South Coast
Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765-4182
(909) 396-2000 • www.aqmd.gov

SUBJECT: **NOTICE OF PREPARATION OF DRAFT ENVIRONMENTAL IMPACT REPORT, INITIAL STUDY, AND OPPORTUNITY FOR PUBLIC COMMENT**

PROJECT TITLE: **MARATHON LOS ANGELES REFINERY MODERNIZATION PROJECTS**

PROJECT APPLICANT: **TESORO REFINING & MARKETING COMPANY, LLC (DOING BUSINESS AS MARATHON LOS ANGELES REFINERY)**

In accordance with the California Environmental Quality Act (CEQA), the South Coast Air Quality Management District (South Coast AQMD), as Lead Agency, has prepared a Notice of Preparation (NOP) and Initial Study (IS) for the proposed project identified above. The NOP/IS serves the following purposes: 1) to notify the public that the South Coast AQMD is preparing an Environmental Impact Report (EIR) which will assess the potential adverse environmental impacts that may result from implementing the proposed project; and 2) to provide information on the proposed project and allow public agencies and the public (collectively referred to as the public) the opportunity to review and comment on the scope of the environmental analysis.

This letter and the NOP/IS are not South Coast AQMD applications or forms requiring a response from you. Their purpose is simply to provide information to you on the proposed project. **No action on your part is necessary if the proposed project has no bearing on you or your organization.** A CEQA Scoping Meeting will be held for the proposed project. Attendees will have the opportunity to provide public comments.

Comments focusing on your area of expertise, your agency's area of jurisdiction, or other issues relative to the environmental analysis will be accepted during a 34-day public review and comment period beginning November 5, 2025, and ending December 9, 2025, at 5:00 p.m. Please note that under the California Public Records Act (Gov. Code Section 7920.000 et seq.) your written and oral comments, attachments, and associated contact information (e.g. your address, phone, email, etc.) become part of the public record and can be released to the public on request or posted on the South Coast AQMD website.

The attached NOP provides information on how to obtain the IS, how the public may attend and participate at the CEQA Scoping Meeting, and how to submit comments.

Reference: California Code of Regulations, Title 14, Sections 15082(a), 15102, 15103, 15365 and 15375

NOTICE OF PREPARATION (NOP) OF A DRAFT ENVIRONMENTAL IMPACT REPORT (EIR), INITIAL STUDY (IS), AND OPPORTUNITY FOR PUBLIC COMMENT

To:	Governor's Office of Land Use and Climate Innovation – State Clearinghouse 1400 Tenth St, Suite 222 Sacramento, CA 95814-5502	**From:**	South Coast Air Quality Management District (South Coast AQMD) 21865 Copley Drive Diamond Bar, CA 91765

Project Title: Marathon Los Angeles Refinery Modernization Projects

State Clearinghouse Number: TBD

Project Applicant: Tesoro Refining & Marketing Company, LLC (doing business as Marathon Los Angeles Refinery)

Project Locations:

Tesoro Los Angeles Refinery - Carson Operations (Facility ID 174655)
2350 East 223rd Street (nearest intersection: Marathon Way and East 223rd Street)
Carson, CA, 90810, Los Angeles County

Tesoro Los Angeles Refinery - Wilmington Operations (Facility ID 800436)
2101 East Pacific Coast Highway (nearest intersection: Alameda Street and East Pacific Coast Highway)
Wilmington, CA, 90744, in the City of Los Angeles, Los Angeles County

Both of these facilities are located in the AB 617 Wilmington, Carson, and West Long Beach community.

Description of Nature, Purpose, and Beneficiaries of Project: Tesoro Refining & Marketing Company, LLC doing business as Marathon Los Angeles Refinery, proposes to modernize its Marathon Los Angeles Refinery (Refinery), which is comprised of its Carson Operations and Wilmington Operations, for the purpose of: replacing equipment that is at the end of its useful life; providing asphalt binder to meet market demand; enabling flexibility by making modifications to specific processing units to adjust product yields between transportation fuel products (i.e., gasoline, diesel fuel, and jet fuel), depending on market demand; and more efficiently producing octane-blending components needed for gasoline supply. Specifically, Tesoro is proposing modifications to: 1) replace aging coke drums; 2) produce asphalt binder; 3) improve operational performance of the Fluid Feed Hydrodesulfurization Unit which removes sulfur from the gas oil feed before it goes to the Fluidized Catalytic Cracking Unit (FCCU), and 4) improve efficiency to make more high-octane, low vapor pressure clean-gasoline blendstocks by modifying the: a. FCCU which converts heavy hydrocarbons into gasoline and other lighter hydrocarbons, b. alkylation units which convert lighter hydrocarbons into blendstocks for gasoline, and c. the C3 Splitter Unit which separates propane and propylene (compounds containing three carbon molecules) for further processing elsewhere or sold as product. Each of these proposed projects are designed to ensure continued safe operations and provide a reliable and affordable supply of transportation fuels to meet the market shift during California's transition to a zero-emission transportation system. The four proposed projects fulfill different needs at the Refinery, such that any single project can occur without any of the other three projects and have independent utility. However, because each project will have an overlapping construction schedule, the projects are evaluated altogether. The NOP/IS identifies potentially significant adverse impacts to the environmental topics of air quality and greenhouse gas emissions, hazards and hazardous materials, hydrology and water quality related to water demand during operations, noise during construction, and transportation during construction. This facility is identified on lists compiled by the California Department of Toxics Substances Control per Government Code Section 65962.5.

Lead Agency:	**Division:**
South Coast AQMD	Planning, Rule Development and Implementation

The NOP/IS and all Supporting Documentation are available at:

1) **South Coast AQMD CEQA webpage**: http://www.aqmd.gov/home/research/documents-reports/lead-agency-permit-projects
2) **South Coast AQMD Public Information Center** at 21865 Copley Drive, Diamond Bar, CA 91765, by email at PublicAdvisor@aqmd.gov and by phone at (909) 396-2039
3) **State Clearinghouse of the Governor's Office of Land Use and Climate Innovation** website at: https://ceqanet.lci.ca.gov/search/recent

The NOP is provided to the public through the following:

- Los Angeles Times (November 5, 2025)
- Los Angeles County Clerk
- South Coast AQMD Webpage
- South Coast AQMD Public Information Center
- South Coast AQMD Mailing List & Interested Parties
- Governor's Office of Land Use and Climate Innovation – State Clearinghouse Website

NOP/IS Review Period (34 days): November 5, 2025 through December 9, 2025

Questions, comments, documents, or other relevant information relative to the NOP/IS may be directed to:

Farzaneh Khalaj, Ph.D.
Planning, Rule Development and Implementation, CEQA Section
South Coast Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765
Email: fkhalaj@aqmd.gov

Staff requests that written comments on the NOP/IS be submitted no later than 5:00 p.m. on December 9, 2025. Please include the name, phone number, and email address of the contact person, and the organization name, if applicable. Please note that under the California Public Records Act (Gov. Code Section 7920.000 et seq.) your written and oral comments, attachments, and associated contact information (e.g. your address, phone, email, etc.) become part of the public record and can be released to the public on request or posted on the South Coast AQMD website.

Scheduled Public Meeting Date (subject to change): CEQA Scoping Meeting on November 18, 2025, from 5:00 p.m. via video conferencing (Zoom) which can be accessed via personal computer or smart phone. Alternatively, stakeholders can phone in to participate. Attendees are invited to ask questions and make comments. Please see the following instructions on how to participate:

Join Zoom Meeting - from PC or Laptop:
https://aqmd.zoomgov.com/j/1614593538
Zoom Webinar ID: 161 459 3538 (applies to all)
Teleconference Dial In +1 669 254 5252
Spanish (Español) Language Webinar ID: 161 104 2947

Please note if the Zoom meeting link provided does not work, copy the link into web browser, or directly enter the meeting ID into the Zoom web or mobile application.

Date: November 4, 2025 **Signature:** Kevin Ni

Kevin Ni
Program Supervisor, CEQA
Planning, Rule Development, and Implementation

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Initial Study: Marathon Los Angeles Refinery Modernization Projects

November 2025

State Clearinghouse No. TBD
South Coast AQMD No. 05122022KN

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WAYNE NASTRI

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ACRONYMS

Abbreviation	Description
AQMP	Air Quality Management Plan
Alky	Alkylation
BACM	Best Available Control Measure
BACT	Best Available Control Technology
bbl	barrel or 42 gallons
Carson Operations	Marathon Los Angeles Refinery – Carson Operations
CalARP	California Accidental Release Prevention Program
CAL FIRE	California Department of Forestry and Fire Protection
CalGEM	California Department of Conservation, Geologic Energy Management Division
CALSITE	State equivalent to CERLCIS
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
CEQA	California Environmental Quality Act
CO	carbon monoxide
CWMI	California Waste Management Inc.
dBA	A weighted noise level measurement in decibels
DCU	Delayed Coker Unit
DCU-W	Delayed Coker Unit at the Wilmington Operations
DOGGR	Department of Oil, Gas, and Geothermal Resources, now CalGEM
DTSC	Department of Toxic Substances Control
DWR	Department of Water Resources
EIR	Environmental Impact Report
ERCs	Emission Reduction Credits
ERPG	Emergency Response Planning Guideline
FCCU	fluid catalytic cracking unit
FEMA	Federal Emergency Management Agency
FFHDS	Fluid Feed Hydrodesulfurization Unit
G	acceleration of gravity
GHGs	Greenhouse Gases
gpm	gallons per minute
GSAs	Groundwater Sustainability Agencies

Abbreviation	Description
GSPs	Groundwater Sustainability Plans
LACFD	Los Angeles County Fire department
LACSD	Los Angeles County Sanitation Districts
LADWP	Los Angeles Department of Water and Power
LARWQCB	Los Angeles Regional Water Quality Control Board
lbs/day	pounds per day
LRA	local responsibility areas
LPG	liquid petroleum gas
LUST	leaking underground storage tank
MH	manufacturing heavy
MMcf/d	million cubic feet per day
MW	megawatt
M3-1	heavy industrial use
NOP/IS	Notice of Preparation and Initial Study
NOx	Nitrogen oxide
NPDES	National Pollution Discharge Elimination System
OPR	Governor's Office of Planning and Research now named Governor's Office of Land Use and Climate Innovation (LCI)
OSHA	Occupational Safety and Health Administration
PM10	particulate matter less than 10 microns in diameter
PM2.5	particulate matter less than 2.5 microns in diameter
PM	particulate matter
ppmv	parts per million volume
proposed projects	Marathon Refinery Modernization Projects
PRVs	pressure relief valves
RCRA	Resource Conservation and Recovery Act
RMP	Risk Management Plan
RPS	Renewables Portfolio Standard
Refinery	Marathon Los Angeles Refinery
RWQCB	California Regional Water Quality Control Board
SCAG	Southern California Association of Governments
South Coast AQMD	South Coast Air Quality Management District
SCE	Southern California Edison

SCEDC	Southern California Earthquake Data Center
SCG	Southern California Gas Company
SCP	Spill Cleanup Program
SLIC	Spills, Leaks, Investigation and Cleanup
SOx	sulfur oxide
SRA	state responsibility areas
SRPs	Sulfur Recovery Plants
SWPPP	Storm Water Pollution Prevention Plan
TACs	toxic air contaminants
Tesoro	Tesoro Refining & Marketing Company LLC doing business as Marathon Los Angeles Refinery
TLO	Tesoro Logistics Operations LLC
VMT	vehicle miles traveled
VOC	volatile organic compound
WDRs	water discharge requirements

CHAPTER 1

PROJECT DESCRIPTION

Introduction

California Environmental Quality Act

Project Location

Overview of Current Operations

Project Description

Project Construction Schedule

1.0 INTRODUCTION

Tesoro Refining & Marketing Company LLC (Tesoro), doing business as Marathon Los Angeles Refinery, owns and operates the Marathon Los Angeles Refinery, and is proposing the Marathon Los Angeles Refinery Modernization Projects (proposed projects). Tesoro is a wholly-owned subsidiary of Marathon Petroleum Corporation who acquired the parent company of Tesoro in 2018. The Marathon Los Angeles Refinery (Refinery) is comprised of the Carson Operations that are located at 2350 East 223rd Street in the City of Carson, and the Wilmington Operations that are located at 2101 East Pacific Coast Highway in the Wilmington District of the City of Los Angeles. The Sulfur Recovery Plant (SRP), considered to be a portion of the Wilmington Operations, is located at 23208 South Alameda Street in the City of Carson. The Carson and Wilmington Operations began operations independently in 1923 and are currently fully integrated and operate as one refinery. The Marathon Los Angeles Refinery Modernization Projects is comprised of four separate proposed projects: Coke Drum Replacement, Asphalt Sales Rack, Fluid Feed Hydrodesulfurization (FFHDS) Unit Modifications, and Alkylation Units Modifications. The four proposed projects each have independent utility, but they will have overlapping construction schedules. These proposed projects fulfill different needs at the Refinery, such that any single project can occur without any of the other three projects (see Section 1.4 for further details). To provide a comprehensive analysis of the impacts of these four projects, they will be analyzed in a single CEQA document, as allowed by CEQA Guidelines Section 15165. Each of these proposed projects is designed to ensure continued safe operations and provide a reliable and affordable supply of transportation fuels to meet the market shift during California's transition to a zero-emission transportation system. The Refinery has numerous permits issued by the South Coast Air Quality Management District (South Coast AQMD) and new or modified permits are required to implement the proposed projects. All new and modified sources will be required to comply with South Coast AQMD Regulations and Rules including, for examples, Best Available Control Technology (BACT) in Rule 1301 – Requirements and offset requirements under Regulations XIII – New Source Review and XX – Regional Clean Air Incentives Market (RECLAIM).

The purpose of each proposed project is as follows:

- Coke Drum Replacement Project will replace equipment that is at end-of-useful life;
- Asphalt Sales Rack Project will provide asphalt binder to meet market demand;
- FFHDS Unit Modifications Project will enable flexibility to shift between transportation fuel products, in response to changing market demands; and
- Alkylation Unit Modifications Project will more efficiently produce octane-blending components needed for reliable California gasoline supply.

Each of the proposed projects has independent utility and is being proposed for different purposes. No modifications are proposed to the crude units or sulfur recovery units at the Carson Operations or the Wilmington Operations SRP, and no new combustion equipment will be installed at the Refinery. Also, no modifications are proposed at any of the marine or product distribution terminals associated with the Marathon Los Angeles Refinery Modernization Projects.

While each of the proposed projects has independent utility and is being proposed for different purposes, the proposed projects overall will enable operational flexibility at the Refinery to meet California's market demand consistent with the California Energy Commission (CEC)/California

Air Resources Board (CARB) Transportation Fuels Assessment authorized by Senate Bill (SB) X1-2. (CEC, 2024) The Transportation Fuels Assessment, the key component of SB X1-2: 1) identifies potential alternative methods to ensure a reliable supply of affordable and safe transportation fuels in California; 2) evaluates the price of transportation fuels, considers supply conditions; 3) assesses the impact of refinery closures; 4) analyzes impacts on production from refinery maintenance and turnarounds; 5) evaluates the feasibility of alternative methods to maintain an adequate supply of fuels; and 6) proposes solutions to mitigate impacts described elsewhere in the assessment.

1.1 CALIFORNIA ENVIRONMENTAL QUALITY ACT

The California Environmental Quality Act (CEQA), Public Resources Code Section 21000 et seq., requires that the environmental impacts of proposed "projects" be evaluated and that feasible methods to reduce, avoid, or eliminate significant adverse impacts of these projects be identified and implemented. Each of the proposed projects constitute a "project" as defined by CEQA. The duration of construction for the Coke Drum Replacement Project will span 10 years and the three other proposed projects are planned to overlap during this time. Therefore, to fully disclose the potential effects of all planned projects, one comprehensive CEQA document analyzing the environmental impacts from all of the proposed projects will be prepared. The South Coast AQMD is the "lead agency" for these proposed projects and has prepared a Notice of Preparation of an Environmental Impact Report (EIR) and Initial Study (NOP/IS) in compliance with CEQA.

The lead agency is the public agency that has the principal responsibility for carrying out or approving a project that may have a significant adverse effect upon the environment (Public Resources Code Section 21067). The South Coast AQMD has the primary responsibility for supervising or approving the projects, and is the most appropriate public agency to act as lead agency (CEQA Guidelines Section 15051(b)). The proposed projects require discretionary approval of modifications to air permits for existing stationary source equipment and installation of new stationary source equipment from the South Coast AQMD.

The California Environmental Protection Agency, Department of Toxic Substances Control (DTSC), which has some discretionary approval power over activities in some areas of the Refinery, has been identified as a responsible agency under CEQA for any of their required permits and/or approvals.

In addition, the following list of public agencies have been identified as having jurisdiction over activities at the Refinery, along with any city or county that border on a city or county within which the Refinery is located: United States Environmental Protection Agency (U.S. EPA), Federal Aviation Administration (FAA), California Department of Transportation (Caltrans), Los Angeles County Fire Department (LACFD), Los Angeles County Department of Public Works, Los Angeles County Sanitation District (LACSD), Los Angeles Regional Water Quality Control Board, City of Los Angeles Fire Department, and the Cities of Carson, and Los Angeles. Adjacent cities and counties include Long Beach, Compton, and unincorporated portions of Los Angeles County. These agencies are identified as commenting agencies under CEQA because they may have interest in the proposed projects but none would have discretionary approval authority.

To fulfill the purpose and intent of CEQA, the South Coast AQMD is the lead agency for the proposed projects and has prepared a NOP/IS to address the potential environmental impacts associated with the proposed projects at the Refinery. This NOP/IS informs the public, responsible agencies, and any other public agency that may have interest in the proposed projects, that the South Coast AQMD is seeking comment on the scope and content of the EIR. Since the proposed projects were identified in this NOP/IS as potentially having statewide, regional or areawide significance, a CEQA scoping meeting is required pursuant to Public Resources Code Section 21083.9(a)(2) and will be held on the date published on the NOP attached to this IS. Any comments received at the CEQA scoping meeting will be responded to and included in the EIR. The NOP/IS is the first step in the preparation of an EIR. Similarly, for any written comments received relative to the NOP/IS, responses will be prepared and the comment letters with responses will be included in the EIR. Once the Draft EIR is prepared, the agencies and public will be notified of its availability for review and comment.

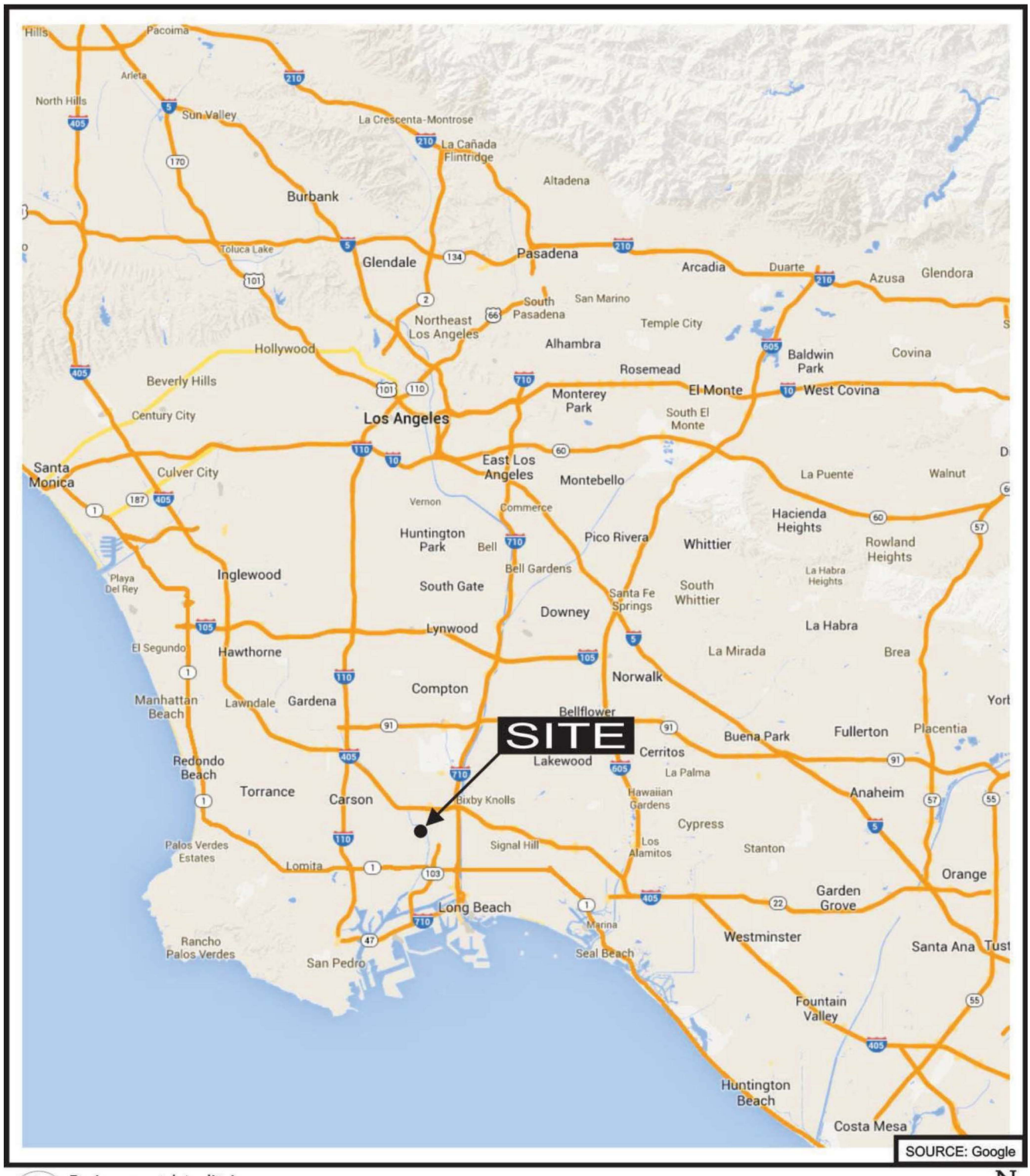
1.2 PROJECT LOCATION

The proposed projects will occur at the Marathon Los Angeles Refinery within both the Carson Operations and Wilmington Operations. The Refinery is comprised of approximately 950 acres in size and operates within the Cities of Carson and Los Angeles (Wilmington District).

The Carson Operations are located at 2350 East 223rd Street, Carson, California, 90810. The Wilmington Operations are located within Wilmington, a community under the jurisdiction of the City of Los Angeles, at 2101 East Pacific Coast Highway, Wilmington, Los Angeles County, California 90744. Figure 1-1 depicts the regional location of the Refinery and Figure 1-2 provides a detailed site location map. Both new and modified equipment will be located within portions of the Refinery under the jurisdictions of the City of Carson and the City of Los Angeles.

The Carson Operations are bounded by Wilmington Avenue to the west, 223rd Avenue to the north, Alameda Street to the east, and Sepulveda Boulevard to the south. The Dominguez Channel flows through the Carson Operations, dividing the property into two sections: Northeastern and Southern. Several industrial/commercial facilities and the 405 Freeway border the Carson Operations to the north. The Alameda Corridor and other industrial facilities, including the Carson Coke Storage and Transport Facility (also known as the Coke Barn), Air Products Hydrogen Plant, and the Wilmington SRP, are located to the east of the Carson Operations. Commercial and residential areas are located to the west of the Carson Operations. The Phillips 66 Refinery, commercial buildings, and tank farms occupy the area located to the south of the Carson Operations. The Carson Crude Terminal, operated by a Marathon subsidiary (Tesoro Logistics Operations LLC (TLO)) is also located to the south of the Carson Operations.

The Carson Operations and all adjacent businesses and properties are zoned heavy industrial according to the City of Carson's General Plan. The closest residential area to the Carson Operations is approximately 250 feet southwest of the Refinery boundary on the southwest corner of the Sepulveda Boulevard/Wilmington Avenue intersection (see Chapter 2, Section X – Land Use for further details).



Environmental Audit, Inc.

FIGURE 1-1
REGIONAL MAP
MARATHON LOS ANGELES REFINERY

Project No. 3316
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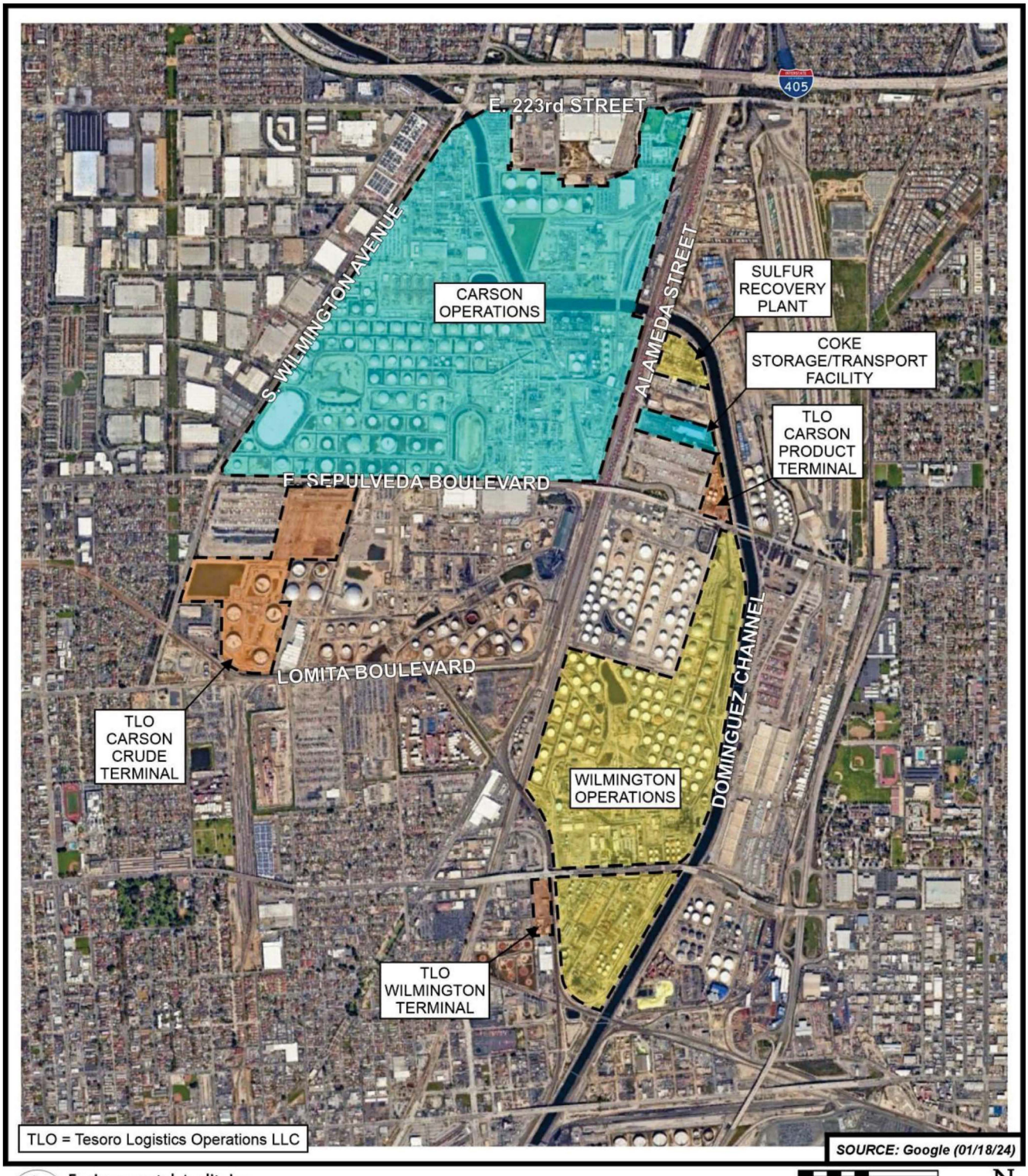


FIGURE 1-2
SITE LOCATION MAP
MARATHON LOS ANGELES REFINERY

Project No. 3316
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Additionally, the Carson Coke Storage and Transport Facility (a portion of the Carson Operations) is located at 23500 Alameda Street in the City of Carson (see Figure 1-2). The Coke Storage and Transport Facility is zoned as heavy industrial according to the City of Carson's General Plan. Adjacent land uses to the Coke Storage and Transport Facility also are zoned as heavy industrial and include the Carson Operations, a hydrogen plant, undeveloped lots, and container storage areas as well as the TLO Carson Products Terminal.

The Wilmington Operations are bounded to the north by Sepulveda Boulevard (as well as other tank farms and refinery activities), to the west by Alameda Street (as well as the Alameda Corridor and other tank farms), to the south by railroad tracks (as well as tank farms, metal recycling/scrap yards, and the TLO Wilmington Terminal), and to the east by the Dominguez Channel (as well as other tank farms and rail yard activities) (see Figure 1-2). The Wilmington Operations are bisected by Pacific Coast Highway, with the larger portion of the Wilmington Operations to the north of Pacific Coast Highway and the smaller portion to the south. The closest residential area to the Wilmington Operations is about 200 feet southwest of the TLO Truck Loading Rack (see Chapter 2, Section X – Land Use for further details).

The main operating portions of the Wilmington Operations are located within the Wilmington-Harbor City Planning Area in the City of Los Angeles, which permits heavy industrial uses including petroleum refining on the Marathon property (City of Los Angeles, 1999). The Wilmington-Harbor City Plan places no additional restrictions on refineries and specifically allows for construction without regard to height limitations. The Refinery and all adjacent areas are zoned for heavy industrial use (specifically, zoned M3-1 as defined by the Los Angeles Municipal Code Section 12.20, which defines allowable uses in the zone including petroleum products manufacture).

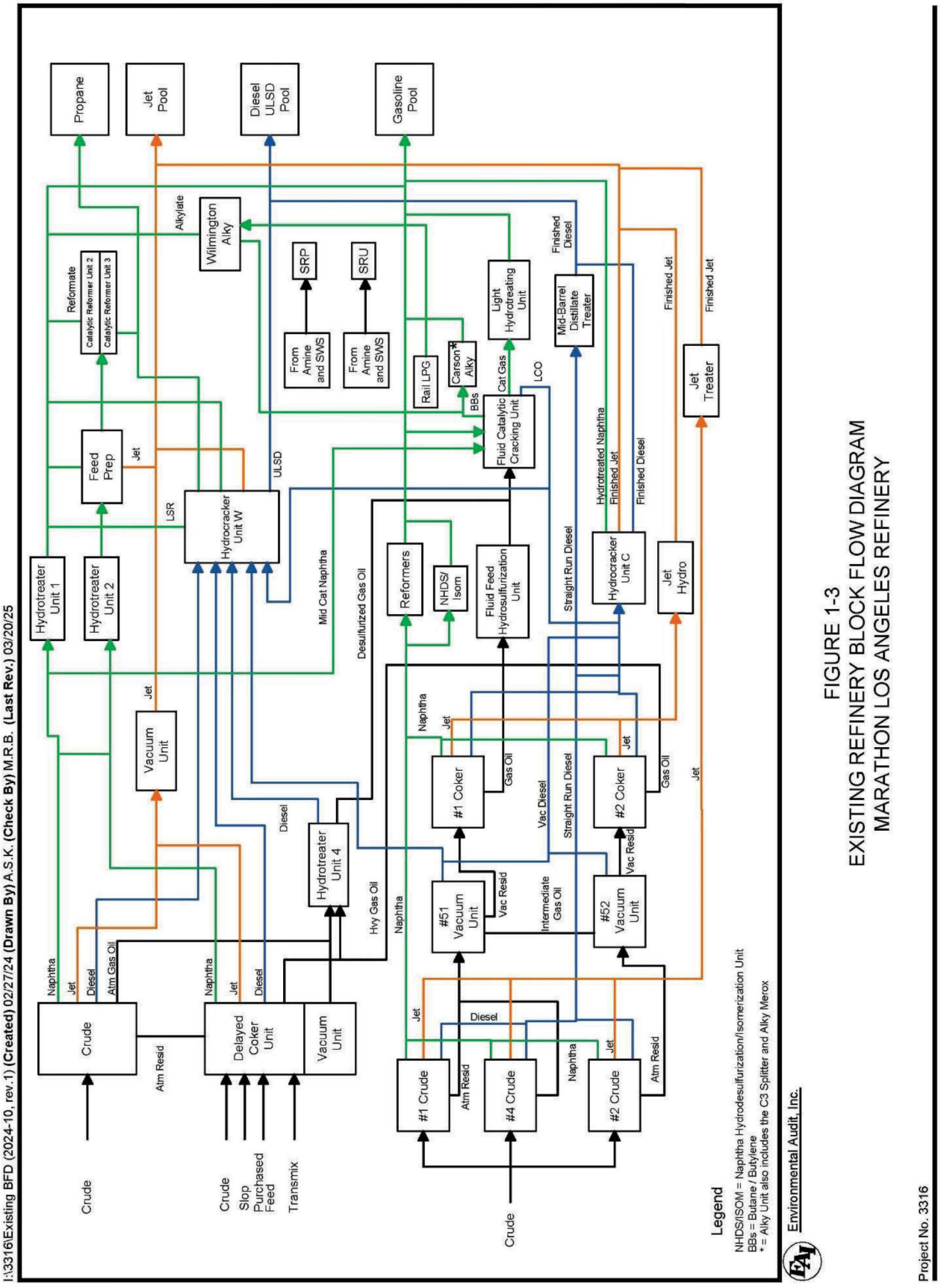
Additionally, the SRP is located at 23208 South Alameda Street in the City of Carson (see Figure 1-2) and, while part of the Wilmington Operations, no modifications to the SRP are planned as part of the proposed projects. The SRP is zoned as heavy industrial according to the City of Carson's General Plan. Adjacent land uses to the SRP also are heavy industrial and include the Carson Operations, a hydrogen plant, undeveloped lots, and container storage areas. The Carson and Wilmington Operations, including the SRP, are fully integrated and are connected via Marathon and third-party pipelines that enable the transfer of intermediate and finished products between the two operations.

1.3 OVERVIEW OF CURRENT OPERATIONS

Refineries produce a variety of products including transportation fuels (i.e., gasoline, diesel fuel, and jet fuel). Multiple processing units are used to reconfigure the molecules in crude oil to make the desired products. Refineries operate 24 hours per day, 365 days per year, with various units being taken out of service for maintenance as needed.

The Refinery operates pursuant to three Title V Permits to Operate issued to Tesoro Refining & Marketing Company LLC by the South Coast AQMD for the Carson Operations (Facility ID No. 174665), Wilmington Operations (Facility ID No. 800436), and the SRP (Facility ID No. 151798). The permits are divided into processes that are further subdivided into systems. The Refinery, if a fully-integrated operation with permitted process units spanning a total of 243 systems identified in the three Title V permits. A block flow diagram of the current operations of the Refinery is provided in Figure 1-3. Physical modifications are proposed for 12 of the 243 systems in the Refinery. Modifications are proposed that would affect the processes identified in bolded text in the following list.

- **Crude Distillation (No. 52 Vacuum Unit only)**
- **Coking and Residual Conditioning**
- **Fluid Catalytic Cracking**
- Fractionation
- **Hydrotreating**
- Catalytic Reformer
- Hydrogen Production
- Hydrocracking
- **Alkylation and Polymerization**
- Isomerization
- Fuel Gas Production
- Blending
- Treating/Stripping
- Sulfur Recovery
- **Loading and Unloading**
- Oil Water Separation
- **Petroleum Storage Tanks**
- Electrical Generation
- Steam Generation
- Miscellaneous Support
- Air Pollution Control Process
- Groundwater Recovery and Soil Remediation
- Cooling Towers
- Air Conditioning Units
- Fire Extinguishing Equipment


I:\3316\Existing BFD (2024-10, rev.1) (Created) 02/27/24 (Drawn By) A.S.K. (Check By) M.R.B. (Last Rev.) 03/20/25
Propane
Jet Pool
Diesel ULSD Pool
Gasoline Pool
Alkylate
Wilmington Alky
Reformate
Catalytic Reformer Unit 2
Catalytic Reformer Unit 3
SRP
SRU
From Amine and SWS
From Amine and SWS
Light Hydrotreating Unit
Finished Diesel
Mid-Barrel Distillate Treater
Finished Jet
Finished Jet
Jet Treater
Rail LPG
Carson* Alky
BBs
Cat Gas
LCO
Fluid Catalytic Cracking Unit
Feed Prep
Jet
ULSD
LSR
Hydrocracker Unit W
Hydrotreater Unit 1
Hydrotreater Unit 2
Mid Cat Naphtha
Desulfurized Gas Oil
Reformers
NHDS/ Isom
Fluid Feed Hydrosulfurization Unit
Straight Run Diesel
Hydrotreated Naphtha
Finished Jet
Finished Diesel
Hydrocracker Unit C
Jet Hydro
Vacuum Unit
Jet
Naphtha
Jet
#1 Coker
Gas Oil
Vac Diesel
Straight Run Diesel
#2 Coker
Jet
Gas Oil
Jet
Diesel
Hydrotreater Unit 4
Hvy Gas Oil
Naphtha
#51 Vacuum Unit
Vac Resid
Intermediate Gas Oil
#52 Vacuum Unit
Vac Resid
Naphtha
Jet
Diesel
Jet
Naphtha
Jet
Diesel
Atm Gas Oil
Crude
Atm Resid
Delayed Coker Unit
Vacuum Unit
#1 Crude
Atm Resid
#4 Crude
Naphtha
#2 Crude
Atm Resid
Crude
Crude
Slop
Purchased
Feed
Transmix
Crude
Legend
NHDS/ISOM = Naphtha Hydrodesulfurization/Isomerization Unit
BBs = Butane / Butylene
* = Alky Unit also includes the C3 Splitter and Alky Merox
Environmental Audit, Inc.
FIGURE 1-3
EXISTING REFINERY BLOCK FLOW DIAGRAM
MARATHON LOS ANGELES REFINERY
Project No. 3316

1.3.1 CARSON OPERATIONS HISTORY AND CRUDE OIL SUPPLY

Petroleum operations began at the Carson Operations in 1923 and the delayed coking process was added in 1966. Crude oil for the Carson Operations is unloaded from marine vessels at the marine terminals at Berth 121 or T-2 Terminals located in the Port of Long Beach and then transferred via pipeline and stored at Port of Long Beach Terminals or the TLO Carson Crude Terminal. Crude oil is sent via pipeline from the storage terminals to the Carson Operations for further storage in any of the nine Refinery crude oil storage tanks. Crude oil, including California crude oil, can also be delivered via pipeline from other onshore locations (e.g., oil production facilities and third-party terminals such as the Zenith Energy terminals located nearby). No crude oil is transported to the Carson Operations via rail. The storage tanks permitted to store crude oil at the Carson Operations range in capacity from 80,000 to 460,000 barrels (bbl), and the crude oil is transferred from the Carson Operations storage tanks to the three Crude Units (#1, #2, and #4). Crude oil is processed in Crude Units #1, #2 and #4 where it is heated and distilled into various hydrocarbon components which are further processed in downstream Carson Operations units. The Carson Operations also receive, process, and transport other petroleum products (crude oil not included) to and from the Carson Operations by pipeline, marine vessel, truck, and railcar. These petroleum products include residuum, gas oil, diesel fuel, gasoline, jet fuel, naphtha, and liquified petroleum gases (LPG). Additionally, the Carson Operations operates the Watson Cogeneration Unit, which produces steam and power for the Refinery and the excess power, beyond the Refinery's needs, is sold to the grid.

1.3.2 WILMINGTON OPERATIONS HISTORY AND CRUDE SUPPLY

Petroleum operations began at the Wilmington Operations in 1923 and the delayed coking process was added in 1968. Crude oil for the Wilmington Operations is delivered via marine vessel using the pipeline from the TLO Marine Terminal at the Port of Long Beach Berths 84A and 86. Crude oil, including California crude oils, can also be delivered via pipeline from other onshore locations (e.g., oil production facilities and third-party terminals such as the Zenith Energy terminal located nearby). No crude oil is transported to the Wilmington Operations via rail. The storage tanks permitted to store crude oil at the Wilmington Operations range in capacity from 80,000 to 125,000 bbl, and the crude oil is transferred from the Wilmington Operations storage tanks to the Wilmington Crude Unit. Crude oil is processed in the Crude Unit where it is heated and distilled into various hydrocarbon components, which are further processed in downstream Wilmington Operations units. The Wilmington Delayed Coker Unit (DCU) also has the capability to process crude oil mixed with slop, purchased feed, and transmix[1] (see Figure 1-3). The Wilmington Operations also receive, process, and transport other petroleum products (crude oil not included) to and from the Wilmington Operations by pipeline, marine vessel, truck, and railcar. These petroleum products include residuum, gas oil, diesel fuel, gasoline, jet fuel, naphtha, and LPG.

[1] Transmix is generated when a pipeline changes from transporting one commodity to another. A calculated volume of material is diverted to a transmix storage tank after completing one shipment before routing to the next product to a different storage tank to ensure the product quality is not compromised.

1.3.3 MARATHON LOS ANGELES REFINERY

The Marathon Los Angeles Refinery consists of the Carson Operations and Wilmington Operations, and operates as a single refinery. The Refinery has, in the past and continues today, to produce a variety of products including LPG, unleaded gasoline, jet fuel, diesel fuel, fuel oil, petroleum gases, petroleum coke, and sulfur. The Carson Operations property contains a separate polypropylene plant owned and operated by Ineos Polypropylene LLC. Major processing units at both the Carson and Wilmington Operations include their respective crude units, vacuum units, DCUs, hydrocracking units, hydrotreating units, reforming units, a Fluidized Catalytic Cracking Unit (FCCU) at Carson Operations (the Wilmington Operations FCCU was shut down in 2018), the Alkylation Units, hydrogen units, the sulfur recovery units at the Carson Operations and the SRP, and the Cogeneration Plants. The major difference between the Carson and Wilmington Operations is that the Carson Operations is a larger operation with three crude units, two vacuum units, and two DCUs whereas the Wilmington Operations only has one crude unit, one vacuum unit, one DCU.

