

## 4. ENVIRONMENTAL SETTING, IMPACTS, AND MITIGATION MEASURES

### 4.1 Introduction

This Initial Study/Mitigated Negative Declaration (IS/MND) includes analysis of the 16 environmental issue areas and mandatory findings of significance listed below by section number. These issue areas incorporate the topics presented in CEQA's Environmental Checklist (see Appendix A).

4.2	Aesthetics	4.11	Mineral Resources
4.3	Agricultural Resources	4.12	Noise
4.4	Air Quality	4.13	Population and Housing
4.5	Biological Resources	4.14	Public Services
4.6	Cultural Resources	4.15	Recreation
4.7	Geology and Soils	4.16	Transportation and Traffic
4.8	Hazards and Hazardous Materials	4.17	Utilities and Service Systems
4.9	Hydrology and Water Quality	4.18	Mandatory Findings of Significance
4.10	Land Use		

The existing conditions, environmental impacts, and recommended mitigation measures associated with the checklist findings are provided for each issue area. The descriptions of the existing setting were obtained directly from LGN's Proponent's Environmental Assessment (PEA) (LGN, 2002), after verification that they were complete and accurate.

### Program-Level Analysis

Potential impacts have been identified for each environmental issue area based on a program-level of detail that is correlated to the known proposed connection locations identified by LGN's PEA. Many connections have not yet been identified. The mitigation measures for each applicable issue area in this IS/MND similarly provide a program-level approach where appropriate. A program-level review is necessary where the specific location, schedule, and method of the proposed construction activity are unknown. Therefore, as described in Section 3.5, the Applicant has incorporated a *Programmatic Process* as part of its Proposed Project. The Programmatic Process would require LGN to define each specific activity in a manner that would allow the CPUC to insure that the proposed activities would be consistent with both the Project Description and the mitigation measures presented in this IS/MND. The timing of mitigation measure compliance (e.g., submittal of plans) shall be consistent with the requirements of the proposed Programmatic Process outlined in Section 3.5 of the Project Description.

## 4.2 Aesthetics

### 4.2.1 Setting

#### Aesthetic Characteristics of the Study Zones

Aesthetic, or visual, characteristics of the project study zones vary geographically throughout the study zones, which contain a vast range of visual settings. Despite this wide variety, the visual characteristics of specific construction locations are generally dominated by the land uses at those locations. Since the project is proposed in urban and suburban areas, the primary land uses are a mixture of residential, commercial, light industrial, heavy industrial and other uses. Refer to Section 4.10 (Land Use) for a description of the land uses that occur in the study zones.

#### Scenic Vistas

Most of the study zones include scenic vistas that would be potentially visible from the project locations. These scenic vistas are visible from specific locations in many study zones and are listed in Table 4-1.

**Table 4-1. Scenic Vistas Visible From Portions of the Study Zones**

Study Zone	Scenic Vista
San Francisco North	Portions of San Francisco Bay; Bay Bridge; East Bay; Mount Diablo
San Francisco South	Portions of San Francisco Bay; Bay Bridge; East Bay; Mount Diablo
Mid-Peninsula	Portions of San Francisco Bay; San Bruno Mountain
Foster City	Portions of San Francisco Bay; Seal Slough waterway; Santa Cruz Mountains to the far west
Redwood City	Portions of San Francisco Bay; Santa Cruz Mountains to the far west
Mountain View/Palo Alto	Portions of San Francisco Bay; Santa Cruz Mountains to the far west
Milpitas	Portions of San Francisco Bay; Los Buellis Hills to the east; Poverty Ridge to the east
Sunnyvale	Portions of San Francisco Bay; Santa Cruz Mountains to the far west
San Jose	Open space associated with agricultural activities; Santa Teresa Mountains to the south; Los Buellis Hills to the east; Poverty Ridge to the east
North San Jose	Portions of San Francisco Bay; open space associated with agricultural activities; Santa Teresa Mountains to the south; Los Buellis Hills to the east; Poverty Ridge to the east
Fremont	Portions of San Francisco Bay; the Sunol Ridge to the northeast; Mission Peak to the east
Hayward	Portions of San Francisco Bay; the Walpert Ridge to the east
Oakland	Portions of San Francisco Bay
Emeryville	Portions of San Francisco Bay
Pleasanton	Sunol Ridge to the west
Burbank/Glendale	Santa Monica Mountains to the south; Verdugo Mountains to the east; the San Gabriel Mountains to the east and north
Pasadena	San Gabriel Mountains to the north; San Rafael Hills to the west
Santa Monica/Beverly Hills	Pacific Ocean to the west; Santa Monica Mountains to the north
Downtown LA	Santa Monica Mountains to the northwest; the San Gabriel Mountains to the northeast
Buena Park/Anaheim	Santa Ana Mountains to the southeast
Santa Ana	Santa Ana Mountains to the east
Irvine/Costa Mesa	San Joaquin Hills to the south; Santa Ana Mountains to the east; portions of the landscape east and south of the John Wayne Airport have been left in an undeveloped state.
Long Beach	Pacific Ocean to the southwest
LAX/EI Segundo	Pacific Ocean to the west

