EXECUTIVE SUMMARY

PROJECT OBJECTIVES, PURPOSE, AND NEED

Pursuant to Section 15124(b) of the California Environmental Quality Act (CEQA) Guidelines, the description of the proposed project is to contain "a clearly written statement of objectives" that will aid the lead agency in developing a reasonable range of alternatives to evaluate in the Environmental Impact Report (EIR), will aid decision makers in preparing findings and, if necessary, a statement of overriding considerations.

The City, as owner and lessor of the oil field property, and Matrix, as prospective developer, operator, and lessee, each have interest in the Project.

City Objectives

- Generate a substantial, long-term income stream for the City.
- Provide long-term resources to help manage environmental issues associated with the Project within the Preserve.
- Minimize environmental impacts from the Project on the Preserve.
- Minimize noise impacts to surrounding areas.
- Minimize traffic impacts to surrounding areas.
- Minimize impacts to the functioning of the Core habitat of the Preserve.
- Minimize impacts to operational, recreational, and educational opportunities of the Preserve.
- Facilitate the long-term preservation and enhancement of the Preserve's ecological resources and native habitat.
- Employ current technologies in an effort to reduce environmental impacts to less than significant levels.

Maintain reasonable fire safety levels for the community and open space.

Matrix Objectives

- Develop the Whittier Main Oil Field, pursuant to the terms of the Oil and Gas Lease with the City of Whittier dated October 28, 2008, utilizing current "slant-drill or high-angle well" technology and other state-of-the-art techniques while maintaining safe and efficient operations.
- Minimize impact to the Preserve, as defined in the Lease, by utilizing existing roads as much as possible and placement of production equipment and facilities on one consolidated site utilizing up to 7 acres.
- Operate in accordance with all prevailing laws and regulations to maximize safety and protect the environment.
- Minimize and mitigate negative impacts of the Project on the local community.
- Stimulate the local economy by providing opportunities for qualified local businesses to sell goods and services and for qualified workers to apply for jobs.
- Maximize oil and gas production from the field, thereby maximizing royalty payments to the City of Whittier

DESCRIPTION OF PROPOSED PROJECT

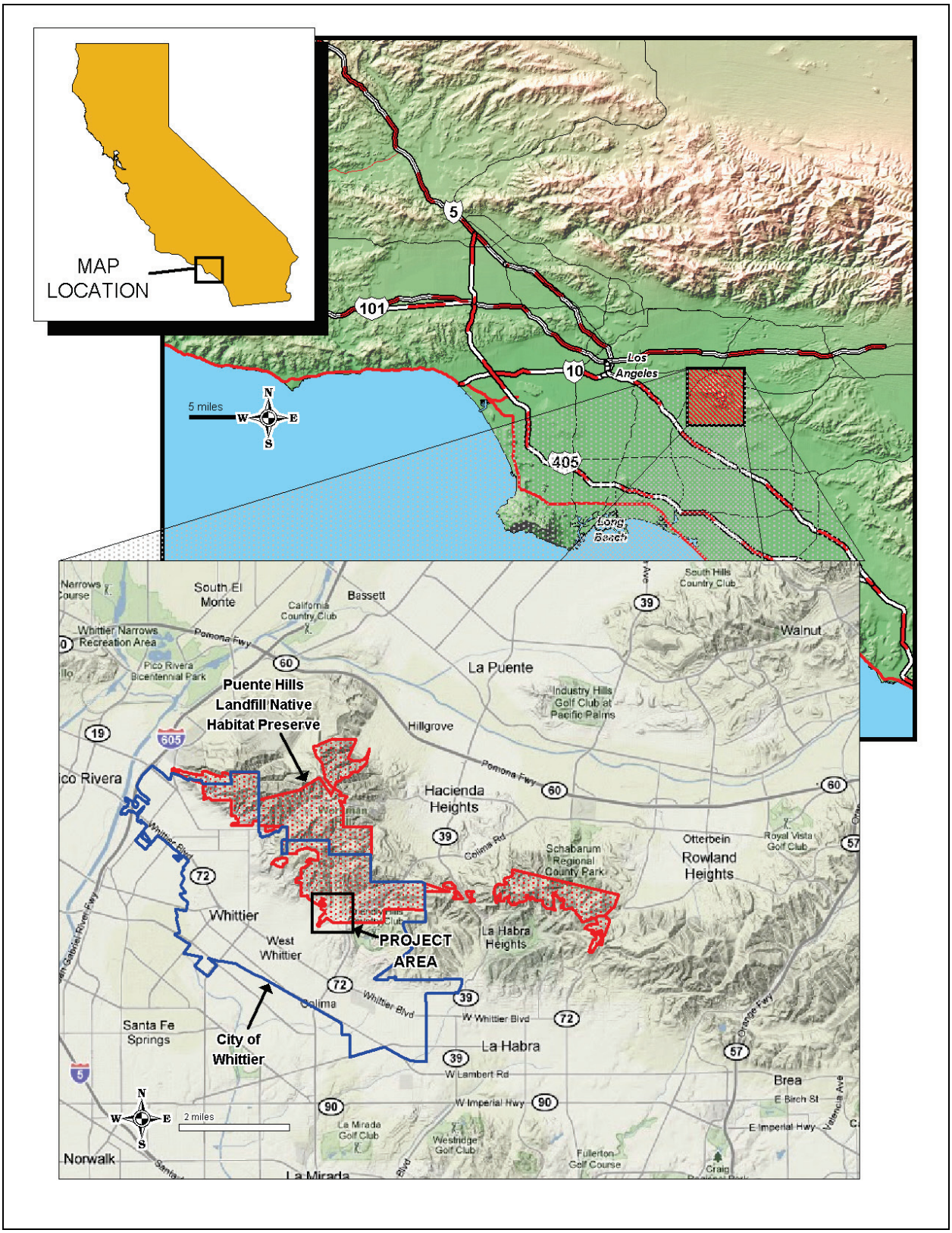
The proposed Project would involve drilling wells and producing oil and gas from the Project Site, which comprises approximately 7 acres of pad area plus additional disturbed and modified areas and roads, owned by the City, which is part of the Puente Hills Landfill Native Habitat Preserve (see Figure ES-1). The 3,869-acre Preserve is located at the eastern edge of Los Angeles County and extends across three jurisdictions: the City of La Habra Heights; the City of Whittier; and the communities of Rowland Heights and Hacienda Heights, both in unincorporated Los Angeles County. Both the San Gabriel and Lower Los Angeles Rivers and Mountains Conservancy and the Wildlife Corridor Conservation Authority, public agencies, have jurisdictional interests in the western Puente Hills (PHLNHPA 2007).

The City owns approximately 1,290 acres of former oil fields as well as the underlying mineral rights in the Preserve in the hills north of the developed areas of the City. This area was commonly known as the Whittier Main Field, an active oil field that produced oil for more than 100 years with approximately 500 drilled wells until the early 1990s. The majority of the land encompassing the oil field was purchased from Chevron and Unocal Corporation by the City via a grant of Proposition A funds. Conditions of this funding require the City to obtain the consent of the Los Angeles County Regional Park and Open Space District ("the District") for certain proposed uses or development of the land for anything other than open space or recreational use. In order to use the proposed approximately 7 acres of the surface within the oilfield area for drilling and pumping, the City will be required to either reimburse the Los Angeles County Proposition A District for the lost acreage or provide a comparable area of land that can be used for open space.

The land is currently managed for the City by the Puente Hills Landfill Native Habitat Preservation Authority (Habitat Authority). On October 28, 2008, the City entered into an Oil, Gas, and Mineral Lease Agreement with Matrix. The agreement leases the City's mineral rights underlying the Whittier Main Field to Matrix and provides that, subject to a conditional use permit (CUP) and contractual provisions, Matrix could have certain rights, including drilling exploratory oil wells and extracting oil, gas, and other hydrocarbons, such as natural gas liquids, from the land. In exchange, Matrix would pay the City royalties on proceeds from the sale of produced oil and natural gas. It is anticipated that the proposed Project could generate a substantial long-term income stream for the City and for the preservation and enhancement of the Preserve's ecological resources and native habitat.

Currently, activity at the Whittier Main Field is limited to Preserve operations and activities, which consist of restoration and management of natural areas, and management of educational and recreational facilities. Visitors and hikers currently access the Preserve from the parking area along Colima Road. An outdoor seating area and restroom facilities are located at the top of the loop trail and a ranger's residence is just inside the Preserve, near the Catalina Avenue entrance to the Preserve.

Figure ES-1 Proposed Project Location



As proposed, the fully developed Project would consist of a single pad with wells, and an oil processing plant, a gas plant, and an oil-truck loading facility all located on an approximately 6.9 acre site (Project Site) within the 1,290-acre City-owned Whittier Main Oil Field. A crude oil sales pipeline and a natural gas sales pipeline would be installed underneath existing Preserve roads (the Loop Road) between the Project Site and Colima Road. This crude oil and gas pipeline would continue south under Colima Road to transport crude oil and natural gas to markets.

The Project Site would contain the oil and gas drilling and processing facilities on the single pad including a well area, a gas plant area and an oil plant area that would consist of well cellars, well test stations, liquid and gas separating equipment, a truck loading facility, an oil processing facility, and a gas plant. The total permanent area required for the pad would be approximately 6.9 acres (see Table 2-3) with an additional 6.5 acres of roadways, most of which are currently present. The County of Los Angeles Fire Department (LACoFD) may require a fuel modification zone (FMZ). An FMZ is a strip of land where combustible native or ornamental vegetation is modified or partially or totally replaced with drought-tolerant, low-fuel-volume plants to reduce fire risk around the facility. The Fire Department has stated that it would require FMZ of 20 feet for facility pads, 10 feet for roads and 100 feet for the office building. The FMZ would encompass an additional 6.9 acres along roadways and around the pads. Up to 8.5 additional acres may be temporarily disturbed for construction and grading the site (see Appendix A) including areas disturbed for parking and staging of construction equipment. These 8.5 acres would be re-vegetated after construction is completed. The total impacted area associated with pads, roads, FMZ, and construction-related temporarily disturbed areas would be 30.6 acres.

Roads, pipelines, and utility poles would also be constructed. Electrical and pipeline interconnections would be made to the Southern California Edison (SCE) grid and the City of Whittier Sewer and Water District systems. After initial testing, access to the Project would be from both Catalina Avenue and Penn Street through the Landfill property and through the Preserve to the Project Site (North Access Road). Vehicles with two axles under 3 tons would access the Project Site through Catalina Avenue (generally, automobiles and pickups). Vehicles with more than two axles or over 3 tons (generally trucks), or vehicles towing trailers, would use the Penn Street entrance and the North Access Road to access the Project Site.

Oil and gas would be transported by truck during the Drilling and Testing Phase and by pipeline during the normal Operations and Maintenance Phase.

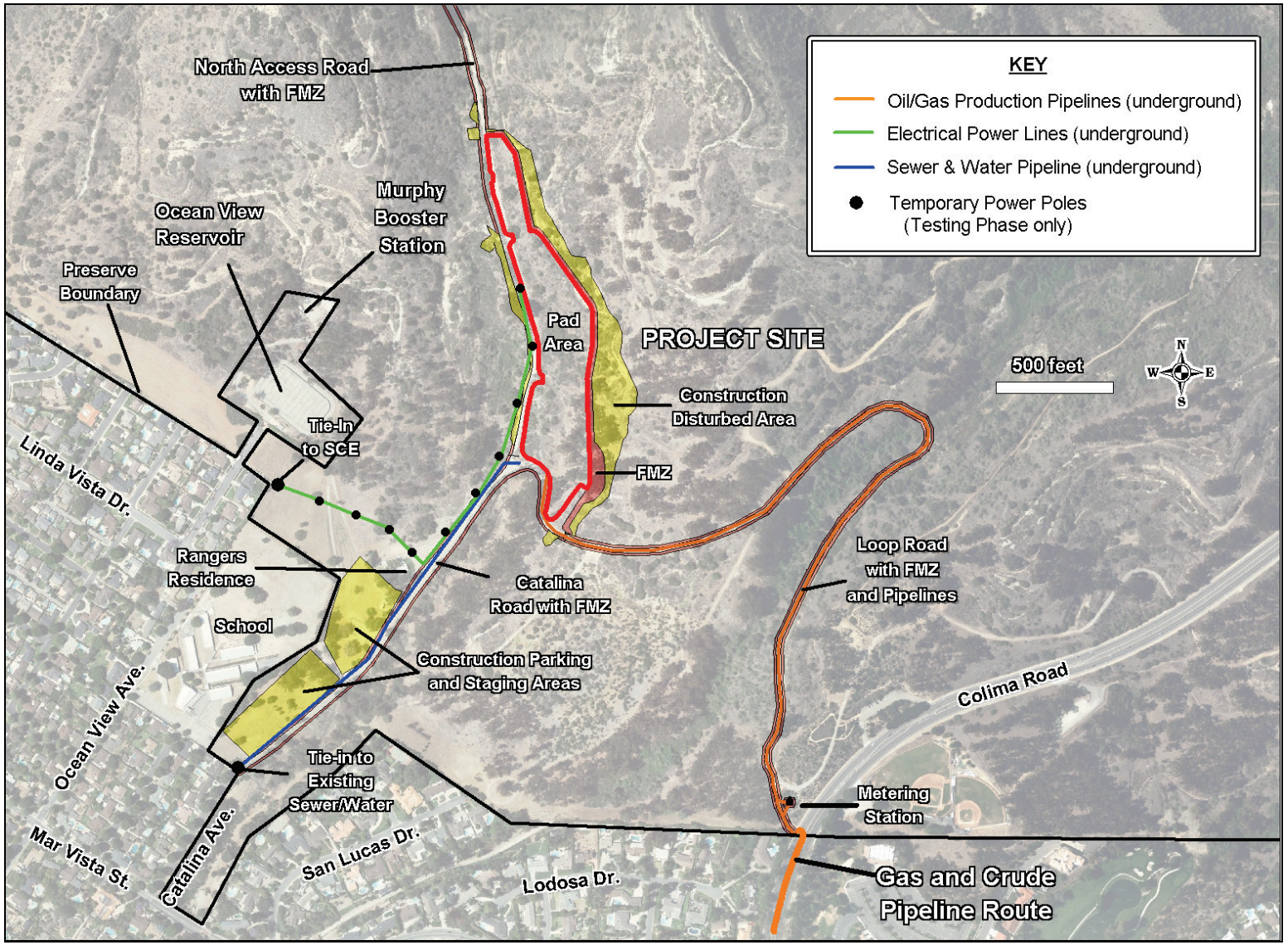
During the testing phase and the construction phase, Matrix proposes to transport crude oil in tanker trucks (10,000-gallon capacity) through Catalina Avenue until the North Access Road is completed and then until the permanent sales oil pipeline is constructed.