Transportation fuels (e.g., gasoline, diesel, and jet) are routed to distribution terminals via pipelines. Petroleum coke is the product from the last processing step of the heavier materials generated in the refining process and is transported from the Refinery via trucks. Elemental sulfur, a by-product of the refining process is also transported via truck from the Refinery. Historically, a portion of the coke produced at the Carson Operations was transported to the Calciner in the Port of Long Beach to be converted from "green" coke to calcined coke prior to delivery to its customers and the remainder of the coke was transported directly to the Port of Long Beach for delivery to its customers. The Calciner was shuttered in 2022, so all coke is now directly transported to the Port of Long Beach for delivery to customers.

The Refinery optimizes crude oil and other refinery feedstock processing to produce the mixture of refined products that are marketed for sale. Unit turnarounds[2] are aligned between the Carson and Wilmington Operations to minimize economic and local area impacts from shutdowns. Crude oil, intermediate feedstocks, and products are transferred between Carson and Wilmington Operations via pipelines, as needed, to optimize Refinery production to meet market demand.

Hydrogen is used in the refining process to reconfigure the various hydrocarbon molecules contained in crude oil. Hydrogen is both produced and consumed during the refining process, but more is needed than produced. Therefore, based on the available hydrogen, hydrogen use is balanced and managed across the Refinery to meet the demand of clean fuel products (e.g., gasoline, diesel fuel, and jet fuel). The Refinery produces additional hydrogen on-site in hydrogen units and purchases hydrogen from Air Products, which has a network of hydrogen plants including in those Carson and Wilmington.

[2] A turnaround is an extensively planned period where a process unit is taken out of service (i.e., shut down) for maintenance, inspection, and repairs to ensure optimal, safe operation of the equipment. Turnaround durations are determined in advance and activities occur with a supplemental, specialized workforce working continuously until the work is completed. During a turnaround, any planned unit upgrade projects are implemented as well. Construction activity impacts from upgrade projects (not typically performed during a turnaround) are evaluated as part of the environmental impacts of the proposed project.

1.4 DESCRIPTION OF PROPOSED PROJECTS

The proposed projects are comprised of four separate proposed projects: Coke Drum Replacement, Asphalt Sales Rack, FFHDS Unit Modifications, and Alkylation Units Modifications. The proposed projects' individual purposes are as follows:

- Coke Drum Replacement Project will replace equipment that is at end-of-useful life;
- Asphalt Sale Rack Project will provide asphalt binder to meet market demand;
- FFHDS Unit Modifications Project will enable flexibility to shift between transportation fuel products, in response to changing market demands; and
- Alkylation Unit Modifications Project will more efficiently produce octane-blending components needed for reliable California gasoline supply.

Figure 1-4 shows a block flow diagram of the units affected by the proposed projects at the Refinery. Figures 1-5 and 1-6 show the locations of the affected units within the Carson and Wilmington Operations, respectively.

The four proposed projects each have independent utility, but they will have overlapping construction schedules. These proposed projects fulfill different needs at the Refinery, such that any single project can occur without any of the other three projects. To provide a comprehensive analysis of the impacts of these four projects, they will be analyzed in a single CEQA document, as allowed by CEQA Guidelines Section 15165. Each of these proposed projects is designed to ensure continued safe operations and provide a reliable and affordable supply of transportation fuels to meet the market shift during California's transition to a zero-emission transportation system. As shown in Figure 1-4, the Refinery is comprised of many process units, each serving a specific function. Regarding the Coke Drum Replacement Project, the Coker Units are the last processing location for the production of coke; consequently, replacement of the coke drums does not affect other units. The new Asphalt Sales Rack will provide a product that is produced by combining two existing streams from the Vacuum Unit; therefore, the Asphalt Sale Rack is only dependent on the Vacuum Unit. Vacuum units are dependent on the crude units and no changes are proposed for the crude units as part of the Modernization Projects.

The FFHDS Unit, the FCCU, and the Carson and Wilmington Alkylation Units occur sequentially in the refining process. However, the FFHDS Modification Project and the Alkylation Modifications Project are independent of one another because neither project relies on nor requires the other for the project to go forward. The refining process is a combination of multiple techniques to remove impurities, reconfigure hydrocarbons (e.g., crack longer hydrocarbon chains into shorter ones), and separate various hydrocarbons into multiple end-products including gasoline, diesel fuel, and jet fuel used for transportation. Tesoro reviewed each processing unit at the Refinery to determine where improvements could be made to modernize and improve the efficiency of an individual process and whether modifications to units upstream or downstream would also be required to accomplish the improvements. Tesoro concluded the FFHDS Unit Modification Project does not require any upstream or downstream unit modifications to implement the project. In order to accomplish the Alkylation Modernization Project, modifications at the FCCU and the C3 Splitter Unit will be necessary as detailed in Section 1.4.4. Because the units that need to be modified to accomplish each of the two proposed projects differ and neither proposed project relies on the other, the FFHDS Unit Modification Project and the Alkylation Modifications Project are not linked and are independent of each other.

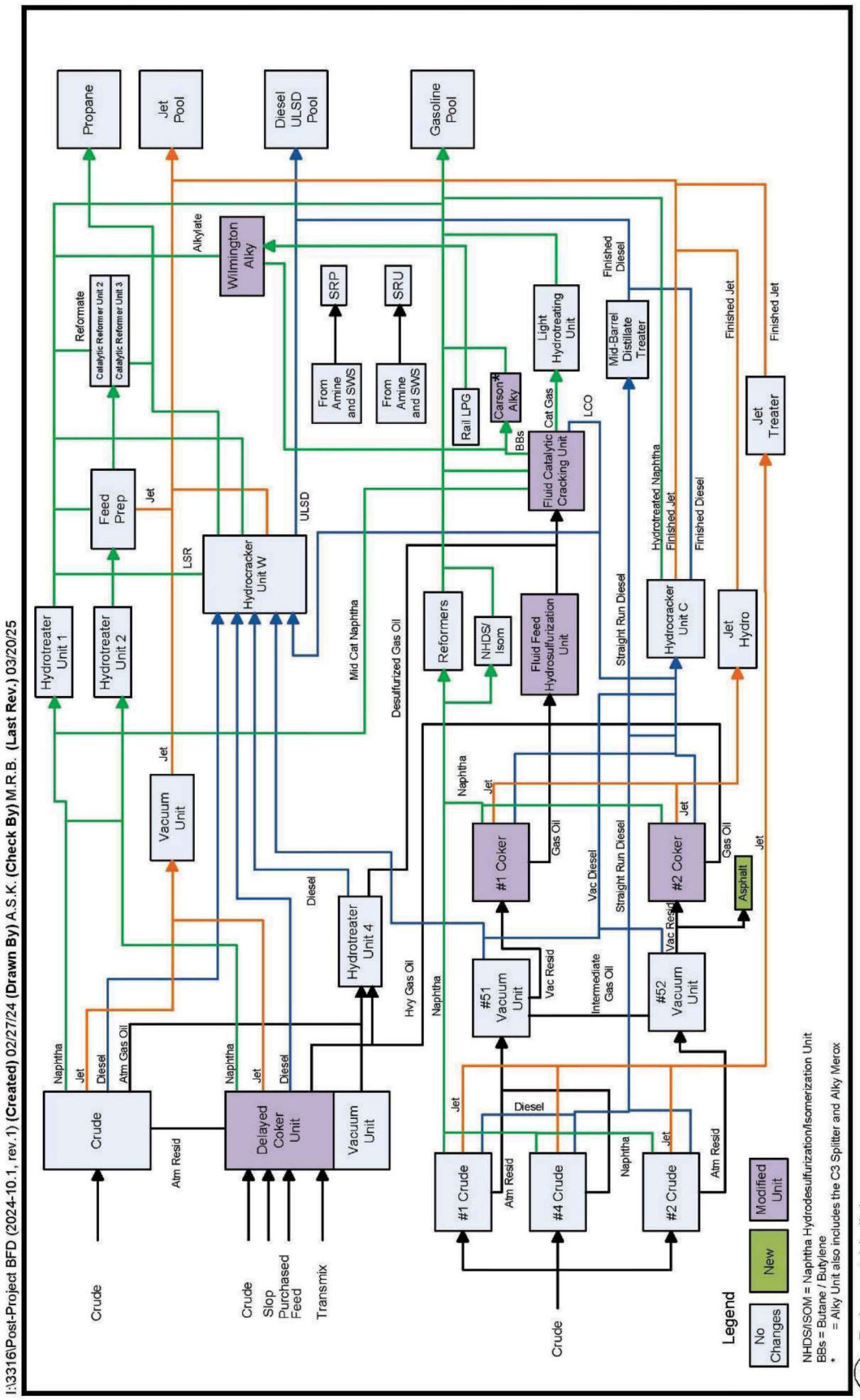


FIGURE 1-4
POST-PROJECT REFINERY BLOCK FLOW DIAGRAM
MARATHON LOS ANGELES REFINERY

Project No. 3316

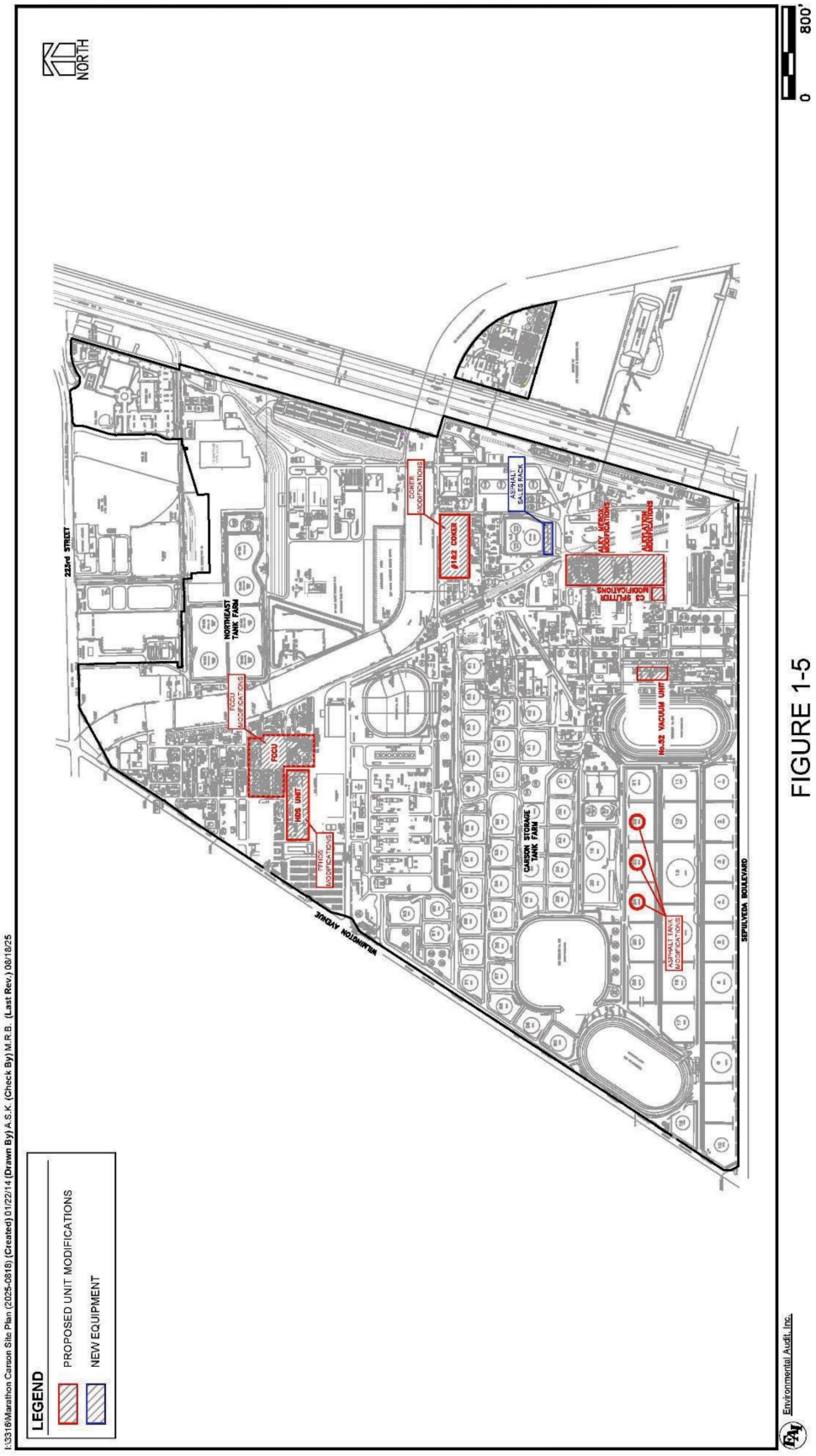
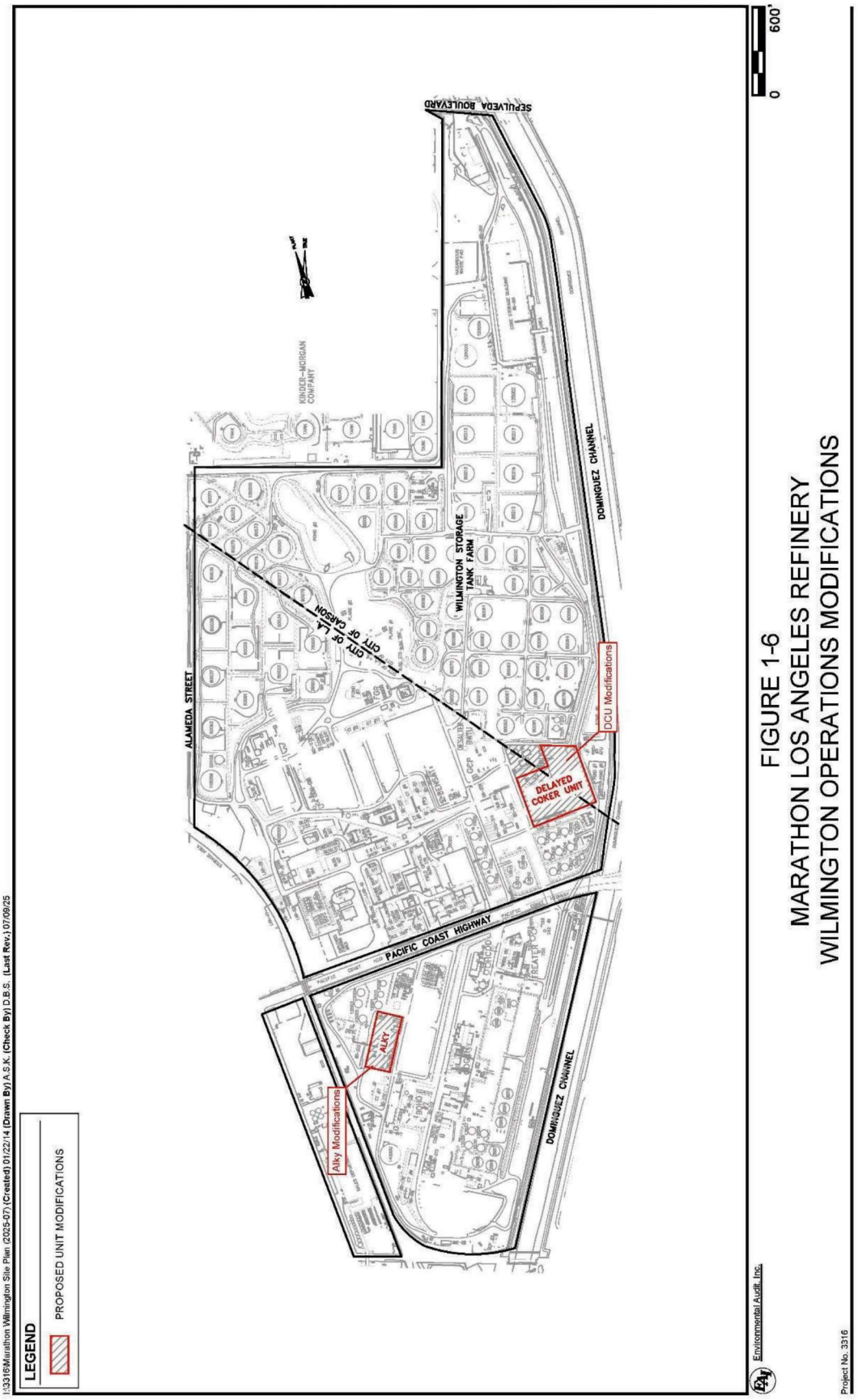


FIGURE 1-5
MARATHON LOS ANGELES REFINERY
CARSON OPERATIONS MODIFICATIONS


I:\3316\Marathon Wilmington Site Plan (2025-07) (Created) 01/22/14 (Drawn By) A.S.K. (Check By) D.B.S. (Last Rev.) 07/09/25
LEGEND
PROPOSED UNIT MODIFICATIONS
SEPULVEDA BOULEVARD
KINDER-MORGAN COMPANY
WILMINGTON STORAGE TANK FARM
DOMINGUEZ CHANNEL
ALAMEDA STREET
CITY OF L.A.
CITY OF CARSON
DELAYED COKER UNIT
DCU Modifications
PACIFIC COAST HIGHWAY
ALKY
Alky Modifications
DOMINGUEZ CHANNEL
0
600'
Environmental Audit, Inc.
FIGURE 1-6
MARATHON LOS ANGELES REFINERY
WILMINGTON OPERATIONS MODIFICATIONS
Project No. 3316

The following subsections describe in more detail the modifications and new equipment proposed at the Refinery. In the event that any engineering design changes to the proposed projects after the NOP/IS is circulated, the Draft EIR will be updated accordingly.

1.4.1 COKE DRUM REPLACEMENT PROJECT

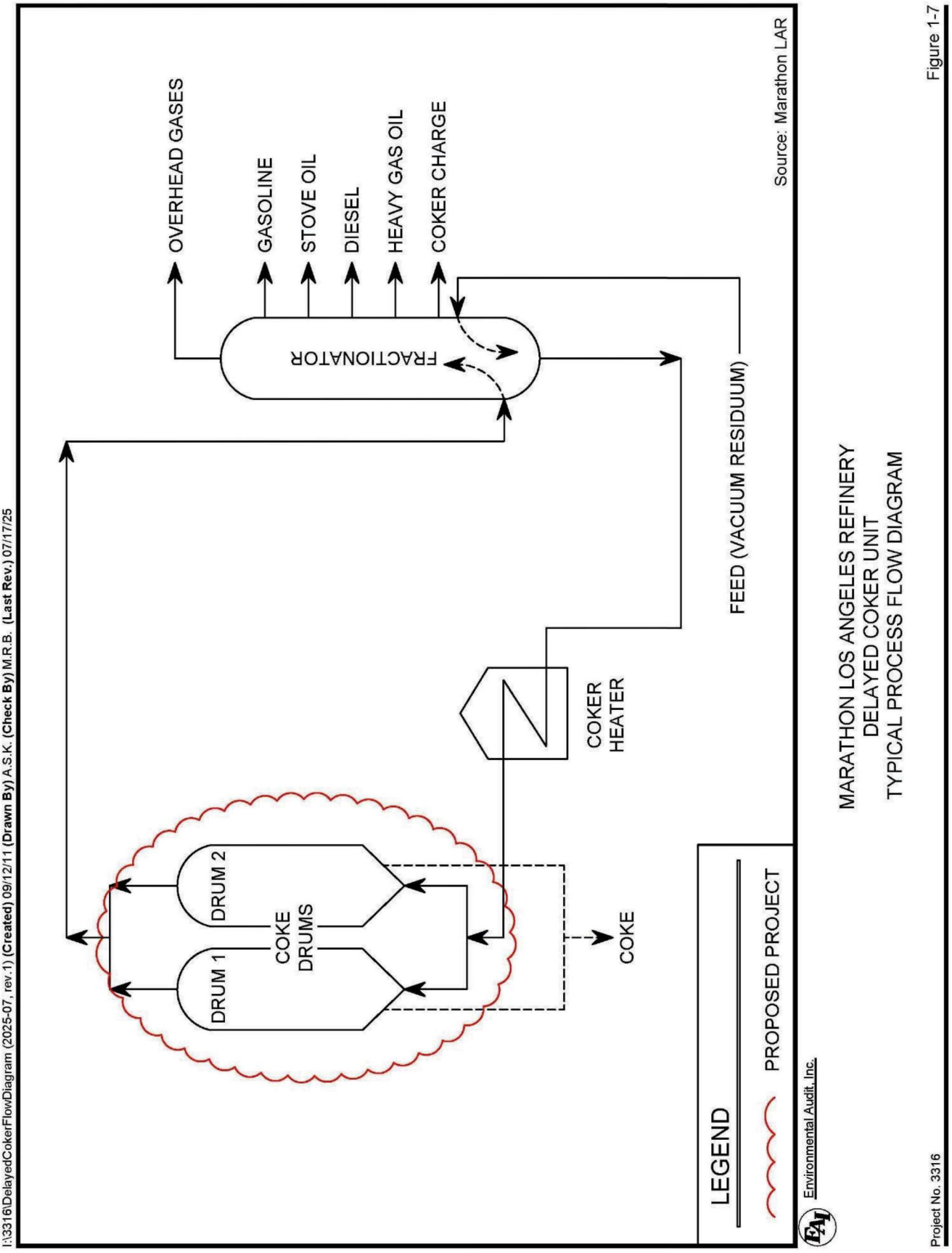
Refineries produce a variety of products including transportation fuels (i.e., gasoline, diesel fuel, and jet fuel). The delayed coking process was developed to minimize production of heavy residual fuel oils and to increase the production of transportation fuels.

Delayed coking is a thermal cracking process where the heavy hydrocarbons are held for a period of time at high temperatures and low pressures in the coke drum, where the large molecules are broken or cracked into small molecules. The term "delayed coking" derives from the fact that the heavy hydrocarbon feedstock travels at very high velocities through the charge furnace so that coking (e.g., the transformation of carbon into coke solids) is delayed until the feed enters the coke drum. During the cracking process, the lighter hydrocarbons are drawn off and sent to the fractionator section of the DCU for further processing, while the coke solids remain in the drum. DCUs typically work in pairs of drums so that the process operates continuously. When a drum reaches its capacity, the feed is routed to a second drum to continue the process while the first drum is being emptied (see Figure 1-7).

In the coke drum that has reached capacity, the solidified coke is cooled or quenched by being sprayed with a high-pressure water stream using a nozzle which originates from a derrick structure located above each coke drum and is lowered through the coke drum. The water breaks the large pieces into smaller particles as the nozzle is lowered through the coke drum, commonly called cutting. When the coke cutting is complete, the coke gravimetrically flows out from the bottom of the drum during the emptying process.

The Refinery has a total of five pairs of coke drums (10 total). In order to help ensure the continued safe and reliable operation of the coke drums and the coking process at the Refinery, Tesoro proposes to replace all 10 existing coke drums. Other than the coke drums, no other permitted equipment in the coker units will be modified.

As equipment ages and approaches the end of its useful life, increases in maintenance cause increases in downtime of the equipment or loss of operation for repairs. Replacement of the coke drums is expected to improve operations of the Delayed Coker Unit at the Wilmington Operations (DCU-W), and Coker Unit No. 1 and Coker Unit No. 2 at the Carson Operations (Coker No. 1 and Coker No. 2, respectively) by up to three percent annually. The coke drums at the DCU-W and each Coker Unit will be replaced with new coke drums that are of the same size and capacity as described in Subsections 1.4.1.1 through 1.4.1.3. The replacement requires skilled-and-trained Building Trades Union labor and specialty construction equipment (e.g., large cranes, transport vehicles) that are expected to be used first at the DCU-W, then the Coker No. 1, and finally at the Coker No. 2.


I:\3316\DelayedCokerFlowDiagram (2025-07, rev.1) (Created) 09/12/11 (Drawn By) A.S.K. (Check By) M.R.B. (Last Rev.) 07/17/25
OVERHEAD GASES
GASOLINE
STOVE OIL
DIESEL
HEAVY GAS OIL
COKER CHARGE
FRACTIONATOR
Source: Marathon LAR
FEED (VACUUM RESIDUUM)
COKER HEATER
DRUM 2
DRUM 1
COKE DRUMS
COKE
LEGEND
PROPOSED PROJECT
Environmental Audit, Inc.
MARATHON LOS ANGELES REFINERY
DELAYED COKER UNIT
TYPICAL PROCESS FLOW DIAGRAM
Project No. 3316
Figure 1-7

Ancillary piping, equipment, and instrumentation will be replaced as needed (e.g., use the newest available gauge to replace an older gauge). Existing pressure relief valves (PRVs) are currently routed to each gas recovery system for the DCU-W and the Carson Coker Units (No. 1 and No. 2) and will continue to be vented to this equipment once the project modifications are complete. No changes are proposed for the gas recovery system and flare operations.[3] The existing superstructure above the coke drums (referred to as the cutting deck), will be removed to allow access to the coke drums and will be reinstalled following the coke drum replacement. The existing piping to the existing coke drums will be disconnected, replaced as necessary, and reinstalled once the new coke drums have been installed. Replacement of old piping is based on inspection data obtained prior to the shutdown and field assessment at the time of the field work. The replacement piping will be the same diameter as the existing piping but may have additional monitoring sensor locations to meet current monitoring requirements or additional isolation valves to improve operational safety.

The new coke drums are expected to be fabricated overseas in Europe or Asia. Each coke drum will be shipped intact to either the Port of Los Angeles or Port of Long Beach. The sourcing of coke drums from overseas takes advantage of the expertise, equipment and techniques developed in recent years by coke drum fabricators, such as, plate-rolling equipment, automated grinding, beveling, and welding equipment, pre- and post-weld heat treating equipment, and well-established shop quality control procedures.

During operations, produced coke is currently transported by truck to the Port of Long Beach for export. The improved reliability is not expected to change the peak daily number of trucks (approximately 400), but is expected increase the annual average daily number of trucks (currently approximately 203) by three to 206.

1.4.1.1 Wilmington Operations DCU Coke Drum Replacement

The DCU-W started operations in 1968. Therefore, the four original, existing coke drums at the Wilmington Operations are approaching the end of their useful life cycle and must be replaced. The proposed new coke drums will be the same capacity and the same size as described in the South Coast AQMD permit for the existing drums (i.e., 68 feet tall and 26 feet in diameter), which will allow the Refinery to maintain the current processing capacity. Since the 1960s, standards for steel have changed, so the new coke drum metallurgy will be upgraded to the current composition for the same type of steel (e.g., 0.5 percent molybdenum steel instead of 1.0 percent chromium and 0.5 percent molybdenum steel). Seismic upgrades, such as reinforcement of the structure, as required by the current building code, will be made to the structure that currently houses the four existing coke drums, and which will be used to hold the new coke drums. The location of the DCU-W is shown in Figure 1-6. Ancillary equipment, such as the latest available instrumentation or additional isolation valves, will be installed as necessary.

[3] The gas recovery system is used to reduce flaring in the event of a process upset; the gases are routed back for reprocessing in the Refinery. Only when gas recovery system volume is exceeded, does the gas get routed to the flare system.

1.4.1.2 Carson Operations Coker No. 1 Coke Drum Replacement

Coker No. 1 started operations in 1966. Therefore, the four original, existing coke drums at the Coker No. 1 are approaching the end of their useful life and must be replaced. The proposed new coke drums will be the same capacity and the same size as described in the South Coast AQMD permit for the existing drums (i.e., 73 feet tall and 21.5 feet in diameter), which will allow the Refinery to maintain the current processing capacity. Coke drum metallurgy will remain the same (e.g., 0.5 percent molybdenum steel). Seismic upgrades, such as reinforcement of the structure, as required by the current building code will be made to the structure that currently houses the four existing coke drums, and which will be used to hold the four new coke drums. The location of Coker No. 1 is shown in Figure 1-5. Ancillary equipment, such as the latest available instrumentation or additional isolation valves, will be installed as necessary.

1.4.1.3 Carson Operations Coker No. 2 Coke Drum Replacement

Coker No. 2 started operations in 1968. Therefore, the two original, existing coke drums at the Coker No. 2 are approaching the end of their useful cycle and must be replaced. The proposed new coke drums will be the same capacity and the same size as described in the South Coast AQMD permit for the existing coke drums (i.e., 97 feet tall and 21.5 feet in diameter). Coke drum metallurgy will remain the same (e.g., 0.5 percent molybdenum steel). Seismic upgrades, such as reinforcement of the structure, as required by the current building code will be made to the structure that currently houses the two existing coke drums, and which will be used to hold the two new coke drums. The location of Coker No. 2 is shown in Figure 1-5. Ancillary equipment, such as the latest available instrumentation or additional isolation valves, will be installed as necessary.

1.4.2 ASPHALT SALES RACK PROJECT

Asphalt is a blend of crushed stone, sand, gravel, and asphalt binder which is a viscous liquid that holds the mixture of stone, sand, and gravel together. According to market information published by the Energy Information Administration, the demand for asphalt in California currently outpaces the available supply of asphalt binder produced in California.[4] This imbalance in the local asphalt market creates a need for more components of asphalt to be produced locally.

To meet local market demand for asphalt binder, Tesoro proposes to add a new asphalt sales rack to concurrently load up to four trucks with asphalt binder and associated equipment. In addition, modifications to up to three existing storage tanks at the Carson Operations will be made to add heat to the storage tanks and piping to keep the asphalt binder flowable, add mixers to keep the binder at a uniform temperature, add odor control that meets BACT, and revise the South Coast AQMD permits to allow storage of asphalt binder in the three tanks (see Figure 1-5). To create up to 20,000 barrels per day of asphalt binder for sale, the residuum[5] that is produced at the No. 52 Vacuum Unit and is routed to Coker No. 2, will be diverted to the modified storage tanks for blending with gas oil, also produced at the No. 52 Vacuum Unit, in a ratio of 94.5 percent residuum and 5.5 percent gas oil.

[4] EIA, Supply and Disposition of Asphalt and Road Oil data available at https://www.eia.gov/dnav/pet/PET_SUM_SND_A_EPPA_MBBLPD_A_CUR.htm

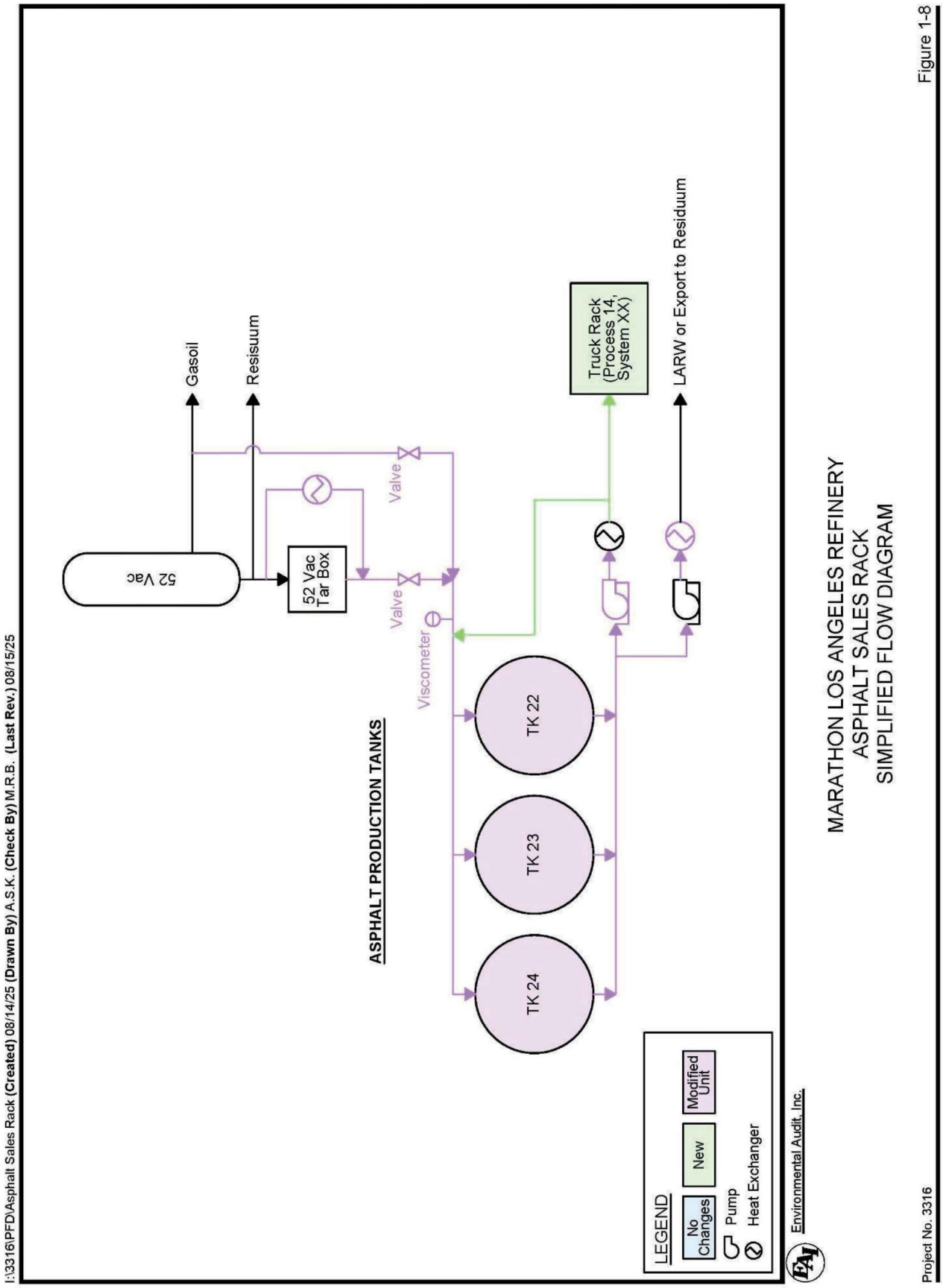
[5] Residuum is the heaviest material produced from the separation of crude oil.

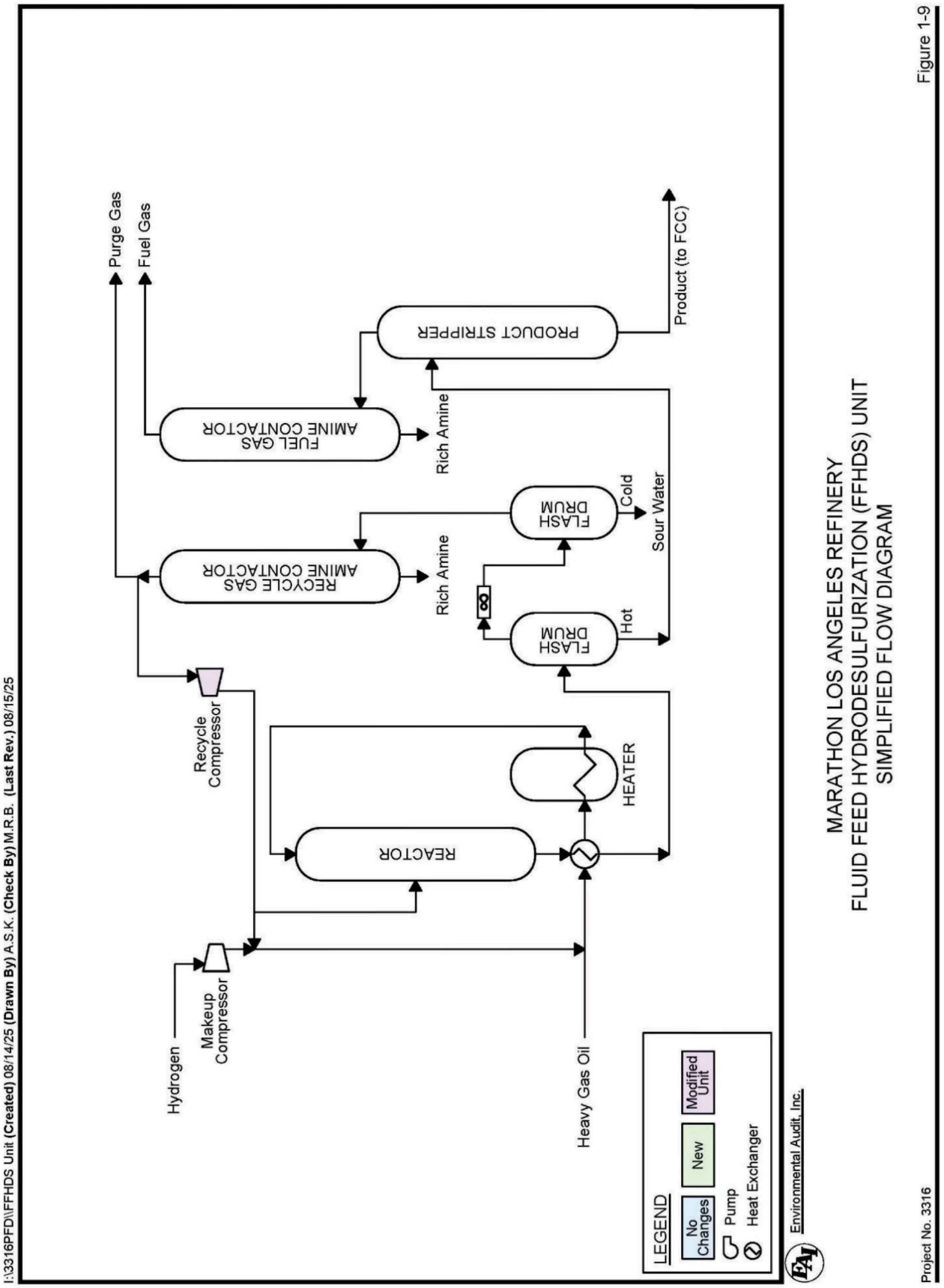
Up to eight new heat exchangers and piping modifications to the No. 52 Vacuum Unit will need to be installed in order to divert the residuum to the modified storage tanks. The piping modifications will consist of new piping from the No. 52 Vacuum Unit to transfer the residuum to the modified storage tanks, new piping to circulate the asphalt while warming, and new piping from the modified storage tanks to the asphalt sales rack. The asphalt sales rack, which will replace an existing storage building that will be removed, will include the installation of a new truck loading system with up to four truck stations. The truck stations will include truck loading arms, pumps, and piping; odor control equipment such as carbon canisters; and metering equipment to allow up to four trucks to load concurrently. The modifications to the existing storage tanks will include odor controls similar to the asphalt sales rack. Ancillary piping, equipment, and instrumentation will also be installed and/or upgraded, as needed to accurately monitor the system operations. Figure 1-8 shows the simplified flow diagram for the Asphalt Sales Rack.

Following construction activities, truck traffic associated with third-party trucks (i.e., not operated by Tesoro employees) picking up asphalt binder from the new Truck Sales Rack is expected be a maximum of up to six to seven trucks per hour or 150 to 160 trucks per day, when sales reach 20,000 barrels per day.

1.4.3 FLUID FEED HYDRODESULFURIZATION (FFHDS) UNIT MODIFICATIONS PROJECT

The Carson Operations Fluid Feed Hydrodesulfurization (FFHDS) Unit removes sulfur compounds from the gas oil feed before it is routed to the Fluidized Catalytic Cracking Unit (FCCU) to produce products with low sulfur content and minimize sulfur-based emissions at the stack. Tesoro proposes to modify the FFHDS by replacing the existing steam-driven recycle compressor with a new electric-driven recycle compressor, changing vessel internals, and reconfiguring up to two heat exchangers to improve heat transfer efficiency to saturate aromatic hydrocarbons. Together, these modifications will improve the quality of the feedstock to the FCCU. Improved feed quality to the FCCU allows the FCCU to more efficiently convert gas oil into lighter products used for blending gasoline to provide increased operational flexibility to meet California's market demand consistent with the CEC/CARB Transportation Fuels Assessment authorized by Senate Bill SBX1-2 (CEC, 2024). Hydrogen needed for this modification will be supplied from the available hydrogen that is managed between processing units to make the products needed to meet market demand. The FFHDS Unit location is shown in Figure 1-5 and the simplified flow diagram is shown in Figure 1-9.


I:\3316\PFD\Asphalt Sales Rack (Created) 08/14/25 (Drawn By) A.S.K. (Check By) M.R.B. (Last Rev.) 08/15/25
52 Vac
52 Vac Tar Box
Gasoil
Resisuum
Valve
Valve
Viscometer
ASPHALT PRODUCTION TANKS
TK 22
TK 23
TK 24
Truck Rack (Process 14, System XX)
LARW or Export to Residuum
LEGEND
No Changes
New
Modified Unit
Pump
Heat Exchanger
Environmental Audit, Inc.
MARATHON LOS ANGELES REFINERY
ASPHALT SALES RACK
SIMPLIFIED FLOW DIAGRAM
Project No. 3316
Figure 1-8


I:\3316PFD\FFHDS Unit (Created) 08/14/25 (Drawn By) A.S.K. (Check By) M.R.B. (Last Rev.) 08/15/25
Purge Gas
Fuel Gas
Product (to FCC)
PRODUCT STRIPPER
FUEL GAS AMINE CONTACTOR
Rich Amine
RECYCLE GAS AMINE CONTACTOR
Rich Amine
FLASH DRUM
Cold
Sour Water
FLASH DRUM
Hot
Recycle Compressor
REACTOR
HEATER
Hydrogen
Makeup Compressor
Heavy Gas Oil
LEGEND
No Changes
New
Modified Unit
Pump
Heat Exchanger
Environmental Audit, Inc.
MARATHON LOS ANGELES REFINERY
FLUID FEED HYDRODESULFURIZATION (FFHDS) UNIT
SIMPLIFIED FLOW DIAGRAM
Project No. 3316
Figure 1-9

1.4.4 ALKYLATION UNITS MODIFICATIONS PROJECT

An FCCU cracks or converts heavy hydrocarbons into lighter gasoline and distillate range hydrocarbons in the presence of fine particles of catalyst that are circulated throughout the process. The products are separated in the existing fractionator column with the light products further separated in the Gas Plant section of the FCCU (see Figure 1-10). Light FCCU products include propylenes and butylenes, which are then processed in the Alkylation Units. The existing Alkylation Units at the Carson and Wilmington Operations are process units that convert these propylenes (C3 olefins) and butylenes (C4 olefins) into blendstocks for gasoline. In addition, amylenes (C5 olefins) are recovered from raw gasoline produced by the FCCU in an existing fractionation column and converted to low vapor pressure gasoline blendstocks in the Carson Operations Alkylation Unit. Included in the Alkylation Unit is the Alky Merox Unit, which removes sulfur compounds from the olefin feed to the Alkylation Units.