## Scenic Highways

Three of the 24 study zones contain portions of officially designated State Scenic Highways, including segments of Interstate 580, Interstate 680, and State Route 24 in the Oakland, Pleasanton, and Emeryville Study Zones, respectively. In addition, certain locally designated scenic roadways, such as Wilshire Boulevard in the City of Los Angeles, may be disturbed by project construction.

### 4.2.2 Environmental Impacts and Mitigation Measures

#### *a. Would the project have a substantial adverse effect on a scenic vista?*

**LESS THAN SIGNIFICANT IMPACT WITH MITIGATION INCORPORATED.** Most of the study zones have scenic vistas that would potentially be visible from the project corridors. However, activities associated with the proposed project would not have a high likelihood of adversely impeding or affecting scenic vistas for the following reasons:

- The fiber optic lines would be buried underground or installed inconspicuously on existing aerial structures, such as poles and bridges. The disturbed areas would be returned to the original or better condition, as described by Mitigation Measure **AES-1**.
- No new aboveground structures would be permanently installed that could impede a scenic view.
- Existing urban structures would partially or completely shield most construction activities.
- Construction activities would move linearly on a daily basis, with the rate of construction ranging from 85 feet per day in heavily urbanized areas and 200 feet per day in less urbanized areas to 2,600 feet per day for dirt trenching. This rate of construction would ensure that no particular area or view would be impacted for an extended period of time.
- Similar temporary construction activities are common in urban/suburban roadways and are compatible with the urban/suburban visual landscape.

For situations where construction activities would be located in a scenic vista, the potential construction impacts would represent a temporary and minor aesthetic impact to the scenic vista. Once the fiber optic lines are installed, they would have no potential to adversely affect scenic vistas. Therefore, with the implementation of Mitigation Measure **AES-1**, potential impacts would be reduced to less than significant levels.

**AES-1:** LGN shall (1) maintain orderly staging and construction areas; (2) identify and comply with local regulations and requirements concerning architectural design and landscaping; (3) design project facilities to be unobtrusive and to not conflict with the character of the surrounding setting. LGN shall also restore conduit installation sites to pre-construction conditions. Prior to construction, the Applicant shall submit to the CPUC written documentation of consultation with the local agencies associated with each study zone regarding the appropriate architectural design and landscaping practices that the Applicant shall implement before, during, and after construction.

#### *b. Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway?*

**LESS THAN SIGNIFICANT IMPACT.** Although most of the proposed project would not be located within or near a State scenic highway, some segments of State scenic highways do pass through several

of the study zones. In addition, some construction would occur on roadways designated as scenic by local jurisdictions. Nonetheless, construction activities would only involve the temporary disturbance of developed (previously disturbed) urban ROWs, and would not involve damage of any significant natural or historic scenic resources associated with a State scenic highway or local scenic roadway. Once the fiber optic lines are installed, the project would have no potential to adversely affect scenic resources. Therefore, impacts are considered less than significant, and no mitigation is required.

