Draft
Environmental Impact Report

Air Products Hydrogen Pipeline Project
Executive Summary

City of Carson Project Case CUP 1089-18

State Clearinghouse No. SCH 2020059038

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Executive Summary

This Environmental Impact Report (EIR) has been prepared to address the environmental impacts associated with the proposed Air Products Hydrogen Pipeline Project. Air Products and Chemicals, Inc. (Air Products) ("the Applicant") proposes to utilize an existing 11.5-mile-long series of pipelines plus construct a new 0.5-mile pipeline segment to connect from the Air Products' existing hydrogen facility in the City of Carson to the World Energy Paramount Refinery (Paramount Refinery) in the City of Paramount, California. The existing 11.5-mile pipeline crosses the cities of Carson, Los Angeles, Long Beach, Lakewood, Bellflower, and Paramount in addition to an unincorporated part of the County of Los Angeles and land owned or controlled by the Port of Los Angeles and the Joint Ports Authority. The 0.5-mile of new pipeline would be located entirely within the City of Carson. Refer to Figure ES-1 for the Project Location.

The Air Products Carson Facility property is located on an 8.3-acre parcel zoned M-HD (Manufacturing, Heavy and Design Overlay) APN 7315-020-021, at 23300 Alameda Street in the City of Carson. Alameda Street runs along the western edge and East Sepulveda Boulevard runs along the southern edge of the proposed Project site. The proposed Project site is bounded on the eastern side by the Dominguez Channel, and a developed industrial area is situated to the immediate north. The Los Angeles River is located approximately 1.36 miles to the east.

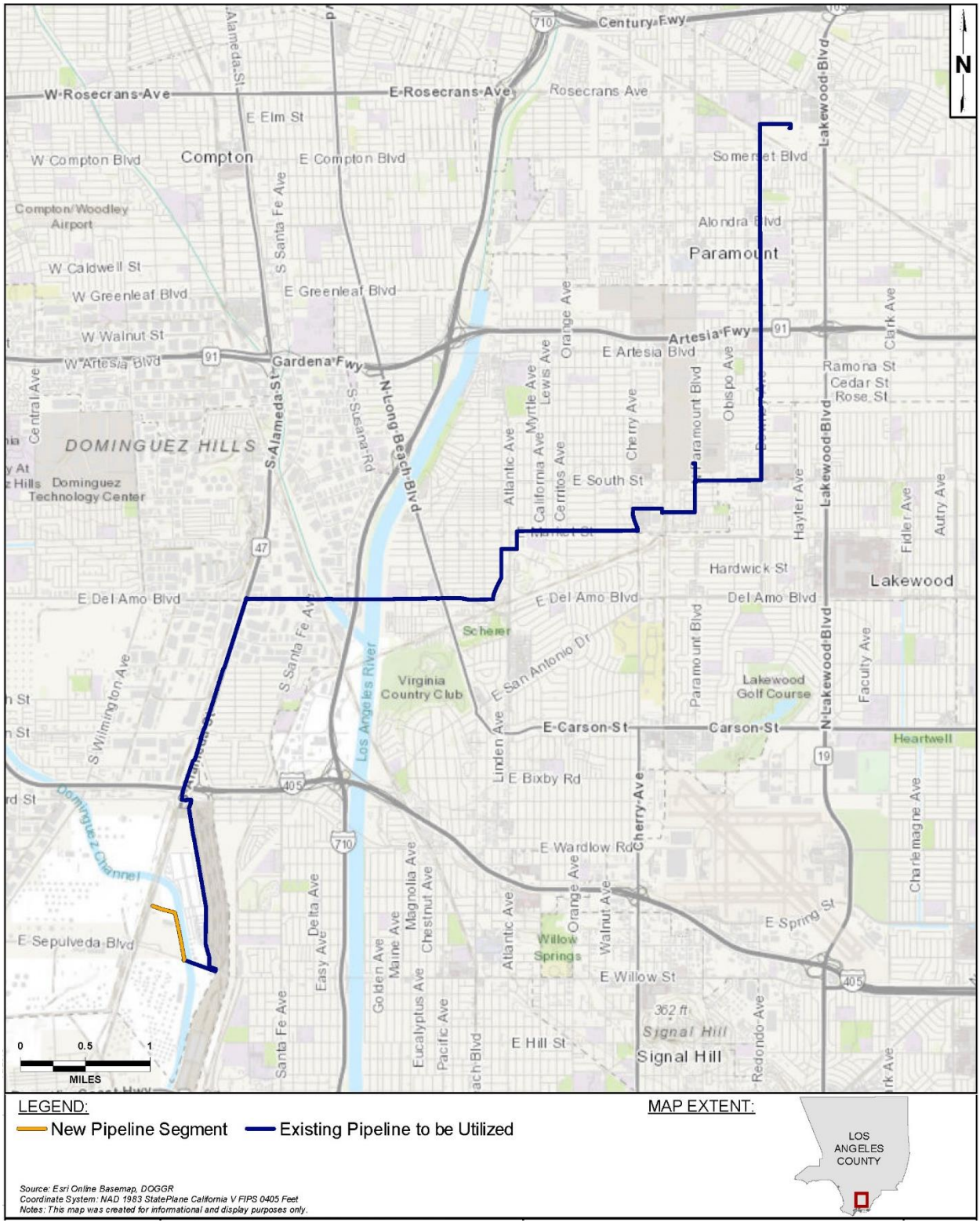
This EIR is an informational document that is being used by the general public and governmental agencies to review and evaluate the proposed Project. The reader should not rely exclusively on the Executive Summary as the sole basis for judgment of the proposed Project. Specifically, the EIR should be consulted for information about the environmental effects associated with the proposed Project and potential mitigation measures to address or minimize those effects.

The remainder of the Executive Summary consists of the following sections:

- An introduction, which discusses the regulatory oversight in the preparation of the EIR and public scoping process, and agency use of the EIR.
- A brief description of the proposed Project.
- A brief description of the Alternatives evaluated in detail in the EIR.
- A discussion of the environmental setting.
- A summary of key impacts of the proposed Project, alternatives, and cumulative development.
- A discussion of the Environmentally Superior Alternative.

Tables ES-1 through ES-4, located at the end of the Executive Summary, summarizes the impacts and mitigation measures for the proposed Project and provides a summary of the key cumulative impacts. The impacts and mitigation measures for the proposed Project are discussed in detail in Section 4.0 of the EIR.

Figure ES-1 Project Location



Source: Padre Associates Application

ES.1 Introduction

The purpose of the Executive Summary is to provide the reader with a brief overview of the proposed Project, the anticipated environmental effects, and the potential mitigation measures that could reduce the severity of the identified impacts. The reader should not, however, rely exclusively on the Executive Summary as the sole basis for judgment of the proposed Project.

Air Products and Chemicals Inc. filed an application with the City of Carson for a Conditional Use Permit for the proposed Project. The City of Carson, as Lead Agency under the California Environmental Quality Act (CEQA), determined that an EIR would be required as part of the permitting process for the proposed Project. The City's decision to prepare an EIR is documented in an Initial Study included in Appendix D of this EIR. The Initial Study, which consists of a checklist of possible effects on a range of environmental topics, found that the Project may have significant environmental impacts related to hazards and risk, and that a detailed analysis of an EIR is needed to further assess potential effects. The Initial Study defined the preliminary scope of the EIR's analysis, suggesting that risk would be the main topic to be addressed as having potentially significant and unavoidable impacts. While risk is the main topic of focus in this EIR, other issue areas are included in the body of the document as appropriate.

On May 21, 2020, the City, as the Lead Agency, issued a Notice of Preparation (NOP) to inform the general public and agencies that an EIR would be prepared for the proposed Project and to solicit comments on environmental issues to be addressed in the document. The public scoping comment period closed on July 21, 2020. Comments received in response to the NOP were used to further refine the scope of the analysis and the technical studies in this EIR. Written comments received in response to the NOP are provided in Appendix D with an indication of specific EIR sections where topics related to individual comments are addressed.

In addition to the City, there are a number of jurisdictions that would issue permits for this Project and would necessitate this EIR, once certified, for their actions. Table 1.2 in Section 1.0, Introduction, provides a listing of jurisdictions and their proposed actions. The City, as the CEQA lead agency, will act first on the proposed Project before any of the responsible agencies act on the Project. City decision-makers (Planning Commission and City Council) will use the EIR for decision-making regarding the proposed Project. If the proposed Project is approved by all required permitting agencies, the City would be responsible for reviewing and approving all pre-construction compliance plans and ensuring that the proposed Project modifications and operations are conducted in accordance with the permit conditions.

This DEIR is being circulated for public review for a period of 45 days as required by CEQA. Public agencies and members of the public are invited to provide written comments on the DEIR. The DEIR is available on the City of Carson's website at:
http://ci.carson.ca.us/CommunityDevelopment/HydrogenGas.aspx

All comments on the DEIR must be received no later than October 19, 2020, and should be directed to:

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ES.2 Description of Proposed Project

This section of the Executive Summary provides a brief description of the proposed Project. A complete description is provided in Section 2.0, Project Description, of this EIR.