During operations, Matrix proposes two methods for transporting the marketable crude oil. One method would be via the Truck Loading Facility inside the Project Site area, where the oil would be loaded onto oil tanker trucks and transported via the North Access Road to a nearby receiving terminal and then transferred into the Crimson California Pipeline System. Oil would be transported by this method during rare periods when the pipeline system is shut down.

The second oil transportation method would transfer the marketable crude oil by pipeline from the Project Site to the existing Crimson Pipeline System via a new 2.8-mile pipeline connection to a tie-in at Leffingwell Road and La Mirada Boulevard. The Crimson Pipeline System would transport the crude to the ConocoPhillips Refinery in Wilmington. This would be the primary transport method, while the tanker truck method would be used during the oil pipeline construction and then as a back-up when the pipeline is temporarily shutdown.

The proposed Project would involve three distinct development phases. The first phase, the Drilling and Testing Phase, would involve drilling three test wells at the Project Site and assessing the quality and quantity of oil and gas produced. Assuming successful testing, the second phase, the Design and Construction Phase, would involve construction of well cellars, the installation of gas and oil processing equipment, and gas/crude transportation facilities. The third phase, the Operations and Maintenance Phase, would involve drilling the remaining wells (for a total of up to 60 wells; three test wells drilled during the test phase and the remaining 57 wells drilled during the Operations and Maintenance phase), as well as the operation and maintenance of the gas and oil facilities and the wells, which would include well workovers and occasional well re-drilling.

Figure ES-2 Proposed Project Site



Source: Matrix Application 2011 and subsequent submittals. See Appendix A for detailed drawings of Pad Area and North Access Road.

PROPOSED PROJECT ENVIRONMENTAL IMPACTS AND MITIGATION

The proposed Project would generate potentially significant environmental impacts in air quality, biological resources, safety, risk of upset and hazardous materials, geology, noise, aesthetics, traffic, hydrology and water resources, land use, fire protection and recreation.

Significant and unavoidable impacts would remain in air quality, aesthetics, hydrology, land use and recreation.

Air Quality

Significant and unavoidable impacts to air quality would occur during construction activities as emissions would exceed the South Coast Air Quality Management District (SCAQMD) significance thresholds, and operations and drilling at the Project Site would likely produce emissions of greenhouse gases (GHG) beyond SCAQMD thresholds. Although mitigation measures would not reduce the impacts to a less than significant level, the operator would submit and implement a Fugitive Dust Control Plan, and implement a program to quantify and reduce greenhouse gas emissions associated with operations.

Impacts to air quality that are less than significant with mitigation would occur during operational activities. Operational and drilling activities at the Project Site would also create odor events and emit toxic materials. Mitigation measures for these impacts include ensuring operator compliance with all SCAQMD regulations, ensuring all drilling engines meet EPA Tier 3 emission levels, providing a gas buster and SCAQMD-approved portable flare, installing a detection system that monitors vapor space on all crude oil tanks, developing an Odor Minimization Plan and an Air Monitoring Plan, ensuring use of an odor suppressant spray system and installing CARB-Verified Level 3 diesel catalysts.

Biological Resources

There are no significant and unavoidable impacts to biological resources. Impacts to biological resources that are less than significant with mitigation would occur as the proposed Project could interfere with the movement of native resident or wildlife species or with established native resident or migratory wildlife corridors, or interfere with the use of native wildlife nursery sites. Mitigation measures that would reduce the impacts to a less than significant level include: installing sound walls around drilling sites; designing and shielding Project lights; using native species landscaping; scheduling initial construction outside of the songbird breeding season; surveying nesting hawks or owls prior to tree removal during designated periods; and implementing measures to reduce impacts on nesting bats.

Additional impacts to biological resources that are less than significant with mitigation could occur during Project grading and vegetation clearing, resulting in the permanent and temporary loss of mulefat scrub riparian habitat. This also could result in a substantial adverse effect on sensitive species, sensitive species habitat, and sensitive habitat due to a rupture or leak from oil wells, pipelines or other oil field-related infrastructure. Mitigation measures for these impacts include restoring degraded habitats, revegetating all graded slopes outside of permanent impact areas, obtaining all applicable federal and state permits and agreements, including a US Fish and

Wildlife Service Incidental Take Statement and Section 404 Permit from the U.S. Army Corps of Engineers, and preparing an Emergency Response Action Plan.

Safety, Risk of Upset, and Hazardous Materials

There are no significant and unavoidable impacts related to safety, risk of upset, and hazardous materials. Releases of flammable gas from the proposed Project Well Area and Processing Area facilities would not impact nearby residences as the facilities are located too far away from receptors. Regardless, mitigation requiring site security methods, such as securing entrance gates, limiting climbable landscaping, installing video surveillance systems, posting emergency contact information, and implementing visitor and employee security policies, as well as audits of facility operations has been included.

Impacts to system safety and reliability that are less than significant with mitigation involve the transportation of natural gas along Colima Road and the effect on groundwater and environmental and public health due to soil contamination mobilization. Mitigation measures for these impacts include installing automatic shutdown valves on the Colima gas pipeline, installing warning tape above the pipeline within the pipeline trench, and conducting site contamination area assessments before construction, including sampling soils and excavating materials.

Geological Resources

There are no significant and unavoidable impacts to geological resources. Impacts to geological resources that are less than significant with mitigation include damage to structures and infrastructure that could result in loss of property or risk to human health and safety, and release of crude oil into the environment. Mitigation measures for these impacts include complying with all applicable codes and regulations and conducting a detailed geotechnical evaluation. Impacts to geological resources that are less than significant include an adverse effect on adjacent properties or de-stabilization of the existing hillside due to temporary excavations. Mitigation measures for these impacts include ensuring that temporary shoring designs and slot cut excavation schemes comply with all applicable regulations.

Noise and Vibration

There are no significant and unavoidable impacts to noise and vibration. Impacts to noise and vibration that are less than significant with mitigation include increased noise levels due to construction machinery and drilling and operational activities. Mitigation measures for these impacts include limiting construction hours, developing and implementing a Noise Reduction Plan, instituting a quiet-mode for operations, providing a comprehensive noise abatement study, and installing noise barriers and enclosures.

Aesthetics and Visual Resources

Significant and unavoidable impacts to area aesthetics would occur during the Project. Specifically, public viewsheds would be impacted by the installation of the oil drilling rig. Although mitigation measures would not reduce the impacts to a less than significant level, berms and landscaping with native vegetation shall be planted at the periphery of the property and all visible structures shall be painted non-reflective earth-tone colors. See Figure ES-3 for a photo simulation of the view from the Deer Loop Trail.

Figure ES-3 Photo Simulation of Views from the Deer Loop Trail

An impact to aesthetics and visual resources that is less than significant with mitigation includes an increase in nighttime lighting and glare as well as views of operational equipment. To mitigate this impact, all point lighting sources shall be screened and directed to prevent offsite spillover lighting effects and landscaping and berms shall be added.

Transportation and Circulation

There are no significant and unavoidable impacts to transportation and circulation. Impacts to transportation and circulation that are less than significant with mitigation include an increase in area traffic as a result of the proposed Project and a significant impact along area streets due to construction of the pipeline. Mitigation measures for these impacts include providing striping enhancements and signal improvements in designated areas, limiting Project-related traffic to non-peak hours, implementing safety and access improvements, and submitting a Traffic Management Plan to the City and County.

Hydrology and Water Resources

Significant and unavoidable impacts to surface and groundwater quality could occur from a rupture or leak of crude oil from drilling, operations or from pipelines or other infrastructure. These impacts could not be mitigated to insignificance. Although mitigation measures would not reduce the impacts to a less than significant level, Project Site inspections would be required and the Applicant would be required to properly maintain the crude oil pipelines within the Preserve.

Impacts to hydrology and water resources that are less than significant with mitigation include a potential increase in erosion, storm runoff, surface runoff, and runoff pollutants. Mitigation measures for these impacts include minimizing impervious surfaces, directing pollutant runoff, implementing a Storm Water Pollution Prevention Plan, preparing a hydrology study, lining the well cellar with an impermeable membrane, and implementing an Oil Spill Contingency Plan.

Cultural Resources and Archeology

There are no significant and unavoidable impacts to cultural resources or archeology. Impacts to cultural resources and archeology that are less than significant with mitigation include historical resources impacts, and unanticipated disturbance to human remains and paleontological resources due to construction. Mitigation measures for these impacts include developing a monitoring plan and halting area activities for expert assessment when resources are discovered.

Wastewater

There are no significant and unavoidable impacts to wastewater. The treatment of wastewater potentially exceeding statutory requirements is a less than significant impact to wastewater with mitigation. Mitigation measures for this impact include evaluating the capacity of the existing sewer line system prior to any connection, and providing temporary mobile sanitary facilities for construction workers.

Land Use and Policy Consistency Analysis

A significant and unavoidable impact to land use and policy consistency includes views of Project-related equipment (the drilling rig) that could be incompatible with adjacent land uses. Although mitigation measures would not reduce the impacts to a less than significant level, the Applicant would be required to implement applicable aesthetic and visual resources mitigation measures.

Impacts to land use and policy consistency analysis that are less than significant with mitigation include nighttime lighting and glare, increased noise, emission and odor levels, and conflicts with adopted land use plans, policies, ordinances, or planning efforts. Mitigation measures for these impacts include implementing related mitigation measures from other sections, including noise and vibration, biological resources, recreation, and aesthetics and visual resources.

Fire Protection and Emergency Services

There are no significant and unavoidable impacts to fire protection and emergency services. Impacts to fire protection and emergency services that are less than significant with mitigation include increased risk of wildfires and potential deficiencies in firewater supplies, equipment layout, detection systems, or emergency response. Mitigation measures for these impacts include providing sufficient firewater supplies, implementing fuel modification areas, developing emergency response plans, ensuring compliance with applicable codes and standards, and implementing a community alert notification system.

Public Services and Utilities

There are no significant and unavoidable impacts to public services and utilities or impacts that are less than significant only with mitigation. Impacts to public services and utilities that are less than significant include a potential increase in demand for potable water, and an increase in solid waste generation. A mitigation measure for these impacts includes preparing and implementing a recycling plan.

Recreation

A significant and unavoidable impact to recreation would occur due to an adverse effect on recreational viewsheds due to new drilling and operations. Although mitigation measures would not reduce the impacts to a less than significant level, the Applicant would be required to implement applicable aesthetic and visual resources mitigation measures.

Impacts to recreation that are less than significant with mitigation include a reduction in planning efforts to protect recreational resources, and recreational activities affected by Project-related noise and odors. Mitigation measures for these impacts include constructing and maintaining interpretive signage within the Preserve's trails and implementing mitigation measures from other sections, including noise and vibration and aesthetics and visual resources.

Energy and Mineral Resources

There are no significant and unavoidable impacts to energy and mineral resources or impacts that are less than significant only with mitigation. Impacts to energy and mineral resources that are

less than significant include increased electricity and fossil fuel consumption and production. No mitigation measures are required for these impacts.

Environmental Justice

There are no significant and unavoidable impacts to environmental justice or impacts that are less than significant only with mitigation. However, an impact to environmental justice that is less than significant includes a disproportionate impact on minority and low-income populations due to the Project, particularly regarding traffic on Penn Street. Mitigation measures for this impact include implementing mitigation measures from other sections, such as transportation, air quality, and noise and vibration.

Table ES-1 provides a summary of the significant and unavoidable impacts associated with the proposed Project and the alternatives. Tables ES-2 and ES-3 at the end of this section detail impacts and mitigation measures for the proposed Project. Table ES-2 identifies significant and unavoidable impacts, organized by issue area. Table ES-3 identifies impacts that would be less than significant with mitigation, organized by issue area. Table ES-4 identifies the applicability of the mitigation measures to each of the alternatives.

ALTERNATIVES TO PROPOSED PROJECT

A range of alternatives was considered for evaluation in this EIR (see Section 5.0, Whittier Project Alternatives Analysis). Those alternatives were screened based on feasibility and their ability to result in fewer environmental impacts than the proposed Project. From this screening, a list of alternatives was selected to be compared to the proposed Project. Section 6.0, Comparison of Proposed Project and Alternatives, evaluates the impacts associated with the selected alternatives, which are summarized in the following sections. Figure ES-4 shows the location of alternatives analyzed in this EIR.

No Project Alternative

Under this alternative, the City would not grant Matrix a conditional use permit. Matrix would not be permitted to drill exploratory oil wells and extract oil, gas, and other hydrocarbons, such as natural gas liquids, from the land. The oilfield would not be developed and the resources of the field would not be utilized. No new activity would occur at the Preserve.