*c. Would the project substantially degrade the existing visual character or quality of the site and its surroundings?*

**LESS THAN SIGNIFICANT IMPACT WITH MITIGATION INCORPORATED.** As described in Section 4.2.2(a), the fiber optic conduits would be installed underground in developed ROWs or inconspicuously on aerial structures. The disturbed areas would be returned to their original or better condition, as described in Mitigation Measure **AES-1**. Therefore, the proposed project would not have a long-term, adverse affect on the existing visual character or quality of the project sites.

Temporary construction activities would negatively impact the existing setting of the various sites through the addition of equipment, materials, work forces, and the disturbances of the ROWs. Vehicles, heavy equipment, facility components, construction materials, excavated fill, and construction workers would potentially be visible to:

- Motorists and other passers-by who use roadways and/or pedestrian sidewalks within sight of the construction activities
- Workers employed at industrial or commercial businesses within sight of the construction activities
- Residents who live within sight of the construction activities
- Recreationists using recreational facilities within sight of the construction activities.

However, the severity of the adverse effect of the construction activities would be minimized by the limited time duration of the construction activities, the partial or complete shielding of construction activities by existing urban structures, and the compatibility of similar temporary construction activities with the urban/suburban visual landscape.

Based on the factors listed above, project construction impacts would not likely degrade existing visual character. Nonetheless, since the proposed project routes have not been entirely identified, it cannot be definitively determined that construction impacts would be less than significant. Mitigation Measure **AES-1** would ensure that impacts to the existing quality and character of all sites would be less than significant.

*d. Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?*

**LESS THAN SIGNIFICANT IMPACT WITH MITIGATION INCORPORATED.** Project operation would not include any long-term changes to ambient light or glare. However, during construction periods, light or glare could disturb sensitive uses and motorists along streets and ROWs, particularly during dusk or nighttime hours. The implementation of Mitigation Measure **AES-2** would reduce this potential impact to a less than significant level.

**AES-2** Construction lights shall be directed away from the visual field of motorists and pedestrians along any streets or ROWs. No nighttime construction (between the hours of 8:00 p.m. and 7:00 a.m.) shall occur within 500 yards of any residence or non-residential sensitive use, unless otherwise approved by the applicable jurisdiction.

## 4.3 Agricultural Resources

### 4.3.1 Setting

Table 4-13 (Land Use) presents a complete description of the land use types that occur within the study zones. As described in that table, agricultural land uses occur only within the San Jose and North San Jose study zones.

### 4.3.2 Environmental Impacts and Mitigation Measures

*a. Would the project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as Shown on the Maps Prepared Pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to Non-agricultural use?*

*NO IMPACT.* The proposed project would not adversely affect any Prime Farmland, Unique Farmland, or Farmland of Statewide Importance,<sup>1</sup> as indicated by the California Department of Conservation's Important Farmland Maps. Conduit construction would occur primarily in built-up urban or suburban areas, in existing road and/or utility ROWs. Construction activities would not disrupt any active farmlands. Construction activities occurring within agricultural areas of the San Jose and North San Jose Study Zones would occur within road, utility, or other existing disturbed ROWs, and not within cultivated areas. Therefore, no impacts due to conversion of Farmland would occur, and no mitigation is required.

*b. Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract?*

*NO IMPACT.* The proposed project would not conflict with existing zoning for agricultural uses, or a Williamson Act contract. See Section 4.10 (Land Use) for a detailed description of local land uses within the project study zones. The proposed project would not convert any agricultural uses to non-agricultural uses, nor would it cause any long-term impacts to agricultural resources. No impacts would occur, and no mitigation measures are necessary.