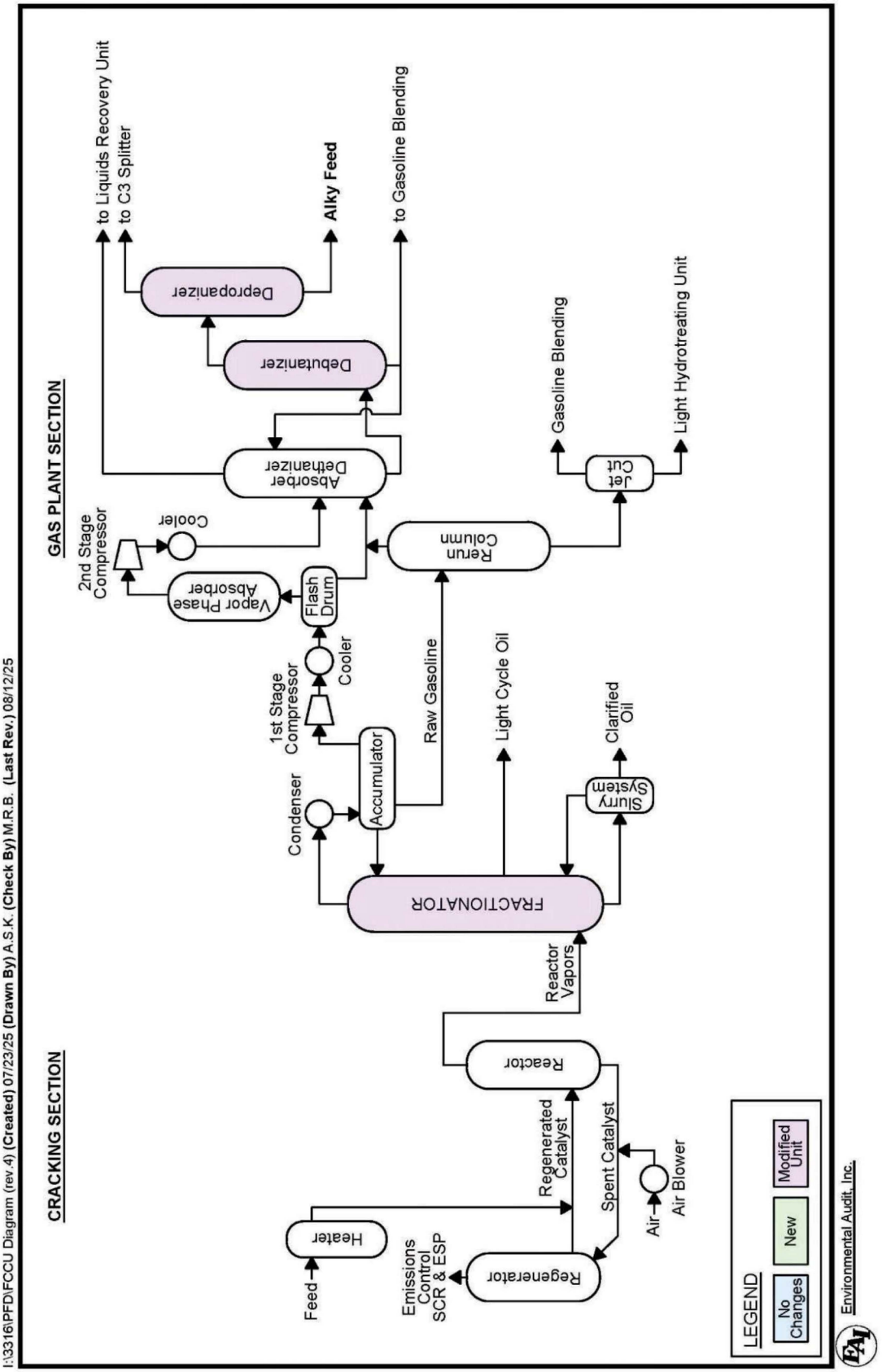
The main function of the Alkylation Units is to convert olefins into alkylate, a high-octane blending component used to make gasoline. Using liquid sulfuric acid as a catalyst, the alkylation reaction combines light olefins and C5 olefins from the Carson Operations with isobutane to form an alkylate (see Figure 1-11). Alkylates are large, isoparaffin isomers used in gasoline blending with the properties of motor octane number from 88-95 and research octane numbers from 90-98, which is needed to make gasoline that can be sold for use in on-road automobiles.

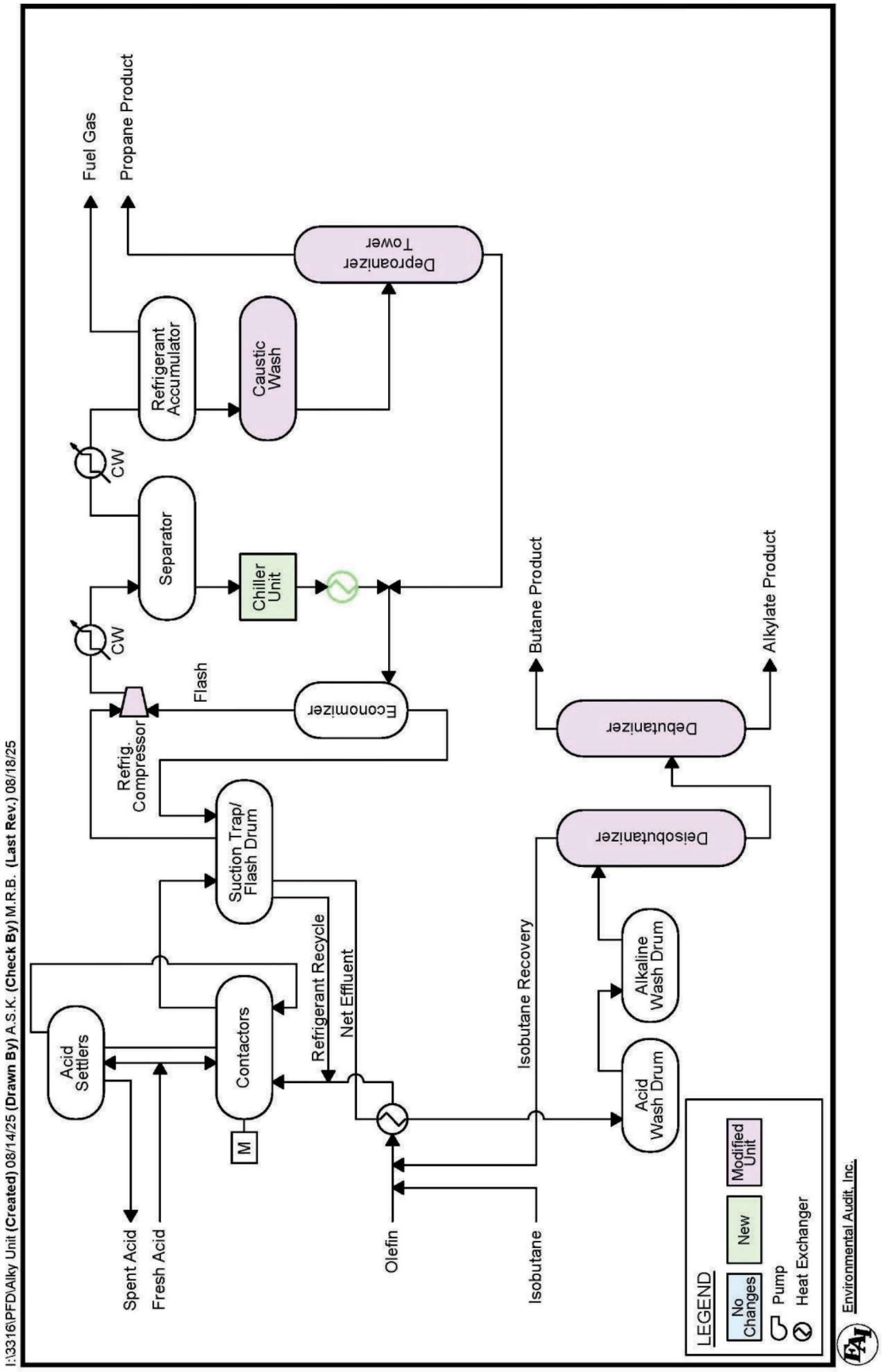
The proposed modifications to the Alkylation Units will allow the Refinery to produce more high-octane, the low vapor pressure blendstock for making gasoline. The proposed modifications for each unit are described in the following subsections.

1.4.4.1 Fluidized Catalytic Cracking Unit (FCCU) Modifications

The purpose of the FCCU modifications is to shift the products from heavier hydrocarbons (i.e., products with more than four carbon atoms) to increase the production of C3 and C4 olefins that will be supplied to the Carson and Wilmington Operations Alkylation Units. The FCCU modifications would be primarily in the equipment associated with the columns of the gas plant section and potentially the main fractionation column in the cracking section of the FCCU. To improve the separation capability of the FCCU, the modifications would require installing up to three new heat exchangers, six new pumps, and three new vessels for caustic, and modifying trays and packing in the cracking section of the FCCU columns. Ancillary piping, equipment, and instrumentation will be upgraded as needed to accurately monitor the system operations.

As shown in Figure 1-10, no modifications are proposed to the feed portion of the FCCU. Therefore, the modifications do not affect the feed rate (i.e., throughput) to the FCCU, but rather allow shifts in the Refinery's product yield to feed components for the Alkylation Units to make more of lighter products for gasoline blendstock production than heavier products for diesel fuel and jet production, when market conditions demand.


I:\3316\PFD\FCCU Diagram (rev.4) (Created) 07/23/25 (Drawn By) A.S.K. (Check By) M.R.B. (Last Rev.) 08/12/25
CRACKING SECTION
GAS PLANT SECTION
to Liquids Recovery Unit
to C3 Splitter
Alky Feed
to Gasoline Blending
Gasoline Blending
Light Hydrotreating Unit
Depropanizer
Debutanizer
Absorber Deethanizer
Jet Cut
Rerun Column
2nd Stage Compressor
Cooler
Vapor Phase Absorber
Flash Drum
1st Stage Compressor
Cooler
Condenser
Accumulator
Raw Gasoline
Light Cycle Oil
Clarified Oil
Slurry System
FRACTIONATOR
Reactor Vapors
Reactor
Regenerated Catalyst
Spent Catalyst
Air
Air Blower
Heater
Feed
Emissions Control SCR & ESP
Regenerator
LEGEND
No Changes
New
Modified Unit
Environmental Audit, Inc.
MARATHON LOS ANGELES REFINERY
SIMPLIFIED FCCU FLOW DIAGRAM
Project No. 3316
Figure 1-10


I:\3316\PFD\Alky Unit (Created) 08/14/25 (Drawn By) A.S.K. (Check By) M.R.B. (Last Rev.) 08/18/25
Fuel Gas
Propane Product
Deproanizer Tower
Refrigerant Accumulator
Caustic Wash
CW
Separator
Chiller Unit
CW
Flash
Refrig. Compressor
Economizer
Butane Product
Alkylate Product
Debutanizer
Suction Trap/ Flash Drum
Deisobutanizer
Refrigerant Recycle
Net Effluent
Isobutane Recovery
Alkaline Wash Drum
Acid Settlers
Contactors
M
Acid Wash Drum
Spent Acid
Fresh Acid
Olefin
Isobutane
LEGEND
No Changes
New
Modified Unit
Pump
Heat Exchanger
Environmental Audit, Inc.
MARATHON LOS ANGELES REFINERY
TYPICAL ALKYLATION UNIT SIMPLIFIED FLOW DIAGRAM
Project No. 3316
Figure 1-11

1.4.4.2 Wilmington Operations Alkylation Modifications

The Wilmington Operations Alkylation Modifications include upgrading the coalescing media to more effective media, adding mist eliminators to reduce wear and improve reliability, replacing older piping with new piping, modifying trays and packing in the deisobutanizer and debutanizer columns, adding an economizer vessel, and replacing up to three pumps and spares (a total of six pumps). The existing refrigeration compressor and motor may be modified or replaced to improve efficiency. Ancillary piping, equipment, and instrumentation will be upgraded as needed to accurately monitor the system operations.

1.4.4.3 Carson Operations Alkylation Modifications

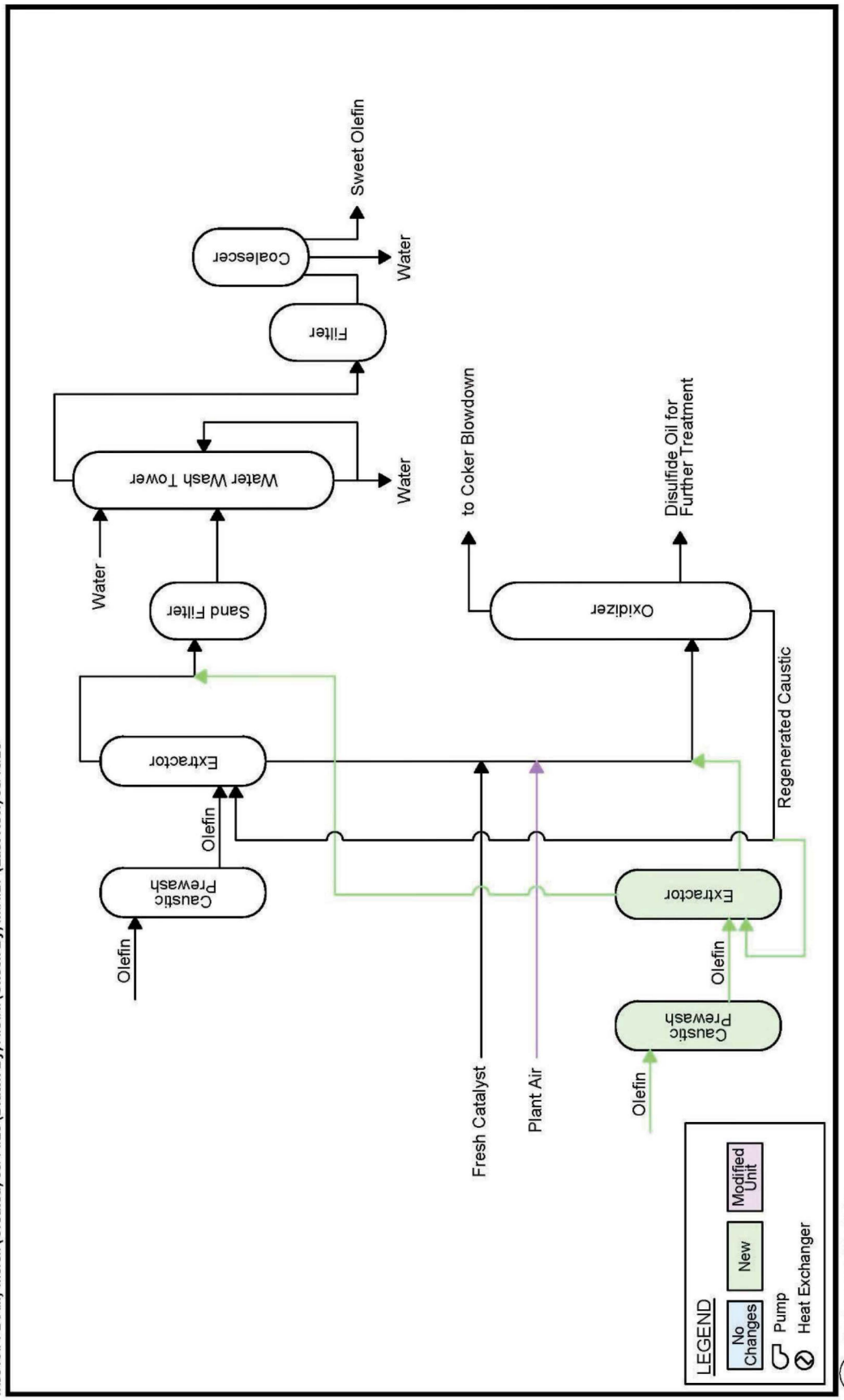
The Carson Operations Alkylation Modifications seek to improve the chilling capabilities of the refrigeration section of the Alkylation Unit to remove excess heat by either installing a new chiller unit and/or modifying the internal components or replacing the existing refrigeration compressor and turbine, installing up to three new heat exchangers, installing up to two new pumps plus spares for a total of four pumps, replacing internals on up to six other pumps plus spares for a total of 12 pumps, replacing two existing coalescers with new larger vessels, improving the water wash and acid neutralization capabilities, replacing the existing pressure relief valves on the acid storage vessels with new, appropriately-sized valves to accommodate the operational changes to the acid system, and replacing the trays and packing in the depropanizer, debutanizer, and deisobutanizer columns. Ancillary piping, equipment, and instrumentation will be upgraded as needed to accurately monitor the system operations.

The Carson Operations Alkylation Unit includes an Alky Merox Unit. The purpose of the Alky Merox Unit is to remove mercaptans (sulfur containing compounds) from the olefin feed streams to the Alkylation Units, thereby producing lower sulfur gasoline blending components from the Alkylation Units (see Figure 1-12).

The Alky Merox Unit modifications include installing a new caustic prewash train in parallel with the existing train, and a new Alky Merox extractor train in parallel with the existing train. This will improve the desulfurization of the olefin feed to the Alkylation Unit.

1.4.4.4 Carson Operations C3 Splitter

The C3 Splitter Unit is designed to separate propane and propylene, which are compounds containing three carbon molecules. Once separated, the propane and propylene are processed elsewhere in the refining process or sold as product. An existing pressure relief valve (PRV), which is vented to the flare gas recovery system, will be replaced with a larger diameter valve to ensure the proper operation of the PRV.


I:\3316\PFD\Alky Merox (Created) 08/14/25 (Drawn By) A.S.K. (Check By) M.R.B. (Last Rev.) 08/18/25
Sweet Olefin
Water
Coalescer
Filter
Water Wash Tower
Water
Water
Sand Filter
Extractor
Olefin
Caustic Prewash
Olefin
to Coker Blowdown
Disulfide Oil for Further Treatment
Oxidizer
Regenerated Caustic
Extractor
Olefin
Caustic Prewash
Olefin
Fresh Catalyst
Plant Air
LEGEND
No Changes
New
Modified Unit
Pump
Heat Exchanger
Environmental Audit, Inc.
MARATHON LOS ANGELES REFINERY
TYPICAL ALKYLATION MEROX UNIT SIMPLIFIED FLOW DIAGRAM
Project No. 3316
Figure 1-12

1.4.5 OPERATIONAL EFFECTS OF THE PROPOSED PROJECTS

The proposed modifications are not designed to change the fundamental operations of the Refinery, but rather to facilitate the Refinery's ability to shift product yields depending on the market demand. Similarly, the crude oil and feedstock throughput and processing capability at the Refinery will not change as a result of the proposed modifications because there are no modifications to the units that initially process the crude oil, such as the Crude Units or the DCU-W. The replacement of the DCU-W coke drums does not alter the processing capabilities because the new drums are the same size and capacity as the existing drums. The Carson and Wilmington Operations currently obtain crude oil and feedstock from a variety of world-wide sources and the selection of what to buy is based on many factors including the crude oil properties that are suitable for processing at the Refinery, availability, and cost. These sources crude oil and feedstock are not expected to be affected by the proposed modifications because crude oil production is conducted independently from the Refinery. Feedstocks include, but are not limited to, intermediate gas oil, transmix (a mixture of pipeline products; such as gasoline, jet fuel, and diesel fuel) and internally recycled oil (i.e., a mixture of oils collected in various places throughout the Refinery and stored as slop oil for reprocessing).

As shown in Figure 1-4, the proposed modifications will occur in various locations throughout the refining process. The changes that may occur as a result of the proposed projects (referred to as indirect effects) at units upstream and downstream of the proposed modifications are included in the evaluation of the proposed projects.

The proposed projects are within the existing confines of the Refinery. Thus, the proposed projects will use the existing utilities at the Refinery, namely the Watson Cogeneration Unit for power, the natural gas infrastructure, the water supply systems, and the wastewater systems. The proposed projects will rely on existing onsite power and steam generated at the Watson Cogeneration Unit, which produces steam and electricity for the Refinery. The excess electricity, beyond the Refinery's needs, is sold to the grid. The proposed projects are expected to require approximately seven megawatts of additional electricity which may reduce the amount that the Refinery sells to the grid. No modifications to the electrical distribution system to the Refinery are expected to be needed for the proposed projects.

While the proposed projects will not install any new combustion sources that will use natural gas, an increased usage of approximately less than 5.5 million standard cubic feet per day of natural gas is expected to be needed. The increased demand in natural gas represents approximately two percent increase in the Refinery's total daily usage. Thus, no modifications to the natural gas supply system to the Refinery are expected or proposed to supply the proposed projects.

The Refinery uses a combination of potable water from the local water providers (i.e., Los Angeles Department of Water and Power (LADWP) and California Water Services), ground water produced on site, and reclaimed water through existing infrastructure. The proposed projects are expected to increase water usage by over 270,000 gallons per day. No modifications to the water supply systems to the Refinery are expected or proposed to supply the proposed projects.

The onsite wastewater treatment facilities are capable of handling an increase of up to approximately 12,000 gallons per day in wastewater generation from the proposed projects. The

Refinery currently has permitted discharge points and no modifications to the permits or the discharge points are expected or proposed to supply the proposed project.

1.5 PROJECT CONSTRUCTION SCHEDULE

Construction activities for the proposed projects are expected to begin in mid-2026. Construction activities are expected to be completed over several phases for the coke drum replacements (i.e., DCU followed by Coker No. 1 then Coker No. 2) with other project components occurring concurrently at various times, based on preliminary project engineering. As shown in Figure 1-13, the preliminary construction schedules for each component of the proposed projects varies. Construction work shifts, using Building Trades union workers, are expected to last about ten hours per day during most portions of the construction schedule. During normal construction periods, one work shift per day is expected. During Refinery turnaround periods (when the specific unit is shutdown), two work shifts are expected and work may be conducted 24 hours per day. The preliminary projects schedule will be refined as more detailed engineering is completed.

FIGURE 1-13

Marathon Los Angeles Refinery Modification Project
Preliminary Construction Schedule

Task		Year 1 (2026)												Year 2 (2027)												Year 3 (2028)											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Upgrades Projects																																					
Location	**Description**																																				
Wilmington	DCU Coke Drum Replacement																																				
Carson	Coker No. 1 Drum Replacement																																				
Carson	Coker No.2 Drum Replacement																																				
Carson	Asphalt Sales Rack																																				
Carson	Carson FFHDS Modifications																																				
Carson	Carson Alkylation Unit																																				
Wilmington	Wilmington Alkylation Unit																																				
Carson	FCCU Modifications																																				

Task		Year 4 (2029)												Year 5 (2030)												Year 6 (2031)											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Upgrades Projects																																					
Location	**Description**																																				
Wilmington	DCU Coke Drum Replacement																																				
Carson	Coker No. 1 Drum Replacement																																				
Carson	Coker No.2 Drum Replacement																																				
Carson	Asphalt Sales Rack																																				
Carson	FFHDS Modifications																																				
Carson	Carson Alkylation Unit																																				
Wilmington	Wilmington Alkylation Unit																																				
Carson	FCCU Modifications																																				

Task		Year 7 (2032)												Year 8 (2033)												Year 9 (2034)											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Upgrades Projects																																					
Location	**Description**																																				
Wilmington	DCU Coke Drum Replacement																																				
Carson	Coker No. 1 Drum Replacement																																				
Carson	Coker No.2 Drum Replacement																																				
Carson	Asphalt Sales Rack																																				
Carson	FFHDS Modifications																																				
Carson	Carson Alkylation Unit																																				
Wilmington	Wilmington Alkylation Unit																																				
Carson	FCCU Modifications																																				

Task		Year 10 (2035)											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Upgrades Projects													
Location	**Description**												
Wilmington	DCU Coke Drum Replacement												
Carson	Coker No. 1 Drum Replacement												
Carson	Coker No.2 Drum Replacement												
Carson	Asphalt Sales Rack												
Carson	FFHDS Modifications												
Carson	Carson Alkylation Unit												
Wilmington	Wilmington Alkylation Unit												
Carson	FCCU Modifications												

Construction timeline includes mobilization, construction, and demobilization.

CHAPTER 2

ENVIRONMENTAL CHECKLIST

Introduction

General Information

Potentially Significant Impact Areas

Determination

Environmental Checklist and Discussion

2.1 INTRODUCTION

The environmental checklist provides a standard evaluation tool to identify a project's potential adverse environmental impacts. This checklist identifies and evaluates potential adverse environmental impacts that may be created by the proposed projects.

2.2 GENERAL INFORMATION

Project Title:	Marathon Los Angeles Refinery Modernization Projects
Lead Agency Name:	South Coast Air Quality Management District
Lead Agency Address:	21865 Copley Drive Diamond Bar, CA 91765
Lead Agency Contact Person and Phone Number:	Farzaneh Khalaj, Ph.D., Air Quality Specialist (909) 396-3022
Project Sponsor's Name:	Tesoro Refining & Marketing Company, LLC (doing business as Marathon Los Angeles Refinery)
Project Sponsor's Mailing Address:	2350 E. 223rd Street Carson, CA 90810
Project Sponsor's Contact Person and Phone Number:	Robin Schott, Project Environmental Lead (310) 847-5272
Project Location:	Carson Operations: 2350 E. 223rd Street, Carson, CA 90810 Wilmington Operations: 2101 East Pacific Coast Highway, Wilmington, CA 90744
General Plan Designation:	Heavy Industrial Uses; Heavy Manufacturing
Zoning:	M3-1 (Heavy Industrial); MH (heavy manufacturing)
Description of Project:	Tesoro Refining & Marketing Company, LLC doing business as Marathon Los Angeles Refinery, proposes to modernize its Los Angeles Refinery, which is comprised of its Carson Operations and Wilmington Operations, for the purpose of: replacing equipment that is at the end of its useful life; providing asphalt binder to meet market demand; enabling flexibility to adjust between transportation fuel products (i.e., gasoline and, diesel fuel, and jet fuel), depending on market demand; and more efficiently producing octane-blending components needed for gasoline blending supply. Specifically, Tesoro is proposing modifications to: 1) replace aging coke drums; 2) produce asphalt binder; 3) improve operational performance of the Fluid Feed Hydrodesulfurization Unit, and 4) improve efficiency to make more high-octane, low vapor pressure clean-gasoline blendstocks by modifying the alkylation units, the Fluidized Catalytic Cracking Unit, and the C3 Splitter Unit. Each of these proposed projects are designed

	to ensure continued safe operations and provide a reliable and affordable supply of transportation fuels to meet the market shift during California's transition to a zero-emission transportation system. For further details, see Chapter 1, Section 1.4. The NOP/IS identifies potentially significant adverse impacts to the environmental topics of air quality and greenhouse gas emissions, hazards and hazardous materials, hydrology and water quality related to water demand during operations, noise during construction, and transportation during construction. This facility is identified on lists compiled by the California Department of Toxics Substances Control per Government Code Section 65962.5.
Surrounding Land Uses and Setting:	Land uses in the vicinity of the Refinery include oil production facilities, refineries, hydrogen plants, coke handling facilities, automobile wrecking/dismantling facilities, and other industrial operations. The Carson Operations are bounded to the north by E. 223rd Street, to the west by Wilmington Avenue, to the east by the Dominguez Channel and Alameda Street, and to the south by the Sepulveda Boulevard. The Wilmington Operations are bounded to the north by Sepulveda Boulevard, to the west by Alameda Street; to the south by railroad tracks, and to the east by the Dominguez Channel. The Wilmington Operations are bisected by Pacific Coast Highway. The closest sensitive receptors to the Carson Operations are the residential area along the west side of S. Wilmington Ave. The closest sensitive receptors to the Wilmington Operations are several residents mixed in with industrial uses along Mauretania and M Streets immediately south of Pacific Coast Highway to the west and a residential area east of the Wilmington Operation and the Terminal Island Freeway within the City of Long Beach. The Refinery is located in the AB 617 Wilmington, Carson, and West Long Beach community.
Other Public Agencies Whose Approval is Required:	Approvals may be required from the following agencies: • CalEPA, Department of Toxic Substances Control In addition, the following agencies have been identified as having jurisdiction over the Refinery, but none have discretionary approval authority: • U.S. Environmental Protection Agency • Federal Aviation Administration • California Department of Transportation • Los Angeles Regional Water Quality Control Board • Los Angeles County Fire Department

	• Los Angeles County Department of Public Works • Los Angeles County Sanitation District • City of Los Angeles Fire Department • City of Los Angeles • City of Carson
California Native American Tribes:	As part of releasing this CEQA document for public review and comment, the South Coast AQMD also provided a formal notice of the proposed projects to all California Native American Tribes (Tribes) that requested to be on the Native American Heritage Commission's (NAHC) notification list per Public Resources Code Section 21080.3.1(b)(1). The NAHC notification list provides a 30-day period during which a Tribe may respond to the formal notice, in writing, requesting consultation on the proposed projects. In the event that a Tribe submits a written request for consultation during this 30-day period, the South Coast AQMD will initiate a consultation with the Tribe within 30 days of receiving the request in accordance with Public Resources Code Section 21080.3.1(b). Consultation ends when either: 1) both parties agree to measures to avoid or mitigate a significant effect on a Tribal Cultural Resource and agreed upon mitigation measures shall be recommended for inclusion in the environmental document [see Public Resources Code Section 21082.3(a)]; or, 2) either party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached. [Public Resources Code Section 21080.3.2(b)(1)-(2) and Section 21080.3.1(b)(1)].
Topics to be Evaluated in the EIR:	The following topics will be further evaluated in the EIR: 1) project-specific and cumulative air quality impacts associated with increased emissions of air contaminants (criteria air pollutants, greenhouse gases, and toxic air contaminants), including ambient air quality impacts, during the construction and operation activities of the proposed projects will be evaluated in the EIR; 2) hazard impacts associated with a significant hazard to the environment through the routine transport, and use of hazardous materials; creation of a significant hazards through reasonably foreseeable upset conditions; potential public impacts associated emissions of hazardous emissions, use of hazardous substances or waste; and the potential to generate impacts as the Refinery is located on sites regulated pursuant to Government Code Section 656962.5;

	3) potential significant adverse impacts associated with the operational water demand; 4) potential noise potential noise generated during construction; and 5) potential transportation impacts to emergency response as a result of construction activities and the transport of large equipment to the Refinery due to the proposed projects.

2.3 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The following environmental impact areas have been assessed to determine their potential to be adversely affected by the proposed projects. As indicated by the checklist on the following pages, environmental topics marked with a "✓" involve at least one impact that is a "Potentially Significant Impact". An explanation relative to the determination of impacts can be found following the checklist for each area.

☐	Aesthetics	☐	Geology and Soils	☐	Population and Housing
☐	Agriculture and Forestry Resources	☑	Hazards and Hazardous Materials	☐	Public Services
☑	Air Quality and Greenhouse Gas Emissions	☑	Hydrology and Water Quality	☐	Recreation
☐	Biological Resources	☐	Land Use and Planning	☐	Solid and Hazardous Waste
☐	Cultural and Tribal Cultural Resources	☐	Mineral Resources	☑	Transportation
☐	Energy	☑	Noise	☐	Wildfire
☑	Mandatory Findings of Significance				

2.4 DETERMINATION

On the basis of this initial evaluation:

☐ I find the proposed projects COULD NOT have a significant effect on the environment, and that a NEGATIVE DECLARATION will be prepared.

☐ I find that although the proposed projects could have a significant effect on the environment, there will not be significant effects in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☑ I find that the proposed projects MAY have a significant effect(s) on the environment, and an ENVIRONMENTAL IMPACT REPORT (EIR) is required.

☐ I find that the proposed projects MAY have a "potentially significant impact" on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed projects could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed projects, nothing further is required.

Date: November 4, 2025

Signature: Kevin Ni

Kevin Ni
Program Supervisor, CEQA
Planning, Rule Development, and Implementation

Telephone: (909) 396-2462

2.5 ENVIRONMENTAL CHECKLIST AND DISCUSSION

		Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
I.	**AESTHETICS.** Would the project:				
a)	Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☑
b)	Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☑
c)	In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point(s).) If the project is in an urbanized area, would the project conflict with applicable zoning or other regulations governing scenic quality?	☐	☐	☑	☐
d)	Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☑	☐

Significance Criteria

The proposed projects impact on aesthetics will be considered significant if:

- The projects will block views from a scenic highway or corridor.
- In a non-urbanized area, the projects will adversely affect the visual continuity of public views of the surrounding area.
- In an urbanized area, the proposed projects conflict with applicable zoning or other regulations governing scenic quality.
- The impacts on light and glare will be considered significant if the projects add lighting which would add glare to residential areas or sensitive receptors.

Discussion

The proposed projects are comprised of four separate proposed projects: (1) Coke Drum Replacement, (2) Asphalt Sales Rack, (3) FFHDS Unit Modifications, and (4) Alkylation Units Modifications. A brief summary of the major physical modifications is provided below:

(1) Coke Drum Replacement: The coke drums at the DCU-W at the Wilmington Operations and Coker Unit Nos. 1 and 2 at the Carson Operations will be replaced with new coke drums that are of the same size and capacity. Specialty construction equipment (e.g., large cranes, transport

vehicles) will be used at each unit chronologically in the order listed. The cutting deck will be removed to allow access to the coke drums and will be reinstalled following the coke drum replacement. The existing piping to the existing coke drums will be disconnected, replaced as necessary, and reinstalled once the new coke drums have been installed. Seismic upgrades, such as reinforcement of the structure, as required by the current building code will be made to the structures that house the coke drums.

(2) Asphalt Sales Rack: The asphalt sales rack will replace an existing storage building that will be removed, and will include installation of a new truck loading system with up to four truck stations which include truck loading arms, pumps, and piping; odor control equipment such as carbon canisters; and metering equipment. Modifications to up to three existing storage tanks at the Carson Operations will be made to add heat to the storage tanks and piping to keep the asphalt binder flowable, add mixers to keep the binder at a uniform temperature, add odor control that meets BACT, and revise the South Coast AQMD permits to allow storage of asphalt binder in the three tanks. Up to eight new heat exchangers will need to be installed. Piping modifications will consist of new piping from the No. 52 Vacuum Unit to transfer residuum to the modified storage tanks for blending with gas oil, new piping to circulate the asphalt while warming, and new piping from the modified storage tanks to the asphalt sales rack.

(3) FFHDS Unit Modifications: The FFHDS will be modified by replacing the existing steam-driven recycle compressor with a new electric-driven recycle compressor, changing vessel internals, and reconfiguring up to two heat exchangers.

(4) Alkylation Units Modifications: The FCCU will be modified primarily in the equipment associated with the columns of the gas plant section and potentially the main fractionation column in the cracking section of the FCCU: installing up to three new heat exchangers, six new pumps, and three new vessels for caustic, and modifying trays and packing in the cracking section of the FCCU columns. The Wilmington Alkylation Modifications include upgrading the coalescing media, adding mist eliminators, replacing older piping with new piping, modifying trays and packing in the deisobutanizer and debutanizer columns, adding an economizer vessel, and replacing six pumps. The existing refrigeration compressor and motor may be modified or replaced to improve efficiency. The Carson Alkylation Modifications include either installing a new chiller unit and/or modifying the internal components or replacing the existing refrigeration compressor and turbine, installing up to three new heat exchangers, installing up to four pumps, replacing internals on up to 12 pumps, replacing two existing coalescers with new larger vessels, improving the water wash and acid neutralization capabilities, replacing the existing pressure relief valves on the acid storage vessels, and replacing the trays and packing in the depropanizer, debutanizer, and deisobutanizer columns. The Carson Operations Alky Merox Unit modifications include installing a new caustic prewash train in parallel with the existing train, and a new Alky Merox extractor train in parallel with the existing train. The Carson Operations C3 Splitter will be modified by replacing a PRV.

For further details, see Chapter 1, Section 1.4.

I. a) and b) No Impact. The Carson and Wilmington communities are mainly characterized by urban environments. As a result, scenic vistas are limited to open space, vacant natural areas, and parks (City of Carson, 2022). There are no open space, vacant natural areas or parks in the vicinity of the Carson or Wilmington Operations. Therefore, there are no scenic vistas in the vicinity of the Refinery.

Further, there are no trees, or rock outcroppings in the vicinity of the Refinery. As discussed in Section IV – Biological Resources, the Carson and Wilmington Operations have been developed and are void of vegetation within the operating portions of the Refinery for fire prevention purposes. Further, the Carson and Wilmington Operations are flat and no rock outcroppings are present. Therefore, the proposed projects would have no impact on trees or rock outcroppings.

The proposed project will replace the existing coke drums at the DCU-W, Coker No. 1, and Coker No. 2. The existing coke drums are some of the largest and most prominent Refinery structures and range up to approximately 250 feet in height. The replacement coke drums will be the same size in both diameter and height as the existing coke drums. The other three projects will modify existing process units with equipment that will be added adjacent to larger distillation columns within the units and is not expected to be visible from outside the Refinery. Therefore, once construction activities are complete, the visual character of the Refinery at both the Carson and Wilmington Operations are expected to remain unchanged.

There are no adopted or eligible state scenic highways located in the Carson or Wilmington communities. The nearest officially designated Scenic Highway to the Refinery would be Route 2 (Angeles Crest Scenic Byway) near La Canada/Flintridge, in the northeastern portion of Los Angeles County (Caltrans, 2024). It is approximately 27 miles north from the Carson and Wilmington Operations to the most southern portion of State Route 2. The Refinery is not visible from State Route 2 due to the distance as well as the presence of numerous large buildings of downtown Los Angeles, and the intervening topography (hills and mountains, including the Elysian Park, Hollywood Hills, and hills around Pasadena) between downtown Los Angeles and the beginning of State Route 2 near La Canada/Flintridge.

The nearest roadway, which is eligible for State Scenic Highway Designation, to the Carson and Wilmington Operations is State Route 1 (Pacific Coast Highway at State Route 19 – Lakewood Boulevard, in Long Beach) in the southernmost portion of Los Angeles County. It is approximately five miles from the Refinery to the intersection of State Route 19, where State Route 1 becomes eligible to become a State Scenic Highway. The Carson and Wilmington Operations are not visible from State Route 1 at State Route 19 due to the distance, numerous structures, and topography between the two locations. There are no officially designated Scenic Highways or highways eligible for State Scenic Highway Designation in the vicinity of the Carson and Wilmington Operations. Because of the substantial distance between the Refinery and the aforementioned scenic highways, no impacts to scenic highways are expected to occur as a result of implementing the proposed projects. In addition, there are no other scenic resources, such as trees, rock outcroppings, and historic buildings within the vicinity of the Refinery, so no impacts to these resources would occur as a result of the proposed projects.

I. c) Less Than Significant Impact. Public Resources Code Section 20171 defines an "urbanized area" as "an incorporated city that meets either of the following criteria: (1) Has a population of at least 100,000 persons, or (2) Has a population of less than 100,000 persons if the population of that city and not more than two contiguous incorporated cities combined equals at least 100,000 persons." As of January 1, 2025, the California Department of Finance estimated the population of the City of Carson to be 91,812 persons (DOF, 2025). The City of Carson is adjacent to the City of Los Angeles, which has an estimated population of 3,835,263 persons (DOF, 2025). Together, the City of Carson's and City of Los Angeles' population exceeds 100,000 persons, and thus, the sites of the proposed projects are located within an urbanized area. Therefore, regarding the determination of significance under this threshold, a project would be considered to result in a significant adverse impact if the project design would conflict with applicable zoning and other regulations governing scenic quality.

Construction activities at the Carson and Wilmington Operations are not expected to adversely impact views or other aesthetics resources since most construction activities would occur within the operating portions of the existing Refinery, which is considered to be an urbanized area. The only construction activities outside of the Refinery would be associated with the delivery of equipment to the Refinery using existing roadways.

The proposed projects are consistent with the heavy manufacturing zoning of the Refinery (see Figure 2-1 in Chapter 2, Section X – Land Use, for further details on zoning within and surrounding the facility), as further addressed below.

The Carson Operations are located within an urbanized area and surrounded by other industrial land uses. Land uses adjacent to the Carson Operations are predominately heavy industrial and include oil production facilities, refineries, hydrogen plants, coke handling facilities, and commercial buildings. The closest residential homes to the modifications associated with the proposed projects at the Carson Operations are located about 1,200 feet (approximately 0.24 mile) from the northern portion of the facility with other heavy industrial facilities, commercial uses, streets and a freeway situated between the project sites and residential properties. These homes are closest to the FCCU and FFHDS Unit, where modifications are expected to be limited to installing new heat exchangers, pumps, existing columns; making modifications to trays and packing; and upgrading piping and instrumentation. These modifications will occur within the existing FCCU and FFHDS Unit, and do not involve the construction of additional columns or other tall structures, and will not be noticeable outside of the existing Refinery.

The City of Carson General Plan indicates that the Carson area is primarily developed with industrial, residential, and commercial uses. Scenic resources are limited to undeveloped open space areas, including parks sports fields, The Links at Victoria Golf Course, and Lincoln Memorial Park Cemetery. The City of Carson's Municipal Code includes design standards related to building size, height, and setback, as well as landscaping, signage, and other visual considerations. These requirements would not apply to the proposed projects because they would occur within an existing Refinery and would not require the construction of new buildings, landscaping or setbacks.

