors are not expected to exceed the significance thresholds. Under Alternative 3, noise generating activities from construction of the new gasoline storage tank would not occur.

Sound levels during construction activities under Alternative 3 were estimated for two noise-sensitive receptor locations: 1) residences closest to the existing storage tanks that would be converted to ethanol service, which are located south of the storage tanks on East 213th Street; and 2) residences closest to the ethanol loading area, which are located southeast of the ethanol loading area, at the northern end of Martin Street. These receptor locations are shown in Figure 4.6-1.

The predicted sound levels are summarized in Table 6-9. As presented in Section 3.6, the City of Carson's noise ordinance prohibits noise levels during construction from exceeding 65 dBA between 7:00 a.m. and 8:00 p.m. Monday through Saturday. Table 6-9 shows that estimated construction noise levels at the two receptors nearest construction sites would be 63 and 64 dBA, which does not exceed this limit. Therefore, noise impacts at off-site noise-sensitive receptors would be less than significant under Alternative 3.

As shown in Table 4.6-2, estimated noise levels at the two off-site noise sensitive receptors in Table 6-9 for the proposed project would be 65 dBA and 63 dBA. Thus, noise levels at off-site receptors caused by on-site construction activities would be slightly lower under Alternative 3 than the proposed project because noise levels at one receptor are estimated to be 64 dBA under Alternative 3 and 65 dBA for the proposed project.

Peak hourly truck and worker commuting traffic and the resulting noise impacts from off-site traffic during the construction period for the proposed project are anticipated to occur during the first month of construction and to be less than significant. Peak hourly truck and worker commuting traffic for Alternative 3 are also anticipated to occur during the first month of construction. The maximum daily number of construction workers during the first month of construction for Alternative 3 is estimated to be 170 per day, and the maximum daily number of construction trucks is estimated to be 80 per day. Additionally, the increase above the average during the baseline period in the maximum daily number of ethanol tanker trucks loaded during the first month of construction is estimated to be 52 trucks per day for Alternative 3 (see Appendix II-A for details of Alternative 2 construction traffic by construction phase and month).

Table 6-9
Estimated Project Construction Noise Impacts for Alternative 3

Construction Area	Receptor	
	1 (Closest to Converted Storage Tanks)	**2 (Closest to Ethanol Loading Area)**
Converted Storage Tanks		
Sound Level at 50 feet (dBA)	85	85
Distance to Receptor (feet)	380	1,920
Reduction for Line-of-Sight Obstructions	-3	-3
Sound Level at Receptor (dBA)[1]	64	50
Loading Rack and Operations Building		
Sound Level at 50 feet (dBA)	85	85
Distance to Receptor (feet)	2,080	630
Reduction for Line-of-Sight Obstructions	0	0
Sound Level at Receptor (dBA)[1]	53	63
Total Construction Sound Level at Receptor (dBA)[2]	**64**	**63**

[1] Sound level at receptor = Sound level at 50 ft. - 20 log(Distance to receptor / 50) - Reduction for line-of-site obstruction

[2] Total construction level at receptor = 10 log ($10^{\text{Sound level from tank conversion/10}}$ + $10^{\text{Sound level from ethanol loading area/10}}$ + $10^{\text{Sound level from new gasoline tank/10}}$) (NIOSH, 1978)

dBA = A-weighted decibels

Construction workers would generate 170 trips per hour during the morning and during the afternoon for the first month of construction for Alternative 3. The construction trucks would generate a total of 160 one-way trips per day during the first month of construction for Alternative 3. These truck trips would be spread over the 10-hour daily construction duration, resulting in approximately 16 one-way trips per hour. In order to account for variations in truck trips during the 10-hour work day, it was assumed that one additional one-way construction truck trip could occur during an hour, which results in 17 hourly one-way trips. Ethanol tanker trucks would generate 104 one-way trips per day, which are anticipated to be spread evenly over a 24-hour period, so the hourly increase in ethanol tanker truck trips was estimated by dividing the 104 daily one-way trips by 24, which results in four additional hourly one-way trips. Thus, a maximum of 165 hourly automobile trips and 21 hourly truck trips would be anticipated to occur during the first month of construction under Alternative 3.

Analyses in the recirculated Draft EIR for the City of Carson General Plan (City of Carson, 2003) estimated that the CNEL at the residences along the potential truck and worker commuting routes was between 65 dBA and 70 dBA in 2001 and was anticipated to increase but remain below 70 dBA by 2020. These noise levels exceed the daytime noise standard for single-family residences of 50 dBA (see Table 3.6-4). Thus, noise impacts from increased truck and worker commuting traffic during the construction period would be considered significant if the truck and worker commuting traffic increased noise levels at these residences by more than three dBA.