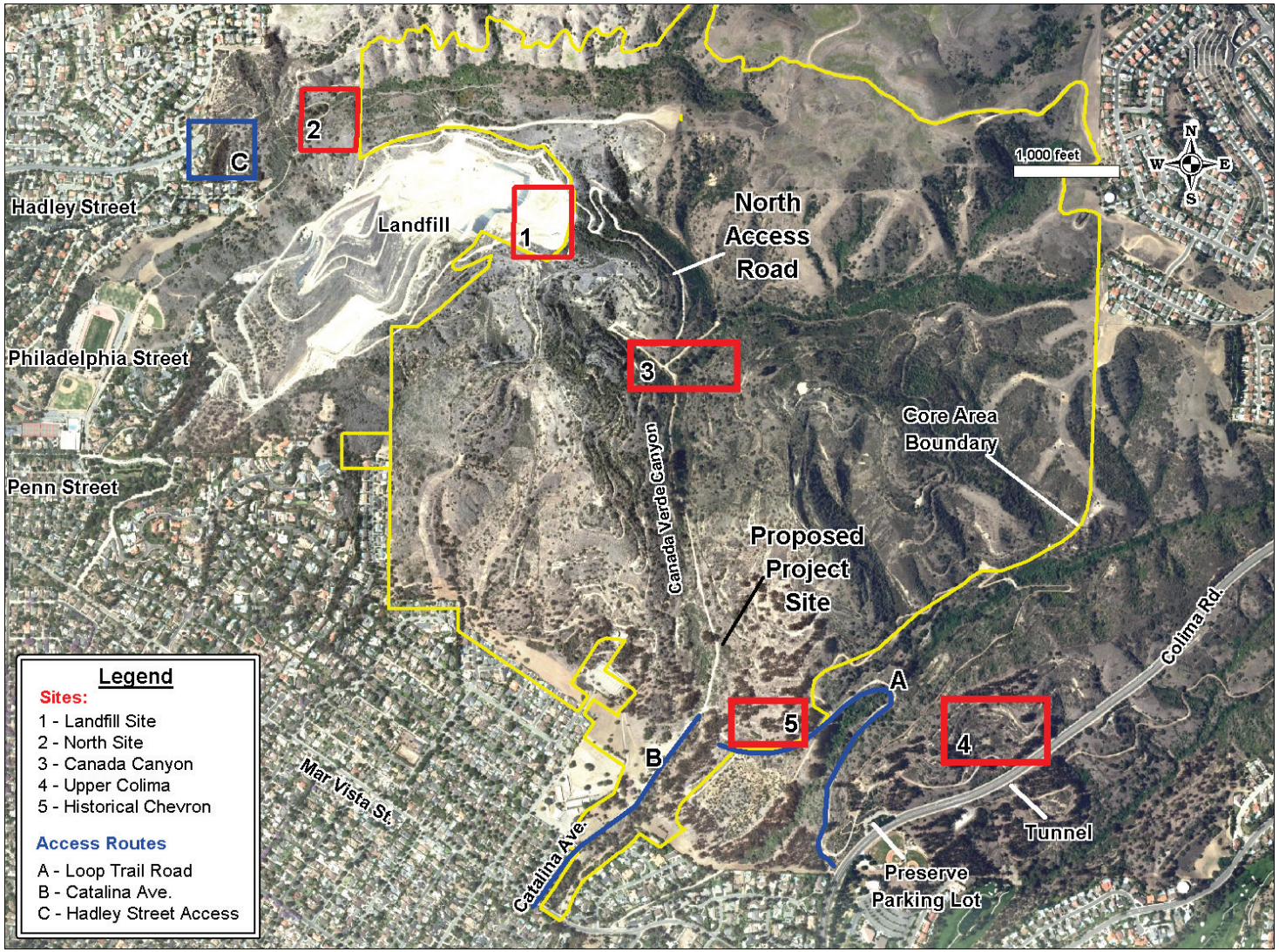
Savage Canyon Landfill Site Alternative

Under this alternative, oil drilling and processing would be located within the existing Savage Canyon Landfill, which is owned by the City of Whittier. Drilling from the Savage Canyon Landfill would be able to reach into some of the reservoirs included in the minerals rights owned by the City. All processing equipment would be installed at the landfill and drilling would take place at the landfill immediately adjacent to the processing area. Facility locations within the landfill would be limited, primarily due to the location of existing, buried waste and topography. Pads under the oil and gas facilities could not be located over previously buried waste, and the pads would preferably be in areas that would not protrude substantially into areas designated for future waste to minimize the effect on the landfill life. Most of these areas are steep canyons, such as those south and east of the landfill. Existing waste could be relocated from areas favorable to an oil and gas plant in a process known as “clean closure.” In either case, locating the facilities at the landfill would encroach on areas intended for future waste burial and would therefore decrease the planned life of the landfill.

A pipeline system running along existing Preserve roadways would connect the Landfill Site to the Colima Road oil and gas pipelines. Oil and gas would be transported by truck during the Drilling and Testing Phase and by pipeline during the Operations and Maintenance Phase, utilizing either the proposed pipeline route or one of the alternative pipeline routes. Pipelines within the Preserve would be buried underground beneath existing Preserve roadways. Project traffic would utilize Penn Street and roads within the Landfill for access to the Landfill Site.

Under this alternative, since the well location would be moved from the proposed Project location, production levels would decrease because some of the zones would not be accessible

Figure ES-4 Location of Alternatives Analyzed in the EIR



Notes: Only Site 1 (Landfill Site) and Access Route A (Loop Trail Road) were retained for complete analysis in the EIR.

(such as zones near and east of Colima Road). The farthest relocation would be wells from the east end of the reservoir, near and east of Colima Road. Given the number of zones and the varying depths, it is difficult to determine the exact reduction in the production levels with this alternative. However, based on the depth of target-producing zones projected for the test well cross sections made available by Matrix, drilling from Savage Canyon Landfill could likely produce 52 to 59 percent (with throw ratios of 2.8 to 4.0 respectively) of the proposed Project levels.

Loop Trail Road Alternative

Under this alternative, access to the proposed Project site would be provided along the Loop Trail Road that is accessed through a gate along Colima Road located immediately south of the Preserve parking area along Colima Road. The Loop Trail Road is currently only used by recreational hikers and Preserve rangers to access the Loop Trail and Arroyo Pescadero area within the Preserve. The proposed Project proposes to install the sales gas pipeline and crude oil pipeline underneath this roadway in order to access pipelines that could take the products to market along Colima Road.

The road is currently partially paved and dirt and is somewhat overgrown. It would need to be widened and improved to provide Project access. The entry and exit onto and off of Colima Road would need to be re-aligned to intersect with the new traffic signal that was installed in connection with the Whittier Area Community Church. This re-alignment would allow for a smoother and controlled flow of project traffic onto and off of Colima Road.

Under this alternative, the Loop Trail Road would be used for the construction and operational phases of the project. Catalina Ave. would continue to be used for the Drilling and Testing phase.

Lambert Railroad Right-of-Way Alignment

Matrix proposes to construct the crude oil pipeline connection down Colima Road to Lambert Road and then down La Mirada Blvd to connect to the existing Crimson California Pipeline System at Leffingwell Road. Under this alternative, the pipeline would turn onto the railroad right-of-way along Lambert Road to a tie-in to the Crimson California Pipeline System at the intersection of Lambert Road and Leffingwell Road. This alternative alignment would have advantages over the proposed Project since it would avoid impacts related to construction within a roadway (La Mirada Boulevard). However, this alignment is approximately 0.35 miles longer than the alignment in the proposed Project and may present some leasing and permitting difficulties with the right-of-way along the railroad.

COMPARISON OF PROPOSED PROJECT AND ALTERNATIVES

The CEQA Guidelines (Section 15126.6 [d]) require that an EIR include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the proposed Project. The Guidelines (Section 15126.6 [e][2]) further state, in part, that "if the environmentally superior alternative is the 'No Project Alternative,' the EIR shall also identify an environmentally superior alternative among the other alternatives."

The following discussion compares impacts associated with the proposed Project with those associated with the No Project Alternative and the other alternatives. These impacts are identified as a result of the analysis provided in Chapter 4.0, Environmental Analysis, and Section 6.0. An alternative would be considered superior to the proposed Project if there would be a reduction in impact classification. In cases where the impact from an alternative is in the same class as for the proposed Project, differences in severity of the impact are analyzed.

Table ES-1 provides a comparison between the proposed Project and each of the alternatives for all significant and unavoidable impacts.

Table ES-1 Proposed Project Versus Alternatives - Significant Unavoidable Impacts

Impact	Proposed Project	Landfill Site Alternative	Proposed Project with Loop Trail Road
1. Aesthetics: views of the drilling rig			
2. Air Quality: construction emissions			
3. Air Quality: GHG Emissions			
4. Hydrology: oil spills into the environment			
5. Land use: aesthetic impacts to adjacent land uses			
6. Recreation: aesthetic impacts on recreational areas			
7. Recreation: noise impacts on recreational areas			
8. Aesthetics: views of the access roads			
9. Land Use: Speculative permitting of oil and gas facilities within the Landfill			
Number of Significant Impacts	**6**	**6**	**8**

Shaded = significant impact that cannot be mitigated to less than significant

No Project Alternative

With the No Project Alternative, no development of the oil and gas resources would occur. There would be no drilling and no construction of the access road or processing facility. None of the impacts associated with the proposed Project would occur. No new impacts would occur under the No Project Alternative.

Savage Canyon Landfill Site Alternative

The Landfill Site Alternative has advantages over the proposed Project because it would be farther from residential locations and would be located entirely outside of the Preserve. This reduces the impact in biology, safety and risk of upset as well as noise, air quality and odors. However, none of these are significant impacts associated with the proposed Project.

As there would not be any development within the Preserve, there would be benefits in terms of policies related to biology, impacts to nursery and nesting areas within the core habitat area and reducing the total loss of habitats. In addition, impacts to wildlife movement for this Alternative would be less than those described for the Proposed Project, which is located within the Preserve where wildlife are less accustomed to human disturbances. In addition, there would not be any traffic utilizing Catalina Avenue and Mar Vista Street and traffic impacts would be reduced over the proposed Project as Penn Street currently operates at an acceptable level of service.

The disadvantages of this alternative over the proposed Project are that there would be a substantial reduction in the amount of oil that could be recovered from the reservoirs, estimated at recovering 52 to 59 percent of the amount that the proposed Project could recover. There would also be potential impacts to the life of the Landfill as the development could infringe upon areas of the Landfill that are planned for future waste disposal. In addition, there could still be biological impacts to occupied California gnatcatcher habitat and to the wildlife corridor as the location is closer to "High Quality" habitat, thereby potentially impacting wildlife movements through the corridor. Finally, permitting of oil and gas facilities within a Landfill operation is considered speculative and the outcome of an application for such a Project is unknown.

According to Table 6-5, this alternative would generate six significant unavoidable impacts, the same as the proposed Project. It would not have the recreational impact associated with proximity to recreational users than the proposed Project has, but would have an additional significant and unavoidable impact associated with land use issues related to permitting and Landfill life.

Loop Road Access Alternative

This alternative is included as an alternative to the proposed Project component of utilizing the existing North Access Road and accessing the Project Site from Penn Street. The purpose of the proposed Project North Access Road would be to prevent traffic impacts along Mar Vista Street and Catalina Avenue. Mar Vista Street is currently heavily impacted with traffic and use of Catalina Avenue and Mar Vista would impact Mar Vista Street as well as the Catalina Avenue/Mar Vista Street intersection. Under this alternative, the North Access Road would not be improved, and instead existing Preserve roadways (the Loop Trail Road) would be improved and utilized, and would connect the Project Site with Colima Road to the east.

This alternative has the advantage over the proposed Project North Access Road in that it allows for Project traffic to directly access an arterial roadway instead of utilizing more residential, collector roadways such as Penn Street. Penn Street is a two lane roadway that has residences with driveways that directly access the street, and is host to periodic events associated with the William Penn Park and Whittier College. These events impact the neighborhood by periodically increasing traffic and limiting parking. Colima Road, on the other hand, is a four lane arterial, more major roadway. Traffic levels on Penn Street average close to 2,700 vehicles per day while traffic on Colima Road averages close to 36,000 vehicles per day. The Loop Trail Road alternative, like the North Access Road, would prevent traffic impacts along Mar Vista Street and Catalina Avenue during the construction and operations phases.

The traffic analysis did not identify any significant and unavoidable impacts along Penn Street associated with the proposed Project use of the North Access Road, since it currently operates at an acceptable level of service.

In addition, the Loop Trail Road would reduce impacts to individual wildlife and the wildlife travel corridor located in the Preserve's Core Habitat associated with the North Access Road. Although this alternative does direct more traffic towards the important wildlife corridor within the Service Tunnel, the end of the Loop Trail Road and Colima Road intersection is more than 2,000 feet away from the Service Tunnel and therefore not expected to substantially interfere with the Tunnel's use as a travel corridor.

However, the Loop Trail Road is currently used as a recreational trail (the Deer Loop Trail). Noise levels would increase for both recreational and residential receptors located close to the Loop Trail Road. Noise levels for recreational users would increase by more than the 5 dBA threshold and would be considered a significant and unavoidable impact.

The roadway and accompanying traffic would also be visible from nearby residences and recreational areas and trails in close proximity to the Loop Trail Road. This would degrade the visual quality for both residences and recreational users and would be considered a significant impact. Installing berm walls and vegetation, as per mitigation measure AE-1a, could reduce the impacts of the use of the Loop Trail Road by Project vehicles but would also block existing views of the Preserve from residences. Even with mitigation, therefore, this would still be a significant and unavoidable impact.

These impacts could be somewhat mitigated by the development of new trails, but the recreational experience of the Arroyo Pescadero Canyon and trails would be significantly impacted by the passage of traffic through the area.

Lambert Railroad Right-of-Way Alignment Alternative

This alternative is included as an alternative to the proposed Project component of a pipeline route that runs down Colima Road to La Mirada Boulevard to connect to the crude oil pipeline that runs along Leffingwell Road. The alternative route would utilize an existing railroad right-of-way that runs down Lambert Road (which intersects Colima Road before La Mirada Boulevard) to Leffingwell Road, where the same existing crude pipeline could be utilized.

This alternative would be advantageous since there would be construction of less pipeline within area streets, thereby reducing impacts on traffic. Since the alternative pipeline would be slightly longer, it could increase total air emissions due to the additional construction requirements.

ENVIRONMENTALLY SUPERIOR ALTERNATIVE

The proposed Project has been specifically designed to reduce the number of impacts to the lowest level possible and still obtain the objectives of the Project based on a previous environmental document. The alternatives provide an alternative site and an alternative access road that allows for a selection of different components of the Project that could provide for a different mix of impacts.

However, with the Landfill Alternative, there would be a potential reduction to the Landfill life and there would be difficulties associated with permitting the alternative within an operating landfill. There would also be a reduction in recoverable reserves from the reservoir thereby preventing this alternative from achieving all of the Project objectives. Therefore, this scenario is not selected as the environmentally superior alternative.

A project recently proposed by Matrix in La Habra Heights (see Section 3.0, Cumulative Projects) might be able to provide some access to the eastern end of the reservoir that could not be easily reached by drilling from the Landfill Alternative site and thereby recover more reserves than under the Landfill Alternative. It is estimated, based on target locations for the test wells provide by Matrix for the proposed Project, that recoverable reserves from the La Habra Heights site into the proposed Project reservoirs could reach some of the recoverable reserves. However, even with the additional access to the eastern portions of the reservoir from La Habra Heights, the shallower portions of the reservoir located midway between the La Habra Heights location and the Landfill Alternative site would not be accessible. The percent of the recoverable reserves are estimated to be between 60 and 70 percent of the proposed Project levels with access from both the Landfill and the La Habra Heights sites, or an estimated 52 to 59 percent with drilling from just the Landfill Alternative Site.