Wilmington is part of the City of Los Angeles, which has a population of over 3 million and is considered to be an urbanized area. Therefore, the Wilmington Operations are located within an urbanized area and surrounded by other industrial land uses. Land uses adjacent to the Wilmington Operations are all heavy industrial and include oil production facilities, refineries, hydrogen plants, coke handling facilities, and automobile wrecking/dismantling facilities. The closest residential homes to the modifications associated with the proposed projects are located about 800 feet southwest of the Wilmington Alkylation Unit, located in the southwest of the Wilmington Operations. Closest residential areas are located west of the Alkylation Unit, with other heavy industrial facilities situated between the project sites and residential properties. These homes are closest to the Alkylation Unit where modifications are expected to be limited to installing a new chiller or revamping/replacing the existing refrigeration compressor, installing new heat exchangers, pumps, coalescer vessels and making modifications to trays and packing in existing columns. These modifications will occur within the existing Alkylation Unit, do not involve the construction of additional columns or other tall structures, and will not be noticeable outside of the existing Refinery. The proposed projects are consistent with the heavy manufacturing zoning of the Refinery (see Figure 2-1 in Chapter 2, Section X – Land Use, for further details on zoning within and surrounding the Refinery).

The Wilmington-Harbor City Community Plan identifies the important planning and land uses in the Wilmington-Harbor City community. No scenic views or vistas are identified in the Wilmington-Harbor City community. Requirements to improve aesthetic quality and design of industrial areas is limited to Policy 3-3.1 which requires urban design techniques, such as appropriate building orientation and scale, landscaping, buffering and increased setbacks in the development of new industrial properties to improve land use compatibility with adjacent uses and to enhance the physical environment. This policy would generally not apply to the proposed projects because they would occur within an existing Refinery and would not require the construction of new buildings, landscaping or increased setbacks. Following the completion of construction activities, the modifications would not be noticeable outside of the existing Refinery. In light of these considerations, the proposed projects would not conflict with applicable zoning or other regulations governing scenic quality. Therefore, the proposed projects are not expected to result in aesthetic impacts to urbanized areas. Construction activities are not expected to be visible to most areas outside the Refinery, although some construction activities may be visible to the adjacent industrial areas, e.g., other refineries, railroad operations, truck terminals. Cranes would be required for equipment installation, some of which are expected to be over 250 feet tall and would be visible to surrounding properties. However, the cranes, which would be temporarily located within a heavy industrial area, are similar in height to the hundreds of other tall structures within the Refinery, and would be removed after construction activities are complete. Less than significant adverse aesthetic impacts during construction activities are expected since construction activities are temporary, and would be located within an urbanized area where the height of the equipment is similar to the existing refinery structures.

The main components of the proposed projects include modifications and new equipment associated with the DCU-W, Coker No. 1, and Coker 2; Alkylation Units and FCCU at both the Carson and Wilmington Operations; modifications to the FFHDS Unit at Carson Operations; and construction of a new asphalt sales rack. Modifications will occur within the operating portions of the existing Refinery. Stacks and towers associated with the existing units and flares are generally

the tallest structures at a Refinery, including the existing coke drums at both the Carson and Wilmington Operations.

The proposed projects will replace the existing coke drums at the DCU-W, Coker No. 1, and Coker No. 2. The existing coke drums are some of the largest and most prominent Refinery structures and range up to approximately 250 feet in height. One of the proposed projects would replace all existing coke drums at the Refinery because they are approaching the end of their useful life. The replacement coke drums will essentially be the same size in both diameter and height as the existing coke drums. Therefore, once construction activities are complete, the visual character of the Refinery at both the Carson and Wilmington Operations are expected to remain unchanged.

Other construction activities are also expected to consist of piping modifications, replacement of existing equipment, installing new heat exchangers, new fugitive components, and other similar modifications. These modifications would occur at ground level, within existing Refinery units, and would not include equipment that would be visible outside of the Refinery. Further, installation of new, or replacement of existing equipment at the facility, either inside or outside the existing structures, would not change the visual profile of the entire facility.

Following completion of construction activities, the views of the Carson and Wilmington Operations from adjacent properties are not expected to noticeably change, because the proposed projects will replace existing facilities that are essentially the same size as existing equipment, or the equipment will be low in stature so it would not be visible outside of the Refinery. As such, the views of the Refinery will be similar and consistent with views of the other industrial facilities in the area. No new equipment is expected to be visible to the closest residential areas because of the distance. Further, other structures are located between the residential areas and the Refinery units. The intervening structures obscure most of the Carson and Wilmington Operations affected equipment. For the aforementioned reasons, the views of the Refinery are not expected to change and would be consistent with the other industrial facilities in the area. In light of these considerations, the proposed projects would not conflict with applicable zoning or other regulations governing scenic quality. Therefore, the proposed projects are not expected to result in aesthetic impacts to urbanized areas during operation.

I. d) Less Than Significant Impact. In general, the anticipated construction activities are not anticipated to require additional lighting, because they are scheduled to take place primarily during daylight hours. However, when daylight hours are limited (i.e., winter months), or during Refinery turnarounds (when construction activities could occur for 24 hours per day), temporary lighting may be required. Since the construction activities would occur within the boundaries of the existing Refinery, which operates 24-hours a day and is currently lighted for nighttime operations, additional temporary lighting, if needed, is not expected to be discernible to residential areas from the existing permanent night lighting already associated with Refinery operations due to the distance (at least 800 feet) and because temporary lighting would be focused on the area of construction within the Refinery and not on offsite locations.

The Carson Coker Units are currently lighted for nighttime activities and no increase in lighting is expected to be required. Construction activities will predominately occur during the daytime, although nighttime activities are expected to be required during turnaround activities. The coke

drums at the Carson Operations that are proposed for replacement are currently located over 4,000 feet away from any residential areas; the new coke drums would be located in the same place as the existing coke drums. A number of existing storage tanks and existing industrial structures and transportation corridors (405 freeway and Alameda Corridor) would provide visual barriers preventing or diminishing light sources between Carson Operations and residential areas (the closest of which is approximately 4,200 feet north of the Refinery, and north of the 405 Freeway).

At the Wilmington Operations, the existing DCU-W, which would undergo modification, is located approximately 2,000 feet away from residential areas, which are separated from the Refinery by the Terminal Island Freeway. This area of the Wilmington Operations is already lighted for nighttime activities and additional light sources are not expected because construction activities associated with the DCU-W will predominately occur during the daytime, although nighttime activities are expected to be required during turnaround activities. Further, a number of existing storage tanks and existing industrial structures, as well as the Terminal Island Freeway, would provide visual barriers preventing or diminishing light sources between the DCU-W and residential areas.

In the event that temporary lighting is needed during construction for areas that are not already illuminated at night, it would consist of temporary light towers, which would be required to point toward the interior of the Refinery to provide sufficient lighting, as well as to limit the potential for offsite glare in accordance with the City of Los Angeles Planning and Zoning Code Section 93.0117 and the City of Carson Municipal Code Section 9147.1.

New lighting may be necessary to satisfy applicable safety standards for new equipment or structures installed at the Refinery as a result of the proposed projects (e.g., the Asphalt Sales Rack truck loading system). If new lighting is installed, it would be consistent with and not discernable from the existing lighting at the Refinery, which is required for safety reasons and, therefore, would not be expected to be noticeable outside of the Refinery boundaries. In addition, any new lights would not be expected to create substantial light and glare impacts to areas adjacent to the Refinery due to the existing industrial setting of the surrounding area and the fact that the other industrial facilities in the area are also lighted at night for safety reasons. For equipment that will be modified, the existing lighting will continue to be used, while installation of new equipment will require similar lighting requirements as the existing equipment. For example, the new loading system will be located within the Carson Operations (see Figure 1-5) which has a sufficient amount of existing lighting such that substantial new lighting is not expected to be required. Therefore, less than significant light and glare impacts are expected from implementing the proposed projects.

Conclusion

Based on the above considerations, significant adverse impacts to aesthetic resources are not expected to occur as a result of construction and operation activities that would be undertaken in order to complete the proposed projects. Since no significant impacts to aesthetic resources were identified, no mitigation measures are necessary or required. Therefore, the topic of aesthetics will not be evaluated further in the EIR.

		Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
II.	**AGRICULTURE AND FORESTRY RESOURCES.** Would the project:				
a)	Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland mapping and Monitoring Program of the California Resources Agency, to non- agricultural use?	☐	☐	☐	☑
b)	Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☑
c)	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))?	☐	☐	☐	☑
d)	Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☑
e)	Involve other changes in the existing environment which, due to their location or nature, could result in the conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☑

Significance Criteria

Project-related impacts on agriculture and forestry resources will be considered significant if any of the following conditions are met:

- The proposed projects conflict with existing zoning or agricultural use or Williamson Act contracts.

- The proposed projects will convert prime farmland, unique farmland or farmland of statewide importance as shown on the maps prepared pursuant to the farmland mapping and monitoring program of the California Resources Agency, to non-agricultural use.
- The proposed projects conflict with existing zoning for, or causes rezoning of, forest land (as defined in Public Resources Code §12220(g)), timberland (as defined in Public

Resources Code §4526), or timberland zoned Timberland Production (as defined by Government Code § 51104 (g)).

- The proposed projects would involve changes in the existing environment, which due to their location or nature, could result in conversion of farmland to non-agricultural use or conversion of forest land to non-forest use.

Discussion
The proposed projects are comprised of four separate proposed projects: (1) Coke Drum Replacement, (2) Asphalt Sales Rack, (3) FFHDS Unit Modifications, and (4) Alkylation Units Modifications. A brief summary of the major physical modifications is provided below:

(1) Coke Drum Replacement: The coke drums at the DCU-W at the Wilmington Operations and Coker Unit Nos. 1 and 2 at the Carson Operations will be replaced with new coke drums that are of the same size and capacity. Specialty construction equipment (e.g., large cranes, transport vehicles) will be used at each unit chronologically in the order listed. The cutting deck will be removed to allow access to the coke drums and will be reinstalled following the coke drum replacement. The existing piping to the existing coke drums will be disconnected, replaced as necessary, and reinstalled once the new coke drums have been installed. Seismic upgrades, such as reinforcement of the structure, as required by the current building code will be made to the structures that house the coke drums.

(2) Asphalt Sales Rack: The asphalt sales rack will replace an existing storage building that will be removed, and will include installation of a new truck loading system with up to four truck stations which include truck loading arms, pumps, and piping; odor control equipment such as carbon canisters; and metering equipment. Modifications to up to three existing storage tanks at the Carson Operations will be made to add heat to the storage tanks and piping to keep the asphalt binder flowable, add mixers to keep the binder at a uniform temperature, add odor control that meets BACT, and revise the South Coast AQMD permits to allow storage of asphalt binder in the three tanks. Up to eight new heat exchangers will need to be installed. Piping modifications will consist of new piping from the No. 52 Vacuum Unit to transfer residuum to the modified storage tanks for blending with gas oil, new piping to circulate the asphalt while warming, and new piping from the modified storage tanks to the asphalt sales rack.

(3) FFHDS Unit Modifications: The FFHDS will be modified by replacing the existing steam-driven recycle compressor with a new electric-driven recycle compressor, changing vessel internals, and reconfiguring up to two heat exchangers.

(4) Alkylation Units Modifications: The FCCU will be modified primarily in the equipment associated with the columns of the gas plant section and potentially the main fractionation column in the cracking section of the FCCU: installing up to three new heat exchangers, six new pumps, and three new vessels for caustic, and modifying trays and packing in the cracking section of the FCCU columns. The Wilmington Alkylation Modifications include upgrading the coalescing media, adding mist eliminators, replacing older piping with new piping, modifying trays and packing in the deisobutanizer and debutanizer columns, adding an economizer vessel, and replacing six pumps. The existing refrigeration compressor and motor may be modified or replaced

to improve efficiency. The Carson Alkylation Modifications include either installing a new chiller unit and/or modifying the internal components or replacing the existing refrigeration compressor and turbine, installing up to three new heat exchangers, installing up to four pumps, replacing internals on up to 12 pumps, replacing two existing coalescers with new larger vessels, improving the water wash and acid neutralization capabilities, replacing the existing pressure relief valves on the acid storage vessels, and replacing the trays and packing in the depropanizer, debutanizer, and deisobutanizer columns. The Carson Operations Alky Merox Unit modifications include installing a new caustic prewash train in parallel with the existing train, and a new Alky Merox extractor train in parallel with the existing train. The Carson Operations C3 Splitter will be modified by replacing a PRV.

For further details, see Chapter 1, Section 1.4.

II. a), b), c), d), and e) No Impact. The proposed projects will not involve construction or operation outside of the established boundaries of the existing Refinery. The only construction activities outside of the Refinery would be associated with the delivery of equipment to the Refinery using existing roadways. The proposed projects will be consistent with the heavy industrial zoning requirements for the Refinery and all modifications and new construction will occur within the existing Refinery. No agricultural or forestry resources or operations, including Williamson Act contracts, are located within or near the boundaries of the Wilmington or Carson Operations, nor have any been designated in the Carson General Plan or the Wilmington Community Plan. No agriculture or forestry resources would be adversely affected by construction or operation activities which will be implemented within the existing Refinery. Therefore, the proposed projects will 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.

Since the proposed project components will occur within the boundaries of the Carson and Wilmington Operations at the Refinery, there are no provisions that would affect land use plans, policies, or regulations related to agricultural or forestry resources. Land use and other planning considerations are determined by local governments and no land use or planning requirements relative to agricultural resources will be altered by the proposed projects. For these same reasons, the proposed projects will not result in the loss of forest land or conversion of forest land to non-forest use as no such resources are located within Carson or Wilmington. Therefore, no agriculture and forestry resources impacts are expected from implementing the proposed project.

Conclusion
Based on the above considerations, significant adverse impacts to agricultural and forestry resources are not expected to occur as a result of construction and operational activities that the Refinery would undertake in order to implement the proposed projects. Since no significant impacts to agriculture and forestry resources impacts were identified, no mitigation measures are necessary or required. Therefore, the topic of agriculture and forestry resources will not be evaluated further evaluation in the EIR.

		Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
III.	**AIR QUALITY AND GREENHOUSE GAS EMISSIONS**. Would the project:				
a)	Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☑	☐
b)	Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	☑	☐	☐	☐
c)	Expose sensitive receptors to substantial pollutant concentrations?	☑	☐	☐	☐
d)	Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☑	☐
e)	Diminish an existing air quality rule or future compliance requirement resulting in a significant increase in air pollutant(s)?	☐	☐	☑	☐
f)	Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☑	☐	☐	☐
g)	Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☑	☐	☐	☐

Significance Criteria

To determine whether or not air quality criteria pollutants, greenhouse gas (GHG), and toxic emission impacts from implementing the proposed projects are significant, impacts will be evaluated and compared to the criteria in Table 2-1. If the preliminary analysis of the proposed projects shows that overall emissions have the potential to equal or exceed any of the thresholds in Table 2-1, these potential impacts will be further evaluated in the EIR.

TABLE 2-1
South Coast AQMD Air Quality Significance Thresholds

Mass Daily Thresholds[a]		
Pollutant	**Construction**	**Operation**
NO_x	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, 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) Chronic and Acute Hazard Index ≥ 1.0 (project increment)	
Odor	Project creates an odor nuisance pursuant to South Coast AQMD Rule 402	
GHG	10,000 MT/yr CO_2eq for industrial facilities	
Ambient Air Quality for Criteria Pollutants[b]		
NO_2 1-hour average annual average	South Coast AQMD 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 annual average	10.4 µg/m^3 (construction)[c] and 2.5 µg/m^3 (operation) 1.0 µg/m^3	
PM2.5 24-hour average	10.4 µg/m^3 (construction)[c] and 2.5 µg/m^3 (operation)	
SO_2 1-hour average 24-hour average	0.25 ppm (state) and 0.075 ppm (federal – 99th percentile) 0.04 ppm (state)	
Sulfate 24-hour average	25 µg/m^3 (state)	
CO 1-hour average 8-hour average	South Coast AQMD 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	1.5 µg/m^3 (state) 0.15µg/m^3 (federal)	

a) Source: South Coast AQMD CEQA Handbook (South Coast AQMD, 1993).
b) Ambient air quality thresholds for criteria pollutants based on South Coast AQMD Rule 1303, Table A-2 unless otherwise stated.
c) Ambient air quality threshold based on South Coast AQMD Rule 403.

KEY: ppm = parts per million; µg/m^3 = microgram per cubic meter; lbs/day = pounds per day; MT/yr CO_2eq = metric tons per year of CO_2 equivalents, NO_2 = nitrogen dioxide, ≥ = greater than or equal to, > = greater than

Revision: March 2023
Available at: https://www.aqmd.gov/docs/default-source/ceqa/handbook/south-coast-aqmd-air-quality-significance-thresholds.pdf

Discussion
The proposed projects are comprised of four separate proposed projects: (1) Coke Drum Replacement, (2) Asphalt Sales Rack, (3) FFHDS Unit Modifications, and (4) Alkylation Units Modifications. A brief summary of the major physical modifications is provided below:

(1) Coke Drum Replacement: The coke drums at the DCU-W at the Wilmington Operations and Coker Unit Nos. 1 and 2 at the Carson Operations will be replaced with new coke drums that are of the same size and capacity. Specialty construction equipment (e.g., large cranes, transport vehicles) will be used at each unit chronologically in the order listed. The cutting deck will be removed to allow access to the coke drums and will be reinstalled following the coke drum replacement. The existing piping to the existing coke drums will be disconnected, replaced as necessary, and reinstalled once the new coke drums have been installed. Seismic upgrades, such as reinforcement of the structure, as required by the current building code will be made to the structures that house the coke drums.

(2) Asphalt Sales Rack: The asphalt sales rack will replace an existing storage building that will be removed, and will include installation of a new truck loading system with up to four truck stations which include truck loading arms, pumps, and piping; odor control equipment such as carbon canisters; and metering equipment. Modifications to up to three existing storage tanks at the Carson Operations will be made to add heat to the storage tanks and piping to keep the asphalt binder flowable, add mixers to keep the binder at a uniform temperature, add odor control that meets BACT, and revise the South Coast AQMD permits to allow storage of asphalt binder in the three tanks. Up to eight new heat exchangers will need to be installed. Piping modifications will consist of new piping from the No. 52 Vacuum Unit to transfer residuum to the modified storage tanks for blending with gas oil, new piping to circulate the asphalt while warming, and new piping from the modified storage tanks to the asphalt sales rack.

(3) FFHDS Unit Modifications: The FFHDS will be modified by replacing the existing steam-driven recycle compressor with a new electric-driven recycle compressor, changing vessel internals, and reconfiguring up to two heat exchangers.

(4) Alkylation Units Modifications: The FCCU will be modified primarily in the equipment associated with the columns of the gas plant section and potentially the main fractionation column in the cracking section of the FCCU: installing up to three new heat exchangers, six new pumps, and three new vessels for caustic, and modifying trays and packing in the cracking section of the FCCU columns. The Wilmington Alkylation Modifications include upgrading the coalescing media, adding mist eliminators, replacing older piping with new piping, modifying trays and packing in the deisobutanizer and debutanizer columns, adding an economizer vessel, and replacing six pumps. The existing refrigeration compressor and motor may be modified or replaced to improve efficiency. The Carson Alkylation Modifications include either installing a new chiller unit and/or modifying the internal components or replacing the existing refrigeration compressor and turbine, installing up to three new heat exchangers, installing up to four pumps, replacing internals on up to 12 pumps, replacing two existing coalescers with new larger vessels, improving the water wash and acid neutralization capabilities, replacing the existing pressure relief valves on the acid storage vessels, and replacing the trays and packing in the depropanizer, debutanizer, and deisobutanizer columns. The Carson Operations Alky Merox Unit modifications include installing

a new caustic prewash train in parallel with the existing train, and a new Alky Merox extractor train in parallel with the existing train. The Carson Operations C3 Splitter will be modified by replacing a PRV.

For further details, see Chapter 1, Section 1.4.

III. a) Less Than Significant Impact. The federal Clean Air Act (CAA) requires that for any state or area of the United States that does not meet national ambient air quality standards (NAAQS), which are referred to as "nonattainment areas", a State Implementation Plan (SIP) must be prepared that demonstrates the steps that would bring the state or area into compliance with these standards. A SIP provides the overall plan to meet the air quality standard on time and includes future regulations, incentives, etc. In California, local air districts are responsible for developing region-specific plans which are included in the SIP. Also, in accordance with the California Clean Air Act (CCAA), each SIP is also required to demonstrate how attainment will be achieved with the California ambient air quality standards (CAAQS).

The South Coast AQMD, is the agency responsible for preparing a SIP covering its jurisdiction, which includes the four-county South Coast Air Basin (all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino counties), and the Riverside County portion of the Salton Sea Air Basin and the non-Palo Verde, Riverside County portion of the Mojave Desert Air Basin.

Pursuant to the provisions of both the federal CAA and CCAA, the South Coast AQMD is required to attain the NAAQS and CAAQS for all criteria pollutants. The South Coast Air Basin is considered non-attainment for federal ozone (2015 8-hr ozone standard) and PM2.5 standards.

To this end, the South Coast AQMD is required by law to prepare a comprehensive SIP which includes strategies (e.g., control measures) to reduce emission levels to achieve and maintain NAAQS and CAAQS, to ensure that new sources of emissions are planned and operated in a manner that is consistent with the South Coast AQMD's air quality goals and to protect sensitive receptors and the public in general from the adverse effects of pollutants which are known to have adverse human health effects. South Coast AQMD's main SIP is the 2022 Air Quality Management Plan (AQMP), which demonstrates how attainment with the ozone NAAQS can be achieved within the timeframes required under federal law (South Coast AQMD, 2022). The strategies in the 2022 AQMP include control measures that target stationary, mobile and indirect sources. These control measures are based on feasible methods of attaining the NAAQS and CAAQS. Since NOx is a precursor to the formation of ozone, South Coast AQMD committed in the 2022 AQMP to reduce 29 tons per day of NOx as a means to achieving attainment with the ozone NAAQS. The methods for achieving these NOx emission reductions are outlined in a wide variety of control measures, which are eventually further developed by South Coast AQMD into new or amended rules and regulations.

The CAA also requires air districts located in nonattainment areas to submit a nonattainment new source review (NSR) plan or plan revision. Nonattainment NSR is a preconstruction review permit program for new or modified major stationary sources located in a nonattainment area. All

nonattainment NSR programs have to require: 1) the installation of the lowest achievable emission rate (LAER); 2) emission offsets; and 3) an opportunity for public involvement.

South Coast AQMD's existing NSR program as set forth in its Regulation XIII implements the federal regulatory requirements for NSR and ensures that construction and operation of new, relocated, and modified stationary sources do not interfere with progress towards attainment of the NAAQS as laid out in the 2022 AQMP. In addition, for Extreme nonattainment areas, the use of clean fuels or advanced control technologies are required for electric utility and industrial and commercial boilers, as set forth in Section 182(e)(3) of the CAA (Clean Fuels for Boilers). Specifically, each new, modified, and existing electric utility and industrial and commercial boiler emitting more than 25 tons per year of NOx must either burn as its primary fuel either natural gas, methanol, or ethanol (or a comparably low polluting fuel) or use advance control technology (such as catalytic control technology or other comparably effective control methods) for reduction of NOx emissions.

At the local level, growth projections from local general plans adopted by cities located within the South Coast AQMD are periodically provided to the Southern California Association of Governments (SCAG), the agency that develops regional growth forecasts, and the most recent of these growth forecasts were then relied upon to develop future air quality forecasts for the 2022 AQMP. Development occurring at the local level that is consistent with the growth projections in the General Plans for counties and cities in South Coast AQMD's jurisdiction are considered to be consistent with the 2022 AQMP.

In addition to the 2022 AQMP, there are other new and previously submitted SIPs developed to demonstrate attainment with the PM2.5 and PM10 NAAQS for the South Coast Air Basin such as:

- South Coast Air Basin Attainment Plan for the 2012 Annual PM2.5 Standard, adopted June 2024;
- 2021 PM2.5 Redesignation Request and Maintenance Plan for the 2006 and 1997 24-hour PM2.5 Standards for South Coast Air Basin, adopted November 2021;
- South Coast PM2.5 Plan for 2006 PM2.5 Standard, adopted October 2020; and
- South Coast PM10 Maintenance Plan for 1987 PM10 Standard; adopted June 2021.

Similarly, the South Coast AQMD developed SIPs to demonstrate attainment with the ozone and PM10 NAAQS for the Coachella Valley.

- Coachella Valley Attainment Plan for the 2008 8-Hour Ozone Standard, adopted October 2024;
- Coachella Valley Contingency Measure SIP Revision for the 2008 8-Hour Ozone Standard, adopted March 2024;
- Request to Reclassify Coachella Valley for the 2008 8-Hour Ozone Standard and the Updated Motor Vehicle Emissions Budgets, adopted November 2022;

- Coachella Valley Extreme Area Plan for 1997 Ozone Standard, adopted December 2020; and;
- Coachella Valley PM10 Plans.

The Refinery is located in the South Coast Air Basin, so the applicable air quality plans are primarily the 2022 AQMP for ozone, and the various other aforementioned plans for attaining the PM2.5 and PM10 standards in the South Coast Air Basin. However, since emissions from the South Coast Air Basin migrate eastbound due to weather patterns, and this migration contributes to the attainment status of the Coachella Valley, the aforementioned SIPs developed for the Coachella Valley are also indirectly applicable to the proposed project.

As a practical matter, the way to determine whether the proposed project will conflict with or obstruct implementation of the 2022 AQMP and the other plans is whether there is a reasonable expectation that the proposed project would be able to comply with the applicable South Coast AQMD regulatory requirements for new and modified stationary sources, all of which originated from various control measures from the 2022 AQMP as well as previously adopted AQMPs and other pollutant-specific plans that were adopted into the SIP.

Compliance with South Coast AQMD's established rules and regulations is essential to ensure the integrity of the emission inventories and future emission reduction projections outlined in the 2022 AQMP and the other SIPs. For example, new and modified emission sources will be subject to the South Coast AQMD Regulation XIII – New Source Review, which requires Best Available Control Technology (BACT) to minimize emissions the greatest extent feasible. Further, for any emission increases greater than one pound per day, Regulation XIII and Rule 2005 require the project proponent to supply emission offsets in the form of Emission Reduction Credits (ERCs) or RECLAIM Trading Credits (RTCs), respectively. The proposed project will also be required to comply with prohibitory rules, such as South Coast AQMD Rule 403 – Fugitive Dust and stationary source rules such as Rule 1173 – Control of Volatile Organic Compound Leaks and Releases from Components at Petroleum Facilities and Chemical Plants, as well as several other federal, state and local air quality rules and regulations. The proposed projects do not include any new or would modify any existing combustion sources. Therefore, the proposed projects would have no impact on compliance with South Coast AQMD Rule 1109.1 – NOx Emissions from Petroleum Refineries.

As explained in the later responses to questions III b), c) and e) in this NOP/IS, the proposed projects will result in potentially significant air quality impacts. Nonetheless, while the proposed projects will contribute to increases in emissions during construction and operation, it does not contain any elements that would conflict with or obstruct implementation of the 2022 AQMP, other plans, and the applicable South Coast AQMD rules and regulations.

The Refinery is also located within the City of Carson and City of Los Angeles and each City's respective General Plans designate the Carson and Wilmington Operations as heavy industrial. The proposed projects are consistent with this land use designation and the City of Carson and City of Los Angeles General Plans for the following reasons:

- As indicated in the Population and Housing and Transportation and Traffic sections, an estimated 35 and 550 construction workers are expected to be drawn from the existing labor pool in the southern California area.
- As indicated in the Population and Housing and Transportation and Traffic sections, the proposed projects are not expected to require additional employees, so there would be no additional worker-related traffic generated during operation.
- Because the proposed projects would not require additional workers during operations, it would not increase the demand for additional housing or recreational facilities.

In addition, air permits will be required from the South Coast AQMD which will include permit conditions, as well as any CEQA mitigation measures that have been imposed, which will limit air emissions and ensure compliance with applicable air quality regulations, as well as the AQMP.

Therefore, since the proposed projects would not exceed growth projections in the City of Carson and City of Los Angeles General Plans, and would not require a General Plan amendment, the proposed projects would be considered consistent with the City of Carson and City of Los Angeles General Plans. Since the proposed projects would be consistent with the City of Carson and City of Los Angeles General Plans, they would be consistent with the 2022 AQMP.

Based on the preceding analysis, while the proposed projects will generate emissions during construction that will contribute to the formation of ozone, PM10 and PM2.5, they are not expected to conflict with or obstruct implementation of the applicable air quality plan. Therefore, the proposed projects are concluded to have a less than significant impact on the applicable air quality plans. Therefore, this topic will not be further analyzed in the EIR.

III. b) Potentially Significant Impact. The proposed projects components have the potential to increase criteria pollutants and toxic air contaminants (TACs) emissions. To minimize potential emission increases, the projects components will be required to comply with all relevant South Coast AQMD rules and regulations.

South Coast AQMD makes significance determinations for construction impacts based on the maximum or peak daily emissions during the construction period, which provides a "worst-case" analysis of construction emissions. Construction activities are expected to begin in mid-2026 and be completed over an approximate 10-year period, as shown in Figure 1-7. Construction emissions are expected from the following equipment and processes:

- Onsite Construction Equipment (dump trucks, cranes, excavator, etc.);
- Onsite and Offsite Vehicle Emissions, including Delivery Trucks and Worker Vehicles;
- Onsite Fugitive Dust Associated with Site Construction Activities; and,
- Onsite and Offsite Fugitive Dust Associated with Travel on Unpaved and Paved Roads.

Construction activities are expected to occur in several locations throughout the Carson and Wilmington Operations (see Figures 1-5 and 1-6) and have the potential to generate emissions of carbon monoxide (CO), nitrogen oxides (NOx), volatile organic compounds (VOCs), sulfur oxides

(SOx), particulate matter less than 10 microns in diameter (PM10), and PM2.5. Construction activities include grading, setting foundations, equipment installation, tie-in connections to existing systems, pipeline/conduit construction, etc. Construction-related activities would generate emissions from worker vehicles, trucks, delivery equipment and transportation, and construction equipment, as well as fugitive dust associated with grading and land disturbance. Construction activities associated with certain project components, e.g., replacement of the coke drums, are expected to be extensive. Therefore, the air quality impacts associated with the construction phase of the proposed projects are potentially significant and will be evaluated in the EIR.

The main project components include modifications and new equipment associated with the DCU-W, No. 1 Coker, No. 2 Coker, Alkylation Units, and FCCU at the Carson and Wilmington Operations; modifications to the FFHDS Unit at Carson Operations; and construction of a new Asphalt Sales Rack at Carson Operations. South Coast AQMD requires the installation of BACT pursuant to Rule 1303 for new, modified, and relocated emission sources within the South Coast Air Basin, which, generally, is expected to result in the lowest achievable emissions rate for affected equipment. Nonetheless, because of the scope of the proposed projects, impacts on air quality during the operational phase are potentially significant and will be evaluated in the EIR. The proposed projects would also result in an increase in onsite energy production at the Watson Cogeneration Unit to supply electricity and steam for the proposed projects.

The proposed projects may also alter the transport of products from the Refinery. Following construction activities, asphalt truck traffic associated with third-party trucks (i.e., not operated by Tesoro employees) is expected to increase by up to six to seven trucks per- hour or 150 to 160 trucks per day. As described in Chapter 1, a maximum of approximately 20,000 barrels per day of asphalt binder is expected to be made by the proposed projects and the number of trucks is based on this assumption. Operation of the proposed projects will not require delivery of materials or export of product via rail. Potential emission impacts related to changes in transport will be evaluated in the EIR.

Because the proposed projects have the potential to generate significant adverse project-specific construction and operational air quality impacts, they have the potential to generate significant adverse cumulative air quality impacts. Since project-specific air quality impacts may be significant, they may contribute to impacts that are cumulatively considerable. Therefore, cumulative air quality impacts are potentially significant and will be evaluated in the EIR.

III. c) Potentially Significant Impact. Implementation of the proposed projects could potentially result in new sources of, or increases in TAC emissions (e.g., fugitive components, etc.). As discussed in III a). above, residential areas are located within about 2,000 feet of the proposed project locations. Therefore, sensitive receptors could be exposed to TAC emissions.

Given the heavily industrialized nature of the Carson and Wilmington Operations, construction activities associated with the proposed projects, such as grading, excavating, and trenching, could potentially uncover contaminated soils. Construction activities associated with the proposed projects could require the removal of contaminated soil. The handling, processing, transportation, and disposal of the contaminated soils will be subject to multiple hazardous waste regulations such as Title 22 of the California Code of Regulations and other local and federal rules. Title 22 has

multiple requirements for hazardous waste handling, transport, and disposal, such as requirements to use approved disposal and treatment facilities, to use certified hazardous waste transporters and have manifests for tracking the hazardous wastes. Contaminated soils also would be handled and disposed in accordance with South Coast AQMD Rule 1166 – Volatile Organic Compound Emissions from Decontamination of Soil, and the Refinery's Soils Handling Plan, as well as Rule 1466 – Control of Particulate Emissions from Soils with Toxic Air Contaminants.

The proposed projects will be subject to the requirements of South Coast AQMD Rule 1401 – Toxic Air Contaminants. However, the cancer and non-cancer health risk impacts of the TAC emissions from new equipment at the Carson and Wilmington Operations, with particular focus on sensitive populations, including individuals at hospitals, nursing facilities, daycare centers, schools, and elderly intensive care facilities, as well as residential and off-site occupational areas, are expected to change and will be evaluated to determine if the TAC significance thresholds identified in Table 2-1 may be exceeded and, therefore, will be evaluated in the EIR.

III. d) Less Than Significant Impact. The proposed projects are not expected to create objectionable odors, either during construction or during operations, which are noticeably different than the existing conditions. Sulfur compounds (e.g., hydrogen sulfide) are the primary sources of odors at a refinery. Hydrogen sulfide (a gas) is typically generated at the Refinery as part of the process to remove sulfur impurities from crude oil. Hydrogen sulfide gas is treated in the Sulfur Recovery Units where it is converted to solid elemental sulfur, which has no odor. The proposed projects are not expected to require modifications to the Sulfur Recovery Units or alter the handling and treatment of hydrogen sulfide, which are the primary odor sources at a refinery.

Construction activities are not expected to result in odor impacts as summarized in this paragraph. The Refinery will use standard procedures for odor prevention/mitigation during maintenance/construction activities. Prior to opening or venting any equipment such as the coke drums, South Coast AQMD Rule 1123 – Refinery Process Turnarounds, requires that the equipment be depressurized and cleaned to minimize VOC emissions, which would also control odor emissions, if present. Rule 1123 requires refineries to use inert gas displacement or vacuum eduction for process turnarounds to develop a plan that includes: (a) procedures for gas displacement or eduction; (b) procedures for disposition of the displaced gases; (c) explains the stage in the displacement or eduction procedures at which disposition is changed from a control facility to atmospheric vent; and (d) the criteria by which said stage is identifiable. The Executive Officer must approve the plan and all displacement operations must be conducted according to the plan or the refinery is subject to violations. Therefore, the standard procedures and cleaning required for normal refinery turnarounds are expected to minimize emissions during the construction phase. Because the modifications to existing equipment will be made during a turnaround, compliance with Rule 1123 requirements would also minimize odor emissions.

Natural gas and refinery fuel gas will continue to be used as the combustion fuel for all fired emission units for the proposed projects. The sulfur content of natural gas is stringently regulated by South Coast AQMD Rule 431.1 and, therefore, contains only trace amounts of sulfur compounds. Refinery fuel gas sulfur content is restricted by permit limits thus minimizing any odors from fuel gas. Further, objectionable odors are not expected since the natural gas supply

system and refinery fuel gas system must be operated as closed systems to prevent safety hazards (e.g., potential fires).

The modifications to the DCU-W and Carson Cokers No. 1 and 2 would replace the existing coke drums with new coke drums of the same size, dimensions, and capacity. The Refinery has a total of 10 coke drums that have reached the end of their useful life. In order to help ensure the continued safe and reliable operation of the coke drums and the coking process at the Refinery, Tesoro proposes to replace all 10 existing coke drums. Other than the coke drums, no other permitted equipment in the coker units will be modified. The exiting Coke Drums are not odor sources and the "like-in-kind" replacement would not generate new odor sources or odors from the equipment.

The VOC emissions and potential odors associated with the new Asphalt Sales Rack come from storage tanks and fugitive components, and will be controlled through the use of BACT for fugitive emissions: using leakless valves, employing pumps with mechanical seals, ensuring proper operation of pressure relief valves, and implementing leak detection (monitoring) and repair programs. BACT is also expected to include the use of air pollution control systems such as carbon canisters for odor control on modified storage tanks, as well as the Asphalt Sales Rack. The detailed BACT requirements will be developed as part of the review of the air permit for the Asphalt Sales Rack, as well as all other equipment that requires air permits. It should also be noted that asphalt does not contain substantial quantities of typical odor generating compounds (e.g., hydrogen sulfide), and so would not be expected to generate substantial odors, especially following the implementation of BACT.

The FFHDS Unit removes sulfur compounds from gas oil feed before it is routed to the FCCU. Therefore, the FFHDS Unit serves to minimize odor compounds throughout the Refinery. Modifications to the FFHDS Unit include repowering the existing recycle compressor from steam to electricity, changing vessel internals, and reconfiguring up to two heat exchangers to improve heat transfer efficiency to saturate aromatic hydrocarbons. These changes are not expected to increase any emissions from the FFHDS Unit, VOC or otherwise.

The existing Alkylation Units process olefins into blendstocks for gasoline. Modifications to the Wilmington Alkylation Units include upgrading the coalescing media to be more effective and adding mist eliminators to reduce wear and improve reliability, replacing older piping with new piping, modifying trays and packing in the deisobutanizer and debutanizer columns, adding an economizer vessel, and replacing up to three pumps and spares (a total of six pumps). The existing refrigeration compressor and motor may be modified to improve efficiency. Ancillary piping, equipment, and instrumentation will be upgraded as needed to accurately monitor the system operations. Modifications to this unit would be limited to fugitive VOC emissions which are regulated by BACT requirements as well as monitoring associated South Coast AQMD Rule 1173. Therefore, no substantial odor emissions would be expected from these modifications.

The Carson Operations Alkylation Modifications seek to improve the chilling capabilities of the refrigeration section of the Alkylation Unit to remove excess heat by either installing a new chiller unit and/or modifying the internal components/replacing the existing refrigeration compressor and turbine, installing up to three new heat exchangers, installing up to two new pumps plus spares (a total of four pumps), replacing internals on up to six pumps plus spares (a total of 12 pumps),

replacing two existing coalescers with new larger vessels, improving the water wash and acid neutralization capabilities, replacing the existing pressure relief valves on the acid storage vessels with new, appropriately-sized valves to the operational changes to the acid system, and modifications to the trays and packing in the depropanizer, debutanizer, and deisobutanizer columns. Ancillary piping, equipment, and instrumentation will be upgraded as needed to accurately monitor the system operations. Modifications to this unit would be limited to fugitive VOC emissions which are regulated by BACT requirements as well as monitoring associated South Coast AQMD Rule 1173. Therefore, no substantial odor emissions would be expected from these modifications.

The Carson Operations Alkylation Unit includes an Alky Merox Unit. The purpose of the Alky Merox Unit is to remove mercaptans (sulfur containing compounds) from the olefin feed streams to the Alkylation Units, thereby producing lower sulfur gasoline blending components from the Alkylation Units, as well as generally reducing the potential for odors from downstream units. The Alky Merox Unit modifications include installing a new caustic prewash train in parallel with the existing train, and a new Alky Merox extractor train in parallel with the existing train. This will improve the desulfurization of the olefin feed to the Alkylation Unit. Modifications to this unit would be limited to fugitive VOC emissions which are regulated by BACT requirements as well as monitoring associated South Coast AQMD Rule 1173. Therefore, no substantial odor emissions would be expected from these modifications.

The Refinery currently has fenceline monitors installed under a South Coast AQMD approved plan to detect emissions, including hydrogen sulfide emissions, per the requirements of South Coast AQMD Rule 1180 – Fenceline and Community Air Monitoring for Petroleum Refineries and Related Facilities. In the Tesoro Carson and Wilmington Refineries-approved Rule 1180 plan, a total of 12 monitoring stations are located along all sides of the fenceline of the Carson Operations and nine monitoring stations are located along all sides of the fenceline of the Wilmington Operations.[6] The location of these monitoring stations were developed by Tesoro and approved by the South Coast AQMD based on meteorological data (including wind patterns and wind roses), as well as the results of air dispersion modeling impacts at the fenceline. The fenceline monitors are used to detect various criteria pollutants, including SO_2 and NOx, TACs (including total VOCs, benzene, toluene, ethyl benzene, xylene, formaldehyde, acetaldehyde, acrolein, 1.3-butadiene, and styrene) as well as compounds that could generate potential odors (hydrogen sulfide, carbonyl sulfide, and ammonia). Hydrogen sulfide monitors are located near the proposed Asphalt Sales Rack in the Carson Operations, including one located approximately 1,500 feet northwest, one located 1,600 feet south, and one located 4,400 feet west of the proposed Asphalt Sales Rack. Note that hydrogen sulfide monitors are located on all sides of the Refinery and can detect compounds whichever way the wind is blowing.