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<sup>1</sup> The California Department of Conservation (DOC) established the Farmland Mapping and Monitoring Program (FMMP) in 1982 in response to a critical need for assessing the location and quantity of agricultural lands and conversion of these lands to other uses. The resulting Important Farmland (IFL) maps and related databases constitute the only statewide land use inventory conducted on a regular basis that identifies the conversion of agricultural land to urban and other uses. Following are procedures by which DOC determines the status of farmlands:

- DOC updates soil mapping every two years using infra-red aerial photos provided by NASA at a scale of 1:130,000.
- Based on these maps, land is evaluated to determine its farmland designation. If a particular piece of land is fallow, it is then flagged.
- In order to qualify as Prime Farmland, rather than just Prime soil, the land must be irrigated as well as having prime soil attributes.
- DOC has a minimum mapping unit of 10 acres, with smaller than 10-acre parcels being absorbed into the surrounding classifications.

- c. *Would the project involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?*

*NO IMPACT.* Project construction would be temporary and would occur in developed public (previously disturbed) ROWs. Once the fiber optic lines are installed, they would have no potential to adversely affect agricultural resources. No significant aboveground changes would result from the project. As a result, the proposed project would not involve changes that, due to their location or nature, could result in the conversion of Farmland to non-agricultural uses. No impacts would occur.

## **4.4 Air Quality**

### **4.4.1 Setting**

#### **Regulatory Context**

##### **Ambient Air Quality Standards**

Regulation of air pollution is achieved through a combination of ambient air quality standards and emission limits for individual sources and categories of sources of air pollutants. The federal Clean Air Act requires the U.S. Environmental Protection Agency (U.S. EPA) to identify National Ambient Air Quality Standards (national standards) to protect public health and welfare. National standards are established for ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, particulate matter, and lead. These pollutants are called “criteria” air pollutants because the intent of the standards is to meet specific public health and welfare criteria. California has adopted more stringent ambient air quality standards for most of the criteria air pollutants (referred to as State Ambient Air Quality Standards or State standards). Table 4-2 presents both sets of ambient air quality standards (i.e., national and State) and provides a brief discussion of the related health effects and principal sources for each pollutant.

As required by the federal Clean Air Act, U.S. EPA classifies air basins or portions thereof, as either “attainment” or “nonattainment” for each criteria air pollutant, based on whether or not the national standards have been achieved. The California Clean Air Act also requires designation of areas as “attainment” or “nonattainment” for the State standards, rather than the national standards. Thus, areas in California have two sets of attainment/nonattainment designations: one set with respect to the national standards and one set with respect to the State standards.

The federal Clean Air Act also requires nonattainment areas to prepare air quality plans that demonstrate the strategies for achieving attainment. Air quality plans developed to meet federal requirements are referred to as State Implementation Plans (SIPs). The California Clean Air Act also requires plans for nonattainment areas with respect to the State standards. Thus, just as areas in California have two sets of designations, many also have two sets of air quality plans: one to meet federal requirements relative to the national standards and one to meet State requirements relative to the State standards.