However, there are a number of uncertainties with this scenario. Matrix indicates that the La Habra Heights site is not feasible to drill “targets” on the Whittier project site economically as they are too shallow and that contractually they cannot assume Sempra would allow drilling to hit “targets” within the Whittier project area. In addition, the project is not built at this time and the timeframe for permitting and construction is not known. The La Habra Heights site is also outside the jurisdiction of the lead agency. Therefore, this scenario is not selected as the environmentally superior alternative.

As the proposed Project Site would satisfy the objectives of the project, would enable recovery of 100 percent of the recoverable reserves from that location and would minimize the environmental impacts, the proposed Project Site is selected as the environmentally preferred site.

The impacts of the proposed Project North Access Road related to the residential, collector roadway of Penn Street and the impacts to biology and the wildlife corridor within the Preserve could be effectively reduced by utilizing the Loop Trail Road. However, neither of these

impacts was identified as a significant and unavoidable impact in the proposed Project analysis. The use of the Loop Trail Road would introduce additional significant and unavoidable impacts related to noise and aesthetic impacts on recreational users. Therefore, the North Access Road and Penn Street, utilized as per the proposed Project, are selected as the preferred access route.

As a note, limited use of Catalina Avenue would be conducted throughout the life of the Project. Mitigation measures would limit Catalina Avenue traffic to 40 round-trips per day and 12 one-way trips during the peak hour. Trucks would be prohibited from using Catalina Avenue and would use the North Access Road during the construction and operations phases of the Project.

The Lambert Railroad right-of-way pipeline route presents advantages over the proposed Project pipeline route as less disruptive to traffic and is also selected as the preferred pipeline alignment components.

The environmentally preferred alternative is the mitigated proposed Project with the North Access Road and mitigated proposed Project Catalina Avenue Access for accessing the site, and the Lambert Railroad Right-Of-Way for the pipeline route. This Project still produces six significant, unavoidable impacts to aesthetics, recreation, land use (views of the drilling rig), air quality (from construction and emissions of GHG), and hydrology (due to the potential for spills).

KNOWN AREAS OF CONTROVERSY OR UNRESOLVED ISSUES

According to Section 15123 of the CEQA Guidelines, the EIR shall identify "*areas of controversy known to the Lead Agency including issues raised by agencies and the public.*" All proposals related to the development and transportation of oil and gas reserves in urban areas generate controversy and receive a high level of public scrutiny. For this Project, controversy is due to the sensitive nature of the Preserve resources and the potential for safety impacts to the local population.

The proposed Project would introduce oil drilling and oil and gas production and transportation to an area that has not had these activities for nearly 20 years. The Project area, which was once industrial with a multitude of oil wells and drilling rigs, has evolved over decades into Preserve open space that provides recreation and wildlife habitat to the area. Some people in local communities do not want the Project to move forward, as exemplified by a non-profit organization and website opposing the Project (e.g., Whittier Hills Oil Watch). The Project has generated a high level of public interest and controversy (see Appendix I, Notice of Preparation and Comments). Areas of controversy highlighted in comments on the Notice of Preparation and the previous Public Draft EIR include:

- The use of property purchased with Proposition A funds for an oil and gas development project;
- The level of traffic generated by the Project that could impact residential areas;
- The use of Penn Street, which residents say is already impacted by Whittier College and Penn Park;

- Noise, odor, and air quality issues from oil and gas development proximate to residential areas and a school; and

- The development of industrial facilities in the Preserve and the potential impacts on biological resources.

Table ES-2 Summary of Impacts and Mitigation Measures for the Proposed Project

Significant and Unavoidable 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 #	Impact	Recommended Mitigation Measures	Residual Impact
4.1 Air Quality			
AQ.1	Construction activities would generate emissions that exceed South Coast Air Quality Management District thresholds.	AQ-1a The Applicant shall submit and implement a Fugitive Dust Control Plan that includes SCAQMD mitigations for fugitive dust mitigation, according to Rule 403, and SCAQMD CEQA Guidelines. The Plan shall also address fugitive dust measure impacts to native habitats. Fugitive dust mitigation measures in the plan should include the following: - Apply water every 3 hours to disturbed areas within a construction site (61% reduction). - Require minimum soil moisture of 12% for earthmoving, by using a moveable sprinkler system or water truck. Moisture content can be verified by lab sample or moisture probe (69% reduction). - Limit on-site vehicle speeds on unpaved roads to 15 mph with radar enforcement (57% reduction) and posting of speed limits. - Replace ground cover in disturbed areas as quickly as possible (5% reduction). - All trucks hauling dirt, sand, soil, or other loose materials are to be tarped with a fabric cover and maintain a freeboard height of 12 inches (91% reduction). - Install gravel bed trackout apron (3 inches deep, 25 feet long, 12 feet wide per lane, and edged by rock berm or row of stakes) to reduce mud and dirt trackout from unpaved truck exit routes (46 to 80% reduction). - Water industrial unpaved road three times per day (61% reduction). - Water storage piles by hand or apply cover when wind events are declared, according to SCAQMD Rule 403 when instantaneous wind speeds exceed 25 miles per hour (90% reduction). - Appoint a construction relations officer to act as a community liaison concerning onsite construction issues, such as dust generation. AQ-1b Treat all roads with water three times per day prior to and during the Drilling and Resting Phase pad clearing to substantially reduce dirt road fugitive dust emissions. AQ-1c Treat all roads (pave or apply non-toxic soil binders with at least 80% effectiveness) before beginning the development phase pad grading and facility construction to substantially reduce dirt road fugitive dust emissions during those phases of construction.	Emissions would remain above thresholds: significant

Impact #	Impact	Recommended Mitigation Measures	Residual Impact
		AQ-1d The Applicant shall implement a NOx reduction program including the following, or equivalent, measures: - All off-road diesel construction equipment greater than 100 horsepower shall be EPA Tier 3-certified or better engines, or utilize other CARB-verified emission control technologies to achieve the same level of emission reduction. - All off-road construction equipment shall be tuned and maintained according to manufacturers' specifications. - Any temporary electric power shall be obtained from the electrical grid, rather than portable diesel or gasoline generators. - Soil hauling shall be coordinated with the Savage Canyon Landfill to receive the soil to limit haul truck travel distance, or utilize trucks that comply with the EPA 2010 model year emissions requirements. - Limit onsite truck idling to less than 5 minutes. - During the pad and access road grading phase, all off-road dump trucks shall meet EPA 2010 model year NOx emission requirements or achieve a certified NOx emission level of less than 2.0 g/bhp-hr. - A copy of the certified tier specification, best available control technology documentation, or the CARB or SCAQMD operating permit for each piece of equipment	
AQ.4	Potential operations and drilling at the Whittier Main Oil Field would increase greenhouse gas emissions.	AQ-4 The Applicant shall implement a program to quantify and reduce greenhouse gas emissions associated with operations, such as using green electrical power to run equipment, using high efficiency pumps and electrical devices, requiring diesel engines to use biodiesel, or offsite measures that could offset greenhouse gas emissions. GHG emissions levels shall be quantified and reported to the City and to the SCAQMD for operations on an annual basis, and, if GHG emissions exceed the SCAQMD thresholds, then a GHG emission reduction program shall be implemented to reduce emissions to less than the threshold value. The reduction program shall include planting at least 500 trees within the Preserve to sequester GHG emissions, in coordination with the Habitat Authority and it shall follow the Climate Action Reserve protocols. The reduction program shall focus on on-site and local/basin area methods for GHG reductions.	GHG emissions could remain above thresholds: significant
4.6 Aesthetics and Visual Resources			
AE.1	The drilling rig could degrade public viewsheds.	AE-1a. Landscaping with native vegetation shall be planted at the periphery of the property for the specific purpose of beautifying and screening the operations from adjoining residential and recreational areas, adjacent public streets, and highways. Berms shall be used in combination with landscaping where it would further reduce visibility. Care should be taken to ensure that the proposed screening does not affect existing desirable views by neighboring properties. A Landscaping Plan shall be prepared to address screening, irrigation, and planting protocols. The Plans and vegetation selection shall be reviewed and approved by the City and Habitat Authority. Drip irrigation and drought tolerant plants shall be used for landscaping as coordinated with the Preserve. The Preserve and a certified landscape	The drilling rig would still degrade public viewsheds: significant

Impact #	Impact	Recommended Mitigation Measures	Residual Impact
		architect shall implement and monitor compliance with the Landscaping Plan. Landscaping at the site shall be inspected regularly and maintained in good condition. AE-1b. Within 30 days of installation, all visible structures at the well or processing sites shall be painted non-reflective earth-tone colors or otherwise surfaced with a color or textured surface in consultation with the City, so that they are compatible with the surrounding area.	
4.8 Hydrology and Water Resources			
WR.4	A rupture or leak during oil drilling operation, from pipelines or other infrastructure, could substantially degrade surface and groundwater quality.	WR-4a. The City of Whittier and other appropriate agencies shall inspect facility conditions at the Project Site on a yearly basis. Inspections shall also occur after earthquake induced land movement or upon periods of large rainfall in order to verify no leak or rupture risks have developed. WR-4b. The Applicant shall properly maintain the associated crude oil pipelines, storage tanks and processing facilities within and outside the Preserve, including smart-pigging according to State of California Office of the State Fire Marshal requirements and the standards outlined by the Department of Oil, Gas and Geothermal Resources, and the Regional Water Quality Control Board. Pipeline, tank and processing inspections,including walking the pipelines, shall occur at least daily. WR-4c. The Applicant shall install a leak detection system for crude pipelines in the Preserve and the Colima Road pipeline. The system shall include pressure and flow meters, flow balancing, supervisor control and data acquisition system, and a computer alarm system in the event of a suspected leak. Temperature, pressure, and flow shall be monitored at each pipeline entry and exit. If any variable deviates by more than 10 percent of the normal operating range, the system shall trigger both audible and visual alarms. Flow balancing shall be conducted every 5 minutes, 1 hour, 24 hours, and 48 hours with the accuracy defined once the system is established and tested.	There would still be a potential for oil spills: significant
4.11 Land Use and Policy Consistency Analysis			
LU.3	Views of drilling rigs, construction, and potential future operations could be incompatible with adjacent land uses.	Implement mitigation measures AE-1a and AE-1b.	There would still be views of the drilling rig: significant
4.14 Recreation			
REC.3	New drilling and operations would adversely affect public viewsheds.	Implement mitigation measures AE-1a and AE-1b.	There would still be views of the drilling rig: significant

Table ES-3 Summary of Impacts and Mitigation Measures for the Proposed Project

Less Than Significant With Mitigation 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 Section 15091 State CEQA Guidelines.)

Impact #	Impact	Recommended Mitigation Measures
4.1 Air Quality		
AQ.2	Operational activities would generate emissions that exceed South Coast Air Quality Management District thresholds.	AQ-2a The Operator shall comply with all SCAQMD regulations, including but not limited to Regulation IV (Prohibitions), Regulation XIII (New Source Review), Regulation XI (Source Specific Standards), and Regulation XIV (New Source Review for Toxic Air Contaminants). The operator shall implement best available control technology and obtain emission offsets as required by SCAQMD Regulation XIII and/or Regulation XX for new and modified permitted emission sources. Emission offsets are required for all emission increases associated with stationary sources, thus, minimizing the impacts associated with emissions from stationary sources. AQ-2b The Applicant shall implement a program to reduce NOx and PM emissions, including: - All drilling engines shall meet EPA Tier 3 emissions levels, or utilize other CARB-verified emission control technologies to achieve the same level of emission reduction, or utilize electric engines. - Treat all used Preserve dirt roads that will be used (pave or apply soil binders with at least 85% effectiveness) or pave all Preserve dirt roads that will be used during test drilling. - Limit onsite truck idling to less than 5 minutes. - Electrify service equipment and auxiliary power units where feasible. - Use clean street sweepers during operations. Pave roads and road shoulders during operational phase. - Utilize trucks that meet EPA 2010 emission standards and off-road equipment that meets EPA 2015 emissions levels to the extent feasible. - A copy of the certified tier specification, best available control technology documentation, or the CARB or SCAQMD operating permit for each piece of equipment shall be provided when each piece of equipment is mobilized. - Purchase emission offsets to reduce remaining NOx emissions to less than significant levels.
AQ.3	Potential operations and drilling at the Whittier Main Oil Field would create odor events.	AQ-3a The Operator shall have a gas buster and SCAQMD-approved portable flare at the oil field and available for immediate use to circulate out and combust any gas encountered during drilling. The flare shall be capable of recording the volume of gas that is flared. The operator shall report any flared gas from drilling to the Los Angeles County Fire Chief and the SCAQMD.

Table ES-3 Summary of Impacts and Mitigation Measures for the Proposed Project

Less Than Significant With Mitigation 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 Section 15091 State CEQA Guidelines.)

Impact #	Impact	Recommended Mitigation Measures
		AQ-3b The Operator shall install a detection system that will monitor vapor space on all crude oil tanks. The detection system shall be capable of monitoring pressure in the vapor space of the tanks and notifying the operator via an alarm when the pressure in the tanks gets within 10 percent of the tank relief pressure. If the tank pressure exceeds the relief pressure, the Operator shall report the incident to the SCAQMD as a breakdown pursuant to Rule 430, and submit a report of the breakdown to the Los Angeles County Fire Chief and the SCAQMD, which shall detail the corrective actions the Operator shall take to avoid exceeding the tank relief pressure. AQ-3c The Operator shall develop an Odor Minimization Plan. The Odor Minimization Plan shall address odors from all oil field equipment, including wells and drilling operation. The Plan shall address issues such as facility information, buffer zones, signs with contact information, logs of odor complaints, and the protocol for handling odor complaints. AQ-3d The Operator shall develop an Air Monitoring Plan. The Plan shall provide for the monitoring of total hydrocarbon vapors and hydrogen sulfide at each well drill and re-drilling site and total hydrocarbon vapors at the gas plant. At all times during drilling and redrilling operations, the Operator shall maintain monitoring equipment that shall monitor and digitally record the levels of hydrogen sulfide and total hydrocarbon vapors. Monitors shall be installed at the edge of the drill pad and around the outer edge of the gas plant. Such monitors shall provide automatic alarms that are audible or visible to the Operator of the drilling equipment for the drill rig monitors, and gas plant for the gas plant monitors, and shall be triggered by the detection of hydrogen sulfide or total hydrocarbon vapors. Alarm points shall be set at a maximum of 5 and 10 ppm H_2S and 500 and 1,000 ppm hydrocarbons, with the higher level requiring shut-down of drilling or gas plant operations and notification to appropriate agencies, including the Los Angeles County Fire Department and SCAQMD. A meteorological station to monitor wind speed and direction under the guidance and specification of the SCAQMD shall be installed at the Processing Site, or applicable location. AQ-3e The Operator shall use an odor suppressant spray system or vapor capture hood and carbon filter system on the mud shaker tables for all drilling operations so that no odor can be detected at the edge of the oil field property.
AQ.5	Potential operations and drilling at the Whittier Main Oil Field would emit toxic materials.	AQ-5 The Applicant shall install CARB-Verified Level 3 diesel catalysts on all diesel-powered drilling equipment. The current list of CARB-Verified Level 3 diesel catalysts is located at http://www.arb.ca.gov/diesel/verdev/vt/cvt.htm. Catalysts shall be capable of achieving 85% reduction

Table ES-3 Summary of Impacts and Mitigation Measures for the Proposed Project

Less Than Significant With Mitigation 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 Section 15091 State CEQA Guidelines.)