The Carson to Paramount Hydrogen Gas Pipeline Project (proposed Project) would be constructed and operated by Air Products. The proposed Project would use local union labor, including ARB, Inc., to construct 0.5 miles of new pipeline within the City of Carson and connect this newly constructed segment with 11.5 miles of existing pipeline. The proposed Project would expand Air Products' existing pipeline network and provide a means of hydrogen distribution from its existing hydrogen production facilities located in Wilmington and Carson to its customers. Air Products proposes to utilize this pipeline route to connect Air Products with a new customer in the City of Paramount to support renewable bio-fuel production. Two new pipe connections would be required to connect segments of existing pipelines together along the 11.5-mile length. Air Products would also remove or replace existing manual valves and add an automatic shut-off valve (ASV) at one location along the pipeline route.

The proposed Project would eliminate the need for five to seven tanker trucks per day that currently deliver hydrogen to the Paramount Refinery to produce approximately 3,500 barrels of diesel and jet fuel per day from beef tallow and vegetable oils. The proposed Project would employ approximately 60 contractors for construction (local union workers when feasible), one new full-time job, and would increase City of Carson revenue (utility taxes, franchise fees, etc.).

The proposed Project route would initiate in the City of Carson and terminate in the City of Paramount. The Project route would traverse small portions of the City of Los Angeles and County of Los Angeles, as well as portions of the cities of Long Beach, Lakewood, and Bellflower. The site of the proposed Project is located within an area of industrial, commercial, and residential land uses. The proposed Project alignment is predominantly within an existing pipeline corridor, and the Project area is generally level and has been modified by urban development.

World Energy uses hydrogen to produce renewable biofuels (diesel and jet) for the transportation market at the Paramount Refinery. The Renewable Fuels Project approved in 2014 by the City of Paramount allowed the facility to convert up to 3,500 barrels per day of non-edible vegetable oils and beef tallow into renewable fuels, including aviation (jet), diesel, naphtha (gasoline), and fuel gas. World Energy uses hydrogen to produce "clean fuels." Hydrogen is used to reduce the level of sulfur and other undesired pollutants in various types of transportation fuels such as gasoline and diesel fuel. The pipeline network would increase the overall reliability of the hydrogen supply, thereby allowing the refinery to maximize production of clean fuels.

ES.3 Objectives of the Proposed Project

Pursuant to Section 15124(b) of the CEQA Guidelines, the description of the proposed Project is to contain "a clearly written statement of objectives" that would aid the lead agency in developing a reasonable range of alternatives to evaluate in the EIR and would aid decision makers in preparing findings and, if necessary, a statement of overriding considerations. The City of Carson is the lead CEQA agency responsible for preparing the EIR. The City of Carson decision-makers will consider the EIR for certification and the proposed Project for approval.

In addition, CEQA requires that the objective include the "underlying purpose of the project" and not narrowly craft the project objectives and thereby fail to reflect the fundamental purpose of the project.

The underlying purpose of the Project is to supply the Paramount Refinery with hydrogen.

The proposed Project objectives, as provided by the Applicant, are summarized as follows:

Air Products is requesting a Conditional Use Permit from the City of Carson to allow for the construction and operation of a hydrogen pipeline between Air Product's existing Carson Hydrogen Plant and the Paramount Refinery to facilitate the production of alternative fuels for use in Southern California.

The proposed Project objectives are summarized as follows:

- Extend the existing Air Products pipeline network to the Paramount Refinery to service an additional customer, World Energy, with hydrogen, and reduce truck trips by five to seven tanker trucks each day;
- Convert existing petroleum pipelines for 11.5-miles of the proposed route to hydrogen service which will reduce construction-related disruption to area residents and motorists;
- For construction-related activities utilize local union contractors where appropriate;
- Provide for the safe flow of up to seven million standard cubic feet per day (7 mmscfd) through the pipeline; and
- Support production of renewable bio-fuels production in Southern California.

ES.4 Description of Alternatives

Alternatives to the proposed Project were developed per CEQA Guidelines Section 15126.6.

Section 5.0, Environmental Analysis and Comparison of Alternatives, provides a complete description of all alternatives considered, including explanation for rejecting potential alternatives for further analysis. The following are the alternatives evaluated.

ES.4.1 No Project Alternative

Under the No Project Alternative, the Paramount Refinery would continue to receive liquified hydrogen by tanker truck, with associated hazards of hauling a flammable liquid on public roadways, as well as increased highway and local traffic. The existing pipelines, that are proposed under this proposed Project to be repurposed for hydrogen, could be used for the transport of crude oil or other materials, or would remain empty.

CEQA requires that the No Project Alternative be evaluated along with its impacts as part of the EIR (CEQA Guidelines Section 15126.6(e) (1)). The proposed Project objectives would not be met under the No Project Alternative.

ES.4.2 New Pipeline Alternative

This alternative would involve the construction of a new pipeline between portions of the Carson and Paramount route to transport hydrogen gas. The new pipeline segments would most likely follow city streets along a route determined by various factors such as land use availability, franchise agreement availability, construction limitations, and other issues including population density. However, there are no continuous areas of industrial land use between Carson and Paramount and review of the land use zoning for each local jurisdiction within two miles of the proposed pipeline route shows that there are large areas of residential land use between the two pipeline endpoints. The Figure 4.4-1 in Section 4.4, Land Use, shows the land use zoning for each local jurisdiction within two miles of the proposed pipeline route,

showing that there are large areas of residential land use between the two endpoints. Therefore, any new pipeline construction would occur within and adjacent to residential and public facility/school land uses similar to the proposed Project existing pipeline route.

There are potential routes that could utilize existing rights-of-ways (ROW) that could potentially reduce the population densities along the pipeline route (yet still passing through residential areas) and be able to access the Paramount Refinery. Possible routes would include the following:

- Los Angeles River and Powerlines ROW:
    - Utilization of the existing and proposed pipeline route from the Carson AP Plant to the Los Angeles River and Del Amo Blvd, and
    - Then install a new pipeline installed north along the Los Angeles River to just south of the 105 Freeway;
    - Install a new pipeline along the existing railroad/powerline corridor to the Paramount Refinery location.
- Los Angeles River, Residential and Powerline ROW
    - Utilization of the existing and proposed pipeline route from the Carson AP Plant to the Los Angeles River and Del Amo Blvd, and
    - Then install a new pipeline north along the Los Angeles River to just north of the 91 Freeway;
    - Install new pipeline east along the open ROW to the So Cal Edison Orange Street Station;
    - Install a new pipeline north along the open ROW north of the So Cal Edison Orange Street Station to just south of the 105 Freeway;
    - Install a new pipeline along the existing railroad/powerline corridor to the Paramount Refinery location.

Route lengths would include about 6.8 miles of new pipeline in addition to the new pipeline proposed as part of the proposed Project along with the existing pipelines from Carson to the Los Angeles River tie-in location. Construction activities for a new pipeline would include trenching within city streets or within ROWs with heavy equipment, which would require street closures, and potential utility service and traffic disruption either during day-time periods when traffic is heaviest, or during the night-time which would likely result in noise impacts to adjacent residential areas.

The use of a new pipeline could potentially reduce the severity of the significant risk impacts, however, this alternative has a number of speculative elements, including ROW acquisition and permitting.

ES.4.3 Pipeline Modifications Alternative

This alternative would involve the modification of multiple sections of the existing pipeline to allow for in-line inspection (smart-pigging) of portions of the pipeline to help ensure pipeline integrity. The existing pipeline proposed for the Project contains numerous bends and turns and such corners prevent the use of in-line inspections tools because the length of the tool requires straight sections of pipeline and requires that any turns in a pipeline to be gradual enough to allow the tool to pass through. As a result, this alternative would involve replacing certain sections of the existing pipeline, where feasible, to remove sharp bends and turns. Certain sections of the pipeline would be excavated, or “potholed”, to determine

areas of pipeline that could be replaced with straighter sections and/or sections with less sharp turns. The section or sections of modified pipeline could then be inspected with an in-line tool or smart pig. Smart pig inspections can provide data on pipeline thickness, corrosion, and other pipeline irregularities.

Because the pipeline is composed of multiple segments of different sizes, this alternative would only address the section of the pipeline that is 12-inches in diameter, and only that portion of the pipeline system would benefit from in-line testing. Inline inspection can only be conducted on pipeline segments of the same diameter. This section of the pipeline also runs closest to a number of schools and high-density residential populations. A pig launcher would be placed at the Tesoro East Hynes facility where the 12-inch pipeline begins and a pig catcher would be placed at the Paramount Refinery.

Pipeline modifications would involve the construction associated with modifications to portions of the pipeline along the existing 12-inch pipeline route as well as the installation of the new portion of the pipeline as under the proposed Project. An estimated 12 locations along the 12-inch section of pipeline between the existing Line 1150 from North Paramount to the Paramount Refinery are potential segment locations for pipeline modifications to allow for the use of an in-line inspection tool. Up to 12 locations along this segment of pipeline would require excavation within public streets to accomplish the necessary pipeline modifications.

This alternative may provide for reductions in risk and would not substantially increase impacts to air quality, and would meet the underlying purpose and objectives of the proposed Project by utilizing the current pipeline to transport hydrogen to the Paramount Refinery.