**Table 4-2. State and National Ambient Air Quality Standards, Effects, and Sources**

Pollutant	Averaging Time	State Standard	National Standard	Pollutant Health and Atmospheric Effects	Major Pollutant Sources
<b>Ozone (O<sub>3</sub>)</b>	1 hour	0.09 ppm	0.12 ppm	High concentrations can directly affect lungs, causing irritation. Long-term exposure may cause damage to lung tissue.	Formed when reactive organic gases (ROG) and nitrogen oxides (NO <sub>x</sub> ) react in the presence of sunlight. Major sources include on-road motor vehicles, solvent evaporation, and commercial/ industrial mobile equipment.
	8 hours	---	0.08 ppm		
<b>Carbon Monoxide (CO)</b>	1 hour	20 ppm	35 ppm	Classified as a chemical asphyxiant, carbon monoxide interferes with the transfer of fresh oxygen to the blood and deprives sensitive tissues of oxygen.	Internal combustion engines, primarily gasoline-powered motor vehicles.
	8 hours	9.0 ppm	9 ppm		
<b>Nitrogen Dioxide (NO<sub>2</sub>)</b>	1 hour	0.25 ppm	---	Irritating to eyes and respiratory tract. Colors atmosphere reddish-brown.	Motor vehicles, petroleum refining operations, industrial sources, aircraft, ships, and railroads.
	Annual Avg.	---	0.053 ppm		
<b>Sulfur Dioxide (SO<sub>2</sub>)</b>	1 hour	0.25 ppm	---	Irritates upper respiratory tract; injurious to lung tissue. Can yellow the leaves of plants, destructive to marble, iron, and steel. Limits visibility and reduces sunlight.	Fuel combustion, chemical plants, sulfur recovery plants, and metal processing.
	3 hours	---	0.5 ppm		
	24 hours	0.04 ppm	0.14 ppm		
	Annual Avg.	---	0.03 ppm		
<b>Respirable Particulate Matter (PM<sub>10</sub>)</b>	24 hours	50 µg/m <sup>3</sup>	150 µg/m <sup>3</sup>	May irritate eyes and respiratory tract, decreases in lung capacity, cancer and increased mortality. Produces haze and limits visibility.	Dust and fume-producing industrial and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g., wind-raised dust and ocean sprays).
	Annual Avg.	30 µg/m <sup>3</sup>	50 µg/m <sup>3</sup>		
<b>Fine Particulate Matter (PM<sub>2.5</sub>)</b>	24 hours	---	65 µg/m <sup>3</sup>	Increases respiratory disease, lung damage, cancer, and premature death. Reduces visibility and results in surface soiling.	Fuel combustion in motor vehicles, equipment, and industrial sources; residential and agricultural burning; Also, formed from photochemical reactions of other pollutants, including NO <sub>x</sub> , sulfur oxides, and organics.
	Annual Avg.	---	15 µg/m <sup>3</sup>		
<b>Lead</b>	Monthly	1.5 µg/m <sup>3</sup>	---	Disturbs gastrointestinal system, and causes anemia, kidney disease, and neuromuscular and neurologic dysfunction.	Present source: lead smelters, battery manufacturing & recycling facilities. Past source: combustion of leaded gasoline.
	Quarterly	---	1.5 µg/m <sup>3</sup>		

Note: ppm = parts per million; µg/m<sup>3</sup> = micrograms per cubic meter.

Sources: SCAQMD, 1996; CARB, 2002a (<http://www.arb.ca.gov/aqs/aaqs2.pdf>).

## Regulatory Agencies

U.S. EPA is responsible for implementing the many programs established under the federal Clean Air Act, such as establishing and reviewing the national ambient air quality standards and judging the adequacy of SIPs, but has delegated the authority to implement many of the federal programs to the states while retaining an oversight role. The California Air Resources Board (CARB), the State's air quality management agency, is responsible for establishing and reviewing the State ambient air quality standards, compiling the California State Implementation Plan and securing approval of that plan from U.S. EPA, and identifying toxic air contaminants. The CARB also regulates some sectors of mobile sources in California, including large construction equipment, and oversees the activities of air quality management districts, which are organized at the county or regional level. The local air quality management districts are primarily responsible for regulating stationary emissions sources at industrial and commercial facilities within their geographic area and for preparing the air quality plans that are required under the federal Clean Air Act and California Clean Air Act.

## San Francisco Bay Area

### Climate and Topography

The San Francisco Bay Area study zones are located in the San Francisco Bay Area Air Basin (SFBAAB), which is characterized by rugged terrain consisting of coast mountain ranges, inland valleys, and bays. The climate of the SFBAAB is determined largely by a high-pressure system that is usually present over the eastern Pacific Ocean off the west coast of North America. High-pressure systems are characterized by an upper layer of dry air that warms as it descends, restricting the mobility of cooler marine-influenced air near the ground surface, and resulting in the formation of subsidence inversions. In winter, the Pacific high-pressure system shifts southward, allowing storms to pass through the region. During summer and fall, emissions generated within the SFBAAB can form photochemical pollutants, such as ozone, and secondary particulates, such as sulfates and nitrates, with abundant sunshine and under the restraining influences of topography and subsidence inversions.