Impact #	Impact	Recommended Mitigation Measures
		for diesel particulate matter.
	4.2 Biological Resources	
BIO.1	Project grading and vegetation clearing for fuel modification, and increased noise, would result in adverse effects, either directly or through habitat modifications on sensitive wildlife species.	BIO-1a To mitigate the Project's permanent loss of 4.16 acres of coastal sage scrub, the Applicant shall provide minimum 3:1 areal replacement. To mitigate the loss of habitat value due to the Project's temporary noise impacts affecting 5.49 acres of coastal sage scrub, the Applicant shall provide minimum 1:1 areal replacement. In total, the Applicant shall restore 17.97 acres of degraded habitats in the La Cañada Verde and Arroyo Pescadero watersheds to coastal sage scrub communities, or as otherwise agreed to by the appropriate resource agencies and the City. All aspects of this restoration shall comply with the Habitat Authority's Restoration Guidelines, as specified in Appendix N of the RMP (LSA 2007, Pages 251-372). The following shall apply: All contractors involved in the restoration effort, including the restoration specialist and landscape contractor, shall be reviewed and approved by the City, the Habitat Authority, and appropriate resource agencies (e.g., U.S. Fish and Wildlife Service). The restoration specialist shall work with the Habitat Authority to select restoration sites in the Habitat Authority's Whittier Management Unit, preferably in the La Cañada Verde and Arroyo Pescadero watersheds. A conservation easement shall be placed over any site restored under this mitigation measure. Mandatory components of any restoration plan shall include, but not be limited to, Site Preparation, Implementation Specifications, Maintenance Methods, Performance Standards, Monitoring Methods, Documentation and Reporting, and Contingency Measures (in case performance standards are not met in any area). All components of any restoration plan prepared in satisfaction of this mitigation measure shall be reviewed and approved by the Habitat Authority prior to implementation. Maintenance of all plantings will be the Applicant's responsibility, and shall include any activities required to meet the performance standards set for the restoration program. A minimum of 5 years of maintenance shall be required unless the plan's long-term performance standards are judged by the City, the Habitat Authority, and appropriate resource agencies (e.g., U.S. Fish and Wildlife Service) to be satisfied in less than 5 years. Monitoring all restoration sites will be the Applicant's responsibility for a minimum of 5 years, or until

Table ES-3 Summary of Impacts and Mitigation Measures for the Proposed Project

Less Than Significant With Mitigation 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 Section 15091 State CEQA Guidelines.)

Impact #	Impact	Recommended Mitigation Measures
		the City, the Habitat Authority, and appropriate resource agencies (e.g., U.S. Fish and Wildlife Service) judge all of the Project's long-term performance standards to be satisfied. The site monitor shall be a biologist, native landscape horticulturist, or other professional qualified to: (1) assess the performance of the planting effort; (2) recommend corrective measures, if needed; and (3) document wildlife use of planting areas over time. The site monitor shall be selected by the Applicant and approved by the City and the Habitat Authority. If performance standards are not achieved in any restoration area, an alternative or auxiliary mitigation plan may be submitted to the City, the Habitat Authority, and appropriate resource agencies (e.g., U.S. Fish and Wildlife Service). The monitoring results shall be reported at least annually to the City, the Habitat Authority, and appropriate resource agencies (e.g., U.S. Fish and Wildlife Service). Additionally, all mitigation must comply with the Restoration Plans for Mitigation and Monitoring Plans found on the Habitat Authority's web page (http://www.habitatauthority.org/devdedmit.shtml). BIO-1b To prevent erosion and invasion by non-native weeds, and to help offset the Project's overall biological impacts, all graded slopes outside of permanent impact areas (approximately 8.03 acres) shall be revegetated exclusively with appropriate, locally indigenous plant species. All contractors involved in the revegetation effort, including the revegetation specialist and landscape contractor, shall be reviewed and approved by the City and Habitat Authority. Revegetation of graded slopes shall comply with the Habitat Authority's Restoration Guidelines, as specified in Appendix N of the RMP (LSA 2007, Pages 251-372). The following shall apply: All contractors involved in the restoration effort, including the restoration specialist and landscape contractor, shall be reviewed and approved by the City, the Habitat Authority, and appropriate resource agencies (e.g., U.S. Fish and Wildlife Service). Mandatory components of any restoration plan shall include, but not be limited to, Site Preparation, Implementation Specifications, Maintenance Methods, Performance Standards, Monitoring Methods, Documentation and Reporting, and Contingency Measures (in case performance standards are not met in any area). All components of any restoration plan prepared in satisfaction of this mitigation measure shall be reviewed and approved by the Habitat Authority prior to implementation. Maintenance of all plantings will be the Applicant's responsibility, and shall include any activities

Table ES-3 Summary of Impacts and Mitigation Measures for the Proposed Project

Less Than Significant With Mitigation 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 Section 15091 State CEQA Guidelines.)

Impact #	Impact	Recommended Mitigation Measures
		required to meet the performance standards set for the restoration program. A minimum of 5 years of maintenance shall be required unless the plan's long-term performance standards are judged by the City, the Habitat Authority, and appropriate resource agencies (e.g., U.S. Fish and Wildlife Service) to be satisfied in less than 5 years. Monitoring all restoration sites will be the Applicant's responsibility for a minimum of 5 years, or until the City, the Habitat Authority, and appropriate resource agencies (e.g., U.S. Fish and Wildlife Service) judge all of the Project's long-term performance standards to be satisfied. The site monitor shall be a biologist, native landscape horticulturist, or other professional qualified to: (1) assess the performance of the planting effort; (2) recommend corrective measures, if needed; and (3) document wildlife use of planting areas over time. The site monitor shall be selected by the Applicant and approved by the City and the Habitat Authority. If performance standards are not achieved in any restoration area, an alternative or auxiliary mitigation plan may be submitted to the City, the Habitat Authority, and appropriate resource agencies (e.g., U.S. Fish and Wildlife Service). The monitoring results shall be reported at least annually to the City, the Habitat Authority, and appropriate resource agencies (e.g., U.S. Fish and Wildlife Service). Additionally, all mitigation must comply with the Restoration Plans for Mitigation and Monitoring Plans found on the Habitat Authority's web page (http://www.habitatauthority.org/devdedmit.shtml). BIO-1c. Restoration and revegetation efforts shall include salvage of weed-free topsoil (upper 12 inches of soil) from any and all areas of intact (non-weedy) native communities that are graded for Project implementation, as determined by the site monitor described in required by mitigation measure BIO-1 b, so that the soil can later be spread over graded slopes to increase native plant species diversity in the restored areas. Such salvage may also be appropriate for revegetation areas. BIO-1d The Project proponent shall consult with the US Fish and Wildlife Service to obtain an Incidental Take Statement, if needed, pursuant to Section 7 or Section 10 of the federal Endangered Species Act to cover the Project's potential "take" (which includes the permanent and temporary loss of approximately 5 acres of critical habitat) of the coastal California gnatcatcher, a federally listed species.

Table ES-3 Summary of Impacts and Mitigation Measures for the Proposed Project

Less Than Significant With Mitigation 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 Section 15091 State CEQA Guidelines.)

Impact #	Impact	Recommended Mitigation Measures
BIO.2	The proposed Project would result in the permanent and temporary loss of 1.0 acre of mulefat scrub riparian habitat, a federally protected aquatic resource as defined by Section 404 of the Clean Water Act, and increased noise could temporarily inhibit wildlife use of preserved riparian habitat.	BIO-2a To mitigate the Project's permanent loss of 0.22 acre of riparian habitat, the Applicant shall provide minimum 3:1 areal replacement. To mitigate the Project's temporary noise impacts affecting 0.75 acres of riparian habitat, the Applicant shall provide minimum 1:1 areal replacement. In total, the Applicant shall restore 1.41 acres of degraded areas within the La Cañada Verde and Arroyo Pescadero watersheds, or as otherwise agreed to by the appropriate resource agencies and the City. The 0.12 acre of temporary grading impact would be mitigated through the 1:1 revegetation specified in BIO-1.b. All aspects of this restoration shall comply with the Habitat Authority's Restoration Guidelines, as specified in Appendix N of the RMP (LSA 2007, Pages 251-372). The following points shall apply: All contractors involved in the restoration effort, including the restoration specialist and landscape contractor, shall be reviewed and approved by the City, the Habitat Authority, and appropriate resource agencies (e.g., U.S. Fish and Wildlife Service). Mandatory components of any restoration plan shall include, but not be limited to, Site Preparation, Implementation Specifications, Maintenance Methods, Performance Standards, Monitoring Methods, Documentation and Reporting, and Contingency Measures (in case performance standards are not met in any area). All components of any restoration plan prepared in satisfaction of this mitigation measure shall be reviewed and approved by the Habitat Authority prior to implementation. Maintenance of all plantings will be the Applicant's responsibility, and shall include any activities required to meet the performance standards set for the restoration program. A minimum of 5 years of maintenance shall be required unless the plan's long-term performance standards are judged by the City, the Habitat Authority, and appropriate resource agencies (e.g., U.S. Fish and Wildlife Service) to be satisfied in less than 5 years. Monitoring all restoration sites will be the Applicant's responsibility for a minimum of 5 years, or until the City, the Habitat Authority, and appropriate resource agencies (e.g., U.S. Fish and Wildlife Service) judge all of the Project's long-term performance standards to be satisfied. The site monitor shall be a biologist, native landscape horticulturist, or other professional qualified to: (1) assess the performance of the planting effort; (2) recommend corrective measures, if needed; and (3) document wildlife use of planting areas over time. The site monitor shall be selected by the Applicant and approved by the City and the Habitat Authority. If performance standards are not achieved in any restoration area, an alternative or auxiliary mitigation plan may be submitted to the City, the Habitat Authority, and appropriate resource agencies (e.g., U.S.

Table ES-3 Summary of Impacts and Mitigation Measures for the Proposed Project

Less Than Significant With Mitigation 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 Section 15091 State CEQA Guidelines.)

Impact #	Impact	Recommended Mitigation Measures
		Fish and Wildlife Service). The monitoring results shall be reported at least annually to the City, the Habitat Authority, and appropriate resource agencies (e.g., U.S. Fish and Wildlife Service). Additionally, all mitigation must comply with the Restoration Plans for Mitigation and Monitoring Plans found on the Habitat Authority's web page (http://www.habitatauthority.org/devdedmit.shtml). BIO-2b. The Project proponent shall be required to obtain all applicable federal and state permits and agreements, including (1) a Section 404 Permit from the US Army Corps of Engineers, (2) certification, or a waiver of certification, from the Los Angeles Regional Water Quality Control Board that the activity would not adversely affect water quality, and (3) a Streambed Alteration Agreement from the California Department of Fish and Game.
BIO.3	A rupture or leak from oil wells, pipelines, or other oil field-related infrastructure has the potential to result in a substantial adverse effect on native species and habitats, sensitive species, sensitive species habitat, and sensitive habitats including riparian and coastal sage scrub.	BIO-3a. The applicant shall prepare an Emergency Response Action Plan that would address protection of sensitive biological resources and revegetation of any areas disturbed during an oil spill or cleanup activities. The Emergency Response Action Plan shall, at a minimum, include specific measures to avoid impacts to native vegetation and wildlife habitats, plant and animal species, and environmentally sensitive habitat areas during response and cleanup operations. Where feasible, low-impact, site-specific techniques such as hand-cutting contaminated vegetation and using low-pressure water flushing shall be specified to remove spilled material from particularly sensitive wildlife habitats, such as riparian woodlands, because procedures such as shoveling, bulldozing, and raking can cause more damage to a sensitive habitat than the oil spill itself. The Emergency Response Action Plan shall evaluate the non-cleanup option for ecologically vulnerable habitats. When habitat disturbance cannot be avoided, the Emergency Response Action Plan shall provide stipulations for development and implementation of site-specific habitat restoration plans and other site-specific and species-specific measures appropriate for mitigating impacts to local populations of special-status wildlife species and to restore native plant and animal communities to pre-spill conditions. Access and egress points, staging areas, and material stockpile areas that avoid sensitive habitat areas shall be identified. The Emergency Response Action Plan shall include species- and site-specific procedures for collection, transportation and treatment of oiled wildlife, particularly for sensitive species.

Table ES-3 Summary of Impacts and Mitigation Measures for the Proposed Project

Less Than Significant With Mitigation 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 Section 15091 State CEQA Guidelines.)