The Refinery maintains a 24-hour environmental surveillance effort where operators are trained to report odors so that the source can be identified and remedied promptly, which helps to minimize the frequency and magnitude of odor events. In addition, all new or modified components would be required to comply with BACT requirements as well as existing South Coast AQMD rules and

[6] For details, see Tesoro Los Angeles Refinery & Marketing Company LLC, South Coast Rule 1180 Fenceline Monitoring Plan, available at: https://www.aqmd.gov/home/rules-compliance/rules/support-documents/rule-1180-refinery-fenceline-monitoring-plans/rule-1180---fenceline-air-monitoring

regulations, including Rule 402 – Prohibition of Nuisances. As a result, no noticeable increases in odors are expected from the new or modified equipment for the reasons given above. In addition, Tesoro operating personnel wear H2S monitors to detect potential odor sources, as well as to comply with Occupational Safety and Health Administration (OSHA) requirements. Employees wearing H2S monitors provides another level of continuous monitoring and detection prior to generating odors that would cause an off-site nuisance. Therefore, no significant odor impacts are expected from constructing and operating the proposed projects. Potential odor impacts from the proposed projects will not be further analyzed in the EIR.

III. e) Less Than Significant Impact. As discussed in III. a), the South Coast AQMD prepared the 2022 AQMP, which demonstrates how attainment with the ozone NAAQS can be achieved within the timeframes required under federal law (South Coast AQMD, 2022). The strategies in the 2022 AQMP include control measures that target stationary, mobile, and indirect sources. These control measures are based on feasible methods of attaining the NAAQS and CAAQS. Since NOx is a precursor to the formation of ozone, South Coast AQMD committed to reducing 29 tons per day of NOx as part of the 2022 AQMP as a means to achieving attainment with the ozone NAAQS. The methods for achieving these NOx emission reductions are outlined in a wide variety of control measures, which are eventually further developed by South Coast AQMD into new or amended rules and regulations.

As part of the South Coast AQMD permitting process, permit applications are submitted by the applicant for each proposed modification that is subject to an air permit. South Coast AQMD engineers evaluate each proposed modification with all applicable South Coast AQMD rules and regulations. In order for the permit to be issued, the applicant must show how compliance with each rule/regulation will be achieved, or the permit will be denied. Because of the stringent requirements in the South Coast AQMD permitting process, the proposed projects would be required to comply with all applicable rule/regulations, such that the proposed projects would not diminish an existing air quality rule or result in a significant increase in emissions that would hinder future compliance requirements.

III. f) and g) Potentially Significant Impact. The proposed projects include construction activities, operation of additional Refinery equipment, and additional transportation emissions. Consequently, the overall effects of implementing the proposed projects will have the potential to exceed the GHG emissions significance threshold in Table 2-1 and will be evaluated in the EIR. The Refinery is subject to federal and state GHG emission regulations (e.g., Assembly Bill 32). Potential impacts relating to compliance with GHG plans and reduction regulations will be evaluated in the EIR.

Conclusion

Based on the above considerations, construction and operation of the proposed projects are not expected to: 1) generate significant adverse impacts to the applicable air quality plan; or 2) conflict with or diminish an air quality rule or future compliance requirement, policy, or regulation adopted for the purpose of reducing emissions; or create objectionable odors. Since no significant impacts to an air plan under III. a), odors under III d), or conflicts with air quality rules or future compliance requirements under III. e) were identified, no mitigation measures are necessary or required. Therefore, these air quality topics will not be evaluated further evaluation in the EIR.

Project-specific and cumulative adverse air quality impacts associated with increased emissions of air contaminants (criteria air pollutants, greenhouse gases, and toxic air contaminants) during the construction and operation activities of the proposed projects will be evaluated in the EIR. Ambient air quality impacts, as well as impacts associated with TAC emissions to sensitive receptors will also be analyzed in the EIR.

		Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
IV.	**BIOLOGICAL RESOURCES.** Would the project:				
a)	Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☐	☐	☑
b)	Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☐	☐	☑
c)	Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☑
d)	Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☐	☑
e)	Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☑
f)	Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☑

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

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

- The projects interfere substantially with the movement of any resident or migratory wildlife species.

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

Discussion
The proposed projects are comprised of four separate proposed projects: (1) Coke Drum Replacement, (2) Asphalt Sales Rack, (3) FFHDS Unit Modifications, and (4) Alkylation Units Modifications. A brief summary of the major physical modifications is provided below:

(1) Coke Drum Replacement: The coke drums at the DCU-W at the Wilmington Operations and Coker Unit Nos. 1 and 2 at the Carson Operations will be replaced with new coke drums that are of the same size and capacity. Specialty construction equipment (e.g., large cranes, transport vehicles) will be used at each unit chronologically in the order listed. The cutting deck will be removed to allow access to the coke drums and will be reinstalled following the coke drum replacement. The existing piping to the existing coke drums will be disconnected, replaced as necessary, and reinstalled once the new coke drums have been installed. Seismic upgrades, such as reinforcement of the structure, as required by the current building code will be made to the structures that house the coke drums.

(2) Asphalt Sales Rack: The asphalt sales rack will replace an existing storage building that will be removed, and will include installation of a new truck loading system with up to four truck stations which include truck loading arms, pumps, and piping; odor control equipment such as carbon canisters; and metering equipment. Modifications to up to three existing storage tanks at the Carson Operations will be made to add heat to the storage tanks and piping to keep the asphalt binder flowable, add mixers to keep the binder at a uniform temperature, add odor control that meets BACT, and revise the South Coast AQMD permits to allow storage of asphalt binder in the three tanks. Up to eight new heat exchangers will need to be installed. Piping modifications will consist of new piping from the No. 52 Vacuum Unit to transfer residuum to the modified storage tanks for blending with gas oil, new piping to circulate the asphalt while warming, and new piping from the modified storage tanks to the asphalt sales rack.

(3) FFHDS Unit Modifications: The FFHDS will be modified by replacing the existing steam-driven recycle compressor with a new electric-driven recycle compressor, changing vessel internals, and reconfiguring up to two heat exchangers.
(4) Alkylation Units Modifications: The FCCU will be modified primarily in the equipment associated with the columns of the gas plant section and potentially the main fractionation column in the cracking section of the FCCU: installing up to three new heat exchangers, six new pumps,

and three new vessels for caustic, and modifying trays and packing in the cracking section of the FCCU columns. The Wilmington Alkylation Modifications include upgrading the coalescing media, adding mist eliminators, replacing older piping with new piping, modifying trays and packing in the deisobutanizer and debutanizer columns, adding an economizer vessel, and replacing six pumps. The existing refrigeration compressor and motor may be modified or replaced to improve efficiency. The Carson Alkylation Modifications include either installing a new chiller unit and/or modifying the internal components or replacing the existing refrigeration compressor and turbine, installing up to three new heat exchangers, installing up to four pumps, replacing internals on up to 12 pumps, replacing two existing coalescers with new larger vessels, improving the water wash and acid neutralization capabilities, replacing the existing pressure relief valves on the acid storage vessels, and replacing the trays and packing in the depropanizer, debutanizer, and deisobutanizer columns. The Carson Operations Alky Merox Unit modifications include installing a new caustic prewash train in parallel with the existing train, and a new Alky Merox extractor train in parallel with the existing train. The Carson Operations C3 Splitter will be modified by replacing a PRV.

For further details, see Chapter 1, Section 1.4.

IV. a), b), c), and d) No Impact. The proposed projects would be located in a heavy industrial area, entirely within the existing boundaries of the Carson and Wilmington Operations. The Carson and Wilmington Operations have been fully developed and are essentially void of vegetation with the exception of some decorative landscape vegetation near the administration buildings. Landscape plants and growth of vegetation onsite are limited to administration buildings for fire prevention purposes.

A review of the California Natural Diversity Data Base Map for the Long Beach Quadrangle available online did not reveal records of special status species at or in the near vicinity of the Refinery. Based on the disturbed nature of the site, the industrial nature of the proposed and existing activities at the Refinery, and the industrial nature of the surrounding property no specific wildlife surveys were warranted. No native vegetation is located at the proposed projects sites, as these areas are currently used for refining operations and are void of vegetation, to minimize the potential fire hazards at the site. For these reasons, the proposed projects are not expected to have a significant adverse effect, either directly or through habitat modifications, on any species identified as a special status species. Further, the proposed projects would not have an adverse effect, either directly or indirectly or through habitat modifications, on any sensitive biological species, riparian habitat, or other sensitive natural habitat since no such habitat exists at the Refinery due to the developed and industrial nature of the site.

The proposed projects would not result in the addition or elimination of water ponds that could be used by animals or migratory birds. Further, the proposed projects would not adversely affect federally protected wetlands as defined in Section 404 of the federal Clean Water Act as no such wetlands are located at or adjacent to the Refinery. The Dominguez Channel is a concrete lined flood control channel adjacent to the Refinery. As such, minimal vegetation is located along the channel adjacent to the Refinery. No construction activities are proposed within the Dominguez Channel so no impacts to vegetation would be expected.

A large crane would be temporarily used on one side of the Dominguez Channel to remove and replace the coke drums on the other side of the Dominguez Channel. The cranes are expected to be used at the Refinery for less than 30 days. Due the short duration of their use, the cranes are not expected to disturb bird flight patterns or migration. The Refinery actively inspects equipment and limits any identified bird foraging or nesting activities. However, no construction activities would occur within the Dominguez Channel. There are no significant plant or animal resources, locally designated species, natural communities, wetland habitats, or animal migration corridors that would be adversely affected by the proposed projects. There are no rare, endangered, or threatened species at the Refinery or adjacent industrial areas as native vegetation has been removed. Because the area in and near the Refinery is devoid of native habitat, impacts to other, non-listed species are not expected. Therefore, the proposed projects would have no direct or indirect impacts that could adversely affect: plant species or habitats, sensitive natural communities, wetlands, animal species or the habitats on which they rely, or the movement of native or migratory species.

IV. e) and f) No Impact. The proposed projects are not envisioned to conflict with local policies or ordinances protecting biological resources or local, regional, or state conservation plans. Land use and other planning considerations are determined by local governments and no land use or planning requirements would be altered by the proposed projects as further discussed in Section X – Land Use and Planning. Additionally, the proposed projects would not conflict with any adopted Habitat Conservation Plan, Natural Community Conservation Plan, or any other relevant habitat conservation plan, and would not create divisions in any existing communities, because all activities associated with the proposed projects would occur within an existing heavy industrial area devoid of native habitat, which is not subject to a Habitat or Natural Community Conservation Plan. There are no Habitat of Natural Community Conservation Plans in Carson or Wilmington. There are 17 approved Natural Community Conservation Plans in California and only one is in Los Angeles County. The closest one to the Refinery is the grassland community in Rancho Palos Verdes, adjacent to the Pacific Ocean.[7] The Natural Community Conservation Plan in Rancho Palos Verdes was established to protect the Aphanisma (*Aphanisma blitoides*), Catalina crossoma (*Crossosoma californicum*), Coastal Cactus Wren (*Campylorhynchus brunneicapillus cousei*), Coastal California gnatcatcher (*Polioptila californica californica*), El Segundo Blue Butterfly (*Euphilotes battoides allyni*), Island green dudleya (*Dudleya virens ssp. Insularis*), Palos Verdes Blue Butterfly (*Glaucopsyche lygdamus palosverdesensis*), Santa Catalina Island desert-thorn (*Lycium brevipes var. hassei*), South Coast saltscale (*Atriplex pacifica*), and Wooly seabite (*Suaeda taxifolia*). The proposed projects will have no impact on this Natural Community Conservation Plan area which is located approximately 10 miles to the west of the Refinery.

When considering the record as a whole, there is no evidence that the proposed projects would have potential for any new adverse effects on wildlife resources or the habitat upon which wildlife depends. Accordingly, based upon the preceding information, the proposed projects will have no effect on fish and wildlife under Section 753.5 (d), Title 14 of the California Code of Regulations.

[7] Natural Community Conservation Planning. Available at: https://wildlife.ca.gov/Conservation/Planning/NCCP

Conclusion

Based on the above considerations, significant adverse impacts to biological resources are not expected to occur as a result of construction and operational activities that the Refinery would undertake in order to implement the proposed projects. Since no significant impacts to biological resources were identified, no mitigation measures are necessary or required. Therefore, the topic of biological resources will not be evaluated further in the EIR.

		Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
V.	**CULTURAL AND TRIBAL CULTURAL RESOURCES.** Would the project:				
a)	Cause a substantial adverse change in the significance of a historical resource pursuant to CEQA Guidelines Section 15064.5?	☐	☐	☐	☑
b)	Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5?	☐	☐	☑	☐
c)	Disturb any human remains, including those interred outside of dedicated cemeteries?	☐	☐	☑	☐
d)	Cause a substantial adverse change in the significance of a tribal cultural resource as defined in Public Resources Code Section 21074, as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American Tribe, and that is either:				
	• Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k)?	☐	☐	☑	☐
	• A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in Public Resources Code Section 5024.1(c)? (In applying the criteria set forth in Public Resources Code Section 5024.1(c), the lead agency shall consider the significance of the resource to a California Native American tribe.)	☐	☐	☑	☐

Significance Criteria
Impacts to cultural and tribal cultural resources will be considered significant if:

- The projects result in the disturbance of a significant prehistoric or historic archaeological site or a property of historic or cultural significance, or tribal cultural significance to a community or ethnic or social group or a California Native American tribe.

- Unique resources or objects with cultural value to a California Native American tribe are present that could be disturbed by construction of the proposed projects.

- The projects would disturb human remains.

Discussion
The proposed projects are comprised of four separate proposed projects: (1) Coke Drum Replacement, (2) Asphalt Sales Rack, (3) FFHDS Unit Modifications, and (4) Alkylation Units Modifications. A brief summary of the major physical modifications is provided below:

(1) Coke Drum Replacement: The coke drums at the DCU-W at the Wilmington Operations and Coker Unit Nos. 1 and 2 at the Carson Operations will be replaced with new coke drums that are of the same size and capacity. Specialty construction equipment (e.g., large cranes, transport vehicles) will be used at each unit chronologically in the order listed. The cutting deck will be removed to allow access to the coke drums and will be reinstalled following the coke drum replacement. The existing piping to the existing coke drums will be disconnected, replaced as necessary, and reinstalled once the new coke drums have been installed. Seismic upgrades, such as reinforcement of the structure, as required by the current building code will be made to the structures that house the coke drums.

(2) Asphalt Sales Rack: The asphalt sales rack will replace an existing storage building that will be removed, and will include installation of a new truck loading system with up to four truck stations which include truck loading arms, pumps, and piping; odor control equipment such as carbon canisters; and metering equipment. Modifications to up to three existing storage tanks at the Carson Operations will be made to add heat to the storage tanks and piping to keep the asphalt binder flowable, add mixers to keep the binder at a uniform temperature, add odor control that meets BACT, and revise the South Coast AQMD permits to allow storage of asphalt binder in the three tanks. Up to eight new heat exchangers will need to be installed. Piping modifications will consist of new piping from the No. 52 Vacuum Unit to transfer residuum to the modified storage tanks for blending with gas oil, new piping to circulate the asphalt while warming, and new piping from the modified storage tanks to the asphalt sales rack.

(3) FFHDS Unit Modifications: The FFHDS will be modified by replacing the existing steam-driven recycle compressor with a new electric-driven recycle compressor, changing vessel internals, and reconfiguring up to two heat exchangers.

(4) Alkylation Units Modifications: The FCCU will be modified primarily in the equipment associated with the columns of the gas plant section and potentially the main fractionation column in the cracking section of the FCCU: installing up to three new heat exchangers, six new pumps,

and three new vessels for caustic, and modifying trays and packing in the cracking section of the FCCU columns. The Wilmington Alkylation Modifications include upgrading the coalescing media, adding mist eliminators, replacing older piping with new piping, modifying trays and packing in the deisobutanizer and debutanizer columns, adding an economizer vessel, and replacing six pumps. The existing refrigeration compressor and motor may be modified or replaced to improve efficiency. The Carson Alkylation Modifications include either installing a new chiller unit and/or modifying the internal components or replacing the existing refrigeration compressor and turbine, installing up to three new heat exchangers, installing up to four pumps, replacing internals on up to 12 pumps, replacing two existing coalescers with new larger vessels, improving the water wash and acid neutralization capabilities, replacing the existing pressure relief valves on the acid storage vessels, and replacing the trays and packing in the depropanizer, debutanizer, and deisobutanizer columns. The Carson Operations Alky Merox Unit modifications include installing a new caustic prewash train in parallel with the existing train, and a new Alky Merox extractor train in parallel with the existing train. The Carson Operations C3 Splitter will be modified by replacing a PRV.

For further details, see Chapter 1, Section 1.4.

V. a) No Impact. CEQA Guidelines state that "generally, a resource shall be considered 'historically significant' if the resource meets the criteria for listing in the California Register of Historical Resources, including the following:

a) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;

b) Is associated with the lives of persons important in our past;

c) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values;

d) Has yielded or may be likely to yield information important in prehistory or history" (CEQA Guidelines Section 15064.5).

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,[8] unless they are shown to be exceptionally important. Any of the buildings or structures that may be affected by the proposed control measures that are older than 50 years are buildings that are industrial or commercial facilities and would generally not be considered historically significant since they would not have any of the distinctive characteristics of a type, period, region, or method of construction, or represent the work of an important creative individual, or possesses high artistic values. The only components of the proposed project that are being removed are old Refinery structures and industrial equipment including coke drums, heat exchangers, pumps, etc. None of

[8] The eligibility criteria of the California Register criteria are modeled on those of the eligibility criteria of the National Register of Historic Places.

these structures or equipment meet the aforementioned historical significance criteria. Therefore, no significant adverse impacts to historic cultural resources are expected as a result of implementing the proposed projects.

V. b), c), and d) Less Than Significant Impact. All construction and operational activities that would occur as a result of the proposed projects will occur within the existing Carson and Wilmington Operations, which are located in existing industrial areas and zoned as heavy industrial.

Land uses in the vicinity of the Refinery include oil production facilities, refineries, hydrogen plants, coke handling facilities, automobile wrecking/dismantling facilities, and other industrial operations. The Carson Operations are bounded to the north by E. 223rd Street, to the west by Wilmington Avenue, to the east by the Dominguez Channel and Alameda Street, and to the south by the Sepulveda Boulevard. The Wilmington Operations are bounded to the north by Sepulveda Boulevard, to the west by Alameda Street; to the south by railroad tracks, and to the east by the Dominguez Channel. The Wilmington Operations are bisected by Pacific Coast Highway.

Based on previous studies, the area near the Dominguez Channel was used by the Tongva/Gabrielino people. Cultural studies found a Tongva/Gabrielino village site and a large cemetery exposed in 1998 near the Carson Operations (former BP Refinery) (east of the Dominguez Channel) (South Coast AQMD, 2001). In 1999, construction activities at the Wilmington Operations uncovered human remains within the confines of the Refinery near the eastern property line, just north of Pacific Coast Highway and adjacent to the Dominguez Channel. The human remains were determined to be of Native American origin. Construction activities were suspended until all the remains were uncovered and a complete site investigation could be conducted. Additional site investigations did not uncover any additional human remains (Applied Earth Works, 1999). Since 2001 for the Carson Operations and 1999 for the Wilmington Operations, there have been a number of projects involving construction on site that have not uncovered archaeological or paleontological resources or human remains.

AB 52 requires consideration of potential impacts to tribal cultural resources as a part of the CEQA process and requires lead agencies to provide notification of proposed projects to California Native American Tribes that have requested such notifications. (Public Resources Code Section 21074.) The South Coast AQMD will comply with AB 52 for this project. While no significant impacts to tribal cultural resources are anticipated at this time, the South Coast AQMD will revisit this topic in the EIR should evidence of potentially significant tribal cultural resources be identified during tribal consultation.

The entire active portions of the Carson and Wilmington Operations have been previously graded and developed. Activities associated with the proposed projects will occur in areas of the Refinery where the ground surface has already been disturbed, within or adjacent to existing refining and other units, and this past disturbance reduces the likelihood that previously unknown cultural resources will be encountered. The only areas where ground disturbance is expected to occur is to provide foundations for the modified coke drum structures and install the Asphalt Sales Rack. Excavation to the depth of approximately four feet is expected to be required in the vicinity of the coker units. This area has already been previously disturbed to provide foundations for the existing

coke drums and the existing warehouse is located where the Asphalt Sales Rack will be constructed. Further, the Refinery site does not contain known archaeological or paleontological resources and thus, the proposed projects are not expected to impact any sites of archaeological or paleontological value.

While the likelihood of encountering cultural resources is low, there is still a potential that additional but currently unknown buried archaeological or paleontological resources may exist. Any such impact would be eliminated by using standard construction practices and complying with state laws including Public Resources Code Section 21083.2 and CEQA Guidelines Section 15064.5, which require the following, in the event that unexpected sub-surface resources were encountered:

- Conduct a cultural resources orientation for construction workers involved in excavation activities. This orientation will show the workers how to identify the kinds of cultural resources that might be encountered, and what steps to take if this occurred;

- Monitoring of subsurface earth disturbance by a professional archaeologist and a Gabrielino/Tongva representative if cultural resources are exposed during construction;

- Provide the archaeological monitor with the authority to temporarily halt or redirect earth disturbance work in the vicinity of cultural resources exposed during construction, so the find can be evaluated and mitigated as appropriate; and,

- As required by Public Resources Code Sections 5097.94 and 5097.98, prevent further disturbance if human remains are unearthed, until the County Coroner has made the necessary findings with respect to origin and disposition, and the Native American Heritage Commission has been notified if the remains are determined to be of Native American descent.

Conclusion
Based on the above considerations, significant adverse impacts to cultural and tribal cultural resources are not expected to occur as a result of construction and operational activities that would be undertaken in order to complete the proposed projects. Since no significant impacts to cultural and tribal cultural resources were identified, no mitigation measures are necessary or required. Therefore, the topic of cultural and tribal cultural resources will not be evaluated further in the EIR.

		Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
VI.	**ENERGY.** Would the project:				
a)	Conflict with or obstruct adopted energy conservation plans, a state or local plan for renewable energy, or energy efficiency?	☐	☐	☑	☐
b)	Result in the need for new or substantially altered power or natural gas utility systems?	☐	☐	☑	☐
c)	Create any significant effects on local or regional energy supplies and on requirements for additional energy?	☐	☐	☑	☐
d)	Create any significant effects on peak and base period demands for electricity and other forms of energy?	☐	☐	☑	☐
e)	Comply with existing energy standards?	☐	☐	☑	☐
f)	Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	☑	☐
g)	Require or result in the relocation or construction of new or expanded electric power, natural gas or telecommunication facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	☑	☐

Significance Criteria

The impacts to energy resources will be considered significant if any of the following criteria are met:

- The projects conflict with adopted energy conservation plans or standards.
- The projects result in substantial depletion of existing energy resource supplies.
- An increase in demand for utilities impacts the current capacities of the electric and natural gas utilities.

- The projects use energy resources in a wasteful and/or inefficient manner.

Discussion
The proposed projects are comprised of four separate proposed projects: (1) Coke Drum Replacement, (2) Asphalt Sales Rack, (3) FFHDS Unit Modifications, and (4) Alkylation Units Modifications. A brief summary of the major physical modifications is provided below:

(1) Coke Drum Replacement: The coke drums at the DCU-W at the Wilmington Operations and Coker Unit Nos. 1 and 2 at the Carson Operations will be replaced with new coke drums that are of the same size and capacity. Specialty construction equipment (e.g., large cranes, transport vehicles) will be used at each unit chronologically in the order listed. The cutting deck will be removed to allow access to the coke drums and will be reinstalled following the coke drum replacement. The existing piping to the existing coke drums will be disconnected, replaced as necessary, and reinstalled once the new coke drums have been installed. Seismic upgrades, such as reinforcement of the structure, as required by the current building code will be made to the structures that house the coke drums.

(2) Asphalt Sales Rack: The asphalt sales rack will replace an existing storage building that will be removed, and will include installation of a new truck loading system with up to four truck stations which include truck loading arms, pumps, and piping; odor control equipment such as carbon canisters; and metering equipment. Modifications to up to three existing storage tanks at the Carson Operations will be made to add heat to the storage tanks and piping to keep the asphalt binder flowable, add mixers to keep the binder at a uniform temperature, add odor control that meets BACT, and revise the South Coast AQMD permits to allow storage of asphalt binder in the three tanks. Up to eight new heat exchangers will need to be installed. Piping modifications will consist of new piping from the No. 52 Vacuum Unit to transfer residuum to the modified storage tanks for blending with gas oil, new piping to circulate the asphalt while warming, and new piping from the modified storage tanks to the asphalt sales rack.

(3) FFHDS Unit Modifications: The FFHDS will be modified by replacing the existing steam-driven recycle compressor with a new electric-driven recycle compressor, changing vessel internals, and reconfiguring up to two heat exchangers.

(4) Alkylation Units Modifications: The FCCU will be modified primarily in the equipment associated with the columns of the gas plant section and potentially the main fractionation column in the cracking section of the FCCU: installing up to three new heat exchangers, six new pumps, and three new vessels for caustic, and modifying trays and packing in the cracking section of the FCCU columns. The Wilmington Alkylation Modifications include upgrading the coalescing media, adding mist eliminators, replacing older piping with new piping, modifying trays and packing in the deisobutanizer and debutanizer columns, adding an economizer vessel, and replacing six pumps. The existing refrigeration compressor and motor may be modified or replaced to improve efficiency. The Carson Alkylation Modifications include either installing a new chiller unit and/or modifying the internal components or replacing the existing refrigeration compressor and turbine, installing up to three new heat exchangers, installing up to four pumps, replacing internals on up to 12 pumps, replacing two existing coalescers with new larger vessels, improving the water wash and acid neutralization capabilities, replacing the existing pressure relief valves on

the acid storage vessels, and replacing the trays and packing in the depropanizer, debutanizer, and deisobutanizer columns. The Carson Operations Alky Merox Unit modifications include installing a new caustic prewash train in parallel with the existing train, and a new Alky Merox extractor train in parallel with the existing train. The Carson Operations C3 Splitter will be modified by replacing a PRV.

For further details, see Chapter 1, Section 1.4.

VI. a) and e) Less Than Significant Impact. There is no known energy conservation plan or existing energy standard that would apply to the proposed projects as they primarily involve new and modified equipment that will allow the Refinery to replace equipment at the end of its life, as well as facilitate the Refinery's ability to shift product yields depending on the market demand.

Renewable energy sources include wind, small hydropower, solar, geothermal, biomass, and biogas. California's Renewables Portfolio Standard (RPS) was established in 2002 under SB 1078 and was amended in 2006 and 2011. The RPS program required investor-owned utilities, electric service providers, and community choice aggregators to increase the use of eligible renewable energy resources to 33 percent of total procurement by 2020. Executive Order S-14-08, signed in November 2008, expanded the RPS to 33 percent renewable power by 2020. This standard was adopted by the legislature in 2011 (SB X1-2). SB 350 was signed into law September 2015 and establishes tiered increases to the RPS. SB 350 requires renewable energy resources of 40 percent by 2024, 45 percent by 2027, and 50 percent by 2030. SB 350 also set a new goal to double the energy-efficiency savings in electricity and natural gas through energy efficiency and conservation measures. On September 10, 2018, Governor Brown signed SB 100, which raised California's RPS requirements to 60 percent by 2030, with interim targets, and 100 percent by 2045. The bill also established a state policy requiring eligible renewable energy resources and zero-carbon resources supply 100 percent of all retail sales of electricity to California end-use customers and 100 percent of electricity procured to serve all state agencies by December 31, 2045. Under SB 100, California cannot increase carbon emissions elsewhere in the western grid or allow resource shuffling to achieve the 100 percent carbon-free electricity target. Electricity production from renewable sources is generally considered carbon neutral. The proposed projects will have no impact on the state's ability to continue to implement its zero-carbon electricity goals.

The City of Los Angeles has established a sustainability plan referred to as L.A.'s Green New Deal. The portions of the plan that are aimed at energy conservation include increasing the use of solar power; achieving zero carbon emissions in the electrical grid by 2035 with equitable implementation; and building more renewable energy projects (e.g., solar) than any city in the country. Other goals include having the most commercial electric vehicle chargers of any city in the country; committing to 100 percent zero emission bus fleets by 2028 and 2030, respectively; and deploying charging stations on city street lights (City of LA, 2022). The Plan also seeks to reduce greenhouse gas (GHG) emissions and the City has seen a 47 percent reduction in GHG emissions from 1990 levels. The proposed projects would not conflict with the City of L.A.'s Green New Deal Plan or hinder the City's ability to implement the plan.

The City of Carson developed a Climate Action Plan (CAP) in 2017, in cooperation with the South Bay Cities Council of Governments, with the focus of reducing GHG emissions and setting

reduction goals to achieve desired outcomes over a 20-year period. The CAP addresses various sectors, including transportation, land use, energy, water, and waste management. Energy efficiency strategies include a number of strategies aimed at energy efficiency in existing residential units, including educational outreach programs, home and commercial energy evaluations/audits, increased energy efficiency in new residential and commercial developments, increasing water efficiency, and reducing urban heat island effect (promoting tree planting for shade) (City of Carson, 2017). The proposed projects would not conflict with the City of Carson's Climate Action Plan or hinder the City's ability to implement the plan.

Therefore, the proposed projects are not expected to conflict with any adopted energy conservation plan or existing energy standard or conflict with a state or local plan for renewable energy.

VI. b), c), and d) Less Than Significant Impact. It is not expected that natural gas-fired or electrically-powered construction equipment would be used (with the exception of electric welders); thus, there would be no need for new or substantially altered power or natural gas utility systems during construction of the proposed projects. Construction of the proposed projects is estimated to require about 25,000 to 35,000 gallons of diesel fuel per year. In 2023, California used 13,576 million gallons of gasoline and 2,016 million gallons of diesel.[9] In 2023, Los Angeles County used 3,039 million gallons of gasoline and 290 million gallons of diesel fuel.[9] The fuel associated with construction of the entire project represents less than one percent of the total annual demand in the Los Angeles region, and a negligible fraction of the total use of fuel in California. The labor force for construction is expected to be from the local construction worker pool, which would not increase the commuting workforce or substantially change the demand for gasoline for commuting. The construction activities are not expected to result in an increase in gasoline as the construction equipment is predominately diesel fueled. Therefore, less than significant adverse impacts on energy are expected during the construction period.

The proposed projects will result in an increase in trucks transporting asphalt (150-160 trucks per day) and petroleum coke (1,424 trucks per year) from the Refinery. The estimated use of diesel from these trucks is 1,210,000 gallons of diesel per year. In 2023, California used 2,106 million gallons of diesel fuels. The diesel fuel associated with the increase in trucks is less than one percent (0.057%) of the total annual demand in California. It should be noted that currently asphalt in Southern California is in short supply and is being trucked in from other regions and other states. The proposed Asphalt Truck Rack would provide a local supply of asphalt binder and offset the asphalt binder that is currently imported to the region, potentially reducing the truck travel and the amount of diesel fuel used to transport asphalt binder. Additionally, no permanent employees are anticipated to be needed to operate the Refinery once construction is completed; therefore, no additional demand for gasoline fuel is expected.

Refinery fuel gas and natural gas is required to operate new and modified equipment associated with the proposed projects at the Carson and Wilmington Operations. The Refinery would continue to be supplied by the existing facility utility system (i.e., the existing onsite Watson Cogeneration Unit that provides power and steam to the Refinery and boilers that provide additional steam). Heat exchangers, which are devices which transfer heat from one location to another location

[9] California Energy Commission, 2025. Accessed 7/25/2025. https://www.energy.ca.gov/media/3874

where heat is needed, will be included or added to a number of existing units to increase overall energy efficiency, including the No. 52 Vacuum Unit for the Asphalt Sales Rack, the FFHDS Unit, the FCCU, and the Carson Operations Alkylation Unit (see Chapter 1 for further details). Heat exchangers, by nature of their design, "reuse" heat generated by equipment thereby increasing heat efficiency within the Refinery, as well as reducing the need for and use of cooling water. No modifications to the combustion sources at the Refinery are proposed. However, an increase in electricity and steam generated at the Watson Cogeneration Unit is expected which is discussed further below.

Tesoro currently operates Cogeneration Units at both the Wilmington Operations and the Carson Operations (referred to as the Watson Cogeneration Unit). The Wilmington Cogeneration facility is in the process of being shutdown since it is at the end of its useful life. During baseline conditions (2022 through 2023), the maximum electricity produced by the Wilmington Cogeneration facility was 63.46 megawatts (MW). Once the Wilmington Cogeneration facility is shutdown, the Carson Operations onsite Watson Cogeneration Unit will generate electricity for operations at both facilities. During the baseline period, the Carson Watson Cogeneration Unit produced a maximum of 373.72 MW. Connecting the Wilmington Operations to the Carson Watson Cogeneration Unit was evaluated in the Final EIR for the Tesoro Los Angeles Refinery Integration and Compliance Project (State Clearinghouse No. 2014091020) which was certified on May 12, 2017. The Carson Watson Cogeneration Unit currently can produce a maximum of 420 MW of electricity and currently sells excess electricity to Southern California Edison (SCE) to meet regional demand. During the baseline period, excess electricity production from the Watson Cogeneration Unit that was sold to SCE ranged from approximately 28 MW to 260 MW.

Relative to electricity supply, the Wilmington Operations are currently served by Los Angeles Department of Water and Power (LADWP) and the Carson Operations are served by Southern California Edison (SCE). The proposed projects may require up to seven megawatts (MW) additional electricity, which is expected to be provided by the existing Watson Cogeneration Unit. As presented above, the Watson Cogeneration Unit currently has capacity to generate more electricity than is needed by the Refinery, as excess electricity generated by the Watson Cogeneration Unit is sold to the electrical grid. The additional 7 MW of electricity needed for the proposed projects would reduce the amount of excess power available for sale but would not eliminate the ability to provide electricity to the grid when demanded (i.e., the range would decrease to 21 MW to 253 MW). Therefore, no new or substantially altered power systems are needed for the proposed projects. Additionally, the electricity needed for the proposed projects will be generated on site. Thus, the proposed projects would have no effect on the regional peak and base period demands for electricity.

Because the proposed projects are expected to require additional on-site production of electricity, additional natural gas and refinery fuel gas will be required to produce the power and steam to operate additional pumps, coolers, and blowers. The Refinery currently purchases natural gas from the Southern California Gas Company (SCG) to supplement the refinery fuel gas produced during the refining process. In 2022 and 2023, SCG provided 2,416 and 2,535 million cubic feet per day

(mmcf/day), respectively, on average to their customers.[10] The proposed projects are expected to require an additional 3.72 mmcf/day to produce additional steam and power in the Watson Cogeneration Units. The increase in natural gas is a small fraction of the natural gas purchased by the Refinery from SCG and within the range that they currently purchase. The Refinery uses refinery fuel gas that it produces itself first for the various combustion sources that need gas as a fuel, before purchasing natural gas from SCG. Over the past 10 years, natural gas purchases from SCG have varied from 111.9 mmscf/day (2022) to 139.3 mmscf/day (2017). The natural gas that is estimated to be required and may be purchased from SCG would result in an increase of approximately three percent (2.7 to -3.3 percent, depending on the year). The contracts that the Refinery has with SCG do not place limits on the amount of natural gas that can be purchased. Therefore, the minor increase in natural gas from the proposed projects can be provided by SCG.

While the required natural gas is a small fraction of the natural gas currently purchased by the Refinery, it is also a small fraction (0.00000015 percent) of the natural gas demand in southern California. Natural gas service lines are already in place to provide natural gas to existing sources. No new gas-fired sources are proposed. Therefore, no significant effects on local or regional energy supplies are expected and no altered natural gas systems are required.

VI. f) and g) Less Than Significant Impact. The Refinery generates its own electricity and refinery fuel gas and will continue to do so as part of the proposed projects. Energy used by the proposed projects will be used to generate transportation fuels which would not represent a wasteful or inefficient use of energy. As discussed previously, heat exchangers will be included or added to a number of units to take advantage of excess heat and increase overall energy efficiency, as well as reducing the need for and use of cooling water.

The Refinery, as an existing facility, currently has telecommunications services. The proposed project is located within the confines of the Refinery. Therefore, the proposed projects would not require any new or modified telecommunications services to the Refinery.

As concluded in the discussion in section VI. b), c), and d), the proposed projects may result in additional energy demand; however, that additional energy will be provided by the existing Watson Cogeneration Unit at the Refinery and through existing refinery fuel gas or natural gas systems. Therefore, the proposed projects would not require the relocation of existing or the construction of new or expanded electric power, natural gas or telecommunication facilities, the construction or relocation of which could generated significant impacts.

Conclusion
Based on the above considerations, significant adverse impacts to energy conservation plans, or conflicts with energy standards are not expected due to the proposed projects. Further, the proposed projects are not expected to use energy in a wasteful or inefficient manner. Electricity and natural gas are expected to continue to be obtained from existing natural gas lines, or existing Refinery facilities so that the proposed projects would not require construction or relocation of new or expanded electric power or other energy services. The increase in electricity and natural

[10] California Gas and Electric Utilities, 2024 California Gas Report, Tables 14 and 15, pp. 20-21, https://www.socalgas.com/sites/default/files/2024-08/2024-California-Gas-Report-Final.pdf

gas/refinery fuel gas are not expected to substantially affect the local or regional supplies. Since no potentially significant adverse energy impacts were identified, no further evaluation will be required in the EIR.

		Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
VII.	**GEOLOGY AND SOILS.** Would the project:				
a)	Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:	☐	☐	☑	☐
	• Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?	☐	☐	☐	☑
	• Strong seismic ground shaking?	☐	☐	☑	☐
	• Seismic–related ground failure, including liquefaction?	☐	☐	☑	☐
	• Landslides?	☐	☐	☑	☐
b)	Result in substantial soil erosion or the loss of topsoil?	☐	☐	☑	☐
c)	Be located on a geologic unit or soil that is unstable or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☑	☐
d)	Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	☐	☑
e)	Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	☑
f)	Directly or indirectly destroy a unique paleontological resource or site or unique geological feature?	☐	☐	☑	☐

Significance Criteria
The impacts on the geological environment will be considered significant if any of the following criteria apply:

- Topographic alterations would result in significant changes, disruptions, displacement, excavation, compaction, or over covering of large amounts of soil.

- Unique geological resources (paleontological resources or unique outcrops) are present that could be disturbed by the construction of the proposed projects.

- Exposure of people or structures to major geologic hazards such as earthquake surface rupture, ground shaking, liquefaction, or landslides.

- Secondary seismic effects could occur which could damage facility structures, e.g., liquefaction.

- Other geological hazards exist which could adversely affect the facility, e.g., landslides, mudslides.

- Unique paleontological resources or sites or unique geologic features are present that could be directly or indirectly destroyed by the proposed projects.

Discussion
The proposed projects are comprised of four separate proposed projects: (1) Coke Drum Replacement, (2) Asphalt Sales Rack, (3) FFHDS Unit Modifications, and (4) Alkylation Units Modifications. A brief summary of the major physical modifications is provided below:

(1) Coke Drum Replacement: The coke drums at the DCU-W at the Wilmington Operations and Coker Unit Nos. 1 and 2 at the Carson Operations will be replaced with new coke drums that are of the same size and capacity. Specialty construction equipment (e.g., large cranes, transport vehicles) will be used at each unit chronologically in the order listed. The cutting deck will be removed to allow access to the coke drums and will be reinstalled following the coke drum replacement. The existing piping to the existing coke drums will be disconnected, replaced as necessary, and reinstalled once the new coke drums have been installed. Seismic upgrades, such as reinforcement of the structure, as required by the current building code will be made to the structures that house the coke drums.

(2) Asphalt Sales Rack: The asphalt sales rack will replace an existing storage building that will be removed, and will include installation of a new truck loading system with up to four truck stations which include truck loading arms, pumps, and piping; odor control equipment such as carbon canisters; and metering equipment. Modifications to up to three existing storage tanks at the Carson Operations will be made to add heat to the storage tanks and piping to keep the asphalt binder flowable, add mixers to keep the binder at a uniform temperature, add odor control that meets BACT, and revise the South Coast AQMD permits to allow storage of asphalt binder in the three tanks. Up to eight new heat exchangers will need to be installed. Piping modifications will consist of new piping from the No. 52 Vacuum Unit to transfer residuum to the modified storage

tanks for blending with gas oil, new piping to circulate the asphalt while warming, and new piping from the modified storage tanks to the asphalt sales rack.

(3) FFHDS Unit Modifications: The FFHDS will be modified by replacing the existing steam-driven recycle compressor with a new electric-driven recycle compressor, changing vessel internals, and reconfiguring up to two heat exchangers.

(4) Alkylation Units Modifications: The FCCU will be modified primarily in the equipment associated with the columns of the gas plant section and potentially the main fractionation column in the cracking section of the FCCU: installing up to three new heat exchangers, six new pumps, and three new vessels for caustic, and modifying trays and packing in the cracking section of the FCCU columns. The Wilmington Alkylation Modifications include upgrading the coalescing media, adding mist eliminators, replacing older piping with new piping, modifying trays and packing in the deisobutanizer and debutanizer columns, adding an economizer vessel, and replacing six pumps. The existing refrigeration compressor and motor may be modified or replaced to improve efficiency. The Carson Alkylation Modifications include either installing a new chiller unit and/or modifying the internal components or replacing the existing refrigeration compressor and turbine, installing up to three new heat exchangers, installing up to four pumps, replacing internals on up to 12 pumps, replacing two existing coalescers with new larger vessels, improving the water wash and acid neutralization capabilities, replacing the existing pressure relief valves on the acid storage vessels, and replacing the trays and packing in the depropanizer, debutanizer, and deisobutanizer columns. The Carson Operations Alky Merox Unit modifications include installing a new caustic prewash train in parallel with the existing train, and a new Alky Merox extractor train in parallel with the existing train. The Carson Operations C3 Splitter will be modified by replacing a PRV.

For further details, see Chapter 1, Section 1.4.