ES.4.4 Truck Transport from the Air Products Carson Facility Alternative

The truck transportation alternative would involve trucking of gaseous hydrogen from the Air Products Carson Facility to the Paramount Refinery. The Air Products Carson Facility does not currently produce hydrogen in liquid form; therefore, the hydrogen would be transported by trucks in gaseous form with tube trailers. The transportation distance would be similar to the proposed Project pipeline, approximately 11.5 miles. There are several potential routes that could be used by the truck from Carson to the Paramount Refinery; however, the most likely route would travel main roads and the 405, 710 and 105 freeways as follows:

- From Air Products Facility in Carson California north on Alameda St. to the 405 Freeway;
- 405 Freeway east to the 710 Freeway;
- North on the 710 Freeway to the 105 Freeway;
- East on the 105 Freeway to Lakewood Blvd.; and
- South on Lakewood Blvd. to the Paramount Refinery.

Approximately 35 trucks deliveries per day would be required to deliver 7 MMSCFD hydrogen with tube trailer trucks that can carry hydrogen at 7,500 pounds per square inch (psig). The trucking route is shown in Figure 5.4, a typical tube trailer is provided in Figure 5.5.

This alternative could reduce construction related impacts and would meet the proposed Project's underlying purpose of providing hydrogen from the Air Products Carson Facility to the Paramount Refinery.

ES.4.5 Hydrogen Generation Unit Alternative

Under this alternative current trucking of the liquified hydrogen to the Paramount Refinery would be replaced with onsite generation of hydrogen at the Paramount Refinery. This would involve the installation of a hydrogen plant at the Paramount Refinery location. There currently exists at the Paramount Refinery three 18,000-gallon hydrogen tanks, liquid hydrogen truck unloading facilities and associated piping to supply the existing 3,500 bpd renewable fuels pilot plant.

According to their websites, both the Applicant, Air Products, and the specialty gas vendor Praxair, offer hydrogen generation plant installation services. Air Products currently operates over 100 hydrogen plants worldwide (Air Products 2020). Praxair indicates they can provide installation of a hydrogen generation plant in plant size ranging from 9,000 scfd to 135 MMscfd (Praxair 2020).

This alternative would involve the onsite generation of hydrogen at the Paramount Refinery. This could be achieved through either the installation of a small, 7 MMSCFD plant or utilizing the hydrogen generation unit (at up to 50 MMSCFD), proposed as part of the expansion of the World Energy Paramount Petroleum Renewable Fuels Project, and currently undergoing a separate CEQA review with the City of Paramount.

The permitting and construction of a hydrogen plant could take a substantial amount of time, as indicated in the World Energy Renewable Fuels Project expansion application, which states that construction could take two to three years from permit issuance. This alternative assumes that, once either the Renewable Fuels Project hydrogen generation unit is completed or, if that project does not move forward, a smaller plant is built to satisfy the needs of the existing facility at the Paramount Refinery, then transportation of hydrogen would not continue and hydrogen trucking or the hydrogen pipeline would no longer be utilized.

In discussions with Air Products about this alternative it was expressed that there is not enough plot space at the Paramount Refinery to build both a “small” plant for today’s use as well as the “large” plant for the future use that is proposed as part of the expansion of the World Energy Renewable Fuels Project that is currently undergoing permitting. Also, Air Products indicated that if it built the “large” plant now, it would be unable to reduce production of hydrogen low enough to produce only the “small” amount of hydrogen currently needed. Air Products also asserts that to provide a short-term hydrogen “skid” mounted facility would require nine skid mounted plants to satisfy the current plant hydrogen needs and that the Paramount Refinery site does not have the plot space available on-site for this number of skid units. “Skid” mounted units are easier and quicker to install than building an entire plant as the units are already constructed and just brought to the site and hooked up. They are limited in size, however, and Air Products indicates that utilizing a large number of skid units connected together to satisfy the current needs may produce operational complexities.

This alternative produces a substantial and quantifiable reduction in risk impacts due to the elimination of the need for long-term transportation of hydrogen by producing it onsite. This alternative may produce long term benefits in terms of reduced risk and meets the underlying purpose of the Project by supplying hydrogen to the Paramount Refinery.

ES.5 Current Operations

The Paramount Refinery in the City of Paramount currently receives hydrogen delivered by tanker truck from the Praxair Facility located in Ontario, CA. Approximately five to seven trucks per day deliver liquid hydrogen from a distance of 45 miles one-way from the Praxair facility to the Paramount Refinery.

The Paramount Refinery has been in the process of converting operations from oil refining to renewable fuels since 2013. The World Energy Paramount Facility Renewable Fuels Project was approved by the City of Paramount (CUP 757) in 2014 to convert up to 3,500 barrels per day of non-edible vegetable oils and high-quality technical beef tallow into renewable jet and diesel fuel. The proposed Project would supplant existing truck deliveries of liquified hydrogen to the Refinery with gaseous hydrogen delivered by pipeline.

ES.6 Impacts of Proposed Project, Alternatives, and Cumulative Development

In the Impact Summary Tables (ES-1 through ES-4) at the end of this Executive Summary and throughout the EIR, impacts of the proposed Project and alternatives have been classified using the categories Class I, II, III, and IV as described below.

- Class I – Significant unavoidable adverse impacts for which the decisionmaker must adopt a statement of Overriding Considerations: These are significant adverse impacts that cannot be effectively avoided or mitigated. No measures could be taken to avoid or reduce these adverse effects to insignificant or negligible levels. Even after application of feasible mitigation measures, the residual impact would be significant.
- Class II – Significant environmental impacts that can be feasibly mitigated or avoided for which the decision maker must adopt Findings and recommended mitigation measures: These impacts are potentially similar in significance to those of Class I but can be reduced or avoided by the implementation of feasible mitigation measures. After application of feasible mitigation measures, the residual impact would not be significant.
- Class III – Adverse impacts found not to be significant for which the decision maker does not have to adopt Findings under CEQA: These impacts do not meet or exceed the identified thresholds for significance. Generally, no mitigation measures are required for such impacts.
- Class IV – Impacts beneficial to the environment.

The term “significance” is used in these tables and throughout this EIR to characterize the magnitude of the projected impact. For the purposes of this EIR, a significant impact is a substantial or potentially substantial change to resources in the local Project area or the area adjacent to the Project in comparison to the threshold of significance established for the resource or issue area.

These thresholds of significance are discussed by issue area in Section 4.0 of the EIR. For each impact, the applicable project phase has been identified as shown below.

- **Construction:** Impacts associated with construction activities.
- **Operations:** Impacts due to the operation of the proposed Project.

The remainder of this section provides a brief discussion of the Class I and II impacts identified for the proposed Project, the alternatives and cumulative development. A detailed listing of the impacts associated with the proposed Project can be found in the Impact Summary Tables. Sections 4.1 through 4.7 provide a comprehensive discussion of possible impacts of the proposed Project and discussions of the impacts associated with the cumulative development. Section 5.0, Alternatives, provides an analysis of the impacts of each selected alternative, compares the impacts of each alternative relative to the proposed Project, and identifies the Environmentally Superior Alternative.

ES.6.1 Impacts Associated with the Proposed Project

Hazardous Materials/Risk of Upset. One significant and unavoidable (Class I) impact was identified for the proposed Project (see Table ES-1) associated with an upset condition and release of hazardous materials into the environment (HM.2). In order to define a "significant hazard" under CEQA related to upset conditions, this EIR utilizes a quantitative approach to estimating risk levels and compares these to the baseline risk levels and the acceptability levels defined in other jurisdiction CEQA thresholds. The City of Carson does not currently have thresholds related to risk of upset for projects utilizing hazardous materials.

Risk levels for pipelines are essentially a constant value independent of the volume of hydrogen passed through the pipeline, assuming that the pressure levels are constant. This is different than trucking, as in the baseline exiting operations, where the risk linearly increases with increasing hydrogen volume transported as more trucks are needed with higher hydrogen usage, thereby increasing truck mileage. Risk levels from a pipeline are driven by the volume of hydrogen located within the pipeline whereas the risks for trucking are driven by the number of truck trips. For very minimal hydrogen volumes, as a pipeline would still be required to be full of hydrogen, trucking generally produces lower risks. But at a certain point, an increasing number of truck trips associated with an increasing volume of hydrogen transported generates more risk than a pipeline. This Project, with the hydrogen pipeline compared to the trucking associated with the baseline, is close to that crossover point.

Impacts associated with the Project operating at a pressure of 260 psia are similar to, if not somewhat greater than, those presented by the baseline trucking operations as the FN (frequency versus consequence) curves for both activities lie in a similar band within the FN curves shown in Figure 4.3-4 in Section 4.3 of this EIR. Therefore, a reduction in risk levels over the baseline is not apparent. As risks would not be reduced from the baseline operations, the impacts in the event of an upset condition would be significant.

Mitigation measure HM-2a requires that the pipeline be operated at a maximum pressure at any point in the pipeline of 160 psig, that the operator maintains operating pressure information, and that information of pipeline maintenance be reported to the City. Mitigation Measure HM-2b requires that the pipeline be monitored on an annual basis for any issues that could indicate increased rates of the loss of pipeline integrity. Mitigation Measure HM-2c requires that the pipeline continue to be pressure tested at a Maximum Allowable Operating Pressure (MAOP) to test pressure ratio of at least 3.0 to ensure pipeline integrity. The testing shall be performed annually for the first three years; subsequent tests may be relaxed to once every three to five years as per PHMSA requirements. Even with implementation of mitigation, impacts of HM.2 still fall in a range very similar to the baseline operations but would remain within the unacceptable region of the FN curves; potential impacts to people and the environment would be significant and unavoidable (Class I).