Impact #	Impact	Recommended Mitigation Measures
		The Emergency Response Action Plan shall include procedures for timely re-establishment of vegetation that replicates the habitats disturbed (or, in the case of disturbed habitats dominated by non-native species, replaces them with suitable native species). The Emergency Response Action Plan shall be approved by the City and Habitat Authority prior to commencing any construction activities. BIO-3b. To reduce exposure risks to wildlife in the Project Site area, all open basins containing any Project-related fluids shall either be emptied at the end of each day or fenced and covered to exclude all wildlife, including birds, bats and amphibians. Drilling muds, concrete waste, and truck washing water shall be contained within closed Baker-style tanks or collected by a vacuum truck before the end of each day and shall not be stored overnight in open pits.
BIO.4	The proposed Project could substantially interfere with the movement of native resident or wildlife species or with established native resident or migratory wildlife corridors, or interfere with the use of native wildlife nursery sites.	BIO-4a Devices and measures shall be employed to minimize noise effects on wildlife. At a minimum, noise barriers shall surround the drill rig floor, mud mixers, cleaners, conveyers, shakers, pumps, and other oil development and operational facilities; construction activities shall be limited to daylight hours except for emergencies; construction machinery shall be operated per manufacture's specifications; and a Noise Reduction Plan and monitoring plan shall be implemented to ensure that Project activities are operating within the ranges included in mitigation measure N-4. BIO-4b All Project lighting shall be designed and shielded with the intent of preventing spillage of light into adjacent preserved open space areas. Outdoor lighting shall be restricted to lights required by code for lighting building exteriors and for safety and security needs. All Project lighting shall be fully shielded and designed to prevent spillage of light into adjacent preserved open space areas. Lighting shall be constructed so that all light emitted by the fixture, either directly from the lamp or from a diffusing element, or indirectly by reflection or refraction from any part of the luminaire, is projected below the horizontal as determined by photometric test or certified by the manufacturer. Any structural part of the light fixture providing this shielding shall be permanently affixed. Light standard heights shall distribute light at ground level consistent with light levels for security, spill-over effects, and efficiency. After initial installation of Project lighting, a biological monitor acceptable to the City and Habitat Authority shall conduct a field inspection to confirm that the proper lamps have been installed and that light spillage into the Preserve has been minimized to the maximum extent feasible without

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		compromising safety or other critical night-lighting requirements. BIO-4c. To minimize the potential for road mortality of wildlife, all roads used to access onsite oil facilities shall have enough traffic calming devices, appropriately sized and spaced, to limit traffic to a maximum speed of 10 miles per hour. All nighttime traffic shall be minimized during the construction and operational phases as feasible; all hauling activities shall be restricted to daylight hours. BIO-4d. Any project landscaping shall consist entirely of species native to the Project Site and surrounding areas within the Preserve and approved by the County of Los Angeles Fire Department and the Habitat Authority. Any irrigation provided shall be limited to that required to initially establish the native plants; no permanent irrigation shall be permitted. BIO-4e. To minimize potential impacts to nesting songbird species, and in compliance with the federal Migratory Bird Treaty Act and Sections 3503, 3503.5, or 3513 of the California Fish and Game Code, initial construction of the pad sites and facilities and annual fuel modifications involving vegetation removal/trimming should be done outside the breeding season (February 15 through August 31). If construction must be completed during this period, then surveys for nesting birds must be conducted within 3 days prior to vegetation removal or other construction-related disturbances. USFWF protocol surveys for listed avian songbirds (California gnatcatcher and least Bell's vireo) shall be conducted if disturbances occur in coastal sage scrub or riparian habitats. If nesting songbirds are observed within the vicinity, then a minimum 100-foot buffer from the nest would be established. The buffer would be delineated by roping construction boundaries and would remain in place until the nest is abandoned or the young have fledged. Alternatively, the Project proponent may retain a biologist acceptable to the City and Habitat Authority to monitor the nest and to ensure that Project activities do not violate the Migratory Bird Treaty Act or the California Fish and Game Code. BIO-4f. Hawks and owls nest earlier than most songbirds. If initial construction activities, drilling, ground disturbance, or vegetation clearing, or annual fuel modification involving vegetation removal/trimming occurs from December 1 through August 31, the nest monitor would conduct a pre-construction survey within 3 days prior to vegetation removal or other construction-related disturbances

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		focused on actively nesting hawks or owls. If any actively nesting hawks or owls (or other native birds) are found, a 300-foot buffer would be established around the nest tree to help ensure that nesting is not disrupted. If any active songbird nests are found, a 100-foot buffer would be established as described in BIO-4e. The buffer would be delineated by roping construction boundaries and would remain in place until the nest is either abandoned or the young have fledged. Alternatively, the Project proponent may retain a biologist acceptable to the City and Habitat Authority to monitor the nest and to ensure that Project activities do not violate the Migratory Bird Treaty Act or the California Fish and Game Code. BIO-4g. To avoid the direct loss of special-status bats that that could result from removal of trees that may provide maternity roost habitat (e.g., in cavities or under loose bark), the following steps would be taken: - Tree removal or relocation shall be scheduled between October 1 and February 28, outside of the maternity roosting season. - If trees must be removed during the maternity season (March 1 to September 30), a qualified bat specialist (i.e., a person holding a California Department of Fish and Game collection permit and a memorandum of understanding allowing the handling and collection of bats) would conduct a pre-construction survey to identify those trees proposed for disturbance that could provide hibernacula or nursery colony roosting habitat for bats. - Each tree identified as potentially supporting an active maternity roost would be closely inspected by the bat specialist a maximum of 7 days prior to tree disturbance to more precisely determine the presence or absence of roosting bats. - If bats are not detected, but the bat specialist determines that roosting bats may be present, it is preferable to push the tree down using heavy machinery rather than felling it with a chainsaw. - Maternity season lasts from March 1 to September 30. Trees determined to be maternity roosts must be left in place until the end of the maternity season. - A 250-foot buffer, in which no construction activities are permitted, would be established around any tree, rock outcrop, or other occupied roost habitat until the end of the maternity season (September 30). - The bat specialist would document all monitoring activities, and would prepare a summary report upon completion of tree disturbance activities. Reports would include the following: - the number and type of affected trees determined to support or potentially support roosting bats prior

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		to disturbance; - any actions undertaken to safely exclude roosting bats prior to disturbance and the results of those actions; - trees temporarily avoided to protect roosting bats; and - roosting bats found (alive or dead) after trees were removed or relocated. - This report would be provided to the City within 30 days following completion of tree removals within each tract map area. BIO-4h To reduce impacts to wildlife movement corridors and to provide protective cover for wildlife using the Service Tunnel, and consistent with the Resource Management Plan recommendations, the Applicant shall be required to install appropriate native screening vegetation around the western terminus of the Service Tunnel (LSA 2007). The Applicant shall consult with the Habitat Authority to identify the appropriate limits of screening vegetation. The plantings installed as screening shall comply with the Habitat Authority's Restoration Guidelines. All contractors involved in the native screening effort, including the restoration specialist and landscape contractor, shall be reviewed and approved by the City and Habitat Authority. BIO-4i Consistent with the Resource Management Plan recommendations, Project lighting shall not be directly visible from the western terminus of the Service Tunnel. BIO-4j. Consistent with the Resource Management Plan recommendations, the Project proponent shall be required to consult with the Habitat Authority to develop and implement signage explaining the importance of limiting human disturbances in the vicinity of the Service Tunnel between sunset and sunrise. BIO-4k A qualified biological monitor approved by the City and the Habitat Authority shall be onsite during all vegetation removal and initial ground disturbance activities to ensure the compliance with all permit conditions protecting biological resources. The biological monitor shall be present to salvage wildlife species that may be otherwise killed or injured by heavy equipment and vegetation clearing. All salvaged wildlife shall be relocated to suitable adjacent habitat within the Preserve. The biological

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		monitor shall have the authority to temporarily halt activities if permit requirements and conditions are not being met. BIO-4l The Applicant shall fund and implement a biological resources training program for all construction workers, oilfield workers, and their contractors. Training shall occur annually and as needed for new workers. Training shall include a description of important biological resources within the Preserve and all applicable conditions, permit requirements, and protection measures implemented to protect those resources. BIO-4m All grading limits shall be delineated by orange construction fencing and permanent signage every 50 feet along the fence stating "No Entry — Sensitive Habitat." The City and the Habitat Authority shall approve the fencing prior to commencement of grading activities (including clearing and grubbing). BIO-4n Recreational access to the Arroyo San Miguel Trail shall be closed during construction or drilling activities at the Drill Pad Site. To continue providing recreation access to the Arroyo San Miguel Trails (on the east side of Colima Road), the Applicant shall develop additional recreational access, in coordination with the Habitat Authority, to the Arroyo San Miguel Trail by any of the following or equivalent: (1) enhancing the parking area on the east side of Colima Road; (2) developing the parking area along La Flore Drive, approximately 1 mile east of Colima Road; or (3) develop pedestrian access along Colima Road from the Preserve parking area (on the west side of Colima Road) utilizing the new signalized intersection.
BIO.5	The proposed Project would conflict with local policies and ordinances protecting biological resources, such as a tree preservation policy or ordinance.	Implement mitigation measures BIO.1, BIO.2, BIO.3, and BIO.4.
4.3 Safety, Risk of Upset, and Hazardous Materials		
SR.1	The proposed Project could	SR-1a The Applicant shall implement site security methods, including but not limited to: (1) enclosing

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Impact #	Impact	Recommended Mitigation Measures
	introduce risk to the public associated with accidental releases from well drilling and processing operations.	all wells and equipment (including the metering station) with 8-foot block walls with barbed wire on the inside at 7 feet; (2) Secure gates located at all entrances with automatic opening/closing and secure access; (3) Limitation of climbable landscaping near the facility; (4) Installation of video surveillance systems and burglar/intrusion alarm systems; (5) Contact information and site access limitations shall be posted in specific locations easily visible to the public, shall be provided to neighboring residents within a set radius, and shall be placed in Preserve information kiosks and on the Habitat Authority and City websites; (6) Visitor sign-in/sign-out and security policies for employees regarding access control, pre-employment screening, post-employment issues, vehicles, access keys, codes, and card security. SR-1b The Applicant shall conduct a third-party audit of the gas and crude oil plants and pipelines, once constructed, including the well pads, to ensure compliance with Fire Code, applicable API and NFPA codes, EPA RMP, OSHA PSM, and SPCC and emergency response plans requirements. The review shall include a seismic assessment of equipment to withstand earthquakes prepared by a seismic engineer in compliance with Local Emergency Planning Committee Region 1 CalARP guidance. All audit items shall be implemented in a timely fashion, and the audit shall be updated periodically, as directed by the City and the Los Angeles County Fire Department.
SR.2	The proposed Project could introduce risk to the public associated with accidental releases from well drilling and processing operations.	SR-2a The Applicant shall install automatic valves that will automatically shut down under a low pressure scenario at the Processing Facility Area for all pipelines leaving the processing plant (Colima Road and the pipeline to the landfill), and a backflow prevention device or shut-down valve at the tie-in location at Lambert Road, to prevent the release of gas from the main transmission pipeline in the event of a rupture in the Colima Road pipeline. SR-2b The Applicant shall ensure that warning tape is installed above the pipeline within the pipeline trench to warn third parties that a pipeline is located below the warning tape and that the pipeline is capable of utilizing a smartpig.
SR.3	The proposed Project could mobilize soil contamination that could affect groundwater and environmental and public health.	SR-3 The Applicant shall conduct site assessments of the Project Site before commencing Project construction and shall sample soils and excavated materials associated with construction to ensure that the soils are not contaminated. Contaminated soils shall be completely excavated and the contaminated areas cleaned to LARWQCB specifications before moving forward with construction of the proposed Project components.
4.4 Geological Resources		

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GR.1	Seismically induced ground shaking could damage proposed structures and infrastructure, potentially resulting in loss of property, risk to human health and safety, and oil spills.	GR1-a Proposed drilling, production, processing, storage, and transportation infrastructure shall be designed and constructed to withstand anticipated ground acceleration in the Project Area, based on the California Building Code. The calculated design base ground motion for project components shall consider the soil type, potential for liquefaction, and the most current and applicable seismic attenuation methods that are available. GR1-b All surface facilities and equipment shall have suitable foundations and anchoring design, surface restraints, and moment-limiting supports to withstand seismically induced groundshaking. GR1-c All conceptual geotechnical recommendations provided by Heathcote Geotechnical (2011) shall be followed during grading and construction at the Project Site. In addition, a Registered Civil Engineer and Certified Engineering Geologist shall perform an updated geotechnical evaluation of the Project Site, as the proposed building pad and slope configuration has changed since completion of the geotechnical report completed in 2010 (Heathcote Geotechnical 2011). This report shall be completed prior to completion of the final project design and shall be submitted to the City of Whittier for review and approval and any new recommendations not included in the Heathcote Geotechnical (2011) report shall be adhered to. The project design must conform to the recommendations within the updated geotechnical evaluation. GR-1d All proposed slope construction, roadways, and work pads shall be properly engineered, with fill placed in accordance with California Building Code and Los Angeles County requirements. GR-1e All proposed pipelines shall be placed in properly constructed trenches and backfilled with bedding and engineered fill that increases the freedom of movement of the pipelines, or alternatively anchored to prevent pipeline movement, as determined by a California Registered Civil Engineer, in accordance with California Building Code, 2010, Los Angeles County requirements, and the American Public Works Association Greenbook. GR-1f All existing facilities and equipment, including spill containment berms and Project-related

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		pipelines, shall be inspected with respect to seismic integrity before operations. In the event that deficiencies are noted, such facilities, structures, or equipment shall be retrofitted for the seismic loading in accordance with applicable codes, including the California Building Code, 2010. GR-1g The Applicant shall cease any non-essential drilling and production activities and inspect all project-related facilities, equipment, and pipelines following any seismic event that generates a ground acceleration of 15 percent of gravity. The Applicant/Operator shall prepare a written report of all inspections and findings to the City for review and approval prior to the recommencement of any operations.
GR.2	Moderately expansive soils are prone to swelling and shrinking as a result of increased or decreased water content, which could potentially damage proposed structures and infrastructure, resulting in loss of property.	GR-2a. Thickened slabs, extending slab edges and additional reinforcement shall be installed to reduce negative impacts from any expansive soil movement. In addition, the use of capillary break under slabs shall be utilized to reduce the potential for moisture transport and pumping that leads to moisture infiltration as a result of heat and moisture gradients. It is essential that sand thickness under slabs be used for concrete curing only and be kept at 2 inches or less. The American Concrete Institute has found that greater thicknesses tend to provide conveyance of excessive moisture under the slabs. An alternative would be the use of low to non expansive soils for slab support, which would eliminate the potential risk. This can be accommodated by importing select materials. Select grading techniques during grading could utilize the granular soils in site for subsequent use. Measures shall be as described above or as otherwise approved by the City Engineer.
GR.3	Existing uncertified fill onsite could potentially be subject to hydroconsolidation, excessive settlement, expansive soil shrink and swell and differential settlement/expansion, and thus could potentially damage proposed structures and infrastructure, resulting in loss of property.	Mitigation Measure GR-1c shall be completed in association with artificial fill impacts.
GR.4	Landslide prone slopes are	Mitigation Measure GR-1c shall be completed in association with slope stability impacts.