The estimated maximum hourly equivalent noise level at residences nearest the routes used by this increased traffic is estimated to increase by one dBA, from 65 dBA to 66 dBA, which is less than the three dBA significance threshold (the noise calculations are in Appendix II-H). The estimated maximum hourly equivalent noise level at residences nearest the routes used by increased traffic during the construction period for the proposed project was also estimated to increase by one dBA, from 65 dBA to 66 dBA. Therefore, noise impacts from traffic during the construction period for Alternative 3 would be equivalent to the proposed project and less than significant.

Operation of the proposed project is not anticipated to cause significant adverse noise impacts. Noise impacts during the operation phase under Alternative 3 would be equivalent to the proposed project because noise generated by ethanol loading activities and the number of ethanol tanker trucks traveling within and outside the facility would be the same. Thus, it is anticipated that neither the proposed project nor Alternative 3 would create significant adverse noise impacts during the operation phase.

Because there would not be significant noise impacts under Alternative 3, there would be no cumulative impact on noise from Alternative 3.

6.4.3.6 Traffic and Transportation

Potential traffic impacts during construction would be lower under Alternative 3 as compared to the proposed project because construction truck and worker commuting traffic associated with construction of a new gasoline storage tank would not occur under Alternative 3. The maximum hourly passenger car equivalent trips during the A.M. and P.M. peak traffic periods from traffic during the construction period are anticipated to be 212 passenger car equivalents per hour for Alternative 3 as compared with 251 passenger car equivalents per hour for the proposed project (see Appendix II-A for details of Alternative 3 construction traffic by construction phase and month). Because traffic impacts during construction of the proposed project are estimated to be below the significance thresholds with mitigation, traffic impacts during construction for Alternative 3 would also be below the significance thresholds.

Potential traffic impacts during operation of Alternative 3 would be equivalent to the proposed project because ethanol tanker trips would be the same under Alternative 3 as the proposed project. Because project-specific and cumulative traffic impacts during operation of the proposed project are estimated to be below the significance thresholds, traffic impacts during operation under Alternative 3 would be less than significant.

6.5 CONCLUSION

Table 6-10 provides a qualitative comparison of the potential environmental impacts of the three alternatives relative to the proposed project. Based on the preceding analyses, only the No Project Alternative avoids the exceedance of all significance criteria identified with the proposed project, so it would be the "Environmentally Superior Alternative" (CEQA Guidelines §15126.6(e)(2)). However, it also achieves none of the project objectives, which means that Shell's current and potential new customers for ethanol storage and distribution must rely on existing infrastructure or new infrastructure that would need to be constructed at some other unknown location to continue to meet current and increased future demand. According to CEQA Guidelines §15126.6(e)(2), if the environmentally superior alternative is the no project alternative, then the EIR shall identify an environmentally superior alternative among the other alternatives. Alternative 3 has been identified as the environmentally superior alternative as explained in the discussion below.

Under Alternative 2 (as with the proposed project), emissions of VOC, NOx, PM10 and PM2.5 would exceed the applicable significance thresholds during construction, although the exceedances of the regional emissions significance thresholds for VOC and NOx would be greater under Alternative 2 than for the proposed project. Operational VOC and NOx emissions would be the same under Alternative 2 and the proposed project and would also exceed the applicable significance criteria during operation. Alternative 2 would reduce by slightly less than half the approximately 183,000 square foot increase in the off-site hazard footprint resulting from the proposed project, yet the new hazard footprint under Alternative 2 would cover a residential area whereas the new area covered by the hazard footprint of the proposed project would be in a commercial/industrial area. Alternative 2 would not eliminate the potential exceedance of the potable water supply significance threshold that would occur for the proposed project. All other impacts would be less than the significance thresholds under Alternative 2 and for the proposed project.

The entire Carson Facility is under a Cleanup and Abatement Order (CAO) 97-120 from the Los Angeles RWQCB related to contamination from the former refinery and chemical facilities historically at the site. According to Shell's Senior Principle Program Manager for Remediation of the Carson Facility, the area east of the current storage tanks will be subjected to vapor extraction in the next one to two years to address subsurface contamination issues. The area will require approximately five to eight years of vapor extraction and other soil and groundwater remediation before the site would be suitable for construction of new facilities, including a new gasoline storage tank.

Delaying the construction of the new gasoline storage tank until the Alternative 2 site would be appropriately remediated and ready for development would delay full implementation of the conversion of the existing gasoline storage tanks to ethanol storage, which would not fully meet the first three objectives for the project for six to ten years later than anticipated. Also, as a result of this delay, it is possible that other ethanol storage projects could be constructed, thus eliminating the need for the currently proposed project.