VII. a) Less Than Significant Impact. The Refinery is located within a seismically active region. The most significant potential geologic hazard is estimated to be seismic shaking from future earthquakes generated by active or potentially active faults in the region. Table 2-2 identifies those faults in the southern California region that could affect the sites within the Refinery where the proposed project activities will occur in terms of potential for future seismic activity. Table 2-3 identifies the historic earthquakes which occurred along various faults in the southern California region between 1930 and present that measured 5.0 or greater on the Richter magnitude scale. The fault systems most likely to result in an earthquake that could cause ground shaking in the vicinity of the Refinery include Newport-Inglewood, Palos Verdes, Whittier-Elsinore, Santa Monica, San Jacinto, and San Andreas. Past experience indicates that there has not been any substantial damage, structural or otherwise to the Carson and Wilmington Operations as a result of earthquakes.

TABLE 2-2
Major Active Faults in Southern California

Fault	Approximate Distance to Site (miles)	Maximum Moment Magnitude (Mmax)
Newport-Inglewood Fault Zone	1.5-2.0	6.9
Palos Verdes	1.7	7.1
Whittier-Elsinore Fault Zone	16.0	6.8
Santa Monica Fault Zone	16.8	6.6
San Jacinto Fault Zone	51.4	6.7
San Andreas Fault Zone	59.9	7.3

Source: City of Carson, 2022.

TABLE 2-3
Significant Historical Earthquakes in Southern California

Date	Location (epicenter)	Magnitude
1933	Long Beach	6.4
1937	San Jacinto Fault	6.0
1940	Imperial Valley	6.9
1941	Santa Barbara	5.5
1941	Torrance-Gardena	4.8
1942	Fish Creek Mountains	6.6
1946	Walker Pass	6.0
1947	Manix	6.5
1948	Desert Hot Springs	6.0
1952	Kern County	7.5
1952	Bakersfield	5.8
1954	San Jacinto Fault	6.4
1966	Parkfield	6.0
1968	Borrego Mountain	6.5
1970	Lytle Creek	5.2
1971	San Fernando (Sylmar)	6.5
1973	Point Mugu	5.3
1978	Santa Barbara	5.1
1979	Imperial Valley	6.4
1979	Malibu	5.2
1980	White Wash	5.5
1986	North Palm Springs	5.6
1986	Oceanside	5.4
1987	Whittier	5.9
1987	Elmore Ranch/Superstition Hills	6.2
1988	Tejon Ranch	5.4
1988	Pasadena	5.0
1990	Upland	5.4
1991	Sierra Madre	5.8
1992	Joshua Tree	6.1
1992	Landers	7.3

TABLE 2-3 (concluded)
Significant Historical Earthquakes in Southern California

Date	Location (epicenter)	Richter Magnitude
1992	Big Bear	6.3
1992	Mojave (Garlock)	5.7
1994	Northridge	6.7
1995	Ridgecrest	5.8
1999	Hector Mine	7.1
2001	Anza	5.1
2002	Laguna Salada	5.7
2005	Wheeler Ridge	5.2
2005	Anza	5.2
2005	Obsidian Butte	5.1
2008	Chino Hills	5.4
2009	Northern Baja California	5.8
2010	Sierra El Mayor (No. Baja Calif.)	7.2
2019	Ridgecrest	6.4 and 7.1
2020	Lone Pine	5.8

Source: Southern California Earthquake Data Center (SCEDC), 2024. Available at: https://scedc.caltech.edu/earthquake/chronological.html

No faults or fault-related features are known to exist at the Refinery. The closest fault zone to the Refinery is the Newport-Inglewood Fault Zone, which is located approximately 1.5 to 2.0 miles northeast of the Refinery, and the Palos Verdes Fault Zone is located approximately 1.7 miles west of the Refinery. The Refinery is not located in any Alquist-Priolo Earthquake fault zone and is not expected to be subject to significant surface fault displacement. Therefore, no significant adverse impacts to the facilities associated with the proposed projects are expected from seismically-induced ground rupture as no faults are located within the Refinery, therefore, the proposed projects are not expected to result in the risk of loss, injury or death due to seismically-induced ground rupture.

Liquefaction is a phenomenon that occurs when water-saturated sediment temporarily loses strength and behaves like a fluid during an earthquake.[11] Liquefaction would most likely occur in unconsolidated granular sediments that are water saturated less than 30 feet below ground surface (see Tinsley et al., 1985). Based on seismic hazards maps developed under the Seismic Hazards Mapping Act, the Refinery, both the Carson and Wilmington Operations are located in an area of historic (or has the potential for) liquefaction (California Division of Mines and Geology, Map of Seismic Hazard Zones, Long Beach Quadrangle, March 25, 1999). Therefore, because of the type of soil present at the Refinery, there is a potential for liquefaction and expansion induced impacts since the appropriate parameters for liquefaction exist at the site.

Based on the historical record, it is highly probable that earthquakes will affect the Los Angeles region in the future. Research shows that damaging earthquakes will occur on or near recognized

[11] U.S Geological Survey. https://www.usgs.gov/faqs/what-liquefaction#:~:text=link-,Liquefaction,be%20caused%20by%20earthquake%20shaking

faults which show evidence of recent geologic activity. The proximity of major faults to the Refinery increases the probability that an earthquake may impact the site. There is the potential for damage in the event of an earthquake. Impacts associated with ground shaking could include structural failure, spill, etc. The hazards of a release during an earthquake are addressed in Section VIII – Hazards and Hazardous Materials.

The new and modified equipment must be designed to comply with the California Building Code requirements since the proposed projects are located in a seismically active area. The California Building Code is considered to be a standard safeguard against major structural failures and loss of life. The code requires structures that will: 1) resist minor earthquakes without damage; 2) resist moderate earthquakes without structural damage, but with some non-structural damage; and 3) resist major earthquakes without collapse, but with some structural and non-structural damage. The California Building Code bases seismic design on minimum lateral seismic forces ("ground shaking"). The California Building Code requirements operate on the principle that providing appropriate foundations, among other aspects, helps to protect buildings from failure during earthquakes, including potential impacts associated with liquefaction. The basic formulas used for the California Building Code seismic design require determination of the seismic zone and site coefficient, which represent the foundation conditions at the site. The California Building Code primarily applies to structures and building used for human occupation and not industrial structures. However, constructing industrial structure foundations in compliance with the California Building Code requirements minimizes the potential for failure of foundations and associated equipment placed on those foundations.

The new and modified equipment at the Refinery will require building permits, as applicable, for all new structures associated with the proposed projects respectively from the City of Los Angeles and the City of Carson. The Refinery must receive approval of all building plans and building permits to assure compliance with the latest Building Code adopted by each City prior to commencing construction activities. The issuance of building permits from the local authority will assure compliance with the California Building Code requirements which include requirements for buildings and foundations within seismic hazard zones. No significant adverse impacts from seismic hazards are expected since the proposed projects will be required to comply with the California Building Codes, including those addressing seismic effects.

No landslides have occurred at the Refinery which is located in a flat, heavy industrial area that is devoid of unique geologic features capable of causing or contributing to a landslide and the proposed projects will not change the topographical setting or features of the land.
Thus, the proposed projects would not alter the exposure of people or property to geological hazards, such as earthquakes, landslides, mudslides, ground failure, or other natural hazards. As a result, 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.

VII. b) Less Than Significant Impact. The proposed projects are located within the confines of the existing Refinery, which has been previously graded and excavated to develop foundations, has been paved, currently has concrete foundations underneath the various existing structures and equipment. The proposed projects will involve the removal of existing equipment, the installation

of new equipment, and the modification of existing equipment, at previously graded sites within the existing Carson and Wilmington Operations; therefore, grading/excavation is expected to be minimal. A total of approximately 18,000 cubic yards of soil is expected to be excavated to provide foundations for the coke drum structures at the Wilmington and Carson Coker Units. The proposed projects would be constructed within the confines of the existing Refinery which has been previously graded, excavated to develop foundations, and paved.

Soil erosion from wind events occurring during construction is not expected to any appreciable extent, because construction contractors operating at any dust generating sites within the Carson and Wilmington Operations would be required to comply with the best available control measure (BACM) requirements of South Coast AQMD Rule 403 – Fugitive Dust. In general, fugitive dust must be controlled through a number of soil stabilizing measures, such as watering the site, ceasing excavation activities, using chemical soil stabilizers, etc. Potential air quality impacts related to grading and excavation are addressed elsewhere in this document (as part of construction air quality impacts discussion in Section III.).

Further, the Carson and Wilmington Operations have prepared Storm Water Pollution Prevention Plans (SWPPP), which include best management practices to control dust and mud transport during rain events to prevent solids and sediment transport into the storm drains and onto streets as set forth in National Pollution Discharge Elimination System (NPDES) standards. Implementation of these best management practices in the SWPPP will continue during and after completion of the proposed projects.

Once construction activities are complete, the sites of the proposed projects will be paved, so that soil would be covered and not subject to erosion. Historically, no landslides have occurred at the Refinery which is located in a flat, heavy industrial area that is devoid of unique geologic features capable of causing or contributing to a landslide. The proposed projects will not change the topographical setting or features of the land. Therefore, the proposed projects are expected to result in less than significant impacts to soil erosion or loss of topsoil.

VII. c) Less Than Significant Impact. As discussed in VII a. above, liquefaction is a phenomenon that occurs when water-saturated sediment temporarily loses strength and behaves like a fluid during an earthquake. Liquefaction would most likely occur in unconsolidated granular sediments that are water saturated less than 30 feet below ground surface (see Tinsley et al., 1985). Based on seismic hazards maps developed under the Seismic Hazards Mapping Act, the Refinery, both the Carson and Wilmington Operations are located in an area of historic (or has the potential for) liquefaction (California Division of Mines and Geology, Map of Seismic Hazard Zones, Long Beach Quadrangle, March 25, 1999). Therefore, because of the type of soil present at the Refinery, there is a potential for liquefaction and expansion induced impacts since the appropriate parameters for liquefaction exist at the site.

The California Building Code has more stringent requirements when there is a potential for liquefaction, lateral spreading, and soil expansion. Since modifications of existing equipment and installations of new equipment are being proposed which may include upgrading structural supports, a geotechnical engineering investigation would be required for the proposed projects. Building permits for all components of the proposed projects would be required by the City of

Carson and/or City of Los Angeles. As part of the building permit approval process, the Cities of Los Angeles and Carson would review and approve the geotechnical designs and ensure that the designs comply with California Building Code requirements to minimize the potential impacts associated with liquefaction and expansive soils. Issuance of building permits will not occur until the Cities of Carson and Los Angeles have reviewed and approved the geotechnical engineering investigation for the proposed projects within the respective jurisdictions. Standard conditions of approval would require the projects to comply with the recommendations of the geotechnical investigation report.

Subsidence is the gradual settling in or sinking in of an area. The main cause of subsidence in California, as well as the Wilmington area is from the removal of groundwater. Subsidence is not anticipated to be a problem since the removal of groundwater is regulated by the West Coast Basin through adjudicated water rights (the West Coast Subbasin and the Central Subbasin). The limitation and regulation of groundwater pumping has reduced subsidence in the area by limiting groundwater pumping. The proposed projects would not involve drilling or the removal of underground products (e.g., water, crude oil, etc.) that could produce subsidence effects. Historically, no landslides have occurred at the Refinery which is located in a flat, heavy industrial area that is devoid of unique geologic features capable of causing or contributing to a landslide and the proposed projects will not change the topographical setting or features of the land.

For these reasons, implementation of the proposed projects would not be expected to alter or make worse any existing potential for landslides, lateral spreading, subsidence, liquefaction, soil expansion or collapse and impacts on these geological resources are considered less than significant.

VII. d) No Impact. Expansive soils are characterized by their ability to expand or swell when they absorb water and contract or shrink when they dry out, and they typically consist of a high percentage of clay minerals. Based on extensive geotechnical studies, related to review of contaminant soils and groundwater at the Refinery, soils beneath the Refinery are predominantly sandy. Expansive soils have not been detected within the Carson and Wilmington Operations and the Refinery has not experienced damage due to expansive soils. Since the proposed projects would occur within the confines of the Carson and Wilmington Operations, which are located in industrial zones, as explained in VII. c), it is expected that people or property would not be exposed to new impacts related to expansive soils. Therefore, the proposed projects would have no impact, since expansive soils are not located within the Refinery.

VII. e) No Impact. The Carson and Wilmington Operations currently have existing wastewater treatment systems that collect and treat wastewater generated at the Refinery. Treated wastewater is then discharged to a local sewer system in accordance with Industrial Wastewater Discharge Permits. The Refinery does not use septic tanks or alternative wastewater disposal systems. The proposed projects would not require a change to the existing wastewater treatment systems, would not require the use of septic tanks, and would not require an alternative wastewater disposal system. For a further discussion of wastewater associated with the proposed projects, see Section IX – Hydrology and Water Quality. Thus, implementation of the proposed projects would not adversely affect soils associated with a septic system or alternative wastewater disposal system.

VII. f) Less Than Significant Impact. The entire Carson and Wilmington Operations have been previously graded and developed. Activities associated with the proposed projects will occur in areas of the Refinery where the ground surface has already been disturbed, within or adjacent to existing refining and other units. The only areas where ground disturbance is expected to occur is to provide foundations for the modified coke drum structures and the new Asphalt Sales Rack. Excavation of approximately four feet is expected to be required in the vicinity of the coker units. These areas have already been previously disturbed to provide foundations for the existing coke drums and the existing warehouse. As explained previously in Section V. b), c), and d), this past disturbance of the Refinery property reduces the likelihood of encountering previously unknown cultural resources of a paleontological or archaeological nature. Further, the Refinery site does not contain known paleontological resources and thus, the proposed projects are not expected to impact any sites of paleontological value.

Conclusion

Based on the above considerations, significant adverse impacts to geology and soils are not expected to occur as a result of construction and operational activities associated with the proposed projects. Since no potentially significant adverse geology and soils impacts were identified, no further evaluation will be required in the EIR.

		Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
VIII.	**HAZARDS AND HAZARDOUS MATERIALS.** Would the project:				
a)	Create a significant hazard to the public or the environment through the routine transport, use, and disposal of hazardous materials?	☑	☐	☐	☐
b)	Create a significant hazard to the public or the environment through reasonably foreseeable upset conditions involving the release of hazardous materials into the environment?	☑	☐	☐	☐
c)	Emit hazardous emissions, or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☑	☐	☐	☐
d)	Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code §65962.5 and, as a result, would create a significant hazard to the public or the environment?	☑	☐	☐	☐
e)	For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public use airport or a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☑
f)	Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☑	☐
g)	Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☐	☐	☐	☑

Significance Criteria
The impacts associated with hazards 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 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.

Discussion
The proposed projects are comprised of four separate proposed projects: (1) Coke Drum Replacement, (2) Asphalt Sales Rack, (3) FFHDS Unit Modifications, and (4) Alkylation Units Modifications. A brief summary of the major physical modifications is provided below:

(1) Coke Drum Replacement: The coke drums at the DCU-W at the Wilmington Operations and Coker Unit Nos. 1 and 2 at the Carson Operations will be replaced with new coke drums that are of the same size and capacity. Specialty construction equipment (e.g., large cranes, transport vehicles) will be used at each unit chronologically in the order listed. The cutting deck will be removed to allow access to the coke drums and will be reinstalled following the coke drum replacement. The existing piping to the existing coke drums will be disconnected, replaced as necessary, and reinstalled once the new coke drums have been installed. Seismic upgrades, such as reinforcement of the structure, as required by the current building code will be made to the structures that house the coke drums.

(2) Asphalt Sales Rack: The asphalt sales rack will replace an existing storage building that will be removed, and will include installation of a new truck loading system with up to four truck stations which include truck loading arms, pumps, and piping; odor control equipment such as carbon canisters; and metering equipment. Modifications to up to three existing storage tanks at the Carson Operations will be made to add heat to the storage tanks and piping to keep the asphalt binder flowable, add mixers to keep the binder at a uniform temperature, add odor control that meets BACT, and revise the South Coast AQMD permits to allow storage of asphalt binder in the three tanks. Up to eight new heat exchangers will need to be installed. Piping modifications will consist of new piping from the No. 52 Vacuum Unit to transfer residuum to the modified storage tanks for blending with gas oil, new piping to circulate the asphalt while warming, and new piping from the modified storage tanks to the asphalt sales rack.

(3) FFHDS Unit Modifications: The FFHDS will be modified by replacing the existing steam-driven recycle compressor with a new electric-driven recycle compressor, changing vessel internals, and reconfiguring up to two heat exchangers.

(4) Alkylation Units Modifications: The FCCU will be modified primarily in the equipment associated with the columns of the gas plant section and potentially the main fractionation column in the cracking section of the FCCU: installing up to three new heat exchangers, six new pumps, and three new vessels for caustic, and modifying trays and packing in the cracking section of the FCCU columns. The Wilmington Alkylation Modifications include upgrading the coalescing media, adding mist eliminators, replacing older piping with new piping, modifying trays and packing in the deisobutanizer and debutanizer columns, adding an economizer vessel, and replacing six pumps. The existing refrigeration compressor and motor may be modified or replaced to improve efficiency. The Carson Alkylation Modifications include either installing a new chiller unit and/or modifying the internal components or replacing the existing refrigeration compressor and turbine, installing up to three new heat exchangers, installing up to four pumps, replacing internals on up to 12 pumps, replacing two existing coalescers with new larger vessels, improving the water wash and acid neutralization capabilities, replacing the existing pressure relief valves on the acid storage vessels, and replacing the trays and packing in the depropanizer, debutanizer, and deisobutanizer columns. The Carson Operations Alky Merox Unit modifications include installing a new caustic prewash train in parallel with the existing train, and a new Alky Merox extractor train in parallel with the existing train. The Carson Operations C3 Splitter will be modified by replacing a PRV.

For further details, see Chapter 1, Section 1.4.

VIII. a) and b) Potentially Significant Impact. Though hazard analyses have been previously completed for the existing equipment at the Carson and Wilmington Operations, the proposed projects may alter the existing hazards setting. The Carson and Wilmington Operations use a number of hazardous materials at each site to manufacture petroleum products. The major types of public safety risks consist of impacts from toxic substance releases, fires, and explosions. Toxic substances handled by the Refinery include but are not limited to substances such as hydrogen sulfide, sulfuric acid, and ammonia. The Refinery also handles flammable materials such as propane, butane, and petroleum products like crude oil, gasoline, fuel oils, and diesel, some of which contain hazardous substances such a benzene, xylene, toluene and ethyl benzene, among other compounds. Shipping, handling, storing, and disposing of hazardous materials inherently poses a certain risk of a release to the environment.

The primary hazards associated with refining are fire hazards and subsequent exposure to thermal radiation. Thermal radiation is the heat generated by a fire and the potential impacts associated with exposure. Exposure to thermal radiation would result in burns, the severity of which would depend on the intensity of the fire, the duration of exposure, and the distance of an individual to the fire.

The Refinery currently operates pursuant to a Risk Management Plan (RMP) for hazardous materials which include butane, pentane, hydrogen sulfide, and ammonia, among others that are currently used, produced, and/or stored at the Refinery. For the Wilmington Operations, the City of Los Angeles Fire Department administers this program through the California Accidental Release Prevention (CalARP) program. For the Carson Operations, the County of Los Angeles Fire Department administers the CalARP program. Modifications under the RMP and CalARP are required in certain situations such as if there is a major change to the process requiring a new

process analysis. For the proposed projects, new RMPs are expected to be required for both the Wilmington and Carson operations because there may be new hazards associated with new and modified equipment, although the proposed projects are not expected to introduce new hazardous materials at the Refinery. As part of the review of the proposed projects under the RMP and CalARP programs, a process hazard analysis will be conducted to verify the materials and that the proposed modifications have been designed to minimize potential hazards. In addition, a review of the proposed changes are required to ensure that no unexpected or adverse interactions with existing systems would occur. Such reviews are required as part of the RMP, CalARP, and Process Safety Management programs for the processes subject to these programs.

Some of the proposed unit modifications may change the existing hazard impacts at the Refinery, e.g., Alkylation Units, FCCU, and the C3 Splitter Unit which may require new or upgraded safety systems. In addition, the proposed projects may result in changes to the quantities of hazardous materials that will need to be transported to or from the Refinery (e.g., sulfuric acid, spent caustic, etc.) and the hazards associated with the transport of these materials will be evaluated in the EIR.

Increases in potential hazards associated with the implementation of the proposed projects could potentially alter the probability for upset and accident conditions that could cause a release of hazardous materials into the environment. The potential effects of an accidental release of the additional hazardous materials being stored, used, and transported as part of implementing the proposed projects will be evaluated in the EIR.

VIII. c) Potentially Significant Impact. The Carson and Wilmington Operations are not located within one-quarter mile of an existing or proposed school site. The proposed projects are not expected to impact school sites from handling hazardous materials or wastes. Nonetheless, the potential impacts of toxic air contaminants on schools, as well as other sensitive receptors, will be evaluated as part of the air quality analysis section of the EIR.

VIII. d) Potentially Significant Impact. Government Code Section 65962.5 refers to the "Cortese List." The Cortese List is a compilation of data about locations throughout California where hazardous materials have been released or where hazardous waste facilities operate. The list helps California to maintain a comprehensive approach to tracking and addressing environmental contamination, while providing critical information for land use planning and development. The Carson Operations are listed on the RCRA database as a State Equivalent of Federal Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) site (CALSITE) and as a leaking underground storage tank (LUST) site. Hazardous wastes from the facility are managed in accordance with applicable federal, state, and local rules and regulations. The Carson Operations are included on a list prepared pursuant to Government Code Section 65962.5. CEQA (Public Resources Code Section 21092.6) requires the following information for sites which are listed pursuant to Government Code Section 65962.5:

Applicant:	Marathon Carson Operations
Address:	2350 E. 223rd Street, Carson, CA 90810
Phone:	(310) 816-8100
Address of Site:	1801 East Sepulveda Boulevard, Carson, CA 90749
Local Agency:	City of Carson

Assessor's Book:	7315-006-003
List:	LUFT/SLIC
Case No:	R-20190/0224

The Wilmington Operations are included on a list of RCRA-permitted sites that require corrective action as identified by DTSC. Furthermore, the Wilmington Operations are subject to corrective action under the Spill Cleanup Program (SCP) formerly "Spills, Leaks, Investigation & Cleanup (SLIC) Program" administered by the Regional Water Quality Control Board (RWQCB) pursuant to California Water Code Section13304. In order to provide full public disclosure per CEQA (Public Resources Code Section 21092.6) with regard to corrective actions required by local agency, the following information is provided:

Applicant:	Marathon (Wilmington Operations)
Address:	2101 E. Pacific Coast Highway, Wilmington, CA 90744
Phone:	(310) 522-6000
Address of Site:	2101 E. Pacific Coast Highway, Wilmington, CA 90744
Local Agency:	Wilmington, City of Los Angeles
Assessor's Book:	Parcel numbers 7315-014-008, 7315-017-005, 7428-007-003
List:	Corrective Action
SCP Case No:	SCP T10000002352

Given the heavily industrialized nature of the Carson and Wilmington Operations and the fact that refining activities, petroleum storage, and distribution have been conducted at the site for about 100 years, construction activities associated with the proposed projects, such as grading, excavating, and trenching, could potentially uncover contaminated soils. Construction activities associated with the proposed projects could require the removal of contaminated soil. The handling, processing, transportation, and disposal of the contaminated soils will be subject to multiple hazardous waste regulations such as Title 22 of the California Code of Regulations and other local and federal rules. Title 22 has multiple requirements for hazardous waste handling, transport, and disposal, such as requirements to use approved disposal and treatment facilities, to use certified hazardous waste transporters and have manifests for tracking the hazardous materials. Contaminated soils also must be handled and disposed in accordance with South Coast AQMD's Rule 1166 – Volatile Organic Compound Emissions from Decontamination of Soil, and the Refinery's Soils Handling Plan, as well as Rule 1466 – Control of Particulate Emissions from Soils with Toxic Air Contaminants. Contaminated soil would be stored at a temporary holding location within the Refinery before transport to an appropriate disposal or treatment facility. Because of the historic industrial nature of the project sites, impacts related to soil contamination are potentially significant and will be evaluated in the EIR.

VIII. e) No Impact. The Refinery is not located within an airport land use plan or within two miles of a public or private use airport. Therefore, the proposed projects would not be expected to result in a safety hazard for people residing or working in the area of the Carson and Wilmington Operations, on any airport, or on an airport land use plan.

VIII. f) Less than Significant Impact. The proposed projects are located within the existing Refinery, which are industrial properties. As an existing Refinery, the facility has developed and

implemented emergency response plans. The existing emergency response procedures include detailed requirements for specific actions for employees to take (including evacuation and spill control), individuals to be notified, and agencies to call when assistance is required. The proposed projects would require updating and revising the existing emergency response plans to address emergency response activities that will be associated with new and modified equipment at the Refinery. Tesoro already uses, stores, processes, and transports crude oil, refined products, and other materials associated with the refining process at the Carson and Wilmington Operations, so the current emergency response procedures are specific to the refining processes. Emergency responses related to the proposed projects would include accidental releases, spills, and fires associated with hazardous materials. Based on existing requirements for developing and revising emergency response plans, the proposed projects would not impair implementation or physically interfere with an adopted emergency response plan or evacuation plan. Evacuation plans generally require employees to head towards the employee parking areas and away from the operating portions of the Refinery. The emergency response plans at the Refinery would be reviewed and updated to reflect the proposed projects modifications, new units, and new and modified tanks. The emergency response plans are expected to be limited to the Refinery as the proposed projects would not affect in any way emergency response plans at other industrial facilities in the local area. Therefore, impacts to emergency response or evacuations plans are expected to be less than significant.

VIII. g) No Impact. Wildland fire protection in California is the responsibility of either the local government, state, or federal government. State Responsibility Areas (SRA) are the areas in the state where the State of California has the primary financial responsibility for the prevention and suppression of wildland fires.[12] Local Responsibility Areas (LRA) include incorporated cities, cultivated agriculture lands, and portions of the desert. LRA fire protection is typically provided by city fire departments, fire protection districts, counties, and California Department of Forestry and Fire Protection (CAL FIRE) under contract to local governments. CAL FIRE uses an extension of the SRA Fire Hazard Severity Zone model as the basis for evaluating fire hazard in LRAs. The local responsibility area hazard rating reflects flame and ember intrusion from adjacent wildlands and from flammable vegetation in the urban area. Fire hazard severity zones are identified as Moderate, High, and Very High in an SRA, and Very High in an LRA.

Based on recent maps prepared by CAL FIRE in 2025, most of the Carson and Wilmington areas are considered to be areas of non-fire hazard zone.[13] The closest high fire hazard area to the Refinery is west of the 110 Freeway near the Palos Verdes area.

The proposed projects will not increase the existing risk of fire hazards in areas with flammable brush, grass, or trees, because the proposed projects are located in an urbanized, heavily industrial area and no wildlands are located in the immediate or surrounding areas of the Carson and Wilmington Operations. Also, no vegetation exists within the operational portions of the Refinery, and for safety reasons, no vegetation is located within the existing areas where the new and

[12] California Department of Forestry and Fire Prevention's Fire and Resource Assessment Program. 2022. Wildfire Hazard Real Estate Disclosure. https://frap.fire.ca.gov/frap-projects/wildfire-hazard-real-estate-disclosure/.

[13] CAL Fire's Fire Hazard Severity Zone in State Responsibility Areas - Los Angeles. Available at: https://experience.arcgis.com/experience/5065c998b4b0462f9ec3c6c226c610a9/page/Compare-old-and-new-LRA-FHSZ

modified equipment will be sited. For these reasons, the proposed projects would not expose people or structures to wildland fires. Therefore, no adverse impacts resulting from wildland fire hazards are expected from the proposed projects.

Conclusion

Based on the above considerations, potential significant adverse impacts may be associated with the creation of a significant hazard to the environment through the routine transport, and use of hazardous materials; creation of a significant hazard through reasonably foreseeable upset conditions; generate potential public impacts associated with emissions of hazardous emissions, use of hazardous substances or waste; and generate impacts as the Refinery is located on sites pursuant to Government Code Section 656962.5; therefore, these subjects will be evaluated in the EIR. The proposed projects are not within an airport land use plan or two miles of a public or private airport/airstrip; would not impair implementation or interfere with an adopted emergency response or evacuation plan; or expose people or structures to risk of loss, injury or death involving wildland fires and since no potentially significant adverse impacts were identified, no further evaluation of these topics will be required in the EIR.

		Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
IX.	**HYDROLOGY AND WATER QUALITY.** Would the project:				
a)	Violate any water quality standards, waste discharge requirements, or otherwise substantially degrade surface or ground water quality?	☐	☐	☑	☐
b)	Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☑	☐	☐	☐
c)	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
	• Result in substantial erosion or siltation on- or off-site?	☐	☐	☑	☐
	• Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	☐	☐	☑	☐
	• Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☑	☐
	• Impede or redirect flood flows?	☐	☐	☑	☐
d)	In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☑	☐
e)	Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☑	☐

		Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
f)	Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, facilities or new storm water drainage facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	☑	☐
g)	Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	☑	☐	☐	☐
h)	Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☑	☐

Significance Criteria

Potential impacts on water resources will be considered significant if any of the following criteria apply:

Water Quality:

- The projects will cause degradation or depletion of ground water resources substantially affecting current or future uses.
- The projects will cause the degradation of surface water substantially affecting current or future uses.
- The projects will result in a violation of National Pollutant Discharge Elimination System (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 projects.
- The projects result in substantial increases in the area of impervious surfaces, such that interference with groundwater recharge efforts occurs.
- The projects result in alterations to the course or flow of floodwaters.

Water Demand:

- The existing water supply does not have the capacity to meet the increased demands of the projects, or the projects would use more than 262,820 gallons per day of potable water.

- The projects increase demand for water by more than five million gallons per day.

Discussion

The proposed projects are comprised of four separate proposed projects: (1) Coke Drum Replacement, (2) Asphalt Sales Rack, (3) FFHDS Unit Modifications, and (4) Alkylation Units Modifications. A brief summary of the major physical modifications is provided below:

(1) Coke Drum Replacement: The coke drums at the DCU-W at the Wilmington Operations and Coker Unit Nos. 1 and 2 at the Carson Operations will be replaced with new coke drums that are of the same size and capacity. Specialty construction equipment (e.g., large cranes, transport vehicles) will be used at each unit chronologically in the order listed. The cutting deck will be removed to allow access to the coke drums and will be reinstalled following the coke drum replacement. The existing piping to the existing coke drums will be disconnected, replaced as necessary, and reinstalled once the new coke drums have been installed. Seismic upgrades, such as reinforcement of the structure, as required by the current building code will be made to the structures that house the coke drums.

(2) Asphalt Sales Rack: The asphalt sales rack will replace an existing storage building that will be removed, and will include installation of a new truck loading system with up to four truck stations which include truck loading arms, pumps, and piping; odor control equipment such as carbon canisters; and metering equipment. Modifications to up to three existing storage tanks at the Carson Operations will be made to add heat to the storage tanks and piping to keep the asphalt binder flowable, add mixers to keep the binder at a uniform temperature, add odor control that meets BACT, and revise the South Coast AQMD permits to allow storage of asphalt binder in the three tanks. Up to eight new heat exchangers will need to be installed. Piping modifications will consist of new piping from the No. 52 Vacuum Unit to transfer residuum to the modified storage tanks for blending with gas oil, new piping to circulate the asphalt while warming, and new piping from the modified storage tanks to the asphalt sales rack.

(3) FFHDS Unit Modifications: The FFHDS will be modified by replacing the existing steam-driven recycle compressor with a new electric-driven recycle compressor, changing vessel internals, and reconfiguring up to two heat exchangers.

(4) Alkylation Units Modifications: The FCCU will be modified primarily in the equipment associated with the columns of the gas plant section and potentially the main fractionation column in the cracking section of the FCCU: installing up to three new heat exchangers, six new pumps, and three new vessels for caustic, and modifying trays and packing in the cracking section of the FCCU columns. The Wilmington Alkylation Modifications include upgrading the coalescing media, adding mist eliminators, replacing older piping with new piping, modifying trays and packing in the deisobutanizer and debutanizer columns, adding an economizer vessel, and replacing six pumps. The existing refrigeration compressor and motor may be modified or replaced to improve efficiency. The Carson Alkylation Modifications include either installing a new chiller

unit and/or modifying the internal components or replacing the existing refrigeration compressor and turbine, installing up to three new heat exchangers, installing up to four pumps, replacing internals on up to 12 pumps, replacing two existing coalescers with new larger vessels, improving the water wash and acid neutralization capabilities, replacing the existing pressure relief valves on the acid storage vessels, and replacing the trays and packing in the depropanizer, debutanizer, and deisobutanizer columns. The Carson Operations Alky Merox Unit modifications include installing a new caustic prewash train in parallel with the existing train, and a new Alky Merox extractor train in parallel with the existing train. The Carson Operations C3 Splitter will be modified by replacing a PRV.

For further details, see Chapter 1, Section 1.4.

IX. a), and h) Less than Significant Impact. Wastewater Generation: The potential for wastewater generation and water quality impacts associated with construction activities at the Refinery were determined to be less than significant, because construction activities are not expected to generate any additional wastewater as there will be no changes to any Refinery units during construction activities. During construction activities, water will be used for dust suppression but would not be used in sufficient quantities to generate wastewater discharge. South Coast AQMD Rule 403 – Fugitive Dust requires the implementation of best available dust control measures during active operations capable of generating fugitive dust. In compliance with South Coast AQMD Rule 403, the area will be sufficiently wetted using water trucks or water tankers (specialized vehicles equipped with tanks, pumps, and spray nozzles) to minimize dust, but not wetted so much as to generate wastewater or runoff. Further, no substantial grading is expected to be required as the Refinery and locations are flat and has already been graded; although excavation activities are expected to result in the removal of approximately 18,000 cubic yards of soil. During construction activities, temporary toilet facilities (port-a-potties) will be used for construction workers. These facilities are brought on-site by a contractor and taken off-site for disposal. Therefore, there will be no increase in wastewater generated by additional construction workers. Additional water use will be limited to handwashing. As discussed further in IX. b) and g), up to 34,000 gallons of water may be required to hydrotest the Asphalt Sales Rack on a one-time basis, following the completion of construction activities. This water would be expected to be reused elsewhere within the Refinery. Therefore, the current volumes of wastewater generated by the existing Carson and Wilmington Operations would not be expected to change during the construction activities.

Existing sources of wastewater streams from the Carson and Wilmington Operations include process wastewater, boiler blowdown[14], sanitary wastewater, and surface runoff. Process wastewater and surface water streams are treated by the Refinery's existing wastewater treatment facilities prior to discharge to the Los Angeles County Sanitation District (LACSD) sewer system; the sanitary wastewater stream is discharged directly to the sewer without prior treatment. Industrial wastewater is treated and sampled in compliance with the LACSD Industrial Wastewater Discharge Permit. The LACSD places limitations on wastewater parameters such as oil and grease

[14] Boiler blowdown is the process of intentionally discharging water from a boiler to remove accumulated impurities, such as suspended solids and dissolved minerals. This is part of standard maintenance activities and helps maintain boiler efficiency, prevent damage from scale and corrosion, and ensure high quality steam production.

contents, pH levels, temperature, heavy metals, organic compounds and so forth. Wastewater that complies with the LACSD permit requirements is discharged to the LACSD sewer system. Wastewater that does not comply is returned to the wastewater treatment system for further treatment.

Operational activities are expected to require approximately 272,250 gallons per day of additional water use. Most of the additional increase in water use is associated with steam generation at the Watson Cogeneration Unit, which will condense and be reused or discharged. The Carson Operations currently discharges approximately 9,268 gpm on a peak day, which is less than the permitted discharge limit of 12,000 gpm and the Wilmington Operations currently discharge approximately 9,826 gpm on a peak day, which is less than the permitted discharge limit of 10,000 gpm. The proposed projects would result in an increase in water use of 8 gpm associated with additional steam generation at the Watson Cogeneration Unit, and some of the water losses would evaporate as steam. Assuming that the entire amount of water would be discharged, the proposed projects would add 8 gpm to the peak wastewater generation of 9,268 gpm for a total discharge of 9,276 gpm, which is well below the permitted limit of 12,000 gpm. Future discharges of wastewater from the Refinery will continue to be required to comply with the LACSD Industrial Wastewater Discharge permit, so the proposed projects are not expected to violate any water quality standards, waste discharge requirements, exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board, or otherwise substantially degrade water quality. Further, the capacity of the wastewater treatment provider would not be exceeded as the wastewater discharge would be within the permitted waste discharge limits for the Carson Operations.

IX. b) and g) Potentially Significant. Water Demand: Water is primarily provided to the Wilmington Operations by an existing onsite water well (e.g., groundwater) and supplemental water is supplied by the LADWP, as necessary. The Carson Operations obtains its water from a combination of sources including: (1) purchased water from the California Water Services via various well sources; (2) water from Wilmington Operations-owned wells; and (3) reclaimed water.

Construction activities associated with the proposed projects would require water for dust suppression during grading to prepare the construction site for the placement of foundations. In addition, the new piping associated with the Asphalt Sales Rack will require up to 34,000 gallons (assumed to be needed in a single day) for hydrotesting new piping. No storage tank modifications will require hydrotesting. The hydrotesting water demand is expected to use much less than 262,820 gallons per day significance threshold for potable water. Therefore, construction-related water demand is not expected to be significant and will not be further evaluated in the EIR.

Following the completion of construction activities, preliminary analysis of water demand from new or modified equipment associated with operation of the proposed projects indicates that there may be an increase in water demand at the Refinery of approximately 272,250 gallons per day. The South Coast AQMD significance criteria state that impacts are considered significant if the existing water supply does not have the capacity to meet the increased demands of the proposed projects or the projects would use more than 262,820 gallons per day of potable water. Therefore, impacts to ground water supplies and water demand from implementing the proposed projects are

potentially significant, and will be further evaluated in the EIR. As discussed in IX.c), the proposed projects would not result in an increase in paved area and therefore, would not result in an increase in storm water runoff or interfere with groundwater recharge.

IX. c) Less Than Significant Impact. Surface Water Runoff: The Carson and Wilmington Operations are located adjacent to the Dominguez Channel and approximately 1.5 miles west of the Los Angeles River. The Los Angeles River and the Dominguez Channel are the major drainages that flow into the Los Angeles-Long Beach Harbor complex. The Los Angeles River drains an 832-square mile watershed basin into the Long Beach Harbor. The Los Angeles River watershed is controlled by a series of dams and an improved river channel with a design flow capacity of 146,000 cubic feet per second (65,530,000 gallons per minute).

The Dominguez Channel originates in the area of the Los Angeles International Airport and flows southward into the East Channel of the Los Angeles Harbor. The Dominguez Channel, an 8.5-mile-long structure, drains approximately 80 square miles west of the Los Angeles River drainage basin. Permitted discharges from industrial sources are a substantial percentage of the persistent flows in the Dominguez Channel.

The Refinery does not routinely discharge industrial runoff into the Dominguez Channel. At both the Carson and Wilmington Operations, storm water runoff within process unit areas is handled by the existing wastewater system and sent to an on-site wastewater treatment system prior to discharge to the LACSD system. Storm water runoff from outside the process unit areas is collected, treated as necessary, and discharged pursuant to the existing NPDES permits. The Carson and Wilmington Operations have separate NPDES permits. The proposed projects would not be expected to require any changes or modifications to the existing NPDES permits at either the Wilmington or Carson Operations. The collection and treatment of storm water runoff is not expected to be modified as part of the proposed projects. Therefore, the proposed projects are not expected to result in an increase in storm water runoff, and this topic will not be evaluated further in the EIR.

The proposed projects are not expected to increase impermeable surfaces at the Refinery. Most of the changes associated with the proposed projects are to existing units located in areas that are already paved and will remain paved after construction is complete, including the replacement of the coke drums at DCU-W, Coker No. 1 and Coker 2; modifications to the Alkylation Units, and FCCU at both the Carson and Wilmington Operations; and modifications to the FFHDS Unit at Carson Operations. The proposed new Asphalt Sales Rack will be located in an area that is currently paved and has an existing warehouse. Therefore, the proposed projects are not expected to result in an increase in impermeable surfaces that would increase storm water runoff from the Refinery.

No substantial grading is expected to be required as the Refinery and project locations are flat and have already been graded. Minor excavation activities may be required to develop stable foundations for the coke unit structures and Asphalt Sales Rack, but is expected to be limited to approximately 18,000 cubic yards of soil removal. Soil would be kept moist to minimize soil erosion or siltation. Therefore, the proposed projects would not result in any increase in soil erosion either on-site or off-site. For a discussion of potential flooding impacts, see IX. d).

IX. d) Less Than Significant. The Federal Emergency Management Agency (FEMA) is responsible for administration of the National Flood Insurance Program which creates flood zone insurance maps to identify flood hazards within a community. The majority of the central and eastern portion of the City of Carson, and the area adjacent to the Dominguez Channel, are located within an area with an annual change flood of 0.2 percent[15] (referred to as Zone X, low risk area for flooding, protected by a levee). This indicates that the Refinery is not located within a Special Flood Hazard Area which is subject to inundation by the 1 percent annual flood change (100-year flood zone) and would not expose people or property to any known water-related flood hazards. Further, because the proposed projects would occur at existing industrial facilities, it does not have the potential to impede or redirect flood flows to a greater extent than is currently the case. The proposed projects are not located within a flood zone and therefore, would not expose people or property to a significant risk of loss, injury or death related to flood hazards.

Based on the topography and/or site elevations of the Carson and Wilmington Operations in relation to the ocean, the proposed projects are not expected to result in an increased risk of flood. Therefore, no significant adverse impacts associated with flooding are expected from the proposed projects.