The significant but mitigable (Class II) impacts (see Table ES-2) identified for the proposed Project are related to construction activities and routine operations, as summarized below.

Hazardous Materials/Risk of Upset. In preparation of the proposed Project the Applicant prepared a Phase I Environmental Site Assessment (ESA) *Phase I Environmental Site Assessment Proposed Carson to Paramount Hydrogen Gas Pipeline Project, Carson, Los Angeles County, CA,* Padre Associates Inc. November 2018. The report notes that petroleum hydrocarbon containing soils have been identified by the Applicant during past pipeline repair excavation projects within the proposed Project pipeline corridor (Impact HM.4). The Phase I ESA recommended that a Phase II Site Assessment be completed for all areas with the potential to encounter contaminated soils during construction activities (completed September

2019). The Site Assessments also identified lead contaminated soils in excess of California Title 22 thresholds along approximately 1,100 linear feet of the proposed new pipeline segment. Review of the California Department of Toxic Substances Control (DTSC) Envirostor data base also documents the potential for hydrocarbon contaminated soil at the Air Products 23320 South Alameda Street facility from historical industrial activities.

Mitigation Measure HM-4a requires that a Contaminated Materials Management Plan (CMMP) be prepared and implemented for the duration of construction activities at the Project site. With the implementation of this mitigation measure, any contaminated materials would be required to be handled appropriately by existing regulations including SCAQMD rules; therefore, potential impacts due to contaminated soils would be less than significant with mitigation (Class II).

Transportation and Circulation. Normal operation of the pipeline would not interfere or conflict with existing transit, roadway, bicycle, or pedestrian activities. Operational impacts resulting from the proposed Project would be minimal, temporary, and infrequent and associated with any needed maintenance and repairs. During construction, and on a short-term basis, the proposed Project would have the potential to disrupt normal traffic and circulation on roadways and bicycle or pedestrian activities. The two areas of aboveground construction for the proposed Project are zoned for industrial uses and operate at low traffic volumes and a high level of service under existing conditions. Where existing sidewalks or roadways would be temporarily obstructed by pipeline construction activities (Impact T.1), alternative pedestrian and vehicle access routes would be developed and marked accordingly consistent with the Traffic Control Handbook and traffic control minimization measures proposed as part of the Project.

Mitigation Measure T-1 requires that alternative vehicle and pedestrian access be established during the construction phase. With implementation of this mitigation measure, potential impacts to vehicle and pedestrian access would be less than significant with mitigation (Class II).

Normal operation of the pipeline would not result in any change to emergency access or emergency response. Pipeline construction has the potential for temporary traffic disruption and may require the use of alternate traffic routes (Impact T.4). The applicant proposed traffic control measures, use of visual traffic control including signs, traffic cones, and flaggers would direct motorists and emergency responders to those alternate routes.

Mitigation Measure T-4 requires that emergency response providers in the vicinity of construction sites be given advance notice of the construction schedule and locations, road closures, and possible alternate routes. With implementation of this mitigation measure, potential impacts to emergency access would be less than significant with mitigation (Class II).

Tribal Cultural Resources. The proposed Project is not expected to cause a substantial change in the significance of a historical, archaeological, or tribal cultural resource. A records search from the South Central Coastal Information Center of the California Historical Resources Information System (SCCIC-CHRIS) did not identify any historical or archaeological resources along the proposed 0.5-mile pipeline in the City of Carson. In addition, the Phase I Archaeological Survey did not identify any archaeological resources along the same 0.5-mile pipeline. However, the SCCIC-CHRIS records search did identify four archaeological sites are recorded within 0.25-mile of the Project site. One site, CA-LAN-2682, is a protohistoric habitation site and cemetery approximately 618 feet west of the western end of the Project site. All visible human remains were removed in 1998; however, future excavation may expose additional human remains in any direction from the known burials. Given the proximity to CA-LAN-2682 there is a

possibility that unknown buried resources of historical or archaeological resources could occur within the Project site (Impact TC.1 and TC.3).

Mitigation Measure TC-1a requires the Project Applicant retains and compensates for the services of a Tribal monitor/consultant who is both approved by the Gabrieleño Band of Mission Indians-Kizh Nation Tribal Government and is listed under the NAHC's Tribal Contact list for the area of the Project location. Mitigation Measure TC-1b provides the protocol to be followed in the event that construction activities result in the discovery of a tribal cultural or archaeological resource. With implementation of these mitigation measures, potential impacts to historical, archaeological, and tribal cultural resources would be less than significant with mitigation (Class II).

As noted above, four archaeological sites are recorded within 0.25-mile of the proposed Project site. The CA-LAN-2682 site is a protohistoric habitation site and cemetery approximately 618 feet west of the western end of the Project site. Given the proximity to CA-LAN-2682 there is a possibility that unknown buried human remains could occur within the Project site.

Mitigation Measure TC-2 provides the protocol to be followed in the event that human remains are discovered during construction activities. With implementation of these mitigation measures, potential impacts to historical, archaeological, and tribal cultural resources would be less than significant with mitigation (Class II).

ES.6.2 Impacts Associated with the Alternatives

As discussed in Section ES.4 several alternatives to the proposed Project were evaluated that had the potential to reduce significant impacts. The relative impacts of each of these alternatives to the proposed Project are summarized below.

No Project Alternative

With the No Project Alternative, no new environmental impacts would occur. However, there would continue to be potential risk impacts of the ongoing trucking of liquified hydrogen from Ontario to Paramount.

New Pipeline Alternative

Air Quality. A new pipeline would involve the construction of additional portions of pipeline through urban areas as well as the installation of the new portion of the pipeline as in the proposed Project. The peak day construction emissions would be similar to the proposed Project peak day construction emissions as similar equipment requirements would be utilized for this alternative. The proposed Project analysis demonstrated less than significant for regional and local emissions (See Section 4.1, Air Quality). As emissions associated with construction would be less than the SCAQMD construction regional thresholds, impacts would be less than significant for regional emissions.

For localized impacts, the construction emissions associated with the pipeline modifications would be located at different locations and, in some cases, in close proximity to residences and receptors. Emissions levels are estimated to be above the localized thresholds for a 1 acre site located within 25 meters of a receptor, as per the SCAQMD lookup tables. The majority of these particulate matter (PM10) emissions are associated with fugitive dust (58% of PM10). The only watering mitigation in the CalEEMod analysis for the proposed Project was limiting vehicle speeds to 15 mph and watering 2x per day (for a 55% reduction). Without additional dust mitigation or diesel engine mitigation, impacts could be significant.

Mitigation Measure AQ-Alt1 would require Tier 4 final engines on all equipment greater than 50 hp along areas of the northern sections. Mitigation Measure AQ-Alt2 would require that the watering of all disturbed areas at least 3x per day along areas of the northern section. For the section of new pipeline located near the Carson Facility, the distances to receptors are large enough that the mitigation measures are not required. Implementation of these mitigation measures would reduce air quality impacts for this alternative to less than significant (Class II).

Climate Change/Greenhouse Gas Emissions. GHG emissions would occur from the construction activities associated with this alternative. GHG emissions are estimated to be 2,876 MT CO2e associated with the construction activities based on scaling from the proposed Project installed new pipeline length. Operational emissions would be the same as the proposed Project. As operational emissions and construction emissions amortized along with operational electrical use, would be less than the emissions associated with baseline trucking by 57 MTCO2e, the addition of this alternatives construction GHG emissions would still be less than significant (Class III).

Hazardous Materials/Risk of Upset. Risk of upset impacts for a new pipeline follow the same analysis as described for the proposed Project, with different route and population densities and with more new sections of pipeline, thereby reducing somewhat the failure frequency. For Impact HM.2, as discussed in Section 4.3, Hazardous Materials and Risk of Upset, there is the potential for a significant hazard associated with an upset condition.

Impacts associated with the alternative new pipeline project are marginally below those presented by the baseline trucking operations. The new pipeline presents lower risk levels than the proposed Project as it could be routed through areas of lower density and would have a lower failure rate than the proposed Project pipelines. Average density along the alternative pipeline route would average about 7,200 persons per square mile whereas the density along the proposed Project pipeline route would average about 10,150. There would be a marginal reduction in risk levels over the baseline but would remain in the unacceptable portion of the FN curves. The impacts in the event of an upset condition would therefore be significant.

Mitigation measures HM-2a, HM-2b and HM-2c would all be applicable to this alternative. Even with implementation of these mitigation measures, impacts related to HM.2 would remain potentially significant (Class I).

Impacts related to HM.1 (routine use of hazardous materials), HM.3 (impacts near schools), HM.5 (airport land use plans), HM.6 (emergency response plans) and HM.7 (wildland fires) would have similar impacts as the proposed Project. See Section 4.3, Risk of Upset. Impact HM.4 (hazardous materials sites) would be similar to the proposed Project and mitigation measure HM-4a related to a construction management plan to ensure proper handling and identification of contaminated soils, would be applicable.