Table 6-10
Environmental Impacts of Alternatives as Compared to the Proposed Project

Environmental Topic	Proposed Project	Alt. 1	Alt. 2	Alt. 3
Air Quality				
Construction	S	NS (-)	S (+)	S (-)
Operation	S	NS (-)	S (=)	S (=)
Toxic Air Contaminants	NS	NS (-)	NS (=)	NS (-)
Biological Resources				
Construction	MNS	NS (-)	MNS (-)	MNS (-)
Operation	NS	NS (=)	NS (=)	NS (=)
Hazards	S	NS (-)	S (-)	NS (-)
Hydrology and Water Quality				
Construction	S	NS (-)	S (=)	NS (-)
Operation	S	NS (-)	S (=)	NS (-)
Noise				
Construction	NS	NS (-)	NS (=)	NS (-)
Operation	NS	NS (-)	NS (=)	NS (=)
Transportation/Traffic				
Construction	MNS	NS (-)	MNS (=)	MNS (-)
Operation	NS	NS (-)	NS (=)	NS (=)

Notes:
S = Exceeds significance criteria
NS = Does not exceed significance criteria
MNS = Does not exceed significance criteria with application of mitigation measures
(+) = Potential impacts are greater than the proposed project
(-) = Potential impacts are less than the proposed project
(=) = Potential impacts are the same as the proposed project

In addition, for several reasons Alternative 2 would not meet the fourth project objective, to maintain operational efficiency, safety and flexibility at the Carson Facility. First, while the existing tanks closest to the location for the gasoline storage tank under Alternative 2 also contain gasoline, the piping systems connecting the tanks together are not designed for a single new tank to the east of the existing storage tanks. As noted in Subsection 6.3.2, connecting this tank into the gasoline manifold system would require approximately 1,500 feet of additional piping and would result in more complicated tracking and control systems. As discussed in Subsection 2.7.2, that additional complexity in the piping and tracking/control systems would introduce additional steps in inspecting and managing the tanks, which may also impact safety protocols. It is for these reasons that Shell's standard operating procedure at the Carson Facility is to store similar products together whenever possible. While Shell does not have formalized procedures or guidance requiring siting tanks with similar products together, this practice is common within the Carson Facility and throughout the industry for the sake of efficiency and safety.

Under Alternative 3 (as with the proposed project), emissions of VOC, NOx, PM10 and PM2.5 would exceed the applicable significance thresholds during construction, although they would be lower under Alternative 3 than the proposed project. Operational VOC and NOx emissions would be the same under Alternative 3 and the proposed project and would also exceed the applicable significance criteria during operation. Alternative 3 would avoid the 2.8 percent increase in the off-site hazard impact area resulting from the proposed project, and Alternative 3 would also eliminate the potential exceedance of the potable water supply significance threshold that would occur for the proposed project. All other impacts would be less than the significance thresholds under Alternative 3 and for the proposed project. Because Alternative 3 would eliminate exceedances of significance criteria for both hazards and hazardous materials and hydrology and water quality impacts compared to the proposed project, Alternative 3 is considered to be the Environmentally Superior Alternative as required under §15126.6(e)(2) of the CEQA Guidelines.

However, Alternative 3 would only meet two of the four objectives for the proposed project. Although Alternative 3 would meet Shell's objectives 1 and 2 (it would increase the Carson Facility's storage capacity of ethanol by approximately 75 percent and would allow Shell to respond to its customers' requests for 75 percent more ethanol throughput capacity), Alternative 3 would not meet objectives 3 and 4 (it would not minimize impacts to its existing capacity to receive, store and deliver other petroleum products at current levels for its current and future customers, and it would not maintain operational efficiency, safety and flexibility at the Carson facility). As explained in more detail in Subsection 6.3.3, this alternative would reduce Shell's existing on-site storage capacity for other fuels by 158,000 bbls (compared to the proposed project) and would reduce operational efficiency and safety within the Carson Facility by requiring more adjustment of the remaining existing gasoline storage resources. In the absence of the new gasoline storage capacity, Shell's existing gasoline storage operations would be impacted substantially. Shell would have to limit when and how batches of gasoline or diesel fuel are sent out to the distribution terminals via pipelines (the normal way they are shipped to the distribution terminals.) With the reduced storage capacity, some customers may need to delay or miss delivery of a fuel batch to a distribution terminal, or a refinery may need to slow production if sufficient storage is unavailable. Batches of gasoline from refineries typically arrive in larger quantities (typically 100,000 bbl) than ethanol (typically 65,000 bbl). Shell has analyzed its operations and proposed the project in order to maintain as much flexibility and operational efficiency for the system as a whole.