The proposed projects are located near the Ports of Long Beach and Los Angeles, but at a sufficient distance from the shore to avoid potential impacts from tsunamis or seiches. The Refinery is located over two miles north of the Ports of Los Angeles and Long Beach. The construction of breakwaters offshore, combined with the distance of the Refinery from the water, is expected to further minimize the potential flooding impacts from a tsunami or seiche so that no significant flooding impacts that could release pollutants from these phenomena are expected and these impacts will not be further evaluated in the EIR.

IX. e). Less Than Significant. The Water Quality Control Plan that applies to the area of the Refinery is the Water Quality Plan for the Los Angeles Region (Basin Plan). The Basin Plan contains water quality standards for surface and groundwater in the Los Angeles Region. Water quality standards include existing and designated beneficial uses for surface and groundwater, narrative and/or numeric water quality objectives to protect those beneficial uses, and the state's antidegradation policy. The Basin Plan includes comprehensive watershed and groundwater basin programs to implement water quality objectives, including total maximum daily loads (TMDLs) for surface waters, as well as descriptions of the RWQCB's programs and actions to address discharges of waste to surface water and groundwater, including waste discharge requirements (WDRs), NPDES permits, discharge prohibitions, and remediation programs, among others (LARWQCB, 2023).

As discussed in IX a) and h) above, the proposed projects would add 8 gpm to the peak wastewater generation of 9,268 gpm for a total discharge of 9,276 gpm, which is well below the permitted wastewater limit of 12,000 gpm. Future discharges of wastewater from the Refinery will continue to be required to comply with the LACSD Industrial Wastewater Discharge permit, so the proposed

[15] FEMA, 2024. FEMA Flood Map Service Center. Available at: https://msc.fema.gov/portal/search?AddressQuery=carson%20california

projects are not expected to violate any water quality standards, waste discharge requirements, exceed wastewater treatment requirements of the LA RWQCB, or otherwise substantially degrade water quality. Further, the proposed projects are not expected to increase impermeable surfaces at the Refinery or result in an increase in stormwater discharge. Therefore, the proposed projects impact on the applicable Basin Plan is less than significant.

On September 16, 2014, Governor Jerry Brown signed into law a three-bill legislative package, composed of AB 1739 (Dickinson), SB 1168 (Pavley), and SB 1319 (Pavley), collectively known as the Sustainable Groundwater Management Act (SGMA). The SGMA sets a framework for sustainable, groundwater management. SGMA requires governments and water agencies of high and medium priority basins to halt overdraft and bring groundwater basins into balanced levels of pumping and recharge. SGMA empowers local agencies to form Groundwater Sustainability Agencies (GSAs) to manage basins sustainably and requires those GSAs to adopt Groundwater Sustainability Plans (GSPs) for crucial groundwater basins in California.

Tesoro, as an owner of private wells, has been granted water rights by the State (referred to as adjudicated water rights). The adjudicated water rights are published in the Watermaster Service in the West Coast Basin report, which is published annually by the California Department of Water Resources (DWR). Tesoro has adjudicated rights to 8,741 acre feet per year (2.8 billion gallons per year) as reported in Table 1 of the Watermaster Service report for 2022-2023 (DWR, 2023).

Unused water rights can be carried over from year to year as allowed by permit. The annual accounting of water usage of adjudicated water rights is presented in the Watermaster Service in the West Coast Basin report each year.

Activities associated with the proposed projects are required to comply with applicable groundwater quality standards and will be expected to comply with the applicable GSPs, and adjudicated water rights. The proposed projects are not expected to conflict with or obstruct the implementation of a groundwater management plan and impacts would be less than significant.

IX f). Less Than Significant Impact. As discussed in IX b), additional water demand is expected to be provided using existing adjudicated ground water rights. Although water demand is considered to be potentially significant, water will continue to be supplied by existing pumps and piping. The proposed projects are not expected to result in new or expanded water facilities to provide additional water to the Refinery, the construction of which could cause significant environmental effects. As discussed in IX a), the proposed projects are not expected to generate additional wastewater of a quantity that would require new or expanded wastewater treatment facilities. As discussed in IX c), the proposed projects are not expected to result in an increase in impermeable surfaces or increase storm water runoff so no new or expanded drainage or storm water facilities are expected to be required. Therefore, the proposed projects impacts on water facilities, wastewater treatment or storm water drainage facilities are considered to be less than significant.

Conclusion

Based on the above considerations, the proposed projects would not violate water quality standards, waste discharge requirements or otherwise substantially degrade surface or ground water quality, or result in increases in wastewater that would require a wastewater treatment provider to expand; substantially alter surface water runoff or increase the rate or amount of surface water runoff; result in an increase in flood hazards, tsunami or seiche zones or risk of pollutant release due to inundation; conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan; or result in the relocation or construction of new or expanded water, wastewater treatment facilities or stormwater drainage facilities, the construction of which could cause significant effects. Since no potentially significant adverse impacts were identified, no further evaluation of these topics will be required in the EIR.

Potentially significant adverse water demand impacts may occur as a result of operational activities associated with the proposed projects. Since potentially significant adverse water demand impacts were identified, those impacts will be further evaluated in the EIR.

		Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
X.	**LAND USE AND PLANNING.** Would the project:				
a)	Physically divide an established community?	☐	☐	☐	☑
b)	Cause an environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☑

Significance Criteria

Land use and planning impacts will be considered significant if the projects conflict with the land use and zoning designations established by local jurisdictions.

Discussion

The proposed projects are comprised of four separate proposed projects: (1) Coke Drum Replacement, (2) Asphalt Sales Rack, (3) FFHDS Unit Modifications, and (4) Alkylation Units Modifications. A brief summary of the major physical modifications is provided below:

(1) Coke Drum Replacement: The coke drums at the DCU-W at the Wilmington Operations and Coker Unit Nos. 1 and 2 at the Carson Operations will be replaced with new coke drums that are of the same size and capacity. Specialty construction equipment (e.g., large cranes, transport vehicles) will be used at each unit chronologically in the order listed. The cutting deck will be removed to allow access to the coke drums and will be reinstalled following the coke drum replacement. The existing piping to the existing coke drums will be disconnected, replaced as necessary, and reinstalled once the new coke drums have been installed. Seismic upgrades, such as reinforcement of the structure, as required by the current building code will be made to the structures that house the coke drums.

(2) Asphalt Sales Rack: The asphalt sales rack will replace an existing storage building that will be removed, and will include installation of a new truck loading system with up to four truck stations which include truck loading arms, pumps, and piping; odor control equipment such as carbon canisters; and metering equipment. Modifications to up to three existing storage tanks at the Carson Operations will be made to add heat to the storage tanks and piping to keep the asphalt binder flowable, add mixers to keep the binder at a uniform temperature, add odor control that meets BACT, and revise the South Coast AQMD permits to allow storage of asphalt binder in the three tanks. Up to eight new heat exchangers will need to be installed. Piping modifications will consist of new piping from the No. 52 Vacuum Unit to transfer residuum to the modified storage tanks for blending with gas oil, new piping to circulate the asphalt while warming, and new piping from the modified storage tanks to the asphalt sales rack.

(3) FFHDS Unit Modifications: The FFHDS will be modified by replacing the existing steam-driven recycle compressor with a new electric-driven recycle compressor, changing vessel internals, and reconfiguring up to two heat exchangers.

(4) Alkylation Units Modifications: The FCCU will be modified primarily in the equipment associated with the columns of the gas plant section and potentially the main fractionation column in the cracking section of the FCCU: installing up to three new heat exchangers, six new pumps, and three new vessels for caustic, and modifying trays and packing in the cracking section of the FCCU columns. The Wilmington Alkylation Modifications include upgrading the coalescing media, adding mist eliminators, replacing older piping with new piping, modifying trays and packing in the deisobutanizer and debutanizer columns, adding an economizer vessel, and replacing six pumps. The existing refrigeration compressor and motor may be modified or replaced to improve efficiency. The Carson Alkylation Modifications include either installing a new chiller unit and/or modifying the internal components or replacing the existing refrigeration compressor and turbine, installing up to three new heat exchangers, installing up to four pumps, replacing internals on up to 12 pumps, replacing two existing coalescers with new larger vessels, improving the water wash and acid neutralization capabilities, replacing the existing pressure relief valves on the acid storage vessels, and replacing the trays and packing in the depropanizer, debutanizer, and deisobutanizer columns. The Carson Operations Alky Merox Unit modifications include installing a new caustic prewash train in parallel with the existing train, and a new Alky Merox extractor train in parallel with the existing train. The Carson Operations C3 Splitter will be modified by replacing a PRV.

For further details, see Chapter 1, Section 1.4.

X. a) No Impact. The construction and operation of the proposed projects will occur within the confines of the existing Carson and Wilmington Operations. Refinery operations have occurred on these parcels for approximately 100 years. As a result, no component of the proposed projects would result in physically dividing any established communities, but will continue the use of the sites as a Refinery.

It should be noted that large industrial cranes would be required for equipment installation, including the installation of the coke drums. Some of the cranes are expected to be over 250 feet tall and would be located within the Refinery, adjacent to the Carson Coker No. 2 and adjacent to the Dominguez Channel. The cranes, which would be temporarily located within the boundaries of the Refinery in a heavy industrial area, are similar in height to the hundreds of other tall structures within the Refinery, and would be removed after construction activities are complete. Since the cranes would be within the confines of the Refinery and are temporary, they would not interfere with any public access (e.g., roads or trails).

X. b) No Impact. Land use and other planning considerations are determined by local governments. Local land uses in the vicinity of the Refinery are shown in Figure 2-1. The proposed projects will occur within the confines of the existing Refinery. All land uses in the vicinity of the proposed projects are existing industrial areas, which are zoned for heavy industrial use (see Figure 2-1). The proposed projects will be located within the confines of the existing Refinery and the proposed projects are consistent with the heavy industrial land use designation of the Refinery.

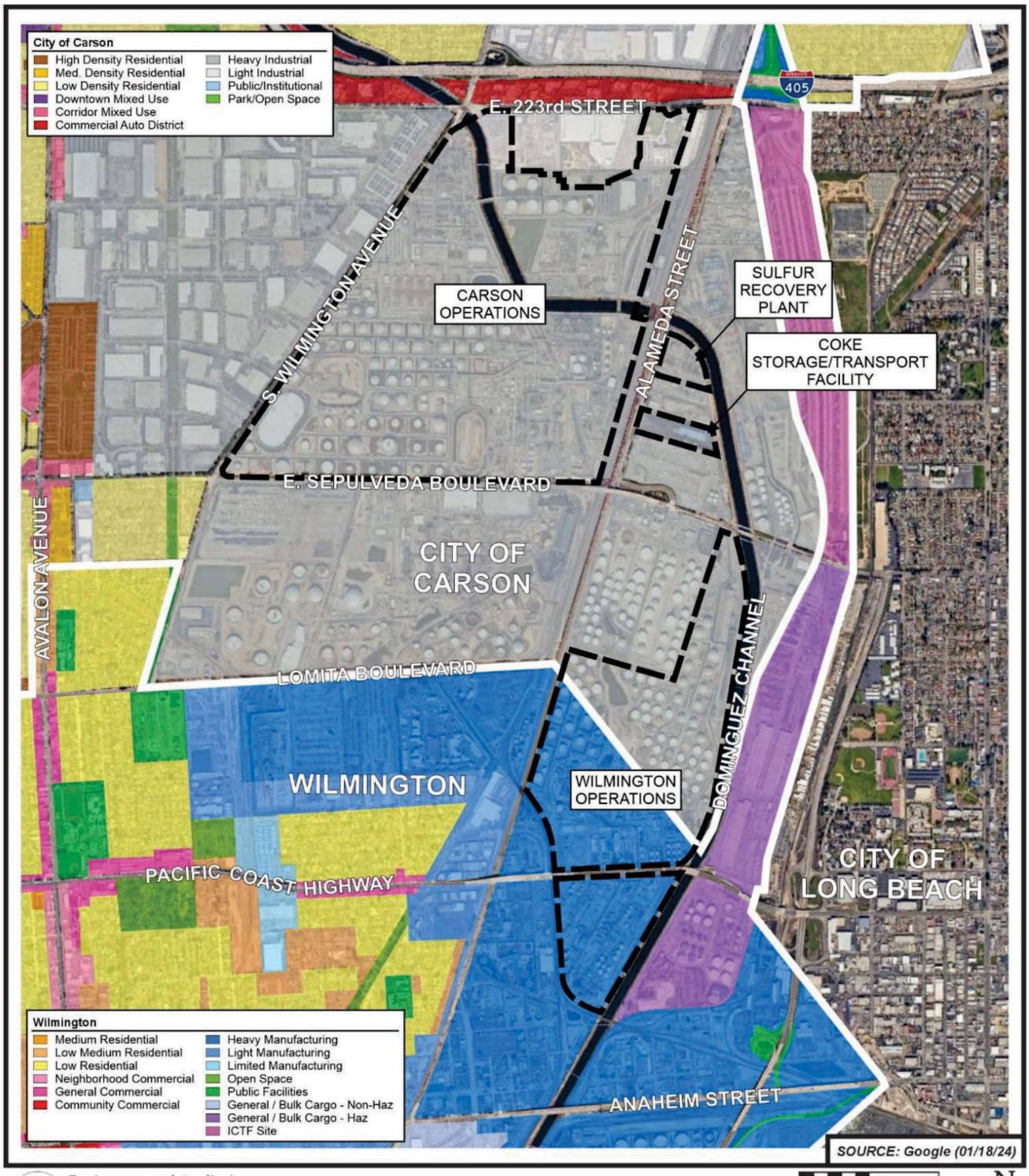


FIGURE 2-1
LAND USE MAP
MARATHON LOS ANGELES REFINERY

Project No. 3316
N:\3316\LandUseMap (2024-11).cdr

Policies and regulations adopted for industrial land uses by the local cities are limited. Policies within the City of Carson General Plan and zoning code include:

- Ensure adequate buffers and transitions between industrial and residential land uses as sites are developed or redeveloped (LUR-G-13).
- Ensure future industrial development is in harmony to the extent possible with adjacent residential areas (LUR-G-14)
- Provide lands to accommodate a wide range of light industrial uses near transportation corridors in area where low- to moderate intensity operations would be sufficiently buffered (LUR-P-21).
- Require outdoor storage associated with use/buildings to be screened from any public view (LUR-P-23).
- Require a buffer of natural vegetation, open space, berms and trees between new residential development and industrial lands (LUR-P-25)
- Support the establishment and expansion of infrastructure necessary to support the transition from fossil fuels to clean energy (LUR-P-28)
- For industrial areas that are adjacent to housing, ensure that noise traffic, glare, odors and other nuisances produced by industrial uses are contained to the extent feasible within the industrial sites (CCD-P-5)
- Coordinate with other jurisdictions and agencies on disaster preparedness regarding heavy industrial uses, including incidents related to refineries, among others (CSEP-P-25).
- Seek to reduce air quality impacts on industrial and commercial uses, like oil refineries and trucking for both mobile and stationary sources of pollution (OSEC-G-20).
- Promote sustainable practices as well as environmental remediation for heavy industrial areas and seek to reduce trucking emissions (OSEC-G-28).
- Coordinate with business and industrial community to encourage energy efficiency while supporting economic growth objectives (OSEC-P-59).
- Strengthen the City's identify as an industrial and manufacturing powerhouse while strengthening resiliency to changing economic conditions (ED-G-3).
- All lighting for buildings, landscaping, parking lots and similar facilities shall be directed away from adjoining and nearby residential property. Such lighting shall be arranged and controlled so as not to create a nuisance of hazard to traffic, or the living environment (Carson Zoning Code Section 9147.1).
- No use shall create a disturbance to the surrounding area in the form of vibration, noise, electromagnetic or other radiations, odor, dust, heat or glare (Carson Zoning Code Section 9147.2).
- Hours of operation for nonresidential activities shall be confined to the hours between 7:00 am and 9:00 pm daily for activities within 100 feet of a residential zone (Carson Zoning Code Section 9147.3).
- Article IV, Public Peace, Chapter 1, Prohibited Conduct – Offenses, Section 4101, Unnecessary Noises, of the Carson Municipal Code, controls any disturbing, excessive or

offensive noise which causes discomfort or annoyance to any reasonable person of normal sensitivity residing in the community.

Policies within the City of Los Angeles Wilmington-Harbor City Community Plan and zoning code include:

- Retain industrial lands for industrial use to maintain and expand the industrial employment base for community residents (Objective 3-2).
- No person shall construct, establish, create or maintain any stationary exterior light source that may cause more than two footcandles of lighting intensity or direct glare from the light source on residential areas. (Los Angeles Planning and Zoning Code Section 93.0117).

The Refinery complies with the above policies and requirements as it is a heavy industrial use within a heavy industrial zoned area and has been operating at this location for over 100 years. The closest residential areas are located over 500 feet from refinery operations and most are located over 1,500 feet or further. The proposed projects will be required to comply with the applicable city zoning requirements, e.g., lighting requirements. No land use or planning requirements will require modification to accommodate the proposed projects. Therefore, present or planned land uses in the region will not be affected by the proposed projects and the proposed projects are not expected to be inconsistent with land use plans, policies or requirements. Based upon these considerations, significant adverse land use planning impacts are not expected from the implementation of the proposed projects.

Conclusion

Based on the above considerations, significant adverse impacts to land use and planning are not expected to occur as a result of construction and operational activities associated with the proposed projects. Since no potentially significant adverse land use and planning impacts were identified, no further evaluation will be required in the EIR.

		Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
XI.	**MINERAL RESOURCES.** Would the project:				
a)	Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☑
b)	Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☑

Significance Criteria
Project-related impacts on mineral resources will be considered significant if any of the following conditions are met:

- The proposed projects would result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state.

- The proposed projects would result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan.

Discussion
The proposed projects are comprised of four separate proposed projects: (1) Coke Drum Replacement, (2) Asphalt Sales Rack, (3) FFHDS Unit Modifications, and (4) Alkylation Units Modifications. A brief summary of the major physical modifications is provided below:

(1) Coke Drum Replacement: The coke drums at the DCU-W at the Wilmington Operations and Coker Unit Nos. 1 and 2 at the Carson Operations will be replaced with new coke drums that are of the same size and capacity. Specialty construction equipment (e.g., large cranes, transport vehicles) will be used at each unit chronologically in the order listed. The cutting deck will be removed to allow access to the coke drums and will be reinstalled following the coke drum replacement. The existing piping to the existing coke drums will be disconnected, replaced as necessary, and reinstalled once the new coke drums have been installed. Seismic upgrades, such as reinforcement of the structure, as required by the current building code will be made to the structures that house the coke drums.

(2) Asphalt Sales Rack: The asphalt sales rack will replace an existing storage building that will be removed, and will include installation of a new truck loading system with up to four truck stations which include truck loading arms, pumps, and piping; odor control equipment such as

carbon canisters; and metering equipment. Modifications to up to three existing storage tanks at the Carson Operations will be made to add heat to the storage tanks and piping to keep the asphalt binder flowable, add mixers to keep the binder at a uniform temperature, add odor control that meets BACT, and revise the South Coast AQMD permits to allow storage of asphalt binder in the three tanks. Up to eight new heat exchangers will need to be installed. Piping modifications will consist of new piping from the No. 52 Vacuum Unit to transfer residuum to the modified storage tanks for blending with gas oil, new piping to circulate the asphalt while warming, and new piping from the modified storage tanks to the asphalt sales rack.

(3) FFHDS Unit Modifications: The FFHDS will be modified by replacing the existing steam-driven recycle compressor with a new electric-driven recycle compressor, changing vessel internals, and reconfiguring up to two heat exchangers.

(4) Alkylation Units Modifications: The FCCU will be modified primarily in the equipment associated with the columns of the gas plant section and potentially the main fractionation column in the cracking section of the FCCU: installing up to three new heat exchangers, six new pumps, and three new vessels for caustic, and modifying trays and packing in the cracking section of the FCCU columns. The Wilmington Alkylation Modifications include upgrading the coalescing media, adding mist eliminators, replacing older piping with new piping, modifying trays and packing in the deisobutanizer and debutanizer columns, adding an economizer vessel, and replacing six pumps. The existing refrigeration compressor and motor may be modified or replaced to improve efficiency. The Carson Alkylation Modifications include either installing a new chiller unit and/or modifying the internal components or replacing the existing refrigeration compressor and turbine, installing up to three new heat exchangers, installing up to four pumps, replacing internals on up to 12 pumps, replacing two existing coalescers with new larger vessels, improving the water wash and acid neutralization capabilities, replacing the existing pressure relief valves on the acid storage vessels, and replacing the trays and packing in the depropanizer, debutanizer, and deisobutanizer columns. The Carson Operations Alky Merox Unit modifications include installing a new caustic prewash train in parallel with the existing train, and a new Alky Merox extractor train in parallel with the existing train. The Carson Operations C3 Splitter will be modified by replacing a PRV.

For further details, see Chapter 1, Section 1.4.

XI. a) and b) No Impact. Construction and operation of the proposed projects would occur entirely within the boundaries of the existing Refinery all of which are zoned heavy industrial (see Figure 2-1). The California Department of Conservation, Geologic Energy Management Division (CalGEM) (formerly, the Division of Oil, Gas, and Geothermal Resources (DOGGR)) keeps records of oil wells and oil fields in California. According to the CalGEM online data (https://www.conservation.ca.gov/calgem/Pages/WellFinder.aspx), there are no active oil wells located within the Refinery. The nearest oil and gas wells are located adjacent to the southwestern property line and appear to be within the Wilmington Oil Field. Thus, the proposed projects would not affect the availability of known mineral resources.

There are no provisions of the proposed projects that would result in the loss of availability of a known mineral resource of value to the region and the residents of the State of California, 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.

Conclusion

Based on the above considerations, significant adverse impacts to mineral resources are not expected to occur as a result of construction and operational activities associated with the proposed projects. Since no potentially significant adverse mineral resources impacts were identified, no further evaluation will be required in the EIR.

	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
XII. NOISE. Would the project result in:				
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☑	☐	☐	☐
b) Generation of excessive groundborne vibration or groundborne noise levels?	☑	☐	☐	☐
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☑

Significance Criteria
Noise impacts will be considered significant if:

- Construction noise levels exceed the local noise ordinances or, if the noise threshold is currently exceeded, project noise sources increase ambient noise levels by more than three 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 projects 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.

Discussion
The proposed projects are comprised of four separate proposed projects: (1) Coke Drum Replacement, (2) Asphalt Sales Rack, (3) FFHDS Unit Modifications, and (4) Alkylation Units Modifications. A brief summary of the major physical modifications is provided below:

(1) Coke Drum Replacement: The coke drums at the DCU-W at the Wilmington Operations and Coker Unit Nos. 1 and 2 at the Carson Operations will be replaced with new coke drums that are of the same size and capacity. Specialty construction equipment (e.g., large cranes, transport vehicles) will be used at each unit chronologically in the order listed. The cutting deck will be removed to allow access to the coke drums and will be reinstalled following the coke drum replacement. The existing piping to the existing coke drums will be disconnected, replaced as

necessary, and reinstalled once the new coke drums have been installed. Seismic upgrades, such as reinforcement of the structure, as required by the current building code will be made to the structures that house the coke drums.

(2) Asphalt Sales Rack: The asphalt sales rack will replace an existing storage building that will be removed, and will include installation of a new truck loading system with up to four truck stations which include truck loading arms, pumps, and piping; odor control equipment such as carbon canisters; and metering equipment. Modifications to up to three existing storage tanks at the Carson Operations will be made to add heat to the storage tanks and piping to keep the asphalt binder flowable, add mixers to keep the binder at a uniform temperature, add odor control that meets BACT, and revise the South Coast AQMD permits to allow storage of asphalt binder in the three tanks. Up to eight new heat exchangers will need to be installed. Piping modifications will consist of new piping from the No. 52 Vacuum Unit to transfer residuum to the modified storage tanks for blending with gas oil, new piping to circulate the asphalt while warming, and new piping from the modified storage tanks to the asphalt sales rack.

(3) FFHDS Unit Modifications: The FFHDS will be modified by replacing the existing steam-driven recycle compressor with a new electric-driven recycle compressor, changing vessel internals, and reconfiguring up to two heat exchangers.

(4) Alkylation Units Modifications: The FCCU will be modified primarily in the equipment associated with the columns of the gas plant section and potentially the main fractionation column in the cracking section of the FCCU: installing up to three new heat exchangers, six new pumps, and three new vessels for caustic, and modifying trays and packing in the cracking section of the FCCU columns. The Wilmington Alkylation Modifications include upgrading the coalescing media, adding mist eliminators, replacing older piping with new piping, modifying trays and packing in the deisobutanizer and debutanizer columns, adding an economizer vessel, and replacing six pumps. The existing refrigeration compressor and motor may be modified or replaced to improve efficiency. The Carson Alkylation Modifications include either installing a new chiller unit and/or modifying the internal components or replacing the existing refrigeration compressor and turbine, installing up to three new heat exchangers, installing up to four pumps, replacing internals on up to 12 pumps, replacing two existing coalescers with new larger vessels, improving the water wash and acid neutralization capabilities, replacing the existing pressure relief valves on the acid storage vessels, and replacing the trays and packing in the depropanizer, debutanizer, and deisobutanizer columns. The Carson Operations Alky Merox Unit modifications include installing a new caustic prewash train in parallel with the existing train, and a new Alky Merox extractor train in parallel with the existing train. The Carson Operations C3 Splitter will be modified by replacing a PRV.

For further details, see Chapter 1, Section 1.4.

XII. a) and b) Potentially Significant Impact. The existing noise environment at the Refinery is dominated by industrial equipment, other heavy industrial activities (e.g., intermodal container facilities, truck/container parking facilities, port-related activities, traffic on adjacent streets and freeways, as well as rail traffic (e.g., the Alameda Corridor). Construction activities for the proposed projects are expected to generate noise associated with the use of heavy construction

equipment and construction-related traffic. The types of construction equipment that will be used at the Refinery include, but are not limited to, welding machines, trucks, cranes, compressors, loaders, concrete pumps, graders, pavers, and man and boom lifts. The estimated noise level during installation of various equipment is expected to average about 80 dBA at 50 feet from the center of construction activity. Most of the construction noise sources will be located at or near ground level, so the noise levels are expected to attenuate over distance. In general, the anticipated construction activities are scheduled to take place primarily during daylight hours. However, when daylight hours are limited (i.e., winter months), or during Refinery turnarounds (when construction activities could occur for 24 hours per day), construction activities may occur at night. Therefore, the potential construction noise impacts may be significant and will be evaluated in the EIR, including the potential to generate construction noise in excess of noise ordinances/standards or other regulations.

Once construction is completed, the proposed projects are not expected to result in a change in the noise environment or an increase in noise generating equipment. The main component of the proposed projects is the replacement of the coke drums at the DCU-W, Coker No. 1, and Coker No. 2. The existing coke drums are some of the largest and most prominent Refinery structures and range up to approximately 250 feet in height. The replacement coke drums will essentially be the same size and operate in the same manner with the same noise profile as the existing coke drums. The portion of the proposed projects which seek to replace the coke drums would not add any other new equipment to the Delayed Coking Unit or to the Coker Units. Therefore, once construction activities are complete, the noise associated with these units is expected to remain unchanged.

Modifications associated with the other Refinery units, including the Alkylation Units and FCCU at both the Carson and Wilmington Operations, the modifications to the FFHDS Unit at the Carson Operations; and the operation of a new Asphalt Sales Rack, are expected to consist of piping modifications, replacement of existing equipment, new heat exchangers, new fugitive components, and other similar modifications. These modifications would occur at ground level, within existing Refinery units, and would not include equipment that would generate noise, e.g., fugitive components and heat exchangers are not sources of noise. These modifications do not involve equipment that is expected to result in substantial increases to existing noise levels, because the same basic process will continue to occur. Heat exchangers have no moving parts thus eliminating them as a substantial noise source. The noise sources and noise levels would be similar to noise from existing equipment within the existing Carson and Wilmington Operations. Therefore, noise associated with operations at the Refinery are not expected to increase and no significant adverse noise impacts are expected.

Following completion of the construction activities, truck traffic is expected to increase from the proposed projects by six to seven trucks an hour or 150-160 during per day associated with the asphalt trucks. The Asphalt Truck Rack will contain four truck loading spots, so a maximum of four trucks at a time could be handled at the truck rack. The truck rack will be located in the middle of the Refinery (see Figure 1-5) with the closest resident approximately one mile away. The Refinery is surrounded by major arterials that carry large volumes of traffic including Wilmington Avenue, Sepulveda Boulevard, Alameda Street/Alameda Corridor, 223rd Street, and the 405 Freeway to the north. Since noise is measured on a logarithmic scale, a doubling of traffic volumes

(i.e., 100 percent increase) would be needed to cause a traffic noise-related increase of 3 dBA. A traffic increase of about 42 percent must occur to result in a noise level increase of about 1.5 dBA. Thus, if the project does not double traffic on the local roads or freeways, then it follows that the project will not result in a perceptible increase in noise (FTA, 2018). Noise associated with the operation of the asphalt truck rack in the general area would be expected to remain largely unchanged.

The Asphalt Sales Rack is expected to generate six to seven trucks per hour. The trucks will use the designated truck routes currently used in the vicinity of the Refinery, which are heavily traveled by trucks (i.e., the Alameda Corridor and Sepulveda Boulevard) to access the freeways in the area. Hourly traffic volumes along these roadways near the Carson Operations ranges from 1,447 vehicles on Alameda Street to 3,437 vehicles on Wilmington Avenue (City of Carson, 2022). Since the projects would only generate six to seven trucks per hour, noise generated by the additional truck traffic is not anticipated to be discernable from the existing truck traffic in the area.

XII. c) No Impact. The Refinery is not located within two miles of an airport land use plan, and the proposed projects would not expose people residing or working in the project areas to excessive noise levels associated with airplanes.

Conclusion

Based on the above considerations, potentially significant adverse impacts to noise are expected to occur as a result of construction activities associated with the proposed projects. Since potentially significant adverse construction noise impacts were identified, those impacts will be further evaluated in the EIR. The noise impacts associated with operational activities are expected to remain unchanged, will not result in significant impacts and will not be further evaluated in the EIR.

		Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
XIII.	**POPULATION AND HOUSING.** Would the project:				
a)	Induce substantial growth in an area either directly (for example, by proposing new homes and businesses) or indirectly (e.g. through extension of roads or other infrastructure)?	☐	☐	☐	☑
b)	Displace substantial numbers of people or existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☑

Significance Criteria

The impacts of the proposed projects on population and housing will be considered significant if the following criteria are exceeded:

- The demand for temporary or permanent housing exceeds the existing supply.
- The proposed projects produce additional population, housing or employment inconsistent with adopted plans either in terms of overall amount or location.

Discussion

The proposed projects are comprised of four separate proposed projects: (1) Coke Drum Replacement, (2) Asphalt Sales Rack, (3) FFHDS Unit Modifications, and (4) Alkylation Units Modifications. A brief summary of the major physical modifications is provided below:

(1) Coke Drum Replacement: The coke drums at the DCU-W at the Wilmington Operations and Coker Unit Nos. 1 and 2 at the Carson Operations will be replaced with new coke drums that are of the same size and capacity. Specialty construction equipment (e.g., large cranes, transport vehicles) will be used at each unit chronologically in the order listed. The cutting deck will be removed to allow access to the coke drums and will be reinstalled following the coke drum replacement. The existing piping to the existing coke drums will be disconnected, replaced as necessary, and reinstalled once the new coke drums have been installed. Seismic upgrades, such as reinforcement of the structure, as required by the current building code will be made to the structures that house the coke drums.

(2) Asphalt Sales Rack: The asphalt sales rack will replace an existing storage building that will be removed, and will include installation of a new truck loading system with up to four truck stations which include truck loading arms, pumps, and piping; odor control equipment such as carbon canisters; and metering equipment. Modifications to up to three existing storage tanks at the Carson Operations will be made to add heat to the storage tanks and piping to keep the asphalt binder flowable, add mixers to keep the binder at a uniform temperature, add odor control that

meets BACT, and revise the South Coast AQMD permits to allow storage of asphalt binder in the three tanks. Up to eight new heat exchangers will need to be installed. Piping modifications will consist of new piping from the No. 52 Vacuum Unit to transfer residuum to the modified storage tanks for blending with gas oil, new piping to circulate the asphalt while warming, and new piping from the modified storage tanks to the asphalt sales rack.

(3) FFHDS Unit Modifications: The FFHDS will be modified by replacing the existing steam-driven recycle compressor with a new electric-driven recycle compressor, changing vessel internals, and reconfiguring up to two heat exchangers.

(4) Alkylation Units Modifications: The FCCU will be modified primarily in the equipment associated with the columns of the gas plant section and potentially the main fractionation column in the cracking section of the FCCU: installing up to three new heat exchangers, six new pumps, and three new vessels for caustic, and modifying trays and packing in the cracking section of the FCCU columns. The Wilmington Alkylation Modifications include upgrading the coalescing media, adding mist eliminators, replacing older piping with new piping, modifying trays and packing in the deisobutanizer and debutanizer columns, adding an economizer vessel, and replacing six pumps. The existing refrigeration compressor and motor may be modified or replaced to improve efficiency. The Carson Alkylation Modifications include either installing a new chiller unit and/or modifying the internal components or replacing the existing refrigeration compressor and turbine, installing up to three new heat exchangers, installing up to four pumps, replacing internals on up to 12 pumps, replacing two existing coalescers with new larger vessels, improving the water wash and acid neutralization capabilities, replacing the existing pressure relief valves on the acid storage vessels, and replacing the trays and packing in the depropanizer, debutanizer, and deisobutanizer columns. The Carson Operations Alky Merox Unit modifications include installing a new caustic prewash train in parallel with the existing train, and a new Alky Merox extractor train in parallel with the existing train. The Carson Operations C3 Splitter will be modified by replacing a PRV.

For further details, see Chapter 1, Section 1.4.

XIII. a) No Impact. Construction and operational activities associated with the proposed projects are not expected to involve the relocation of individuals, impact housing, or commercial facilities, or change the distribution of the population, because the proposed project will occur completely within existing industrial facilities and no housing is located within the industrial areas. An estimated 35-550 construction workers are expected to be needed during construction activities, depending on which of the proposed projects are being implemented, the stage of construction, and whether there is overlap in construction activities associated with the four independent projects. The removal of the old coke drums and installation of the new coke drums are expected to require the most time and the largest number of construction workers. For example, the Coke Drum replacement projects are expected to take approximately three years each over a ten-year period to complete and will overlap with other construction projects, with the largest number of construction workers during the turnaround periods. The other independent projects are not expected to require substantial time, construction activities, or workers (as shown in Figure 1-7). Most of the workers are expected to come from the large labor pool in southern California. Construction activities are temporary and the construction workers would move on when project

construction activities are completed and would not be expected to require additional permanent housing in the Carson/Wilmington area.

Up to five percent of temporary construction workers may come from outside of southern California because they have specialist skills. For example, the owners of the large specialized crane that will be used to remove the old coke drums and install the new coke drums are expected to bring their own operators, as they would be trained in the specific use of the specialized equipment. These employees would be temporary and likely stay in southern California for a limited period. As the workers are temporary, they would not require permanent housing but would be expected to stay in long-term hotels.

No increase in the permanent number of workers at the Refinery is expected following the construction phase. Human population within the jurisdiction of the South Coast AQMD is anticipated to grow regardless of implementing the proposed projects. Carson's population in 2020 was 93,100. Carson is projecting an increase in population to an estimated 136,600 by 2040 (estimated 46.7 percent increase in growth over the 20-year period) (Carson, 2022). As a result, the proposed projects are not anticipated to generate any significant adverse effects, either direct or indirect, on population growth or distribution within the district. Further the proposed projects would not result in any increase in infrastructure (e.g., roads or other infrastructure) that would allow additional population growth that is not currently anticipated.

XIII. b) No Impact. The proposed projects are located within the confines of the Refinery and in a heavy industrial area. As a result, the proposed projects would not displace any housing, affect population growth, or require the displacement of people or housing. Therefore, the proposed projects would have no significant impact on population and housing.

Conclusion
Based on the above considerations, significant adverse impacts to population and housing are not expected to occur as a result of construction and operational activities associated with the proposed projects. Since no potentially significant adverse population and housing impacts were identified, no further evaluation will be required in the EIR.

	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
XIV. PUBLIC SERVICES. Would the proposal result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered government facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the following public services:				
a) Fire protection?	☐	☐	☐	☑
b) Police protection?	☐	☐	☐	☑
c) Schools?	☐	☐	☐	☑
d) Parks?	☐	☐	☐	☑
e) Other public facilities?	☐	☐	☐	☑

Significance Criteria

Impacts on public services will be considered significant if the projects result in substantial adverse physical impacts associated with the provision of new or physically altered government facilities, or the need for new or physically altered government facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response time or other performance objectives.

Discussion

The proposed projects are comprised of four separate proposed projects: (1) Coke Drum Replacement, (2) Asphalt Sales Rack, (3) FFHDS Unit Modifications, and (4) Alkylation Units Modifications. A brief summary of the major physical modifications is provided below:

(1) Coke Drum Replacement: The coke drums at the DCU-W at the Wilmington Operations and Coker Unit Nos. 1 and 2 at the Carson Operations will be replaced with new coke drums that are of the same size and capacity. Specialty construction equipment (e.g., large cranes, transport vehicles) will be used at each unit chronologically in the order listed. The cutting deck will be removed to allow access to the coke drums and will be reinstalled following the coke drum replacement. The existing piping to the existing coke drums will be disconnected, replaced as necessary, and reinstalled once the new coke drums have been installed. Seismic upgrades, such as reinforcement of the structure, as required by the current building code will be made to the structures that house the coke drums.

(2) Asphalt Sales Rack: The asphalt sales rack will replace an existing storage building that will be removed, and will include installation of a new truck loading system with up to four truck

stations which include truck loading arms, pumps, and piping; odor control equipment such as carbon canisters; and metering equipment. Modifications to up to three existing storage tanks at the Carson Operations will be made to add heat to the storage tanks and piping to keep the asphalt binder flowable, add mixers to keep the binder at a uniform temperature, add odor control that meets BACT, and revise the South Coast AQMD permits to allow storage of asphalt binder in the three tanks. Up to eight new heat exchangers will need to be installed. Piping modifications will consist of new piping from the No. 52 Vacuum Unit to transfer residuum to the modified storage tanks for blending with gas oil, new piping to circulate the asphalt while warming, and new piping from the modified storage tanks to the asphalt sales rack.

(3) FFHDS Unit Modifications: The FFHDS will be modified by replacing the existing steam-driven recycle compressor with a new electric-driven recycle compressor, changing vessel internals, and reconfiguring up to two heat exchangers.

(4) Alkylation Units Modifications: The FCCU will be modified primarily in the equipment associated with the columns of the gas plant section and potentially the main fractionation column in the cracking section of the FCCU: installing up to three new heat exchangers, six new pumps, and three new vessels for caustic, and modifying trays and packing in the cracking section of the FCCU columns. The Wilmington Alkylation Modifications include upgrading the coalescing media, adding mist eliminators, replacing older piping with new piping, modifying trays and packing in the deisobutanizer and debutanizer columns, adding an economizer vessel, and replacing six pumps. The existing refrigeration compressor and motor may be modified or replaced to improve efficiency. The Carson Alkylation Modifications include either installing a new chiller unit and/or modifying the internal components or replacing the existing refrigeration compressor and turbine, installing up to three new heat exchangers, installing up to four pumps, replacing internals on up to 12 pumps, replacing two existing coalescers with new larger vessels, improving the water wash and acid neutralization capabilities, replacing the existing pressure relief valves on the acid storage vessels, and replacing the trays and packing in the depropanizer, debutanizer, and deisobutanizer columns. The Carson Operations Alky Merox Unit modifications include installing a new caustic prewash train in parallel with the existing train, and a new Alky Merox extractor train in parallel with the existing train. The Carson Operations C3 Splitter will be modified by replacing a PRV.

For further details, see Chapter 1, Section 1.4.

XIV. a) No Impact. To respond to emergency situations, both the Carson and Wilmington Operations maintain on-site fire departments, which are supplemented by the resources of public fire departments. Both Operations are supported by the Los Angeles County Fire Department (LACFD) and City of Los Angeles Fire Department (City Fire). There are four LACFD stations (all located within the City of Carson) and one City Fire station in Wilmington that serve the Refinery and adjacent areas. The station number and address of each of these five stations are provided in the following bullet points:

- LACFD Station 10 located at 1860 E. Del Amo Boulevard;
- LACFD Station 36 located at 223rd Street;

- LACFD Station 116 located at 755 E. Victoria Street;
- LACFD Station 127 located at 2049 E. 223rd Street; and
- City Fire Station 38 located at 124 East "I" Street.

The City of Carson reports that the LACFD follows national guidelines that require a five-minute response time for first-arriving fire and emergency medical services and eight minutes for paramedic units in urban areas. In 2020, the average response time for fire and emergency calls in the City of Carson Planning Area was 4:55 minutes, which meets the target response time (City of Carson, 2022).

During construction, safeguards will be in place to monitor and prevent hazards associated with construction activities. For example, hot work permits are required when certain types of equipment are used, e.g., welders. These permits identify the areas when and where such equipment will be used, requires monitoring for hazards by utilizing equipment specially designed to detect sources of flammable gases and vapors, includes written procedures for their proper use, requires that workers have specific training, and authorizes that proper equipment used on-site will be in place. These safety features are designed to minimize potential accidental fire hazards, thus, construction activities are not expected to result in an increased need for fire response services or affect service ratios or other performance objectives.

Both Carson and Wilmington Operations maintain their own fully trained 24-hour emergency response teams, fire-fighting equipment including fire engines and foam pumper trucks or trailers, and manual and automatic fire suppression systems for flammable and combustible materials. Further, Refinery staff are trained in accordance with industry standards, and on-site fire training exercises with the LACFD and City Fire staff are routinely conducted. The fact that Tesoro has its own fire-fighting equipment and trained staff minimizes the need for additional fire protection services with from local fire agencies.