Land Use. Land use impacts would be the same as the proposed Project. The route associated with this alternative would continue to traverse the same areas as in the proposed Project route. Land use impacts are expected to be less than significant (Class III).

Transportation and Circulation. Transportation impacts related to construction could be substantially more than the proposed Project since they would require pipeline construction through city streets. Those impacts are considered to be temporary during pipeline construction and would require similar measures to prevent traffic impacts as proposed by the Applicant and mitigation measures T.1 and T.4; therefore, transportation impacts would be less than significant (Class III). No additional impacts are expected.

Tribal Cultural Resources. Construction activities would be similar to the proposed Project with a substantially higher level of construction activity needed to construct a new pipeline. Although additional excavation would be needed, these would occur in previously disturbed areas, within existing roads or ROWs and are unlikely to contain any unknown cultural resources. Nevertheless, mitigation measures required under the proposed Project would also be required for this alternative. With implementation of MMs TC-1a, TC-1b, and TC-2, this potential impact would be less than significant with mitigation (Class II)

Other Issue Areas. This alternative would have similar impacts as those from the proposed Project and it is not expected that any additional impacts would occur on any of the other issues areas as discussed in Section 4.7 for the proposed Project.

Pipeline Modifications Alternative

Air Quality. Pipeline modifications would involve the construction of additional portions of the pipeline along the existing pipeline route as well as the installation of the new portion of the pipeline. Emissions would be associated with construction equipment, including backhoes, welding machines, asphalt paving and some fugitive dust emissions. Emissions associated with construction would be less than the SCAQMD construction thresholds as discussed in Section 5.0 , and therefore, impacts would be less than significant.

For localized impacts, the construction emissions associated with the pipeline modifications would be located at 12 different locations and, in some cases, in close proximity to residences at receptors. Impacts are also determined to be less than significant.

Operational emissions of the pipeline with modifications would be the same as the proposed Project except for occasional pigging operations, which would emit a nominal amount of emissions on an operational basis particularly as hydrogen is not a criteria or toxic pollutant. Therefore, for construction and operations, impacts for this alternative would be less than significant (Class III).

Climate Change/Greenhouse Gas Emissions. GHG emissions would occur from the construction activities associated with this alternative. GHG emissions are estimated to be 25 MT CO2e associated with the construction activities at all 12 sites. Emissions from the proposed Project would be similar to the emissions from this alternative and would be less than significant (Class III).

Hazardous Materials/Risk of Upset. Impacts associated with risk of upset for the Pipeline Modifications Alternative would be similar to the proposed Project. The test pressures used for the pipeline historically have ranged over 900 psig, which is a ratio of operating pressure to test pressure of 3.5 to 5.6 times from operating the pipeline at 260 and 160 psig respectively. The recommended test pressure ratio is 1.50 as per ASA B31.8 Code. Therefore, the hydrostatic testing as historically conducted on the pipeline is well above that required. Therefore, due to the large operating pressure to test pressure ratio and resulting factor of safety associated with the ratio, the failure frequency related to the pipeline would not be substantially enhanced the pipeline modifications associated with this alternative. This assumes the implementation of mitigation measures HM-2a, HM-2b and HM-2c, which require operations of the pipeline at 160 psig and monitoring of the pipeline for hydrogen-related metallurgical issues and continued pressure testing at a higher than required levels and frequencies. Impacts associated with risk of upset would therefore be similar to the proposed Project.

Land Use. Land use impacts would be the same as the proposed Project. The route is not proposed to be changed under this alternative so the pipeline would continue to traverse the same areas as in the proposed Project route. Land use impacts would still be less than significant (Class III).

Transportation and Circulation. Transportation impacts related to construction would be greater than those of the proposed Project due to construction activities in 12 different in-street locations. Those impacts are considered to be temporary during the retrofitting of the pipeline and would require similar measures to prevent traffic impacts as proposed by the Applicant. As such, impacts would be less than significant. No additional long-term impacts are expected beyond those of the proposed Project.

Tribal Cultural Resources. Construction activities would be similar to the proposed Project with a similar number and level of construction activity needed to fix pipeline corners and bends. However, the locations of the excavations would be expanded to include those areas needed to be retrofitted. Although additional excavation would be needed, these would occur in previously disturbed areas, within existing roads and are unlikely to contain any cultural resources. Nevertheless, mitigation measures required under the proposed Project would also be required for this alternative. With implementation of MMs TC-1a, TC-1b, and TC-2, this potential impact would be less than significant with mitigation (Class II)

Other Issue Areas. This alternative would have similar impacts as those from the proposed project and it is not expected that any additional impacts would occur in any of the other issues areas as discussed in Section 4.7 for the proposed Project.

Truck Transportation from the Air Products Carson Facility Alternative

Air Quality. Emissions associated with this alternative would be those emissions associated with truck transportation of hydrogen. Emissions associated with operations of trucks would be below the SCAQMD thresholds for this alternative. Localized thresholds are not applicable to on road sources of emissions and are therefore not addressed. As discussed in Section 5.0, impacts of this alternative on air quality would therefore be less than significant (Class III).

Climate Change/Greenhouse Gas Emissions. GHG emissions from this alternative would be associated with truck transportation of hydrogen. Emissions of GHG are estimated to be 434 MT CO2e per year. GHG emissions would be less than the SCAQMD thresholds and would be less than significant (Class III).

Hazardous Materials/Risk of Upset. The Truck Transportation Alternative addresses potential releases and consequences of the truck transportation of gaseous hydrogen. The release scenarios associated with truck transportation of gaseous hydrogen involve a release from a hydrogen tube trailer truck involved in an accident or an equipment malfunction. Impacts for this alternative would be similar or greater than those presented for the baseline or the proposed Project as the potential for explosions increases the potential number of persons impacted.

Due to the lower release frequency of larger sized spills, the risks of gaseous hydrogen trucking would be similar to the pipeline or liquid hydrogen trucking risks in the lower end of the FN curve. However, due to the higher potential for explosions due to the high-pressure gas, the risks of producing larger impact scenarios increases the risks of gaseous hydrogen trucking and the risks would be significant (Class I) and greater than the baseline or proposed Project operations.

Land Use. Truck transportation of all types of cargo occurs throughout the Los Angeles basin and it is contemplated in various land use plans and ordinances. Under this alternative, there would be no additional land use impacts similar to the proposed Project and potential impacts would still be less than significant (Class III).

Transportation and Circulation. This alternative would involve truck transportation from Carson to Paramount of 35 truck trips per day as opposed to the baseline number of an average of six trucks per day. An increase of 29 trucks per day on the Los Angeles roads and highways would not be significant,

with peak hour traffic involving generally only a single truck. Therefore, transportation and traffic impacts would be less than significant.

Tribal Cultural Resources. This alternative would not include any construction that could result in impacts to tribal cultural resources, and as such no additional mitigation would be needed. This alternative would have impacts that are less than significant to cultural and tribal resources (Class III).

Other Issue Areas. Other issue areas were found to have less than significant impacts for this alternative since there would be no new construction, and no effects are expected to aesthetics, agricultural resources, biological resources, geology, noise, population and housing, public services, recreation, and water resources.

Hydrogen Generation Unit Alternative

Air Quality. Hydrogen generation at the Paramount Refinery site would not produce additional operational emissions as the hydrogen would not be required to be produced at any other location and therefore the emissions associated with hydrogen production would be offset by reduced production elsewhere. As discussed in Section 4.1, Air Quality, worst case estimated emissions from operating a hydrogen plant at the Paramount Refinery would produce similar emissions, but at a different location. Localized emissions would occur at a distance from receptors but could still produce localized impacts. Based on previous analysis for the Carson Plant, regional and localized emissions would be less than significant.

Construction of a hydrogen plant at the Paramount Refinery would involve the use of construction equipment and deliveries of materials. The Air Products Carson Facility provides an upper estimate of the construction requirements associated with building a hydrogen plant and this project was examined in an EIR (City of Carson, June 1998, SCH97071078). As per the Carson Hydrogen Plant EIR, impacts from construction emissions would be above the SCAQMD regional thresholds. Although the Carson Facility is a substantially larger facility than would be required to supply hydrogen to the Paramount Refinery, peak day emissions would be similar as a worst-case and construction impacts could be potentially significant (Class I).

Note that the cumulative project, the expansion of the World Energy Renewable Fuels Project at the Paramount Refinery, is currently proposed and that construction of a hydrogen generation unit at the Paramount Refinery may already occur, which would involve a similar level of construction emissions.

Climate Change/Greenhouse Gas Emissions. Similar to air quality impacts above, for GHG emissions, hydrogen generation at the Paramount Refinery site would not produce additional GHG emissions as the hydrogen would not be required to be produced at any other location. Also, as the hydrogen used by the Paramount Refinery would be gaseous hydrogen, this alternative would produce fewer GHG emissions per unit of hydrogen than the baseline operations because less energy would be needed than is required to liquify the hydrogen and to transport the hydrogen. However, worst-case operations of a hydrogen plant would exceed the SCAQMD thresholds. As most of these emissions would be covered by the Cap-and-Trade program, GHG emissions increases would be less than significant.

Construction of the plant would take at most a year based on the Carson Plant EIR, with GHG emissions estimated to be less than 2,000 tons of CO2e, based on the equipment list from the 1998 EIR and an estimated year of construction. Construction emissions would be below the SCAQMD thresholds and, in combination with operational emissions, GHG impacts of this alternative would be less than significant (Class III).