The proposed project is preferred over the No Project Alternative because the No Project Alternative would not meet any of the project's objectives.

The proposed project is preferred over Alternative 2 for the following reasons:

- Peak daily VOC and NOx emissions, which exceed the applicable regional significance thresholds during construction under Alternative 2 and the proposed project, would be higher under Alternative 2;

- The requirements for vapor extraction and other soil and groundwater remediation would delay the construction of the new gasoline storage tank for between six and ten years, thereby requiring reordering the completion of work on the different components of the project and substantially delaying achievement of the project's first three objectives;

- Alternative 2 would reduce by less than half but not eliminate the off-site geographic area that is outside the existing hazard footprint. Also, the new area within the hazard footprint for Alternative 2 is residential while the new area within the hazard footprint for the proposed project is commercial and light industrial; and

- Alternative 2 would not meet the project's fourth objective because of the increased operational complexity introduced by the new gasoline storage tank not being located with other gasoline tanks.

The proposed project is preferred over Alternative 3 for the following reasons:

- Although Alternative 3 would eliminate the increase under the proposed project in the off-site geographic area that currently exceeds the significance thresholds for hazard impacts, the increase in the off-site geographic area for the proposed project is 2.8 percent of the existing geographic area where hazard impact thresholds would potentially be exceeded. Additionally, the probability of a catastrophic failure of the proposed new gasoline storage tank is 0.127 catastrophic failures per million hours to 3.02 failures per million hours, which correspond to a rate of failure between approximately once per 38 years and once per 900 years. Thus, the incremental probability of a storage tank failure and a resultant fire or explosion during operation of the proposed project is small. Regardless, this potential hazard impact would be eliminated under this alternative;

- Alternative 3 would also eliminate the use of potable water for hydrostatic testing for the proposed new gasoline storage tank for the proposed project, the use of potable water for this hydrostatic testing is not an ongoing demand; and

- Alternative 3 would not meet the project's third or fourth objectives. This alternative would reduce Shell's existing on-site storage capacity for other fuels by up to 158,000 bbls (compared to the proposed project) and would reduce operational efficiency within the Carson Facility by requiring more adjustment and coordination of the remaining existing gasoline storage resources.

As shown in Table 6-10, no feasible project alternative completely eliminates all significant adverse environmental impacts. Therefore, based on the foregoing information, the proposed project most efficiently achieves the project objectives while minimizing potential adverse environmental impacts.

CHAPTER 7

REFERENCES

This Page Intentionally Blank

7.0 REFERENCES

7.1 REFERENCES

American Institute of Chemical Engineers, 1989. "Guidelines for Process Equipment Reliability Data with Data Tables", Center for Chemical Process Safety, ISBN 0-8169-0422-7.

Bates, C., 2006. Burrowing Owl (Athene cunicularia) in The Draft Desert Bird Conservation Plan: a strategy for reversing the decline of desert associated birds in California. California Partners in Flight. Accessed at http://www.prbo.org/calpif/htmldocs/desert.html.

Battelle, 2001. Comparative Risks of Hazardous Materials and Non-Hazardous Materials Truck Shipment Accidents/Incidents, prepared for the Federal Motor Carrier Safety Administration, March.

California Air Resources Board (CARB), 2007. Proposed 2007 Amendments to Phase 3 California Reformulated Gasoline Regulations, Staff Report: Initial Statement of Reasons, April 27. Accessed at http://www.arb.ca.gov/regact/2007/carfg07/carfg07.htm.

CARB, 2008a. Final Statement of Reasons for Rulemaking Including Summary of Comments and Agency Response, Public Hearing to Consider the 2007 Amendments to the Phase 3 California Reformulated Gasoline Regulations, June. Accessed at http://www.arb.ca.gov/regact/2007/carfg07/carfg07.htm.

CARB, 2008b. Addendum to the Final Statement of Reasons for Rulemaking, Public Hearing to Consider the 2007 Amendments to the Phase 3 California Reformulated Gasoline Regulations, August. Accessed at http://www.arb.ca.gov/regact/2007/carfg07/carfg07.htm.

CARB, 2009. Recommendations for area designations and boundaries for the 2008 federal lead standard, October. Accessed at http://www.arb.ca.gov/desig/feddesig.htm#current.

CARB, 2010a. Emission Inventory Data, 2008 Estimated Basin Data. Accessed at http://www.arb.ca.gov/ei/maps/basins/abscmap.htm.

CARB, 2010b. Annual Toxics Summaries. Accessed at http://www.arb.ca.gov/adam/toxics/toxics.html.

CARB, 2010c. Hotspots Analysis and Reporting Program (HARP), Version 1.4b (Build 23.08.00), August.