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	present in the Project Area. Such slopes could potentially damage proposed structures and infrastructure, resulting in loss of property and oil spills.	
GR.5	Temporary excavations could impact and adversely affect adjacent properties or de-stabilize the existing hillside.	GR-5a. Temporary shoring shall be designed to protect the temporary excavations, structures to remain in place, and adjacent properties. This shoring shall be designed by a State of California Registered Civil Engineer to take into account all lateral load parameters. Shoring above groundwater levels can range from steel cage to timber supports to sheet piling, soil nailing or shotcrete walls or as otherwise approved by the City Engineer. GR-5b. Implement slot cut excavation schemes during grading and foundation excavations to the extent possible to reduce the potential for failure along temporary cuts by limiting the area exposed by temporary cuts. GR-5c. All excavations for structures and buildings shall comply with all applicable regulations of the California Occupational Safety and Hazard Administration guidelines as they pertain to excavations.
GR.6	Corrosion could potentially damage the structural components and pipelines which would result in a pipe burst and subsequent oil spill.	GR-6a. Site specific chemical testing shall be performed to assess corrosion and other adverse chemical aspects. A report with the lab tests shall be submitted to the City of Whittier with any appropriate mitigation measures included. The project design must conform to the recommendations within the geotechnical evaluation, or as per the City Engineer, and should occur prior to completion of the final project design. GR-6b. All pipelines and metal components should be coated and placed under impressed cathodic protection. To monitor for internal corrosion, corrosion coupons or equivalent measures can be utilized. GR-6c. External pipe inspections shall be conducted for the exposed pipeline sections to ensure atmospheric coatings are in good conditions. All external inspections shall be documented and reviewed by the operations management and repairs documented, when necessary. GR-6d Mechanical testing, including ultrasonic and hydrostatic testing, shall be completed in coordination with the California Department of Conservation Division of Oil, Gas, and Geothermal Resources staff.

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		GR-6e. All concrete in contact with the high sulfate or corrosive soils can be Type V concrete in accordance with the 2010 California Building Code,.
GR.7	Oil withdrawal could result in ground subsidence.	GR-7a. Subsidence monitoring shall be completed annually in the vicinity of the wells. Surveying for both vertical and horizontal ground movement shall be completed along the perimeter and throughout the interior of the oil field, utilizing Global Positioning System technology in combination with a network of ground stations. The results shall be forwarded to the Division of Oil, Gas and Geothermal Resources and the City of Whittier for review. GR-7b. In the event that the Global Position System monitoring indicates that subsidence is occurring in and/or around the project, wastewater reinjection operations shall be increased to alleviate such subsidence. The Applicant shall coordinate with the California Division of Oil,Gas and Geothermal Resources in determining appropriate increased levels of wastewater reinjection operations. The Applicant will also coordinate with the City of Whittier to verify that subsidence has been mitigated sufficiently.
4.5 Noise and Vibration		
N.1	Construction machinery would increase noise levels.	N-1a. Limit all construction activity at the Project Site (including deliveries and arriving and departing workers) to the hours from 7:00 a.m. to 6:00 p.m., Monday through Friday, and from 8:00 a.m. to 5:00 p.m. on Saturdays and prohibit activities on Sundays and federal holidays. In addition, for construction work within the County of Los Angeles unincorporated areas, the Applicant shall ensure that noise levels do not exceed County municipal code levels with a noise study and monitoring and measures, including high grade mufflers, engine tuning, and management of backup alarms. All contracts with construction personnel shall specify the allowable work hours and the study and monitoring requirements. N-1b Maintain all construction machinery according to the manufacturers' specifications and ensure that mufflers and silencers are maintained properly. Back-up OSHA noise indicators shall be ambient sensitive and self-adjusting to minimize backup indicator noise or flaggers shall be used in the place of backup alarms (as allowed by OSHA). N-1c. Relocate the construction parking and staging area farther from the school and residences on Catalina Avenue to an area north of the Ranger Residence or equivalent.

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N.2	Drilling activities during the Drilling and Testing Phase would increase noise levels in the area.	N-2a The Applicant shall develop and implement a Noise Reduction Plan for all drilling (testing, development, and re-drills and workovers) to ensure that the Leq noise levels from activities, measured as a 1-hour Leq, is less than a 3-dBA increase at the closest sensitive residential receptor and less than a 5-dBA increase at the closest sensitive recreational receptor. The Plan shall be prepared by an acoustic consultant approved by the City and the Plan shall be subject to City review and concurrence. The measures in the Plan shall include but not be limited to the following: (1) enclose the drill rig area in soundproof barriers 30 feet high on the south and west sides; (2) utilize a central generator type drilling rig, with the generators the only diesel engines onsite and enclosed in a soundproofed generator house with appropriate grade muffler systems, or install sound enclosures around all diesel engines with appropriate grade muffler systems; (3)install noise barriers around the drill rig floor, mud mixers, cleaners, conveyers, and shakers; (4) enclose drawworks brake area with soundproofing shroud; (5) install pads on V-door and other appropriate areas, timbers and pads on drill deck, pads between drill and casing pipe while in storage, and pad and timbers at the boards on the mast to reduce metal-on-metal noise (for both drilling and workover operations); (6) enclose the drilling mast boards area (on drilling and workover rigs) with barriers 2 inches thick and 2 pounds per square foot in density at least 5 feet above and below any noise sources; and (7) install ambient sensitive backup indicators on all equipment requiring backup indicators. N-2b The Applicant shall institute a quiet-mode for all drilling activities between 7 p.m. and 7 a.m. Quiet-mode operation would apply to both drilling and operations and would involve: (1) using signalers for all backup operations instead of backup alarms and turning off backup alarms; (2) using radios instead of voice communication; (3) minimizing crane use and pipe handling operations, pipe offloading from trucks and board loading during daytime to the maximum extent feasible and nighttime loading only for safety reasons; (4) prohibiting material and supply deliveries to the Project Site between the hours of 7 p.m. and 7 a.m., with exceptions only for safety; and (5) limiting process alarms and communications over the broadcast system to the maximum extent feasible during all operations and use only for safety reasons. N-2c Provide a comprehensive noise abatement study, including noise and vibration monitoring at nearby sensitive receptors, under contract and supervision of the City, to monitor noise and vibration from the drilling and operations in the community, which shall have the authority to shut-down operations and require additional mitigation if the noise criteria are exceeded.

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N.4	Operational activities would increase noise levels in the area.	N-4 The Applicant shall develop and implement a Noise Reduction Plan for all operations to ensure that Leq noise levels from operational activities, measured as 1-hour Leq, produce less than a 3 dBA increase over the minimum baseline hourly average level at the closest residential receptor to the facility. The measures in the Plan shall include, but not be limited to: (1) installing sound enclosures or buildings around all compressors; (2) installing noise barriers around all pumps and air coolers; (3) installing ambient-sensitive backup indicators on all equipment requiring backup indicators; (4) installing sound enclosures or buildings around all the oil area pumps (e.g., shipping, IGFC, water injection, water booster, reject pumps); (5) installing sound enclosures or buildings around refrigeration units; (6) installing a secondary, 16-foot tall sound wall on the south, west and north sides of the gas plant; (7) ensuring that all office equipment (i.e., air conditioners, heating, ventilation) produces low noise levels or is surrounded by noise barriers; and (8) limiting traffic on the North Access Road to only from 7 a.m. to 7 p.m., except for emergencies.
N.5	Concurrent operational activities e and drilling activities during periods of the Project would increase noise levels in the area.	Implement mitigation measures N-1a and N-1b, N-2a through N-2c, and N-4.
4.6 Aesthetics and Visual Resources		
AE.2	Oil processing equipment could degrade public viewsheds.	Implement mitigation measures AE-1a and AE-1b.
AE.4	The proposed Project could increase nighttime lighting and glare.	AE-4. All point lighting sources that may be introduced onsite in support of nighttime operations shall be screened and directed to prevent offsite spillover lighting effects. Spillover lighting shall be limited to 0.1 fc within 30 feet of facility boundaries. Outdoor lighting should be restricted to only those lights that are required by code for lighting building exteriors and safety and security needs. Consistent with public safety needs street lighting, pedestrian walkway lighting, and parking lot lighting shall use light fixtures that shield and direct light with a backlight shield or other equivalent type of shielding, to minimize light spill-over effects into adjacent areas. Light standard heights shall distribute light at ground level consistent with light levels for security, spill-over effects, and efficiency.
4.7 Transportation and Circulation		
T.1	Potential test drilling,	T-1a. During Phase I at Intersection 6 - Catalina Avenue and Mar Vista Street, provide striping

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	Construction, and Operations and Drilling at the Whittier Mail Oil Field would increase traffic in the area.	enhancements for northbound and southbound lanes to convert the existing single lanes to a left and shared through and right lane. Parking shall be restricted immediately north of the intersection, as per City Engineers recommendations. T-1b A worker carpooling program shall be instituted offsite and away from congested areas to reduce Project traffic through congested areas during all Project phases. T-1c During all phases, limit truck and employee access via Catalina Avenue and Mar Vista Street to no more than 40 daily round-trips and a peak hour of 12 one-way trips. No trucks shall be allowed on Catalina Avenue during Phase 2 or Phase 3. T-1d Implement safety and access improvements, including: (1) During Phase 1, provide a wider turning radius at the northeast corner of Catalina Avenue to improve right turn movements; (2) Prohibit parking on the east side of Catalina Avenue north of Mar Vista Street to provide additional capacity for trucks during Phase 1, according to city engineer recommendations; (3) Provide flagmen for truck access on Mar Vista Street during Phase 1; (4) Applicant shall maintain a record of vehicular traffic moving in and out of the Catalina Avenue Gate; (5) Implement a pavement monitoring program to ensure Mar Vista Street and Catalina Avenue are maintained and damage from truck traffic is appropriately repaired, under direction of city engineers; and (6) Clearly posted speed limit signs on Catalina Avenue. T-1e During Phase 2 soil export, if it is not deposited at the Savage Canyon Landfill, restrict truck traffic to non-am peak hours at the intersection of Hadley Street and Whittier Blvd. T-1f Implement a Penn Street Traffic Program, in coordination with the City, evaluating: (1) Traffic levels and periods of heavy traffic along Penn Street: (2) Longer-term traffic monitoring to capture events and variation in traffic flow due to student populations and event traffic;

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		(3) Construction truck traffic impacts on roadway capacity due to parking limitations and event activities; (4) Coordination with Whittier College to reduce impacts of events and parking issues along Penn Street; (5) Alternative parking locations and routes for Whittier College events; (6) Implementing safety improvements, including enhanced pedestrian crosswalks and signage; (7) Identifying sources of landfill traffic and ensuring the proposed Project truck traffic does not increase truck traffic levels on Penn Street; (8) Limited hours for proposed Project truck traffic on Penn Street to avoid congested or impacted periods (e.g., limit truck traffic to periods when the landfill is open); (9) Coordinate periods of heavy traffic flow on Penn Street due to events and prevent use of Penn Street for proposed Project-related construction truck traffic during these events.
T.2	Construction of the pipeline along area streets could cause significant impacts.	T-2. A Traffic Management Plan shall be submitted to the City and County of Los Angeles Traffic Engineers for approval, as required, prior to issuance of encroachment permits. The Plan could include the following measures: provide methods to safeguard traffic flow; identify detours (if necessary); identify the placement of traffic control devices (e.g. signs, traffic cones) and flaggers (if needed); and provide other appropriate traffic control measures. Additional measures shall include: (1) One travel lane shall be left open in each direction (delineated by temporary traffic cones/barricades) along roadways during construction (i.e. roads will not be closed). Any temporary street closures shall occur in coordination with city staffs. (2) Construction on major roadways through major signalized intersections will not be conducted during peak periods (6 to 9 a.m. and 3 to 6 p.m.), except where requested by the city to alleviate traffic impacts. (3) All trenches in areas without safety fencing shall be metal plated during non-construction hours. All trenches that interfere with access to residential and business driveways shall be metal plated to provide access. (4) Edges of steel plates shall be made safe for cyclists. (5) All county and municipal fire, police, and paramedic departments shall be notified of schedule and duration of construction activities. (6) As required, alternative routes shall be identified for emergency vehicles to avoid construction areas. (7) Coordination shall be undertaken with appropriate transit authorities to ensure uninterrupted service

Table ES-3 Summary of Impacts and Mitigation Measures for the Proposed Project

Less Than Significant With Mitigation Impacts

Impacts That Can Be Mitigated To Less Than Significant Levels

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Impact #	Impact	Recommended Mitigation Measures
		along bus or train routes, which shall be crossed or paralleled by the pipeline construction. (8) Alternative pedestrian and bicycle routes shall be identified to avoid construction areas if existing routes are obstructed by pipeline construction activities. (9) Transit stops shall be relocated as necessary to provide access during construction. (10) Staging areas for construction equipment and service truck traffic shall be located off the roadway. (11) Provision shall be made for off-street parking for worker vehicles in areas where parking is limited. (12) Advance notifications shall be made to affected residents, businesses, etc. through public information, such as a website. (13) Scheduling construction adjacent to critical land uses so that at least one driveway is left unblocked at all hours or during business hours and ensuring resident and business access during trenching/construction. (14) Ensure that damaged roads are restored to at least their pre-construction condition and to the satisfaction of the responsible agency.
4.8 Hydrology and Water Resources		
WR.1	Site grading and drainage improvements would alter existing drainage patterns and increase impervious surfaces, which could increase surface runoff, cause flooding, and adversely impact water quality.	WR-1a A registered civil engineer experienced in drainage shall prepare a hydrologic study, using the corresponding hydraulic calculations for interception, conveyance, and discharge of runoff. Based on these studies, the engineer shall prepare a drainage plan in accordance with City and County requirements. WR-1b A registered civil engineer experienced in drainage shall design and implement onsite detention facilities to reduce runoff to existing levels. Onsite detention ponds would attenuate the runoff intensity, such that an excessive peak flow would not occur during high intensity storms and there would be no increase in runoff intensity over existing conditions. The project engineer shall conduct an onsite hydrologic study to determine the approximate increase in storm runoff to accurately scale any onsite detention facilities. Detention System Design Onsite detention facilities have the potential to create habitats for mosquito breeding. Any onsite detention facilities shall be designed as a 'dry system' in accordance with the California