Hazardous Materials/Risk of Upset. The risks associated with operating a hydrogen generation unit would involve the scenarios of leaks or ruptures of hydrogen from tanks and/or processing equipment. Studies associated with the impact zones from releases were performed by Quest for the proposed expansion of the Paramount Refinery Renewable Fuel Project, currently undergoing CEQA review. Impacts zones associated with the hydrogen facility were estimated to extend 415 feet for explosions and 414 feet for vapor cloud fires. The closest residences are located more than 500 feet from the proposed hydrogen facility location at the Paramount Refinery, with a plant nursey located within 430 feet of the hydrogen plant location. Therefore, risks would be minimal associated with the new hydrogen generation plant as impact zones would not extend to residential areas and would only affect low-density locations and no roadways.

In addition, the Paramount Refinery renewable fuel project currently at the Paramount Refinery has three hydrogen tanks, a truck unloading facility and associated piping. A hydrogen generation plant would not introduce greater risks than the current risks located at the Paramount Refinery related to hydrogen. Therefore, the risks of installation and operation of a hydrogen generation plant at the Paramount Refinery would be less than significant (Class III).

Land Use. This alternative would include construction and subsequent operation of a hydrogen plant within an existing facility zoned for such a use and with ongoing industrial uses. No land use impacts are expected for this alternative. Land use impacts would still be less than significant (Class III).

Transportation and Circulation. This alternative would incur more impacts that the proposed Project since it would require transporting materials and construction equipment and construction workers to the site. With the applicant proposed Avoidance and Minimization Measures (AMMs) to minimize traffic issues, impacts would be less than significant with mitigation (Class II).

Tribal Cultural Resources. This alternative would incur into similar cultural impacts as the proposed Project since it would require construction of a new hydrogen plant within the existing Paramount Refinery which would have minimal impacts since it is a previously disturbed and an industrially developed site. However, mitigation measures required under the proposed Project would also be required for this alternative. With implementation of MMs TC-1a, TC-1b, and TC-2, this potential impact would be less than significant with mitigation (Class II)

Other Issue Areas. Other issue areas were found to have less than significant impacts for this alternative, similar to the proposed Project, and no effects are expected to aesthetics, agricultural resources, biological resources, geology, noise, population and housing, public services, recreation, and water resources. Construction of a hydrogen plant within an existing Refinery would not have any additional impacts in other issue areas.

ES.6.3 Impacts Associated with the Cumulative Development

Section 15130(a)(1) of the CEQA Guidelines (14 CCR, Div. 6, Ch. 3) states that a "cumulative impact consists of an impact which is created as a result of the combination of the project evaluated in the EIR together with other projects causing related impacts." CEQA requires a discussion of the cumulative impacts of a project when the project's incremental effect is "cumulatively considerable" (14 CCR §15130(a)). Section 3.0 of this EIR provides a list of past, present, and probable future projects that could have cumulative effects with the proposed Project. Table ES-4 provides a summary of the proposed Project's cumulative effects. The significant cumulative effects identified in the EIR are summarized below.

Air Quality. Localized air quality impacts are generally restricted to an area within a few blocks from a project site. The localized impacts of construction would extend about 500 meters from those areas

where a new pipeline is being built. None of the cumulative projects would be constructed near enough to the proposed Project area for localized impacts to overlap, so there would be no construction localized impacts associated with cumulative projects. Similarly, the proposed Project would not have considerable emissions during operations and as such, no cumulative impacts are expected.

Climate Change/Greenhouse Gas Emissions. Emissions of GHG are a global issue and therefore all GHG emissions are cumulative and would contribute to global GHG emissions impacts. The thresholds as developed by the SCAQMD address cumulative impacts of GHG by determining a threshold whereby a project below the thresholds would, by definition, not have a cumulative impact. Since the proposed Project GHG emissions are less than significant, and actually produce a reduction in GHG emissions over the existing operations, cumulative GHG emissions would be less than significant.

Hazardous Materials/Risk of Upset. None of the projects listed in Section 3.0, Cumulative Scenario, (except the World Energy project) involve the use of hazardous materials and would therefore not contribute to the risks identified associated with the proposed Project pipeline. Some components of the cumulative project would involve construction and there is the potential for these to impact the pipeline once it is operating. However, the management systems in place for construction projects and "dig alerts" requirements effectively mitigation these potential impacts.

However, the proposed Project could overlap with the Metro West Santa Ana Branch Transit Corridor Project and create potential risk of upset issues (Impact HM.Cum1). The Metro project would intersect the proposed Project pipeline near the tie-in location at Paramount Refinery. Construction activities could impact the pipeline if sufficient coordination activities are not implemented which could result in potentially significant cumulative impacts.

Mitigation Measure HM-Cum1 requires coordination between the proposed Project and the Los Angeles County Metropolitan Transit Authority before any permit issuance. Implementation of MM HM-Cum1 will ensure overlapping design elements do not interfere with either Project or increase the potential for risk of upset issues. Impacts would be less than significant with mitigation (Class II).

The proposed expansion of the World Energy Renewable Fuels Project located at the Paramount Refinery is another cumulatively significant project relative to the proposed Project. This project is currently in the CEQA review phase of project permitting and would involve the expansion of the existing renewable fuels project (3,500 barrels per day, bpd) into a facility that could process about 25,000 bpd of refinery input for the development of bio-based transportation fuels.

A part of the expansion project is the development of a hydrogen generation unit that would be capable of supplying all of the hydrogen needs of the expansion of the World Energy Renewable Fuels Project. The use of an onsite hydrogen generation unit could reduce or eliminate the need to have a hydrogen pipeline (or trucks) transport hydrogen to the Paramount Refinery on a long-term basis. Interim use of the pipeline would allow for the supply of hydrogen to the Paramount Refinery while this cumulative project is being permitted and built. The reduction or elimination of the use of the pipeline after the completion of the expansion of the World Energy Renewable Fuels Project would eliminate the long-term risks identified as significant in Section 4.3, Risk of Upset. Risks would still remain significant but would be realized for a shorter period of time, thereby reducing the severity of the impact. Note that this is the same scenario as described under the onsite hydrogen generation alternative in Section 5.0, Alternatives. See Section 5.0, Alternatives, for further discussion of the impacts of this cumulative project.

Land Use. The proposed Project would not result in any land use impacts; therefore, the proposed Project would not have a cumulative effect on the land use plans and regulations of the City of Carson or any surrounding jurisdiction.

Transportation and Circulation. The potential traffic impacts from the proposed Project were evaluated for both construction and operations. Impacts to traffic during construction would be temporary in nature and would not have any potential cumulative effect when evaluated in conjunction with other neighboring projects. There is not expected to be any transportation impacts during operations that would have any potentially cumulative effect when considered with other neighboring projects. Therefore, the proposed Project would have a less than significant cumulative transportation impact.

Tribal Cultural Resources. According to CEQA cultural resources include historic properties (standing buildings or structures), historical and prehistoric archaeological sites, paleontological resources, and human remains inside or out of designated cemeteries. Grading and ground disturbing activities can significantly impact these non-renewable resources. Without mitigation, these resources would be destroyed through construction and urban expansion resulting in cumulative loss of cultural resources over time. However, applicable state and City laws and regulations, as discussed above, offer guidance for managing cultural resources, provide for preservation of significant natural and cultural resources, and direct mitigation through data recovery where avoidance is not possible.

The cumulative impact study area includes the immediate vicinity surrounding the proposed Project sites in the City of Carson, Long Beach, City of los Angeles, County of Los Angeles, Lakewood, Bellflower and the City of Paramount. There are no known projects of a scale and in a location that could add to cumulative impacts to cultural resources and no cumulative effects are expected to occur as a result of this or other projects in the area that would include any type of excavation or construction. In the event that other projects in the surrounding areas could have any potential impacts, it is expected that those projects would be appropriately mitigated as described above and therefore, would not incur in any cumulative impacts.

ES.7 Environmentally Superior Alternative

Section 5.0, Alternatives, provides an analysis of the impacts of each selected alternative, compares the impacts of each alternative to the proposed Project, and identifies the Environmentally Superior Alternative. Table 5.8 in Section 5.0, Alternatives, provides a relative comparison of the Class I, Class II, and Class III impacts of each alternative to the proposed Project by issue area and impact.

The onsite hydrogen production alternative would involve the installation of a hydrogen generation unit at the Paramount Refinery to supply the hydrogen needed at the Paramount Refinery instead of the transportation of hydrogen by truck or pipeline. This alternative assumes that a small hydrogen plant could be permitted and built to provide onsite hydrogen to the Paramount Refinery, or that the proposed hydrogen generation unit as part of the expansion of the World Energy Renewable Fuels Project is completed or, if that project does not move forward, a smaller plant is built to satisfy the needs of the existing facility at the Paramount Refinery, then transportation of hydrogen would cease.