CARB, 2010d. California Greenhouse Gas Inventory for 2000-2008 - by Category as Defined in the Scoping Plan, May. Accessed at http://www.arb.ca.gov/cc/inventory/data/tables/ghg_inventory_scopingplan_00-08_2010-05-12.pdf

California Climate Action Registry, 2009. California Climate Action Registry General Reporting Protocol, Version 3.1, January. Accessed at http://www.climateregistry.org/tools/protocols/general-reporting-protocol.html.

California Department of Transportation (Caltrans), 2002. Transportation Related Earthborne Vibrations. Technical Advisory, Vibration TAV-02-01-R9601. Accessed at http://www.dot.ca.gov/hq/env/noise/pub/TRANSPORTATION_RELATED_EARTHBORNE_VIBRATIONS.pdf.

California Emission Estimator Model (CalEEMod), 2011. Accessed at http://www.caleemod.com/.

California Energy Commission, (CEC) 2005. California's Water – Energy Relationship, Final Staff Report, CEC-700-2005-011-SF, November. Accessed at http://www.energy.ca.gov/2005publications/CEC-700-2005-011/CEC-700-2005-011-SF.PDF.

CEC, 2006. Inventory of California Greenhouse Gas Emissions and Sinks: 1990-2004, Final Staff Report, December. Accessed at http://www.energy.ca.gov/2006publications/CEC-600-2006-013/CEC-600-2006-013-SF.PDF.

California State University Dominguez Hills (CSUDH), 2009. Master Plan California State University, Dominguez Hills, Final Environmental Impact Report (SCH No. 2007031129), September. Accessed at http://www.csudh.edu/admfin/facilities_planning/facilities_planning_eir_september_09.pdf.

Carson Redevelopment Agency, 2005. Carson Marketplace Draft Environmental Impact Report (SCH No. 2005051059), November. Accessed at http://ci.carson.ca.us/content/department/eco_dev_service/deir.asp?do=viewdoc.

Carson Redevelopment Agency, 2006. Carson Marketplace Final Environmental Impact Report (SCH No. 2005051059), January. Accessed at http://ci.carson.ca.us/content/department/eco_dev_service/viewdocument.asp.

City of Carson, 1995. Carson Municipal Code, Article V, Chapter 5. Accessed at http://www.codepublishing.com/CA/carson.html.

City of Carson, 2002. City of Carson General Plan Public Review Draft Environmental Impact Report, Chapter 4.3, Transportation/Circulation, October 30.

City of Carson, 2003. City of Carson General Plan Recirculated Draft Environmental Impact Report, Chapter 4.5, Noise. Accessed at http://ci.carson.ca.us/content/department/eco_dev_service/recirculated_eir.asp.

City of Carson, 2004a. City of Carson General Plan Open Space and Conservation Element (Chapter 8). Accessed at http://ci.carson.ca.us/content/files/pdfs/GenPlan/Chapter08.OpenSpaceCons.pdf.

City of Carson, 2004b. City of Carson General Plan Noise Element (Chapter 7). Accessed at http://ci.carson.ca.us//content/files/pdfs/GenPlan/Chapter07.Noise.pdf.

City of Carson, 2007. Mitigated Negative Declaration and Initial Study for Conditional Use Permit No. 657-07, Conditional Use Permit No. 658-07 and Design Overlay Review No. 989-07, June.

City of Carson, 2008. Draft Mitigated Negative Declaration/Initial Study for Carson City Center Project, January 17. Accessed at http://ci.carson.ca.us/content/files/pdfs/planning/reso/2008-02-26/Safran2.pdf.

City of Carson 2010a. Carson Online. Public Transportation. Accessed at http://ci.carson.ca.us/citydepartments/devserv/transportation/pubtrans.htm.

City of Carson 2010b. Transportation Services. Accessed at http://ci.carson.ca.us/content/department/dev_service/ns_shuttle.asp.

City of Carson, 2010c. May 2010 City of Carson Development Summary.

City of Carson, 2010d. Draft Mitigated Negative Declaration/Initial Study for CityView Project, October 26. Accessed at http://ci.carson.ca.us/MeetingAgendas/AgendaPacket/MG49998/AS50011/AS50016/AI50034/DO50123/Document.htm.

City of Goleta, 2009. City of Goleta General Plan/Coastal Land Use Plan, Conservation Element CE 4.6. September. Accessed at http://www.cityofgoleta.org/index.aspx?page=194.

Crocker, Malcom J. (Ed.), 2007. *Handbook of Noise and Vibration Control*. John Willey and Sons, Hoboken, New Jersey.

Federal Highway Administration (FHWA), 1980. *Highway Noise Fundamentals*. September.