### Air Quality Plans, Policies, and Regulations

**Plans and Policies.** The CARB and U.S. EPA define the attainment status for the SFBAAB as provided in Table 4-3. As noted above, the federal Clean Air Act and the State of California Clean Air Act require plans to be developed for areas designated as nonattainment (with the exception of areas designated as nonattainment for the State PM<sub>10</sub> standard<sup>2</sup>). Plans are also required under federal law for areas designated as “maintenance” for national standards. Such plans are to include strategies for attaining the standards by managing stationary sources along with the anticipated trends in mobile source activity. The most recent federal and State plans for attaining the ozone standards are the *2001 Ozone Attainment Plan* (ABAG, 2001) and the *2000 Clean Air Plan* (BAAQMD, 2000).

**Table 4-3. Attainment Status of San Francisco Bay Area Air Basin**

Air Basin	O <sub>3</sub>		PM <sub>10</sub>		CO		NO <sub>2</sub>		SO <sub>2</sub>	
	State	Federal	State	Federal	State	Federal	State	Federal	State	Federal
SFBAAB	Serious N	Moderate N	N	A	A	A	A	A	A	A

Note: A = Attains Ambient Air Quality Standards; N = Nonattainment.

Source: CARB, 2002b (<http://www.arb.ca.gov/desig/desig.htm>) and USEPA, 2002 (<http://www.epa.gov/region09/air/>).

**Rules and Regulations.** The responsibility for developing regional air quality plans in the SFBAAB is shared between the Association of Bay Area Governments, the Metropolitan Transportation Commission, and the Bay Area Air Quality Management District (BAAQMD). The BAAQMD is the agency with permit authority over most types of stationary emission sources in the SFBAAB. BAAQMD exercises permit authority through its *Rules and Regulations*. Both federal and State ozone plans rely heavily upon stationary source control measures set forth in BAAQMD’s *Rules and Regulations*. The overall stationary source control program that is embodied by the BAAQMD *Rules and Regulations* has been developed such that new stationary sources can be allowed to operate in the SFBAAB without obstructing the goals of the regional air quality plans. The types of emissions sources that would be associated with the project, including mobile equipment and trucks related to construction, are not subject to the permitting requirements of the air district.

<sup>2</sup> PM<sub>10</sub> is particulate matter (e.g., dust) that is small enough to be inhaled.



## Existing Air Quality Conditions

BAAQMD operates a regional air quality monitoring network that provides information on ambient concentrations of criteria air pollutants. Table 4-4 is a summary of regional monitoring data collected over the past four years for those pollutants for which the SFBAAB is, or has been, designated “nonattainment.”

As provided in Table 4-4, the regional monitoring network has recorded violations of the State ozone standard on an average of approximately 19 days per year over the past four years. Coastal monitoring stations, such as those in San Francisco, Oakland, and San Rafael, record the fewest violations while inland valley stations, such as those in Livermore, Concord, and Gilroy, record the most violations. Violations of national one-hour and national eight-hour ozone standards occur less frequently: between approximately 3 and 9 days per year.

Table 4-4 also shows that no violations of the carbon monoxide standard have been recorded over the past four years. With respect to PM<sub>10</sub>, the regional monitoring network recorded violations of the State 24-hour standard relatively frequently (between 5 and 10 percent of the time, which is equivalent to approximately 18 to 36 days per year) between 1998 and 2000. (Data for PM<sub>10</sub> were not available for 2001.)

**Table 4-4. Summary of Monitoring Data for the San Francisco Bay Area Air Basin, 1998–2001**

Pollutant <sup>b</sup>	State Standard	National Standard	Pollutant Concentration by Year <sup>a</sup>			
			1998	1999	2000	2001
<b>Ozone (O<sub>3</sub>)</b>						
Highest 1-hour average, ppm	0.09	0.12	<u>0.15</u>	<u>0.16</u>	<u>0.15</u>	<u>0.13</u>
Days over State Standard			29	20	12	15
Days over National Standard			8	3	3	1
Highest 8-hour average, ppm	NA	0.08	<u>0.11</u>	<u>0.12</u>	<u>0.11</u>	<u>0.10</u>
Days over National Standard			16	9	4	7
<b>Carbon Monoxide (CO)</b>						
Highest 8-hour average, ppm	9.0	9	6.3	6.3	7.0	5.1
Days over Standard			0	0	0	0
<b>Respirable Particulate Matter (PM<sub>10</sub>)<sup>c</sup></b>						
Highest 24-hour average, µg/m <sup>3</sup>	50	150	<u>92</u>	<u>114</u>	<u>76</u>	NA
Calculated Days over State Standard			18	36	42	NA
Calculated Days over National Standard			0	0	0	NA
Highest annual average, µg/m <sup>3</sup>	30	50	23	25	24	NA

Note: Values shown with underscores are in excess of applicable standard. NA = Not Applicable or Available.