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		Department of Public Health. A dry system requires that the facility be designed to discharge all captured water within 4 days. The design slope shall be adequate and properly compacted to prevent standing water and a low flow channel shall be incorporated to direct low flows to the system outlet. The basin shall also provide access for maintenance and inspection. All catch basins and drainage facilities, including grass swales and bio-retention facilities shall also be designed to prevent standing water. An operation and maintenance plan shall be incorporated to remove vegetation, sediment, and debris accumulation biannually with an inspection at the beginning of the wet season. Waste from maintenance shall be disposed of according to local and state regulations. Onsite detention facilities shall be inspected quarterly for burrowing vector damage. Vector control measures shall be incorporated and maintained to prevent damage to the detention facility. Onsite detention facilities shall be surrounded by 6-foot fencing and provided access with a gate and access road per Los Angeles County standards. Discharge systems from onsite detention facilities shall be capable of discharging water from the basin while preventing a discharge of oil from the surface of the basin using a weir or subsurface discharge type design to prevent oil discharges from the basin in the event the basin reaches capacity and there is a crude oil spill. WR-1c. Impervious surfaces shall be minimized to prevent pollutant runoff. Gravel roads and parking areas would allow infiltration of storm water and limit downstream runoff. WR-1d. Structural best management practices shall be used to mitigate the increased pollutant runoff. Directing runoff from impervious area to grass swales, bio-swales, or detention ponds would aid in filtering out suspended solids and potential contaminants. Grassbio swales shall not be planted with invasive species. WR-1e. Pollution control products, such as catch basins with basket inserts, shall be used to catch trash and debris along with filtering elements such as silt fences, straw wattles and absorbent sponges within catch basins. Filter technology may be used to catch sediment, debris, oil, and pollutants. WR-1f. Permanent water quality testing, drainage device, and erosion control maintenance shall be implemented. WR-1g. Storm Water Pollution Prevention Plan manager shall oversee and monitor in-construction best

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		management practices and storm water management programs in accordance with the State General Construction Permit and the Los Angeles Regional Water Quality Control Board.
WR.2	Site grading and drainage improvements would alter existing drainage patterns at the Project Site, which could increase erosion and impact water quality on or offsite.	WR-2a. During construction operations, the Applicant shall implement storm water management protection measures and wet weather measures. These measures would include temporary and permanent best management practices to reduce the potential for erosion and sediment transport. Conventional measures typically recommended by the State Water Resource Board and the California Department of Transportation would reduce potentially significant erosion and runoff impact to less than significant levels. Implement permanent erosion and sediment control measures: - Limit grading, clearing, and grubbing to preserve existing vegetation; - Use mulches and hydroseed to protect exposed soils; - Use geotextiles and mats to stabilize soils; - Use drainage swales and dissipation devices; and - Use erosion control measures outlined in the California Stormwater Quality Association Best Management Practice Handbook. Implement temporary best management practice mitigation measures: - Use silt fences, sandbags, and straw wattles; - Use temporary sediment basins and check dams; and - Use temporary best management practices outlined in the California Stormwater Quality Association Best Management Practice Handbook. Implement tracking control best management practices to reduce tracking sediment offsite. - Use stabilized construction entrance and exit with steel shakers; - Use tire wash areas; and - Use tracking control best management practices outlined in the California Stormwater Quality Association Best Management Practice Handbook. WR-2b. The Applicant shall implement a Storm Water Pollution Prevention Plan using best management practices and monitor and maintain storm water pollution control facilities identified in the Storm Water Pollution Prevention Plan, in a manner consistent with the provisions of the Federal Water Pollution Control Act (National Pollutant Discharge Elimination System Program).

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		WR-2c. A registered civil engineer experienced in drainage shall prepare a hydrology study with the corresponding hydraulic calculations for interception, conveyance, and discharge of runoff. Based on these studies, prepare a drainage plan in accordance with City and County requirements.
WR.3	New grading and construction, potential soil remediation, and/or drilling operations could degrade surface water quality.	WR-3a The proposed well cellar shall be lined with an impermeable membrane to prevent groundwater from flowing into the cellar and to prevent oil-based substances from seeping into groundwater supplies. All drilling muds storage shall be contained within Baker-type enclosed tanks. WR-3b An 18-inch berm shall be placed around the entire drilling rig to capture any spilled fluids. WR-3c Personnel at the site shall be trained in equipment use and containment and cleanup of an oil spill. Dry cleanup methods, such as absorbents, shall be used on paved and impermeable surfaces. Spills in dirt areas shall be immediately contained with an earthen dike and the contaminated soil shall be dug up and discarded in accordance with local and state regulations. WR-3d Oil spills shall be contained and cleaned according to measures outlined in the California Stormwater Quality Association Best Management Practice Handbook. WR-3e An approved response manual and Oil Spill Contingency Plan shall be implemented to outline response actions in the event of a spill, including a spill response trailer, equipment, and personnel training.
4.9 Cultural Resources and Archeology		
CR.1	Impacts to historical resources, such as well pads, roadways, and the landscape due to ground disturbance.	CR-1. Develop of a monitoring plan, subject to City and Habitat Authority approval, for treatment of areas of direct impact to elements identified as contributing components of Whittier Oil Field including, but not limited to, the following: - Monitoring concurrent with construction grubbing at the locations of all oil well pads, allowing time for detailed field recordation of each pad that could not be obtained during survey level recording efforts due to heavy vegetation. Recordation should include photographs in digital or 35mm format, scaled plan-view drawings of the well pads, and written documentation that describes construction methods, details, and associated material composition.

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Impact #	Impact	Recommended Mitigation Measures
		- Monitoring concurrent with alteration of existing historic-period roadways to allow for detailed mapping of existing roadways as well as recordation of construction along a representative segment(s) of the roadway to document the methods used over time as the oil fields evolved; first relying on dirt roads, followed by oil-paved roads, and finally asphalt-paved roads. - Collection, analysis, reporting, and curation of any associated artifacts that might be unearthed during monitoring activities described above. - Completion of a report of findings and update of appropriate Department of Parks and Recreation 523 forms to document the information obtained as a result of the mitigation/monitoring program.
CR.2	Unanticipated disturbance to human remains due to construction.	CR-2. If human remains are exposed during construction, State Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has been notified and can make the necessary findings as to origin and disposition of the remains pursuant to Public Resources Code 5097.98. Construction must halt in the area of the discovery of human remains, the area must be protected, and consultation and treatment shall occur as prescribed by law.
CR.3	Unanticipated disturbance to paleontological resources.	CR-3. If any paleontological resources are encountered during ground-disturbing activities in the Project area, activities in the immediate area of the find shall be halted and the discovery assessed (LSA 2007). A qualified paleontologist must evaluate the discovery and recommend appropriate treatment options pursuant to guidelines developed by the Society of Vertebrate Paleontology. A paleontological resource impact mitigation program for treatment of the resources would be developed and implemented.
4.10 Wastewater		
WAS.1	The proposed Project would generate sanitary wastewater that could exceed the existing capacity of downstream sewer and wastewater treatment facilities.	WAS-1. A Registered Civil Engineer shall evaluate the capacity of the existing sewer line system, beginning at the proposed tie-in at Catalina Avenue and continuing downstream to the County Sanitation Districts of Los Angeles County sewer system, prior to any connections. A seven-day capacity performance test shall be performed, based on County Sanitation Districts of Los Angeles County average wastewater generation factors, to determine baseline and peak flows, and to ensure the sewer has adequate capacity in the downstream areas. The capacity analysis shall be submitted to the District for review and approval. In the event that existing sanitary sewer facilities are insufficient to accommodate increased flows from the proposed Project Site, the Applicant shall provide temporary mobile sanitary facilities (i.e., toilet, sink, and urinal) for on-site personnel, as necessary.

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WAS.2	The proposed Project would generate wastewater that could impact water quality of nearby drainages and creeks.	Mitigation measures WR-3a through WR-3e, in Section 4.8, Hydrology and Water Quality, shall be implemented.
4.11 Land Use and Policy Consistency Analysis		
LU.1	Noise generated independently from test drilling, construction, and potential future operations could be incompatible with adjacent land uses.	Implement mitigation measures N-a1 through N-1b and N-2a through N-2c.
LU.2	Concurrent operational activities at the Project Site would increase noise levels that could be incompatible with adjacent land uses.	Implement mitigation measures N-1a and N-1b, N-2a through N-2c, and N-4.
LU.4	Future oil field development could increase nighttime lighting and glare inconsistent with surrounding land uses.	Implement mitigation measures AE-1b and AE-5.
LU.5	Emissions and odors from drilling and operations could be incompatible with adjacent land uses.	Implement mitigation measures AQ-1a through AQ-1d, AQ-2a and AQ-2b, AQ-3a through AQ-3e, AQ-4, and AQ-5.
LU.6	The proposed Project conflicts with Adopted land use plans, policies, ordinances, habitat conservation plans or planning efforts to protect the recreational resources of the area.	Implement all mitigation measures in Section 4.1, Air Quality; Section 4.2, Biology; Section 4.5, Noise; Section 4.6, Aesthetics and Visual Resources; and Section 4.14, Recreation.

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Impact #	Impact	Recommended Mitigation Measures
4.12 Fire Protection and Emergency Services		
FP.1	Future oil field development activities at the site could be deficient in firewater supplies, equipment layout, detection systems or emergency response.	FP-1a The oil field operator shall provide fire water supplies from either the Murphy Station 10-inch line or Suburban Water Supply along Colima Road, (both of which are nearby and have sufficient supplies) or some other source, that provides sufficient water supply rates and duration to comply with codes and the LACoFD. Any new pipeline installations shall avoid any sensitive habitats (coastal sage scrub or riparian) and will be placed in non-native grassland or disturbed communities. Any non-native grassland in which new pipeline installations are placed shall be returned to its original state after pipeline installation. FP-1b The oil field operator shall implement a community alert notification system to automatically notify area residences and businesses in the event of an emergency at the oil field that would require residents to take shelter or take other protective actions. FP-1c The oil field operator shall ensure that design and construction comply with applicable codes and standards for equipment spacing, particularly those related to flare location and distances to public areas (near the Preserve hiking trails), installation of fire detection and prevention systems, flame detection, flammable gas detection, fire foam, and associated alarms and alert systems. FP-1d The oil field operator shall develop emergency response plans addressing the facility's fire-fighting capabilities pursuant to the most recent NFPA requirements, Los Angeles County Fire Code, LACoFD, California Code of Regulation, and API requirements, in coordination with LACoFD and the City of Whittier. These plans should include, but not be limited to, fire monitor placement, fire water capabilities, fire detection capabilities, fire foam requirements, facility condition relating to fire-fighting ease and prevention, and measures to reduce impacts to sensitive resources.
FP.2	Future oil field development activities at the site could increase the risk of wildfires.	FP-2a The oil field operator shall ensure that fuel modification areas create at least 30 feet of clearance from all oilfield equipment and 10 feet from all roadways to reduce the potential for ignition sources starting wildfires. Firewater monitors located within the facility should be placed so that sprays could reach beyond the facility walls by at least 30 feet and could be used to extinguish a wildfire started at the facility fence line. Fire hydrants shall be placed along all roadways, spaced according to LACoFD Fire Prevention Regulations Chapter 8 or as specified by LACoFD. The Applicant shall ensure that appropriate wildfire response equipment is located at the site or at the Rangers residence if the Ranger Residence is located near the site. FP-2b Emergency response plans shall address the issues related to wildfire risks and response,

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		including coordination with the area residences, the Preserve Rangers and the LACoFD, as well as first response tactics and equipment.
4.14 Recreation		
REC.1	Concurrent operational activities at the Project Site during periods of the Project could affect recreational activities.	REC-1 The Applicant shall construct and maintain interpretative signage within the Preserve's trails in coordination with the Habitat Preserve. Interpretative signage shall provide an educational component about the Preserve, drilling activities, mitigation, descriptions of local wildlife, habitats, and the environmental values of the Puente Hills area;, historic uses and others as determined by the City in consultation with the Habitat Preserve.
REC.2	The new drilling and operations would increase odors that could reach recreational users.	Implement mitigation measures AQ-3a through AQ-3e.

Table ES-4 Applicability of Mitigation Measures to the Alternatives

Alternative	Applicable Mitigation Measures
Savage Canyon Landfill Site	All mitigation measures would be applicable to the Landfill Site Alternative EXCEPT: • BIO-4h, Installing native screening around the service tunnel • N-1c, relocating staging and parking areas • T-1a, improvements to Catalina Ave • T-1c, limits on Catalina Avenue and Mar Vista Street Traffic • T-1d, measures related to area improvements and pavement monitoring • REC-1a, interpretive signage within the Preserve
Loop Trail Road	The following measures would be applicable to the Loop Trail Road Alternative related to construction and roadway operational issues: Note: This alternative assumes that Catalina Avenue would be used for phase 1 of the project. • AQ-1a: Fugitive dust • AQ-1c: Road treatment before facility construction • AQ-1d: Tier 3 engine on construction equipment • BIO-1a: Replacement of loss of sage scrub (if applicable) • BIO-1b: Re-vegetation • BIO-2a: Replacement of riparian habitat (if applicable) • BIO-4c: Road use during daylight hours only • BIO-4d: Landscaping with native species • BIO-4e: Nesting songbirds and construction timing • BIO-4f: Nesting hawks and owls and construction • BIO-4g: Nesting bats and construction • GR-1b: Roadway slopes • GR-6b: Slope repair • GR-9a: Best management practices for erosion and sediment control

Table ES-4 Applicability of Mitigation Measures to the Alternatives

Alternative	Applicable Mitigation Measures
	• GR-9b: Covering of stockpiles • N-1a: Construction activities timing • N-1b: Maintenance of construction equipment • AE-1a: Landscaping along roadway • WR-1a: Minimize impervious surfaces • WR-1b, WR-1e and WR-2a: Best management practices • WR-2c: Drainage plan • FP-1a: Fire water supplies along roadway with hydrants • FP-2b: Wildfire risk • PS-1: Recycling plan during roadway construction
Lambert Railroad Right-of-Way Alignment	The following mitigation measures would be applicable to the Lambert Railroad Right-of-Way Alignment Alternative related to construction and pipeline issues: • AQ-1a: Fugitive Dust measures • AQ-1d: Tier 3 diesel engines on construction equipment • AQ-2a: SCAQMD regulations • SR-2a: Gas Pipeline automatic valves • SR-2b: Pipeline warning tape • GR-1c: Buried pipeline measures • GR-10b: Coating of pipelines • N-1a: Limits on construction hours • N-1b: Maintenance of construction machinery • T-2: Pipeline construction traffic management plan • WR-2a: Storm water best management practices • PS-1: Recycling plan