FHWA, 2004. FHWA Traffic Noise Model Version 2.5 Look-Up Tables Users' Guide (FHWAHEP-05-008; DOT-VNTSC-FHWA-0406). December.

Federal Transit Administration (FTA), 2006. *Transit Noise and Vibration Impact Assessment* (FTA-VA-90-1003-06). Accessed at http://www.fta.dot.gov/documents/FTA_Noise_and_Vibration_Manual.pdf.

Haug, E. A., B. A. Millsap, and M. S. Martell, 1993. Burrowing Owl (Speotyto Cunicularia) in The Birds of North America, No. 149. The Academy of Natural Sciences, Philadelphia PA, and American Ornithologists Union, Washington, D.C. 20 pp.

Holland, R., 1986. Preliminary Descriptions of the Terrestrial Natural Communities of California. California Department of Fish and Game, The Resources Agency. 156 pp.

Institute of Transportation Engineers (ITE), 1982. *Transportation and Traffic Engineering Handbook, Second Edition.*

ITE, 2008. *Trip Generation, Eighth Edition.*

Johnston, D., G. Tatarian and E. Pierson, 2004. California Bat Mitigation Techniques, Solutions, and Effectiveness. Prepared for California Department of Transportation. Accessed at http://nrm.dfg.ca.gov/documents/docviewer.aspx.

Los Angeles County Metropolitan Transportation Authority, 2004. 2004 Congestion Management Program for Los Angeles County. Accessed at http://www.metro.net/projects_studies/cmp/images/2004_cmp.pdf.

Los Angeles County Metropolitan Transportation Authority, 2010. Draft 2010 Congestion Management Program for Los Angeles County. Accessed at http://www.metro.net/projects_studies/cmp/images/Final_Draft_2010.pdf.

National Institute for Occupational Safety and Health (NIOSH), 1978. Industrial Noise Control Manual. Accessed at http://www.cdc.gov/niosh/79-117pd.html.

Office of Environmental Health Hazards Assessment (OEHHA), 2003. Air Toxics Hot Spots Program Risk Assessment Guidelines, August. Accessed at http://www.oehha.ca.gov/air/hot_spots/HRAguidefinal.html.

Opler, P. A., H. Pavulaan, and R. E. Stanford, 1995. Butterflies of North America. Jameston, N.D. Accessed at www.butterfliesandmoths.org. Accessed February 2010.

South Coast Air Quality Management District (SCAQMD), 1993. CEQA Air Quality Handbook, November.

SCAQMD, 2000. Multiple Air Toxics Exposure Study (MATES-II) Final Report. March. Accessed at http://www.aqmd.gov/matesiidf/matestoc.htm.

SCAQMD, 2003. Health Risk Assessment Guidance for Analyzing Cancer Risks from Mobile Source Diesel Idling Emissions for CEQA Air Quality Analysis, South Coast Air Quality Management District, August.

SCAQMD, 2005a. Health Risk Assessment Guidance for Railyard and Intermodal Facilities, September.

SCAQMD, 2005b. Staff Report Proposed Rule 1401.1 - Requirements for New and Relocated Facilities Near Schools. Accessed at http://www.aqmd.gov/hb/2005/051134a.html.

SCAQMD, 2006a. Final Environmental Impact Report, BP Carson Refinery Safety, Compliance and Optimization Project (SCH No. 2005111057), September. Accessed at http://www.aqmd.gov/ceqa/documents/2006/nonaqmd/BP_safety/FEIR/BP_feir.html.

SCAQMD, 2006b. Final –Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, Appendix A, October. Accessed at http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html.

SCAQMD, 2007. Final 2007 Air Quality Management Plan, June. Accessed at http://www.aqmd.gov/aqmp/07aqmp/index.html.

SCAQMD, 2008a. Multiple Air Toxics Exposure Study in the South Coast Air Basin (MATES III) Final Report, September. Accessed at http://www.aqmd.gov/prdas/matesIII/MATESIIIFinalReportSept2008.html.

SCAQMD, 2008b. Final Localized Significance Threshold Methodology, July. Accessed at http://www.aqmd.gov/ceqa/handbook/LST/LST.html.

SCAQMD, 2008c. SCAQMD Draft Guidance Document – Interim CEQA Greenhouse Gas (GHG) Significance Threshold, October. Accessed at http://www.aqmd.gov/hb/2008/December/081231a.htm.

SCAQMD, 2009. AQMD Modeling Guidance for AERMOD, South Coast Air Quality Management District, Accessed at http://www.aqmd.gov/smog/metdata/AERMOD_ModelingGuidance.html.

SCAQMD, 2012. SCAQMD Historical Data by Year, 2004-2008. Accessed at http://www.aqmd.gov/smog/historicaldata.htm.