<sup>a</sup> This table summarizes the data from all of the monitoring stations within the Bay Area.

<sup>b</sup> ppm, parts per million; µg/m<sup>3</sup>, micrograms per cubic meter.

<sup>c</sup> PM<sub>10</sub> is not measured every day of the year. Calculated days over standard are estimated based on available measurements.

Source: CARB, 2002b, (<http://www.arb.ca.gov/adam>).

## Los Angeles Basin

### Climate and Topography

The Los Angeles Basin study zones are located in the South Coast Air Basin (SCAB), which is characterized by a coastal plain with connecting broad valleys and low hills, bounded by the Pacific Ocean to the southwest and high mountains around the rest of its perimeter. The climate of the South Coast is determined largely by the high-pressure system that is usually present over the eastern Pacific Ocean. Generally, the SCAB experiences a mild climate tempered by cool sea breezes with light average wind speeds. This mild pattern is interrupted occasionally by periods of extremely hot weather, winter storms, or Santa Ana winds. Subsidence inversions occur frequently over the SCAB, contributing with strong sunlight and the restraining influence of topography to conditions that are conducive for the formation of photochemical pollutants.

### Air Quality Plans, Policies, and Regulations

**Plans and Policies.** The CARB and U.S. EPA each define the attainment status for the SCAB as shown in Table 4-5. Current federal and State air quality planning requirements for the SCAB have been consolidated into a single plan, the *1997 Air Quality Management Plan* (SCAQMD, 1996), which is the latest in a series of plans that have been developed over the past several decades. The *1997 Air Quality Management Plan* addresses how the SCAB will attain the ozone, PM<sub>10</sub>, and CO standards, and how the NO<sub>2</sub> standards will be maintained.

**Table 4-5. Air Quality Attainment Status of South Coast Air Basin**

Air Basin	O <sub>3</sub>		PM <sub>10</sub>		CO		NO <sub>2</sub>		SO <sub>2</sub>	
	State	Federal	State	Federal	State	Federal	State	Federal	State	Federal
South Coast Air Basin	Extreme N	Extreme N	N	Serious N	N/A <sup>1</sup>	N	A	A	A	A

Note: A = Attains Ambient Air Quality Standards; N = Nonattainment.

Source: CARB, 2002b (<http://www.arb.ca.gov/degis/degis.htm>) and USEPA, 2002 (<http://www.epa.gov/region09/air/>).

<sup>1</sup> Because of CO violations in Los Angeles County, portions of the SCAB are designated nonattainment for CO. The federal classification for CO nonattainment applies to the entire basin; State-level nonattainment applies only to Los Angeles County.

**Rules and Regulations.** The regional agency responsible for developing and updating the air quality management plan is the South Coast Air Quality Management District (SCAQMD), the agency with permit authority over most types of stationary sources in the SCAB. SCAQMD exercises permit authority through its *Rules and Regulations*, which reflect State and federal requirements for “extreme” ozone nonattainment areas. Under SCAQMD’s *Rules and Regulations*, new stationary sources must secure a permit to construct (Rule 201) and a permit to operate (Rule 203) and must comply with New Source Review (NSR) requirements (set forth in SCAQMD Regulation XIII). NSR sets forth pre-construction review requirements for new, modified, or relocated facilities to ensure that the operation of such facilities does not interfere with progress in attainment of State and national ambient air quality standards and that future economic growth within the South Coast is not unnecessarily restricted. The specific air quality goal of NSR is to achieve no net increases from new or modified permitted sources of nonattainment pollutants or their precursors.