Both the Carson and Wilmington Operations are surrounded by fences and access onto the property is restricted to specified gates. Fire-fighting and emergency response personnel and equipment will continue to be maintained and operated at the Refinery. Close coordination with local fire departments and emergency services will continue to be maintained. The proposed project would not change the refining operations and is not expected to change the fire risks in a manner that would increase the need or demand for additional services from the local fire department above current levels. This is because onsite firefighting and emergency response capabilities and personnel will continue to be maintained at the Refinery so that public services are not impacted on a routine basis, allowing the public firefighting services to be able to continue to respond to potential emergencies, while maintaining acceptable service ratios, response times, or other performance objectives. As a result, no new or modified public fire protection facilities would be needed in response to the proposed project.

XIV. b) No Impact. The Los Angeles City Police Department and the Los Angeles County Sheriff's Department are the responding agencies for law enforcement needs in the vicinity of the Carson and Wilmington Operations. Because the sheriff and police departments typically have units that are in the field, response times to the Refinery currently vary depending on the location

of the nearest unit. The Los Angeles County Sheriff's Department has service response time standards of 10 minutes for emergency calls, 20 minutes for priority calls and 60 minutes for routine calls. For the Los Angeles County Sheriff's Department Carson Station, response times averaged 3.9 minutes for emergency calls, 7.1 minutes for priority calls, and 26.2 minutes for routine calls, exceeding response time standards (City of Carson, 2022).

The existing Carson and Wilmington Operations have security departments that provide 24-hour protective services for people and property within the fenced boundaries of each facility. As part of their regular duties, the security departments will monitor construction activities associated with the proposed projects since construction will occur within the confines of the Carson and Wilmington Operations' boundaries. Along with the existing work force, entry and exit of the construction work force onto Refinery property would be similarly monitored. Once construction is completed, the proposed projects would result in no changes to Refinery staffing within the security department compared to staffing at the existing Operations. Thus, no additional or altered police protection facilities would be required for the proposed projects.

XIV. c), d) and e) No Impact. As noted in the previous "Population and Housing" (Section XIII.) discussion, the proposed projects are not expected to induce population growth in any way, because the local labor pool (e.g., workforce) is expected to be sufficient to accommodate most of the construction activities; however, up to five percent of temporary construction workers may come from outside of southern California for short periods of time because they have specialist skills, e.g., crane operators. Therefore, during the construction phase, there would be no increase in the local population, so no adverse impacts would be expected to local schools or other public facilities. Similarly, once the proposed projects become operational, the Refinery is not expected to require additional permanent staffing to operate the modified equipment, so an increase in the local population that could adversely affect local schools or other public facilities is not expected.

Permits for the proposed project would include air permits from the South Coast AQMD, building permits from the City of Los Angeles and City of Carson, potentially approvals for the removal of hazardous materials by DTSC, and oversized haul permits for the delivery of the coke drums from Caltrans. Permits from other agencies are expected to be ministerial. Permitting agencies are currently equipped with the resources necessary to provide permits and environmental review of the proposed projects. Thus, the proposed projects would not result in the need for new or physically altered government facilities in order to maintain acceptable service ratios, response times, or other performance objectives. There would be no increase in population and, therefore, there would be no need for physically altered government facilities.

Conclusion

Based on the above considerations, significant adverse impacts to public services that could adversely affect acceptable service ratios, response times, or other performance objectives are not expected to occur as a result of construction and operational of the proposed projects. Since no potentially significant adverse public services impacts were identified, no further evaluation will be required in the EIR.

		Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
XV.	**RECREATION.**				
a)	Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☑
b)	Does the project include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	☐	☐	☐	☑

Significance Criteria
The impacts to recreation will be considered significant if:

- The projects result in an increased demand for neighborhood or regional parks or other recreational facilities.

- The projects adversely affect existing recreational opportunities.

Discussion
The proposed projects are comprised of four separate proposed projects: (1) Coke Drum Replacement, (2) Asphalt Sales Rack, (3) FFHDS Unit Modifications, and (4) Alkylation Units Modifications. A brief summary of the major physical modifications is provided below:

(1) Coke Drum Replacement: The coke drums at the DCU-W at the Wilmington Operations and Coker Unit Nos. 1 and 2 at the Carson Operations will be replaced with new coke drums that are of the same size and capacity. Specialty construction equipment (e.g., large cranes, transport vehicles) will be used at each unit chronologically in the order listed. The cutting deck will be removed to allow access to the coke drums and will be reinstalled following the coke drum replacement. The existing piping to the existing coke drums will be disconnected, replaced as necessary, and reinstalled once the new coke drums have been installed. Seismic upgrades, such as reinforcement of the structure, as required by the current building code will be made to the structures that house the coke drums.

(2) Asphalt Sales Rack: The asphalt sales rack will replace an existing storage building that will be removed, and will include installation of a new truck loading system with up to four truck stations which include truck loading arms, pumps, and piping; odor control equipment such as carbon canisters; and metering equipment. Modifications to up to three existing storage tanks at the Carson Operations will be made to add heat to the storage tanks and piping to keep the asphalt binder flowable, add mixers to keep the binder at a uniform temperature, add odor control that

meets BACT, and revise the South Coast AQMD permits to allow storage of asphalt binder in the three tanks. Up to eight new heat exchangers will need to be installed. Piping modifications will consist of new piping from the No. 52 Vacuum Unit to transfer residuum to the modified storage tanks for blending with gas oil, new piping to circulate the asphalt while warming, and new piping from the modified storage tanks to the asphalt sales rack.

(3) FFHDS Unit Modifications: The FFHDS will be modified by replacing the existing steam-driven recycle compressor with a new electric-driven recycle compressor, changing vessel internals, and reconfiguring up to two heat exchangers.

(4) Alkylation Units Modifications: The FCCU will be modified primarily in the equipment associated with the columns of the gas plant section and potentially the main fractionation column in the cracking section of the FCCU: installing up to three new heat exchangers, six new pumps, and three new vessels for caustic, and modifying trays and packing in the cracking section of the FCCU columns. The Wilmington Alkylation Modifications include upgrading the coalescing media, adding mist eliminators, replacing older piping with new piping, modifying trays and packing in the deisobutanizer and debutanizer columns, adding an economizer vessel, and replacing six pumps. The existing refrigeration compressor and motor may be modified or replaced to improve efficiency. The Carson Alkylation Modifications include either installing a new chiller unit and/or modifying the internal components or replacing the existing refrigeration compressor and turbine, installing up to three new heat exchangers, installing up to four pumps, replacing internals on up to 12 pumps, replacing two existing coalescers with new larger vessels, improving the water wash and acid neutralization capabilities, replacing the existing pressure relief valves on the acid storage vessels, and replacing the trays and packing in the depropanizer, debutanizer, and deisobutanizer columns. The Carson Operations Alky Merox Unit modifications include installing a new caustic prewash train in parallel with the existing train, and a new Alky Merox extractor train in parallel with the existing train. The Carson Operations C3 Splitter will be modified by replacing a PRV.

For further details, see Chapter 1, Section 1.4.

XV. a) and b) No Impact. Parks in the vicinity of the Carson and Wilmington Operations include Silverado, Hudson, and Admiral Kidd Parks in Long Beach; East Wilmington Vest Pocket, East Wilmington Greenbelt, and Banning Parks in Wilmington; and Calas and Friendship Mini-Park in Carson.

As previously noted in the "Population and Housing" (Section XIII.) discussion, the existing labor pool in southern California is sufficient to fulfill the labor requirements for the construction of the proposed projects. The operation of the proposed projects would not require additional permanent workers to be hired at the Refinery and, therefore, there would be no changes in population densities or distribution resulting from the proposed projects and, thus, no increase in the use of existing neighborhood and regional parks or other recreational facilities is expected.

As previously noted in the "Land Use and Planning" (Section X.) discussion, the proposed project does not require any changes to any applicable land use plans, polices, or regulations that could lead to population growth and, in turn, recreational impacts.

Because the proposed projects are limited to the confines of the existing industrial facilities and will not result in additional employees during operation, the proposed projects would not increase the demand for or use of existing neighborhood and regional parks or other recreational facilities. Further, the proposed project would not require the construction of new or expansion of existing recreational facilities that might have an adverse physical effect on the environment, because it would not directly or indirectly increase or redistribute population.

Conclusion

Based upon the above considerations, significant adverse impacts to recreation are not expected to occur as a result of construction and operational activities of the proposed projects. Since no potentially significant adverse recreation impacts were identified, no further evaluation will be required in the EIR.

	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
XVI. SOLID AND HAZARDOUS WASTE. Would the project:				
a) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☑	☐
b) Comply with federal, state, and local management and reduction statutes and regulations related to solid and hazardous waste?	☐	☐	☐	☑

Significance Criteria

The proposed projects impact on solid and hazardous waste will be considered significant if the following occurs:

- The generation and disposal of hazardous and non-hazardous waste exceeds the capacity of designated landfills.

Discussion

The proposed projects are comprised of four separate proposed projects: (1) Coke Drum Replacement, (2) Asphalt Sales Rack, (3) FFHDS Unit Modifications, and (4) Alkylation Units Modifications. A brief summary of the major physical modifications is provided below:

(1) Coke Drum Replacement: The coke drums at the DCU-W at the Wilmington Operations and Coker Unit Nos. 1 and 2 at the Carson Operations will be replaced with new coke drums that are of the same size and capacity. Specialty construction equipment (e.g., large cranes, transport vehicles) will be used at each unit chronologically in the order listed. The cutting deck will be removed to allow access to the coke drums and will be reinstalled following the coke drum replacement. The existing piping to the existing coke drums will be disconnected, replaced as necessary, and reinstalled once the new coke drums have been installed. Seismic upgrades, such as reinforcement of the structure, as required by the current building code will be made to the structures that house the coke drums.

(2) Asphalt Sales Rack: The asphalt sales rack will replace an existing storage building that will be removed, and will include installation of a new truck loading system with up to four truck stations which include truck loading arms, pumps, and piping; odor control equipment such as carbon canisters; and metering equipment. Modifications to up to three existing storage tanks at the Carson Operations will be made to add heat to the storage tanks and piping to keep the asphalt binder flowable, add mixers to keep the binder at a uniform temperature, add odor control that meets BACT, and revise the South Coast AQMD permits to allow storage of asphalt binder in the three tanks. Up to eight new heat exchangers will need to be installed. Piping modifications will

consist of new piping from the No. 52 Vacuum Unit to transfer residuum to the modified storage tanks for blending with gas oil, new piping to circulate the asphalt while warming, and new piping from the modified storage tanks to the asphalt sales rack.

(3) FFHDS Unit Modifications: The FFHDS will be modified by replacing the existing steam-driven recycle compressor with a new electric-driven recycle compressor, changing vessel internals, and reconfiguring up to two heat exchangers.

(4) Alkylation Units Modifications: The FCCU will be modified primarily in the equipment associated with the columns of the gas plant section and potentially the main fractionation column in the cracking section of the FCCU: installing up to three new heat exchangers, six new pumps, and three new vessels for caustic, and modifying trays and packing in the cracking section of the FCCU columns. The Wilmington Alkylation Modifications include upgrading the coalescing media, adding mist eliminators, replacing older piping with new piping, modifying trays and packing in the deisobutanizer and debutanizer columns, adding an economizer vessel, and replacing six pumps. The existing refrigeration compressor and motor may be modified or replaced to improve efficiency. The Carson Alkylation Modifications include either installing a new chiller unit and/or modifying the internal components or replacing the existing refrigeration compressor and turbine, installing up to three new heat exchangers, installing up to four pumps, replacing internals on up to 12 pumps, replacing two existing coalescers with new larger vessels, improving the water wash and acid neutralization capabilities, replacing the existing pressure relief valves on the acid storage vessels, and replacing the trays and packing in the depropanizer, debutanizer, and deisobutanizer columns. The Carson Operations Alky Merox Unit modifications include installing a new caustic prewash train in parallel with the existing train, and a new Alky Merox extractor train in parallel with the existing train. The Carson Operations C3 Splitter will be modified by replacing a PRV.

For further details, see Chapter 1, Section 1.4.

XVI. a) Less Than Significant Impact. Construction activities associated with the proposed projects will generate solid waste and potentially hazardous waste that will need to be handled and disposed or recycled.

Demolition activities are expected to generate waste from the removal of the existing equipment that is proposed to be replaced, e.g., coke drums and the storage warehouse at the new Asphalt Sales Rack location. The coke drums are large pieces of metal equipment that are expected to be dismantled and recycled at a third-party recycling facility for metal content and are not expected to be disposed or impact landfills.

Excavation of soil may be required to develop foundations associated with portions of the proposed projects, e.g., replaced coke drums, that comply with applicable building codes. The soil that would be excavated will come from an area of the Refinery that has been historically utilized for petroleum refining activities for decades, increasing the potential of uncovering contaminated soils during grading and excavation. The handling, processing, transportation, and disposal of any excavated soils containing high concentrations of certain hazardous substances, such as heavy metals and hydrocarbons, would be subject to applicable hazardous waste regulations (i.e., Title

22 of the California Code of Regulations). Title 22, Division 4.5 – Environmental Health Standards for the Management of Hazardous Waste has multiple requirements for hazardous waste characterization (CCR, Title 22, Division 4.5, Chapter 11 – Identification and Listing of Hazardous Waste), handling (CCR, Title 22 Division 4.5, Chapter 12 – Standards Applicable to Generators of Hazardous Waste, transport (CCR, Title 22, Division 4.5, Chapter 13 – Standards Applicable to Transporters of Hazardous Waste), and disposal (CCR, Title 22, Division 4.5, Chapter 14 – Standards for Owners and Operators of Hazardous Waste Transfer, Treatment, Storage, and Disposal Facilities), such as requirements to use approved disposal and treatment facilities, to use certified hazardous waste transporters, and to have manifests for tracking the hazardous materials. If discovered, contaminated excavated soil would be properly characterized to determine appropriate offsite processing methods. These methods may include recycling of the soil if it is considered a non-hazardous waste, off-site treatment to reduce the contaminant concentrations to non-hazardous levels so that the treated soil could be used as landfill cover, or disposal as a hazardous waste at a permitted hazardous waste facility. The amount of soil that may be excavated to construct the projects is estimated to be approximately 18,000 cubic yards and some of all of that soil may be contaminated and is assumed to be hazardous. This waste would be limited to the construction phase and would not represent an on-going waste stream.

Other construction-related waste such as shipping and packing materials, depending on the classification of the waste, would likely need to be disposed of at a Class II (industrial) or Class III (municipal) landfill. A Class II landfill can handle wastes that exhibit a level of contamination not considered hazardous, but that are required by the State of California to be managed for disposal to a permitted Class II landfill. For this reason, Class II landfills are specially designed with liners to reduce the risks of groundwater contamination from industrial wastes, also known as California-regulated waste. Similarly, a Class III landfill can handle non-hazardous or municipal waste. Municipal waste is typically generated through day-to-day activities and does not present the hazardous characteristics of hazardous, industrial, or radioactive wastes.

There are nine active Class III landfills within Los Angeles County many of which have liners that can handle both Class II and Class III wastes. According to Los Angeles County Public Works, the Class III landfill waste disposal remaining capacity in the Los Angeles County is approximately 111.69 million cubic yards (see Table 2-4).

Based on similar construction activities, it is estimated that approximately 2,000 cubic yards per year of municipal waste will be produced during construction activities, or a total of 20,000 cubic yards over the 10-year construction period. Since the remaining disposal capacity in Los Angeles County is 111.69 million cubic yards, there would be sufficient capacity to handle the disposal of up to 20,000 tons (0.02 million tons) of waste that may be generated by construction of the proposed project (see Table 2-4).

TABLE 2-4
Remaining Permitted Solid Waste Disposal Capacity
Los Angeles County

SOLID WASTE FACILITY	ESTIMATED REMAINING CAPACITY (Million Cubic Yards)	REMAINING LIFE (Years)
Antelope Valley	12.32	8
Burbank	4.31	32
Calabasas	7.64	8
Chiquita Canyon	52.52	CLOSED
Lancaster	13.12	20
Pebbly Beach	0.03	7
San Clemente	0.28	18
Scholl Canyon	4.98	7
\Sunshine Canyon	63.68	16
Whittier (Savage Canyon)	5.33	34
TOTAL	111.69	--

Source: County Integrated Waste Management Plan, 2021 Annual Report.

There are no hazardous waste disposal sites within the jurisdiction of the South Coast AQMD. Hazardous waste generated at area facilities, which is not reused on-site, or recycled off-site, is disposed of at a licensed in-state hazardous waste disposal facility. Two such facilities in California are the Chemical Waste Management, Inc. (CWMI) Kettleman Hills facility (King County), and the Clean Harbors Buttonwillow LLC facility in Buttonwillow (Kern County).

The CWMI Kettleman Hills facility is currently permitted as three active landfills (spanning over 1,600 acres, including: 1) 29 acres of a Class II/III landfill with a maximum permit capacity of 4,200,000 cubic yards; 2) 62 acres of a Class II/III landfill permitted to receive tires, mixed municipal, industrial, contaminated soil, construction/demolition, ash, and other designated wastes with a maximum capacity of 18,400,000; and 3) 555 acres permitted as a Class I landfill with a maximum permit capacity of 10,700,000 cubic yards (South Coast AQMD, 2022).

The Clean Harbors Buttonwillow LLC (ID No. 15-AA-0257) facility is designated as a Class I landfill spanning 320 acres, has a maximum permit capacity of 13,250,000 cubic yards with a maximum throughput of 10,500 tons per day, and is permitted to receive industrial, contaminated soil, other hazardous, and other designated wastes. This landfill is estimated to continue operations until at least 2040 (South Coast AQMD, 2022)

Waste generation associated with the proposed projects are expected to be limited to construction activities and would be substantially recycled. While some contaminated soil may also be generated, sufficient landfill capacity at hazardous waste disposal sites is available to handle the 18,000 cubic yards of soil excavated (waste) generated during construction activities. Therefore, the proposed projects would not be in excess of infrastructure capacity or would not impact solid waste reduction goals.

XVI. b) No Impact. The following federal, state, and local laws and regulations govern solid and hazardous waste disposal:

- AB 598 established the California Hazardous Waste Control Act of 1972 which established state hazardous waste management and disposal requirements.
- U.S. EPA's Resource Conservation and Recovery Act (RCRA) of 1976 which contains regulations for municipal solid waste landfills and requires states to implement their own permitting programs incorporating the federal landfill criteria. RCRA also regulates the management and disposal of solid hazardous waste.
- AB 341 (Chapter 476, Statutes of 2011) which increases the statewide waste diversion goal to 75 percent by 2020.
- AB 939 (Integrated Solid Waste Management Act of 1989; Public Resources Code 40050 et seq.) which requires every California city and county to divert 50 percent of its waste from landfills by the year 2000 by such means as recycling, source reduction, and composting. In addition, AB 939 requires each county to prepare a countywide siting element specifying areas for transformation or disposal sites to provide capacity for solid waste generated in the county that cannot be reduced or recycled for a 15-year period.

Any project-related construction waste would be required to be handled in accordance with all applicable federal, state, and local laws and regulations governing solid waste disposal. As discussed in XVI. a), the coke drums are large pieces of metal equipment that are expected to be dismantled and recycled at a third-party recycling facility for metal content and are not expected to be disposed or impact landfills, which helps to meet the state's waste diversion goals.

Following construction activities, the proposed projects would not change the type of solid or hazardous waste generated or the amount of waste generated by the Refinery. Further, the proposed projects would not introduce new waste streams at the Refinery. Therefore, no impact on solid or hazardous waste reduction regulations or requirements would be expected.

Conclusion
Based upon the above considerations, significant adverse impacts to solid and hazardous wastes are not expected to occur as a result of construction and operational activities of the proposed projects. Since no potentially significant adverse solid waste impacts were identified, no further evaluation will be required in the EIR.

		Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
XVII. TRANSPORTATION. Would the project:					
a)	Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	☐	☐	☐	☑
b)	Conflict with or be inconsistent with CEQA Guidelines Section 15064.3(b)?	☐	☐	☑	☐
c)	Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☑
d)	Result in inadequate emergency access?	☑	☐	☐	☐

Significance Criteria

The impacts on transportation and traffic will be considered significant if any of the following criteria apply:

- A major roadway is closed to all through traffic, and no alternate route is available.
- The project conflicts with applicable policies, plans or programs establishing measures of effectiveness, thereby decreasing the performance or safety of any mode of transportation or contributes to changes in overall vehicle miles traveled.
- There is an increase in vehicle miles traveled that is substantial in relation to the existing travel activity.
- Waterborne, rail car, or air traffic is substantially altered.
- Traffic hazards to motor vehicles, bicyclists or pedestrians are substantially increased.
- The need for more than 350 employees.
- An increase in heavy-duty transport truck traffic to and/or from the facility by more than 350 truck round trips per day.
- Increase customer traffic by more than 700 visits per day.

Discussion
The proposed projects are comprised of four separate proposed projects: (1) Coke Drum Replacement, (2) Asphalt Sales Rack, (3) FFHDS Unit Modifications, and (4) Alkylation Units Modifications. A brief summary of the major physical modifications is provided below:

(1) Coke Drum Replacement: The coke drums at the DCU-W at the Wilmington Operations and Coker Unit Nos. 1 and 2 at the Carson Operations will be replaced with new coke drums that are of the same size and capacity. Specialty construction equipment (e.g., large cranes, transport vehicles) will be used at each unit chronologically in the order listed. The cutting deck will be removed to allow access to the coke drums and will be reinstalled following the coke drum replacement. The existing piping to the existing coke drums will be disconnected, replaced as necessary, and reinstalled once the new coke drums have been installed. Seismic upgrades, such as reinforcement of the structure, as required by the current building code will be made to the structures that house the coke drums.

(2) Asphalt Sales Rack: The asphalt sales rack will replace an existing storage building that will be removed, and will include installation of a new truck loading system with up to four truck stations which include truck loading arms, pumps, and piping; odor control equipment such as carbon canisters; and metering equipment. Modifications to up to three existing storage tanks at the Carson Operations will be made to add heat to the storage tanks and piping to keep the asphalt binder flowable, add mixers to keep the binder at a uniform temperature, add odor control that meets BACT, and revise the South Coast AQMD permits to allow storage of asphalt binder in the three tanks. Up to eight new heat exchangers will need to be installed. Piping modifications will consist of new piping from the No. 52 Vacuum Unit to transfer residuum to the modified storage tanks for blending with gas oil, new piping to circulate the asphalt while warming, and new piping from the modified storage tanks to the asphalt sales rack.

(3) FFHDS Unit Modifications: The FFHDS will be modified by replacing the existing steam-driven recycle compressor with a new electric-driven recycle compressor, changing vessel internals, and reconfiguring up to two heat exchangers.

(4) Alkylation Units Modifications: The FCCU will be modified primarily in the equipment associated with the columns of the gas plant section and potentially the main fractionation column in the cracking section of the FCCU: installing up to three new heat exchangers, six new pumps, and three new vessels for caustic, and modifying trays and packing in the cracking section of the FCCU columns. The Wilmington Alkylation Modifications include upgrading the coalescing media, adding mist eliminators, replacing older piping with new piping, modifying trays and packing in the deisobutanizer and debutanizer columns, adding an economizer vessel, and replacing six pumps. The existing refrigeration compressor and motor may be modified or replaced to improve efficiency. The Carson Alkylation Modifications include either installing a new chiller unit and/or modifying the internal components or replacing the existing refrigeration compressor and turbine, installing up to three new heat exchangers, installing up to four pumps, replacing internals on up to 12 pumps, replacing two existing coalescers with new larger vessels, improving the water wash and acid neutralization capabilities, replacing the existing pressure relief valves on the acid storage vessels, and replacing the trays and packing in the depropanizer, debutanizer, and deisobutanizer columns. The Carson Operations Alky Merox Unit modifications include installing

a new caustic prewash train in parallel with the existing train, and a new Alky Merox extractor train in parallel with the existing train. The Carson Operations C3 Splitter will be modified by replacing a PRV.

For further details, see Chapter 1, Section 1.4.

XVII. a) No Impact. The proposed projects will be constructed within the confines of the existing Refinery and will require approximately 35 to 550 construction workers during the construction periods. Parking for construction workers will be provided on land owned by Tesoro and there is sufficient onsite parking for over 550 temporary construction workers.

The proposed projects are not expected to conflict with adopted policies, plans, or programs supporting alternative transportation modes (e.g., bus turnouts, bicycle racks). Construction workers typically drive their own vehicles to construction sites, which will not have any effects on other transportation modes. Parking locations for the construction workers will vary, depending on which project is under construction, but may include parking at the Refinery headquarters building at One Marathon Drive (at E. 223rd Street) and next to the maintenance building; parking within the Carson Operations with access off of Sepulveda Boulevard; parking near Refinery Gate 7 (with access from Wilmington Avenue); parking within the Carson Crude Terminal (with access off of E. Sepulveda Blvd); parking near the entrance to the Wilmington Operations main gate (access off of Pacific Coast Highway); and parking near the Wilmington Coke Barn (with access off of E. Sepulveda Boulevard). Since the area is heavy industrial, pedestrian access and walkways are not present at all of these locations and not heavily used. No sidewalks are provided on Sepulveda Boulevard, east of Alameda. Sidewalks are only provided on the south side of Sepulveda, west of Alameda Street, but not on the north side, near the south access point to the Carson Refinery. Sidewalks are provided along 223rd Street near the Refinery headquarters building. Sidewalks are also provided along Pacific Coast Highway near the main entrance to the Wilmington Operations. There is limited use of sidewalks due to the heavy industrial nature of the area. Since construction workers are expected to use automobiles, and parking is expected to be spread throughout the Refinery, the proposed projects are not expected to interfere with pedestrian access.

Bus access is provided to the Refinery main headquarters via Long Beach Transit Route 8 which stops near the intersection of Marathon Way and 223rd Street, as well as 223rd Street and Wilmington Avenue, with buses running every 40 minutes. Because of the temporary nature of the construction worker, buses are not expected to be a primary mode of transportation to the Refinery. No parking would be allowed in bus drop-off/pick-up areas so workers traveling to/from the Refinery for work would not be expected to interfere with bus routes.

Bike paths are limited in the vicinity of the Refinery due to the industrial nature of the area. A Class I[16] bike path has been developed along portions of the Dominguez Channel. This provides a bike path along the east side of the Dominguez Channel, from Main Street and Broadway (near the Goodyear Blimp Airport) to Vermont Avenue and Artesia Boulevard, near the Harbor Gateway Transit Center. No public access is provided along the Dominguez Channel in the vicinity of the

[16] Class 1 bikeway is a separate off-road bikeway or path dedicated exclusively for bicycles and pedestrians.

Refinery for public safety and to provide security at the Refinery. All of the project changes will occur within the confines of the Refinery and no public access or bike lanes will be closed. Bike racks are provided near the main entrances of the Refinery and the project will have no impact or remove any bike racks.

A Class II[17] bike lane is located on 223rd Street starting at Wilmington Avenue and going to Alameda Street, providing access to the Refinery headquarters building at 2350 E. 223rd Street. Trucks delivering construction equipment and construction workers may access the Refinery via 223rd Street. Both bikes and trucks will be required to observe all traffic signs and avoid conflicts with other forms of transportation. Once construction equipment has been delivered and the construction activities have been complete, the traffic along 223rd Street will return to normal construction. Therefore, no longer term conflicts with bicycles are expected.

Once construction is completed, construction workers will no longer be needed. Operation of the proposed projects are not expected to require any additional workers. Therefore, operation of the proposed projects is not expected to conflict with adopted policies, plans, or programs supporting alternative transportation modes (e.g., bus turnouts, bicycle racks) on a permanent basis.

XVII. b) Less Than Significant. Vehicle miles traveled (VMT) as per CEQA Guidelines section 15064.3 refers to the amount and distance of automobile travel attributable to a project. The State Office of Planning and Research (OPR) Technical Advisory on Evaluating Transportation Impacts in CEQA do not require that transportation or VMT analyses be calculated for trucks or construction activities associated with a project (OPR, 2018). Therefore, project-related trucks are not part of this assessment. Further, construction workers are temporary and traffic related to construction activities will cease, following the completion of construction.

The proposed projects are not expected to require any additional employees following the construction phase. As a result, the proposed projects are not anticipated to generate any additional VMT associated with worker vehicles from the Refinery. Carson's population in 2020 was 93,100. Carson is projecting an increase in population to an estimated 136,600 by 2040 (estimated 46.7 percent increase in growth over the 20-year period) (Carson, 2022), which would increase VMT within the City. However, no increase in VMT is expected from the proposed projects.

XVII. c) No Impact. The proposed projects would be located within the existing Refinery. The projects would not change the access to and from either site or introduce any new traffic configurations. Access to the Asphalt Sales Rack will be provided using the existing south entrance for the Carson Operations via E. Sepulveda Boulevard at Tesoro Way. This access already provides truck access to the facility, is fenced and gated, has a guard gate, and a weigh station. No improvements to the entrance are required to provide truck access to the Asphalt Sales Rack. The proposed projects would not change the configuration of any intersections, resulting in sharp curves or dangerous intersections. The proposed projects also would not result in a change in land use that would result in additional land uses conflicts. The existing Refinery consists of industrial uses and the project modifications are compatible with the existing industrial uses. Therefore, the proposed projects are not expected to increase traffic hazards or incompatible uses.

[17] Class II bike lane includes an on-road lane within the right-of-way with painted lines and signage.

XVII. d) Potentially Significant Impact. Construction activities associated with the proposed projects include the delivery of construction materials to the Refinery, including new coke drums. The new coke drums are expected to be manufactured overseas and delivered to the Port of Los Angeles via ship. The drums will then be transported to the Refinery via an equipment transport carrier. It is anticipated that it will take one night to move each coke drum from the Port of Los Angeles to the Refinery. The transport carrier is expected to be approximately 190 feet in length and 28 feet wide. The size of the transport carrier and vessel will necessitate the temporary closure of streets as the carrier moves along the route to provide a safe route and remove/prevent interference with the transport carrier. In addition, obstacles/obstructions along the route may need to be temporarily removed, e.g., cables/wires, signals, medians/dividers, street signs, and landscaping. Because of these temporary road closures, construction activities may temporarily interfere with emergency response plans of the local cities and other facilities. These potential impacts will be evaluated in the EIR.

Operation of the proposed projects are not expected to increase traffic hazards or create incompatible uses at or adjacent to the site, because the proposed projects do not include the construction of roadways on-site or off-site that could include design hazards. Emergency access at the Refinery would not be adversely affected by the proposed projects, because no on-site roadways would be altered as a result of the proposed projects and Tesoro would continue to maintain the existing emergency access road and gates to the Refinery.

Conclusion
Based on the above considerations, potentially significant adverse impacts to emergency response may occur as a result of construction activities and the transport of large equipment to the Refinery due to the proposed projects. Since potentially significant adverse construction transportation impacts were identified, those impacts will be further evaluated in the EIR. The transportation impacts associated with operational activities are expected to remain unchanged, will not result in significant impacts and will not be further evaluated in the EIR.

	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
XVIII. WILDFIRE. If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:				
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☑
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☐	☑
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines, or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☐	☑
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☐	☑
e) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildfires?	☐	☐	☐	☑

Significance Criteria

A project's ability to contribute to a wildfire will be considered significant if the projects are located in or near state responsibility areas or lands classified as very high fire hazard severity zones, and any of the following conditions are met:

- The projects would substantially impair an adopted emergency response plan or emergency evacuation plan.
- The projects may exacerbate wildfire risks by exposing the project's occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire due to slope, prevailing winds, and other factors.

- The projects may exacerbate wildfire risks or may result in temporary or ongoing impacts to the environment, because the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines, or other utilities) are required.
- The projects would expose people or structures to significant risks such as downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes.
- The projects would expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildfires.

Discussion
The proposed projects are comprised of four separate proposed projects: (1) Coke Drum Replacement, (2) Asphalt Sales Rack, (3) FFHDS Unit Modifications, and (4) Alkylation Units Modifications. A brief summary of the major physical modifications is provided below:

(1) Coke Drum Replacement: The coke drums at the DCU-W at the Wilmington Operations and Coker Unit Nos. 1 and 2 at the Carson Operations will be replaced with new coke drums that are of the same size and capacity. Specialty construction equipment (e.g., large cranes, transport vehicles) will be used at each unit chronologically in the order listed. The cutting deck will be removed to allow access to the coke drums and will be reinstalled following the coke drum replacement. The existing piping to the existing coke drums will be disconnected, replaced as necessary, and reinstalled once the new coke drums have been installed. Seismic upgrades, such as reinforcement of the structure, as required by the current building code will be made to the structures that house the coke drums.

(2) Asphalt Sales Rack: The asphalt sales rack will replace an existing storage building that will be removed, and will include installation of a new truck loading system with up to four truck stations which include truck loading arms, pumps, and piping; odor control equipment such as carbon canisters; and metering equipment. Modifications to up to three existing storage tanks at the Carson Operations will be made to add heat to the storage tanks and piping to keep the asphalt binder flowable, add mixers to keep the binder at a uniform temperature, add odor control that meets BACT, and revise the South Coast AQMD permits to allow storage of asphalt binder in the three tanks. Up to eight new heat exchangers will need to be installed. Piping modifications will consist of new piping from the No. 52 Vacuum Unit to transfer residuum to the modified storage tanks for blending with gas oil, new piping to circulate the asphalt while warming, and new piping from the modified storage tanks to the asphalt sales rack.

(3) FFHDS Unit Modifications: The FFHDS will be modified by replacing the existing steam-driven recycle compressor with a new electric-driven recycle compressor, changing vessel internals, and reconfiguring up to two heat exchangers.

(4) Alkylation Units Modifications: The FCCU will be modified primarily in the equipment associated with the columns of the gas plant section and potentially the main fractionation column in the cracking section of the FCCU: installing up to three new heat exchangers, six new pumps, and three new vessels for caustic, and modifying trays and packing in the cracking section of the FCCU columns. The Wilmington Alkylation Modifications include upgrading the coalescing

media, adding mist eliminators, replacing older piping with new piping, modifying trays and packing in the deisobutanizer and debutanizer columns, adding an economizer vessel, and replacing six pumps. The existing refrigeration compressor and motor may be modified or replaced to improve efficiency. The Carson Alkylation Modifications include either installing a new chiller unit and/or modifying the internal components or replacing the existing refrigeration compressor and turbine, installing up to three new heat exchangers, installing up to four pumps, replacing internals on up to 12 pumps, replacing two existing coalescers with new larger vessels, improving the water wash and acid neutralization capabilities, replacing the existing pressure relief valves on the acid storage vessels, and replacing the trays and packing in the depropanizer, debutanizer, and deisobutanizer columns. The Carson Operations Alky Merox Unit modifications include installing a new caustic prewash train in parallel with the existing train, and a new Alky Merox extractor train in parallel with the existing train. The Carson Operations C3 Splitter will be modified by replacing a PRV.

For further details, see Chapter 1, Section 1.4.

XVIII. a) No Impact. The proposed projects are located within the existing Refinery, which are industrial properties. As an existing Refinery, the facility has developed and implemented emergency response plans. The emergency response plans at the Refinery would be reviewed and updated to reflect the proposed projects modifications, new units, and new and modified tanks. As previously discussed in VIII. f), the proposed projects would not affect in any way emergency response plans at other industrial facilities in the local area. Therefore, no significant adverse impacts to emergency response or evacuations plans are expected.

XVIII. b) and e) No Impact. As previously discussed in VIII. g), based on maps prepared by CAL FIRE in 2025, the Carson and Wilmington areas are considered to be non-fire hazard zone areas (Note: Fire Hazard Zones includes wildfire areas).[18] The closest high wildfire hazard area to the Refinery is west of the 110 Freeway near the Palos Verdes area.

The proposed projects will not increase the existing risk of wildfire hazards in areas with flammable brush, grass, or trees, because the proposed projects are located in an urbanized, heavily industrial area and no wildlands are located in the immediate or surrounding areas of the Carson and Wilmington Operations. Also, no vegetation exists within the operational portions of the Refinery, and for safety reasons, no vegetation is located within the existing areas where the new and modified equipment will be sited. For these reasons, the proposed projects would not expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildfires.

The proposed projects will not increase the existing risk of wildfire hazards in areas with flammable brush, grass, or trees, because the proposed projects are located in an urbanized, industrial area and no wildlands are located in the immediate or surrounding areas of the Carson and Wilmington Operations. Also, no substantial or native vegetation exists within the operational portions of the Refinery, and for safety reasons, no vegetation is located within the existing areas

[18] CAL Fire's Fire Hazard Severity Zone in State Responsibility Areas - Los Angeles. Available at: https://experience.arcgis.com/experience/5065c998b4b0462f9ec3c6c226c610a9/page/Compare-old-and-new-LRA-FHSZ

where the new and modified equipment will be sited. For these reasons, the proposed projects would not expose people or structures to wildland fires. Therefore, no adverse impacts resulting from wildland fire hazards are expected from the proposed projects nor would there be an increased risk of loss of structures or human life due to wildfire.

XVIII. c) No Impact. Implementation of proposed projects would not add new structures that might need to be supported by expanded infrastructure and associated maintenance, including new roads, fuel breaks, emergency water sources, power lines, and other utilities. As previously discussed in VIII. g), based on maps prepared by CALFIRE, the Carson and Wilmington areas are considered to be areas of non-fire hazard zone.

XVIII. d) No Impact. Catastrophic wildfire can create favorable conditions for other hazards, such as flooding and landslides during the rainy season. As previously discussed in VIII g), based on maps prepared by CALFIRE, the Carson and Wilmington Operations are considered to be located in a non-fire hazard zone. Further, the Refinery is located on generally flat lands and the proposed project would not alter the grade of the property in a manner that would make the Refinery more vulnerable to wildfire. Therefore, the proposed projects would have no impact on downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes.

Conclusion
Based upon these considerations, significant adverse wildfire impacts are not expected from implementation of proposed projects. Since no significant wildfire impacts were identified, no mitigation measures are necessary or required and therefore will not be further discussed in the EIR.

		Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
XIX.	**MANDATORY FINDINGS OF SIGNIFICANCE.**				
a)	Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☐	☐	☑
b)	Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)	☑	☐	☐	☐
c)	Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	☑	☐	☐	☐

Discussion

The proposed projects are comprised of four separate proposed projects: (1) Coke Drum Replacement, (2) Asphalt Sales Rack, (3) FFHDS Unit Modifications, and (4) Alkylation Units Modifications. A brief summary of the major physical modifications is provided below:

(1) Coke Drum Replacement: The coke drums at the DCU-W at the Wilmington Operations and Coker Unit Nos. 1 and 2 at the Carson Operations will be replaced with new coke drums that are of the same size and capacity. Specialty construction equipment (e.g., large cranes, transport vehicles) will be used at each unit chronologically in the order listed. The cutting deck will be removed to allow access to the coke drums and will be reinstalled following the coke drum replacement. The existing piping to the existing coke drums will be disconnected, replaced as necessary, and reinstalled once the new coke drums have been installed. Seismic upgrades, such

as reinforcement of the structure, as required by the current building code will be made to the structures that house the coke drums.

(2) Asphalt Sales Rack: The asphalt sales rack will replace an existing storage building that will be removed, and will include installation of a new truck loading system with up to four truck stations which include truck loading arms, pumps, and piping; odor control equipment such as carbon canisters; and metering equipment. Modifications to up to three existing storage tanks at the Carson Operations will be made to add heat to the storage tanks and piping to keep the asphalt binder flowable, add mixers to keep the binder at a uniform temperature, add odor control that meets BACT, and revise the South Coast AQMD permits to allow storage of asphalt binder in the three tanks. Up to eight new heat exchangers will need to be installed. Piping modifications will consist of new piping from the No. 52 Vacuum Unit to transfer residuum to the modified storage tanks for blending with gas oil, new piping to circulate the asphalt while warming, and new piping from the modified storage tanks to the asphalt sales rack.

(3) FFHDS Unit Modifications: The FFHDS will be modified by replacing the existing steam-driven recycle compressor with a new electric-driven recycle compressor, changing vessel internals, and reconfiguring up to two heat exchangers.

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For further details, see Chapter 1, Section 1.4.

XVIII. a) No Impact. As explained in Section IV – Biological Resources and Section V – Cultural and Tribal Cultural Resources of this environmental checklist, the proposed projects are not expected to reduce or eliminate any plant or animal species or destroy prehistoric records of the past. The affected sites are part of an existing Refinery and industrial facilities, which have been previously disturbed and graded, such that the proposed projects are not expected to degrade any

biologically or culturally sensitive areas, so that no significant adverse impacts to biological resources or cultural and tribal cultural resources are expected.

XVIII. b) and c) Potentially Significant Impact. The proposed projects have the potential to result in adverse air quality impacts (including criteria pollutants, toxic air contaminants, and greenhouse gas emissions), hazards and hazardous materials impacts, water demand impacts, construction noise impacts, and emergency response impacts as a result of the transport of large equipment to the Refinery during construction activities and has the potential to result in cumulative impacts in these areas. The cumulative impacts associated with the proposed projects will be analyzed, as necessary, in the EIR. Potential adverse air quality and hazards and hazardous materials impacts could also adversely affect humans, either directly or indirectly. Potential adverse effects on humans will be included in the air quality and hazards and hazardous materials analyses.

Conclusion
Based on the review of the environmental impacts associated with the proposed projects at the Refinery, the South Coast AQMD has concluded that the proposed projects may result in significant adverse environmental impacts in the areas of air quality, hazards and hazardous materials, hydrology and water quality, construction noise, and emergency response impacts during construction due to transport of large equipment. Therefore, the preparation of an EIR is required.

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