The onsite hydrogen production alternative would have more traffic and potential cultural-tribal impacts than the proposed Project, due to the increased amount of construction. However, both of these impacts would be less than significant with mitigation. This alternative would generate a Class I, significant and unavoidable impacts due to the construction emissions associated with the construction of a hydrogen plant. However, these significant and unavoidable construction air quality impacts would be temporary. In addition, irrespective of the proposed Project, the expansion of the World Energy Renewable Fuels Project may occur anyway and incur those air quality impacts. The main advantage of this alternative is the elimination of the Class I, significant and unavoidable, risk of upset impact associated with the proposed Project through the elimination of the need to transport hydrogen, either by truck or pipeline.

The onsite hydrogen production alternative satisfies the underlying purpose of the Project by supplying hydrogen to the Paramount Refinery and eliminates the Class I risk of upset impact. However, this alternative would not meet the Applicant's objective of conversion of an existing pipeline system to hydrogen use, and also does not satisfy the objective to extend the hydrogen pipeline network to provide hydrogen to the Paramount Refinery. As noted above, the World Energy Renewable Fuels Project is currently undergoing permit review and environmental analysis for its expansion, and if approved, will take an additional 2-3 years to be constructed and accrue the environmental benefits mentioned. It is possible that during that time, the proposed pipeline Project could provide hydrogen to the Paramount Refinery, until and if, the expansion Project is approved and built. Although it is recognized that there may be limitations in meeting the objectives, delays in the timing and uncertainty in the permitting to this alternative, it has been selected as the environmentally superior alternative due to the long-term elimination of the risk of upset impact associated with the use of the proposed Project pipeline.

Table ES.1
Proposed Project CLASS I Impacts
Impacts That May Not Be Fully Mitigated to Less Than Significant Levels
(Impacts that must be addressed in a "statement of overriding consideration" if the project is approved in accordance with Sections 15091 and 15093 of the State CEQA Guidelines)

Impact #	Description of Impact	Phase	Mitigation Measure
HAZARDOUS MATERIALS AND RISK OF UPSET (Section 4.3)			
HM.2	The proposed Project would create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.	Construction or Operation	HM-2a-Maximum Pressure Allowance. The pipeline shall be operated at a maximum pressure at any point in the pipeline of 160 psia. The operator shall maintain operating pressure information that shall be made available upon request. Information on pipeline maintenance, including pressure testing and any direct assessments or any other pipeline issues, shall be reported to the City. PLAN REQUIREMENTS and TIMING: The Project Owner/Operator shall operate the pipeline at a maximum pressure at any point in the pipeline of 160 psia. Information on operating pressure and pipeline maintenance shall be documented and reported to the City. MONITORING: The City will work with the Owner/Operator to ensure the terms of this measure are met. HM-2b-Testing and Monitoring for Hydrogen Issues. The pipeline shall be monitored on an annual basis for any issues that could indicate increased rates of the loss of pipeline integrity, such as hydrogen-related embrittlement, through the use of in service inspection methods, corrosion-type coupons or other equivalent methods. The monitoring procedure shall be documented and available for inspection upon request. PLAN REQUIREMENTS and TIMING: The Project Owner/Operator shall monitor and inspect the pipeline annually for hydrogen issues. MONITORING: The City will work with the Owner/Operator to ensure the terms of this measure are met. HM-2c-Pressure Testing. The pipeline shall continue to be pressure tested at a MAOP to test pressure ratio of at least 3.0 to ensure pipeline integrity. In addition, the testing shall be performed at an annual basis for the first 3 years to ensure that no issues are introduced to the pipeline due to the use of hydrogen. Subsequent years tests may be relaxed to once every 3-5 years as per PHMSA requirements. PLAN REQUIREMENTS and TIMING: The Project Owner/Operator shall continue to pressure test the pipeline at a MAOP to test pressure ratio of at least 3.0 and perform testing per PHMSA requirements. MONITORING: The City will work with the Owner/Operator to ensure the terms of this measure are met.

Table ES.2
Proposed Project CLASS II Impacts
Impacts That Can Be Mitigated to Less Than Significant Levels
(Impacts that must be addressed in Findings that the mitigation measures would reduce the level of impact to insignificant in accordance with Sections 15091 of the State CEQA Guidelines)

Impact #	Description of Impact	Phase	Mitigation Measure
HAZARDOUS MATERIALS AND RISK OF UPSET (Section 4.3)			
HM.4	The Project could 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 it create a significant hazard to the public or the environment.	Construction	HM-4-Contaminated Materials Management Plan. A Contaminated Materials Management Plan (CMMP) should be prepared and implemented during the course of the construction activities planned at the Project Site. The CMMP should include maps illustrating areas of suspected or known soil contamination. The CMMP should also include the methods for identification of contaminated materials, and removal/disposal of contaminated materials and be consistent with South Coast Air Quality Management District (SCAQMD) rules for the handing of contaminated materials. PLAN REQUIREMENTS and TIMING: The Applicant shall prepare and submit a Contaminated Materials Management Plan and implement the plan requirements for duration of construction activities. MONITORING: The City will work with the Applicant to ensure the terms of this measure are met.
TRAFFIC AND CIRCULATION (Section 4.5)			
T.1	The Project would not conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities.	Construction and Operation	T-1. Alternative vehicle and pedestrian access would be established during construction. The Operator should provide a route specific traffic and circulation plan that provides safe access to sidewalks and other areas frequented by pedestrian during construction. PLAN REQUIREMENTS and TIMING: The Applicant shall prepare and submit a route specific traffic and circulation plan and implement the plan requirements for the duration of construction activities. MONITORING: The City will work with the Applicant to ensure the terms of this measure are met.
T.4	The Project may result in inadequate emergency access.	Construction	T-4. Emergency response providers in the vicinity of construction sites would be given advance notice of the construction schedule and locations, road closures, and possible alternate routes. PLAN REQUIREMENTS and TIMING: Prior to construction, the Applicant shall provide emergency response providers with advance notice of construction schedule and locations, road closures, and alternate routes. MONITORING: The City will work with the Applicant to ensure the terms of this measure are met.

Table ES.2
Proposed Project CLASS II Impacts
Impacts That Can Be Mitigated to Less Than Significant Levels
(Impacts that must be addressed in Findings that the mitigation measures would reduce the level of impact to insignificant in accordance with Sections 15091 of the State CEQA Guidelines)

Impact #	Description of Impact	Phase	Mitigation Measure
TRIBAL CULTURAL RESOURCES (Section 4.6)			
TC.1	The Project would not cause a substantial adverse change in the significance of a historical or archaeological resource as defined in §15064.5.	Construction	TC-1a-Retain a Native American Monitor/Consultant: The Project Applicant shall be required to retain and compensate for the services of a Tribal monitor/consultant who is both approved by the Gabrieleño Band of Mission Indians-Kizh Nation Tribal Government and is listed under the NAHC's Tribal Contact list for the area of the project location. This list is provided by the NAHC. The monitor/consultant will only be present on-site during the construction phases that involve ground disturbing activities. Ground disturbing activities are defined by the Gabrieleño Band of Mission Indians-Kizh Nation as activities that may include, but are not limited to, pavement removal, pot-holing or auguring, grubbing, tree removals, boring, grading, excavation, drilling, and trenching, within the project area. The Tribal Monitor/consultant will complete daily monitoring logs that will provide descriptions of the day's activities, including construction activities, locations, soil, and any cultural materials identified. The on-site monitoring shall end when the project site grading and excavation activities are completed, or when the Tribal Representatives and monitor/consultant have indicated that the site has a low potential for impacting Tribal Cultural Resources. PLAN REQUIREMENTS and TIMING: The Applicant shall retain and compensate for the services of a tribal monitor/consultant for the duration of ground-disturbing construction activities. MONITORING: The City will work with the Applicant to ensure the terms of this measure are met. TC-1b- Unanticipated Discovery of Tribal Cultural and Archaeological Resources: Upon discovery of any tribal cultural or archaeological resources, cease construction activities in the immediate vicinity of the find until the find can be assessed. All tribal cultural and archaeological resources unearthed by project construction activities shall be evaluated by the qualified archaeologist and tribal monitor/consultant approved by the Gabrieleño Band of Mission Indians-Kizh Nation. If the resources are Native American in origin, the Gabrieleño Band of Mission Indians-Kizh Nation shall coordinate with the landowner regarding treatment and curation of these resources. Typically, the Tribe will request preservation in place or recovery for educational purposes. Work may continue on other parts of the project while evaluation and, if necessary, additional protective mitigation takes place (CEQA Guidelines

Table ES.2
Proposed Project CLASS II Impacts
Impacts That Can Be Mitigated to Less Than Significant Levels
(Impacts that must be addressed in Findings that the mitigation measures would reduce the level of impact to insignificant in accordance with Sections 15091 of the State CEQA Guidelines)

Impact #	Description of Impact	Phase	Mitigation Measure
			Section15064.5 [f]). If a resource is determined by the qualified archaeologist to constitute a "historical resource" or "unique archaeological resource", time allotment and funding sufficient to allow for implementation of avoidance measures, or appropriate mitigation, must be available. The treatment plan established for the resources shall be in accordance with CEQA Guidelines Section 15064.5(f) for historical resources. PLAN REQUIREMENTS and TIMING: In the event of an unanticipated discovery during construction, the Applicant shall cease construction in the vicinity of the find until the find is assessed by the tribal monitor and a qualified archaeologist. MONITORING: The City will work with the Applicant to ensure the terms of this measure are met.
TC.2	The Project would not disturb any human remains, including those interred outside of dedicated cemeteries.	Construction	TC-2- Unanticipated Discovery of Human Remains: Upon discovery of human remains, the tribal and/or archaeological monitor/consultant will immediately divert work at minimum of 150 feet and place an exclusion zone around the discovery location. The monitor/consultant(s) will then notify the Tribe, the qualified lead archaeologist, and the construction manager who will call the coroner. Health and Safety Code 7050.5 dictates that any discoveries of human skeletal material shall be immediately reported to the County Coroner and excavation halted until the coroner has determined the nature of the remains. If the coroner recognizes the human remains to be those of a Native American or has reason to believe that they are those of a Native American, he or she shall contact, by telephone within 24 hours, the Native American Heritage Commission (NAHC) and PRC 5097.98 shall be followed. The discovery is to be kept confidential and secure to prevent any further disturbance. PLAN REQUIREMENTS and TIMING: In the event of an unanticipated discovery during construction, the Applicant shall cease construction in the vicinity of the find until the find is assessed by the tribal monitor and a qualified archaeologist. MONITORING: The City will work with the Applicant to ensure the terms of this measure are met.