State of New Jersey Department of Environmental Protection and Energy, 1993. Source Document for Risk Assessment in Compliance with N.J.A.C. 7:31-1 et seq., The Toxic Catastrophe Prevention Act (TCPA).

SWCA Environmental Consultants, 2007. Biological Resource Assessment for the Carson Terminal Redevelopment Project, Carson, CA.

Thalheimer, Erich, 2000. “Construction noise control program and mitigation strategy at the Central Artery/Tunnel Project.” Noise Control Engineering Journal, Boston, MA: September/October 2000. Accessed at http://www.redmenforever.org/Papers_for_website/CAT%20Noise%20Program,%20NCEJ,%2048(5),%20Sep-Oct%202000.pdf.

Transportation Research Board, 1994 *Highway Capacity Manual*, Special Report 209, 1994.

U.S. Environmental Protection Agency (EPA), 1992. Fugitive Dust Background Document and Technical Information Document for Best Available Control Measures.

EPA, 1999. "Risk Management Program Guidance for Offsite Consequence Analysis", Office of Solid Waste and Emergency Preparedness, EPA 550-B-99-009, April.

Unitt, Phillip, 2004. San Diego County Bird Atlas. San Diego Natural History Museum, P.O. Box 121390 San Diego, California 92112-1390. Ibis Publishing Company.

7.2 ORGANIZATIONS AND PERSONS CONSULTED

CEQA Guidelines § 15129 requires that organizations and persons consulted be provided in the EIR. A number of organizations, state and local agencies, and private industry have been consulted. The following organizations and persons have provided input into this document.

7.2.1 ORGANIZATIONS

California Water Service Company, Rancho Dominguez District
South Coast Air Quality Management District

7.2.2 INDIVIDUALS CONSULTED

Henry Wind
California Water Service Company, Rancho Dominguez District

Steve Smith
Barbara Radlein
South Coast Air Quality Management District

7.3 LIST OF ENVIRONMENTAL IMPACT REPORT PREPARERS

South Coast Air Quality Management District
Diamond Bar, California

AECOM
Camarillo, California

Ashworth Leininger Group
Camarillo, California

Fehr & Peers
Santa Monica, California

CHAPTER 8

ABBREVIATIONS AND ACRONYMS

Abbreviations and Acronyms

This Page Intentionally Blank

8.0 ABBREVIATIONS AND ACRONYMS

Abbreviation	Description
AB	Assembly Bill
AB1807	California Toxic Air Contaminants Program (Tanner Bill)
AB2588	Air Toxic "Hot Spots" Information and Assessment Act
AB2595	California Clean Air Act
AB2728	Revised Tanner Bill
AB32	the Global Warming Solutions Act of 2006
AER	Annual Emissions Reporting
AERMOD	AMS/EPA Regulatory Model
AERP	alternative emissions reduction plan
AIChE	American Institute of Chemical Engineers
A.M.	morning
AMS	American Meteorological Society
ann.	annual
AP-42	U.S. EPA’s Compilation of Air Pollutant Emission Factors
API	American Petroleum Institute
AQMP	Air Quality Management Plan
ASTM	American Society of Testing and Materials
avg.	average
BACT	Best Available Control Technology
Basin	South Coast Air Basin
BAU	business-as-usual
bbl	barrels
bbl/day	barrels per day
bbl/truck	barrels per truck
BP	Business Park
CAAQS	California Ambient Air Quality Standards
CalARP	California Accidental Release Prevention
CalEEMod	California Emission Estimator Model
CalEPA	California Environmental Protection Agency
CalOSHA	California Occupational Safety and Health Administration
Cal Water	California Water Service Company
CARB	California Air Resources Board
CCR	California Code of Regulations
CDFG	California Department of Fish and Game
CEC	California Energy Commission
CEQA	California Environmental Quality Act
cfm	cubic feet per minute
CFR	Code of Federal Regulations
CH_4	methane
CMP	Congestion Management Program
CNDDB	California Natural Diversity Database