Table ES.2
Proposed Project CLASS II Impacts
Impacts That Can Be Mitigated to Less Than Significant Levels
(Impacts that must be addressed in Findings that the mitigation measures would reduce the level of impact to insignificant in accordance with Sections 15091 of the State CEQA Guidelines)

Impact #	Description of Impact	Phase	Mitigation Measure
TC.3	The Project would not cause a substantial adverse change in the significance of a tribal cultural resource that is listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in PRC Section 5020.1(k), or one that is determined by the lead agency to be significant pursuant to criteria set forth in subdivision (c) of PRC Section 5024.1.	Construction	Impact TC.3 requires the implementation of Mitigation Measures TC-1a and TC-1b above.

Table ES-3
Proposed Project CLASS III Impacts
Adverse but Not Significant Impacts

Impact #	Description of Impact	Phase	Mitigation Measures
AIR QUALITY AND GREENHOUSE GASES (Section 4.1)			
AQ.1	The proposed Project would not conflict with or obstruct implementation of the applicable air quality plan.	Construction or Operation	None Required
AQ.2	The proposed Project would not 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.	Construction or Operation	None Required
AQ.3	The proposed Project would not expose sensitive receptors to substantial pollutant concentrations.	Construction or Operation	None Required
AQ.4	The proposed Project would not result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.	Construction or Operation	None Required
CLIMATE CHANGE AND GREENHOUSE GASES (Section 4.2)			
GHG.1	The proposed Project would not generate greenhouse gas emissions, either directly or indirectly, that would have a significant impact on the environment.	Construction or Operation	None Required
GHG.2	The proposed Project would not conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.	Construction or Operation	None Required
HAZARDOUS MATERIALS AND RISK OF UPSET (Section 4.3)			
HM.1	The proposed Project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.	Construction or Operation	None Required
HM.3	The proposed Project could emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.	Construction or Operation	None Required

Table ES-3
Proposed Project CLASS III Impacts
Adverse but Not Significant Impacts

Impact #	Description of Impact	Phase	Mitigation Measures
HM.5	The proposed Project would not conflict with any airport land use plan and would not result in a safety hazard or excessive noise for people residing or working within two miles of a public, or public use, airport.	Construction or Operation	None Required
HM.6	The proposed Project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.	Construction or Operation	None Required
HM.7	The proposed Project would not expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires.	Construction or Operation	None required
LAND USE AND POLICY CONSISTENCY (Section 4.4)			
LU.1	The proposed Project would not physically divide a community.	Construction or Operation	None Required
LU.2	The proposed Project would not cause a significant 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.	Construction or Operation	None Required NOTE: Due to the subjectivity of policy interpretation, it is the responsibility of the City decision makers to make the final determination regarding consistency issues as it relates to applicable City policies.
TRAFFIC AND CIRCULATION (Section 4.5)			
T.2	The proposed Project would not conflict or be inconsistent with CEQA Guidelines § 15064.3, subdivision (b).	Construction or Operation	None Required
T.3	The proposed Project may substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).	Construction or Operation	None Required

Table ES-4 Summary of Cumulative Impacts of Proposed Project

Air Quality (Section 4.1)
Localized air quality impacts are generally restricted to an area within a few blocks from a project site. The localized impacts of construction would extend about 500 meters from those areas where a new pipeline is being built. None of the cumulative projects would be constructed near enough to the proposed Project area for localized impacts to overlap, so there would be no construction localized impacts associated with cumulative projects. Similarly, the proposed Project would not have considerable emissions during operations and as such, no cumulative impacts are expected.
Climate Change/Greenhouse Gas Emissions (Section 4.2)
Emissions of GHG are a global issue and therefore all GHG emissions are cumulative and would contribute to global GHG emissions impacts. The thresholds as developed by the SCAQMD address cumulative impacts of GHG by determining a threshold whereby project below the thresholds would, by definition, not have a cumulative impact. Since the Proposed Project GHG emissions are less than significant, and actually produce a reduction in GHG emissions over the existing operations, cumulative GHG emissions would be less than significant.
Hazardous Materials and Risk of Upset (Section 4.3)
None of the projects listed in Section 3.0, Cumulative Scenario, involve the use of hazardous materials and would therefore not contribute to the risks identified associated with the proposed Project pipeline. Some components of the cumulative project would involve construction and there is the potential for these to impact the pipeline once it is operating. However, the management systems in place for construction projects and "dig alerts" requirements effectively mitigation these potential impacts. However, the proposed Project could overlap with the Metro West Santa Ana Branch Transit Corridor Project and create potential risk of upset issues (Impact HM.Cum1). The Metro project would intersect the proposed Project pipeline near the tie-in location at Paramount Refinery. Construction activities could impact the pipeline if sufficient coordination activities are not implemented which could result in potentially significant cumulative impacts. Mitigation Measure HM-Cum1 requires coordination between the proposed Project and the Los Angeles County Metropolitan Transit Authority before any permit issuance. Implementation of MM HM-Cum1 will ensure overlapping design elements do not interfere with either Project or increase the potential for risk of upset issues. Impacts would be less than significant with mitigation (Class II). The proposed expansion of the World Energy Renewable Fuels Project located at the Paramount Refinery is another cumulatively significant project relative to the proposed Project. This project is currently in the CEQA review phase of project permitting and would involve the expansion of the existing renewable fuels project (3,500 barrels per day, bpd) into a facility that could process about 25,000 bpd of refinery input for the development of bio-based transportation fuels. A part of the expansion project is the development of a hydrogen generation unit that would be capable of supplying all of the hydrogen needs of the expansion of the World Energy Renewable Fuels Project. The use of an onsite hydrogen generation unit could reduce or eliminate the need to have a hydrogen pipeline (or trucks) transport hydrogen to the Paramount Refinery on a long-term basis. Interim use of the pipeline would allow for the supply of hydrogen to the Paramount Refinery while this cumulative project is being permitted and built. The reduction or elimination of the use of the pipeline after the completion of the proposed expansion of the World Energy Renewable Fuels Project expansion would eliminate the long-term risks identified as significant in Section 4.3, Risk of Upset. Risks would still remain significant but would be realized for a shorter period of time, thereby reducing the severity of the impact. Note that this is the same scenario as described under the onsite hydrogen generation alternative in Section 5.0, Alternatives. See Section 5.0, Alternatives, for further discussion of the impacts of this cumulative project.
Land Use (Section 4.4)
The proposed Project would not result in any land use impacts; therefore, the proposed Project would not have a cumulative effect on the land use plans and regulations of the City of Carson or any surrounding jurisdiction.

Table ES-4 Summary of Cumulative Impacts of Proposed Project

Transportation and Circulation (Section 4.5)
The potential traffic impacts from the proposed Project were evaluated for both construction and operations. Impacts to traffic during construction would be temporary in nature and would not have any potential cumulative effect when evaluated in conjunction with other neighboring projects. There is not expected to be any transportation impacts during operations that would have any potentially cumulative effect when considered with other neighboring projects. Therefore, the Proposed Project would have a less than significant cumulative transportation impact.
Tribal Cultural Resources (Section 4.6)
According to CEQA cultural resources include historic properties (standing buildings or structures), historical and prehistoric archaeological sites, paleontological resources, and human remains inside or out of designated cemeteries. Grading and ground disturbing activities can significantly impact these non-renewable resources. Without mitigation, these resources would be destroyed through construction and urban expansion resulting in cumulative loss of cultural resources over time. However, applicable state and City laws and regulations, as discussed above, offer guidance for managing cultural resources, provide for preservation of significant natural and cultural resources, and direct mitigation through data recovery where avoidance is not possible. The cumulative impact study area includes the immediate vicinity surrounding the proposed Project sites in the City of Carson, Long Beach, City of los Angeles, County of Los Angeles, Lakewood, Bellflower, and the City of Paramount. There are no known projects of a scale and in a location that could add to cumulative impacts to cultural resources and no cumulative effects are expected to occur as a result of this or other projects in the area that would include any type of excavation or construction. In the event that other projects in the surrounding areas could have any potential impacts, it is expected that those projects would be appropriately mitigated as described above and therefore, would not incur in any cumulative impacts.

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