CNEL	Community Noise Equivalent Level
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide-equivalent
CPUC	California Public Utilities Commission
CRA	Colorado River Aqueduct
CRP	Carson Revitalization project
CSUDH	California State University Dominguez Hills
CUPA	Certified Unified Program Agency
dB	decibel
dBA	A-weighted decibels
DHS	Department of Health Services
DOR	Design Overlay Review
DPM	diesel exhaust particulate matter
DTSC	Department of Toxic Substances Control
DWR	State Department of Water Resources
E10	gasoline containing 10 percent ethanol by weight
EHS	extremely hazardous substance
EPA	United States Environmental Protection Agency
EPCRA	Emergency Planning and Community Right-to-Know Act
ERCs	emission reduction credits
ERPG	Emergency Response Planning Guideline
ESA	Federal Endangered Species Act
FHWA	Federal Highway Administration
FTE	full-time equivalent
GHG	greenhouse gas
GHGs	greenhouse gases
GWP	global warming potential
H_2S	hydrogen sulfide
HARP	Hot Spots Analysis and Reporting Program
HAZOP	hazard and operability
HC	hydrocarbons
HFCs	hydrofluorocarbons
HHDT	heavy heavy-duty diesel trucks
HI	Heavy Industrial
HI	hazard index
HM3	Hazardous Material Division 3
HMBP	Hazardous Material Business Plan
HMT	Hazardous Materials Transportation
hp	horsepower
hr	hour
HRA	health risk assessment
Hz	hertz, cycles per second
ICU	Intersection Capacity Utilization
in/sec	inches per second
ISCST3	Industrial Source Complex - Short Term Version 3

LACFD	Los Angeles County Fire Department
LAER	Lowest Achievable Emission Rate
LAX	Los Angeles International Airport
KVA	kilovolt-amperes
lb/day	pounds per day
lb/hr	pounds per hour
lb/MMBtu	pounds per million British thermal units
lb/yr	pounds per year
L_{dn}	Day-Night Noise Level
L_{eq}	Equivalent Noise Level
LI	Light Industrial
L_{max}	Maximum Noise Level
LOS	level-of-service
LRTP	Long Range Transportation Plan
LST	Localized Significance Threshold
MATES	Multiple Air Toxic Exposure Study
MBTA	Migratory Bird Treaty Act
MEIR	Maximum Exposed Individual Resident
MEIW	Maximum Exposed Individual Worker
MH	Manufacturing, Heavy
MPO	Metropolitan Planning Organization
MT	metric ton
MTA	Los Angeles County Metropolitan Transportation Authority
MTBE	methyl tertiary butyl ether
$MTCO_2e$/yr	metric tons of CO_2-equivalent emissions per year
MT/yr	metric tons per year
MWD	Metropolitan Water District of Southern California
N/A	not available
NAAQS	National Ambient Air Quality Standards
NESHAPS	National Emissions Standards for Hazardous Air Pollutants
NFPA	National Fire Protection Association
ng/m^3	nanograms per cubic meter
N_2O	nitrous oxide
NO_2	nitrogen dioxide
NOP/IS	Notice of Preparation/Initial Study
NOx	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NSR	New Source Review
O_3	ozone
ODS	ozone depleting substance
OEHHA	Office of Environmental Health Hazard Assessment
OES	Office of Emergency Services
OPR	Office of Planning and Research
OSHA	Occupational Safety and Health Administration
OSRO	Oil Spill Removal Organization
PCE	passenger car equivalent

PCE/hr	passenger car equivalent per hour
PFCs	perfluorocarbons
P.M.	evening
PM10	particles smaller than 10 microns aerodynamic diameter
PM2.5	particles smaller than 2.5 microns aerodynamic diameter
ppb	parts per billion by volume
ppm	parts per million by volume
ppmw	parts per million by weight
PPV	peak particle velocity
PSD	Prevention of Significant Deterioration
psi	pounds per square inch
psig	pounds per square inch above atmospheric pressure
PST	Pacific Standard Time
PSM	Process Safety Management
RECLAIM	Regional Clean Air Incentives Market
REL	reference exposure level
RFG	Reformulated Gasoline
RMP	Risk Management Plan
RTP	Regional Transportation Plan
RVP	Reid vapor pressure
RWQCB	Regional Water Quality Control Board
SARA	Superfund Amendments and Reauthorization Act
SB	Senate Bill
SB97	CEQA: Greenhouse Gas Emissions
SCAQMD	South Coast Air Quality Management District
SCAG	Southern California Association of Governments
SCH	State Clearinghouse
SCR	selective catalytic reduction
sf	square feet
SF_6	sulfur hexafluoride
SLH	sound level meter
SO_2	sulfur dioxide
SOx	sulfur oxides
SPCC	Spill Prevention Control and Countermeasure
SRA	source receptor area
SWP	State Water Project
SWRCB	State Water Resources Control Board
TACs	toxic air contaminants
TAO	Technology Advancement Office
T-BACT	Toxics Best Available Control Technology
TDM	Transportation Demand Management
$\mu g/m^3$	micrograms per cubic meter
U.S. DOT	United States Department of Transportation
USFWF	United States Fish and Wildlife Service
USGS	United States Geological Survey
V/C	volume-to-capacity

VOC	volatile organic compounds
WCI	Western Climate Initiative
W/m^2	Watts per square meter

This Page Intentionally Blank