The PM<sub>10</sub> strategy included in the *1997 Air Quality Management Plan* relies on control of “fugitive” dust sources, such as construction sites. To regulate such sources in the SCAB, the SCAQMD has adopted Rule 403, which sets forth general and specific requirements for all construction sites (as well as other fugitive dust sources) in the SCAB.

## Existing Air Quality Conditions

SCAQMD operates a regional air quality monitoring network that provides information on ambient concentrations of criteria air pollutants. Table 4-6 is a summary of regional monitoring data collected over the past four years for those pollutants for which the SCAB is, or has been, designated nonattainment.

As shown in Table 4-6, the regional monitoring network has recorded violations of the State ozone standard on an average of approximately 114 days per year over the past four years. Coastal monitoring stations, such as those in western Los Angeles County and Orange County, record the fewest violations while inland stations, such as those in eastern Riverside County and southwestern San Bernardino County, record the most violations. Violations of national one-hour and national eight-hour ozone standards occur less frequently: between approximately 33 and 94 days per year.

Table 4-6 also shows that the carbon monoxide standard was violated on an average of 7 days per year over the past four years. With respect to nitrogen dioxide, violations of the ambient standard are very rare. Finally, the regional monitoring network records violations of the State 24-hour PM<sub>10</sub> standard on a regular basis (approximately 64 percent of the time, which is equivalent to approximately 230 days per year) between 1998 and 2000. (Data was not available for 2001.) The three-year average of calculated days over the State PM<sub>10</sub> is 230 days per year. These were 6 calculated days over the National PM<sub>10</sub> standard during the three-year period.

### 4.4.2 Environmental Impacts and Mitigation Measures

- a. *Would the project conflict with or obstruct implementation of the applicable Air Quality Attainment Plan?*

#### San Francisco Bay Area

*LESS THAN SIGNIFICANT IMPACT.* Project construction would result in emissions from use of construction equipment, commuter worker trips, and emissions of fugitive dust from material-moving operations and travel over unpaved surfaces. Construction equipment would emit ozone precursors, carbon monoxide, and particulate matter. Within the SFBAAB, emissions from construction activities are included in the emission inventories that are the basis for regional air quality plans, and they would not be expected to impede attainment or maintenance of any ambient air quality standards in the SFBAAB (BAAQMD, 1999).

Once operational, the project would not involve operation of any new stationary emissions sources. There could be occasional maintenance-related vehicle trips that would result in minor emissions of ozone precursors and PM<sub>10</sub> over the long term, which would not conflict with or obstruct implementation of any attainment or maintenance plans. Impacts are considered less than significant and no mitigation is required.

**Table 4-6. Summary of Monitoring Data for the South Coast Air Basin, 1998–2001**

Pollutant <sup>b</sup>	State Standard	National Standard	Pollutant Concentration by Year <sup>a</sup>			
			1998	1999	2000	2001
<b>Ozone (O<sub>3</sub>)</b>						
Highest 1-hour average, ppm	0.09	0.12	<u>0.24</u>	<u>0.17</u>	<u>0.18</u>	<u>0.19</u>
Days over State Standard			107	111	115	121
Days over National Standard			60	39	33	36
Highest 8-hour average, ppm	NA	0.08	<u>0.21</u>	<u>0.14</u>	<u>0.15</u>	<u>0.14</u>
Days over National Standard			93	93	94	92
<b>Carbon Monoxide (CO)</b>						
Highest 8-hour average, ppm	9.0	9	<u>13.3</u>	<u>11.2</u>	<u>10.1</u>	7.6
Days over Standard			13	11	3	0
<b>Nitrogen Dioxide (NO<sub>2</sub>)</b>						
Highest 1-hour average, ppm	0.25	NA	<u>0.26</u>	<u>0.31</u>	0.21	NA
Days over State Standard			1	1	0	NA
Highest annual average, ppm	NA	0.053	0.043	0.051	0.44	NA
<b>Respirable Particulate Matter (PM<sub>10</sub>)<sup>c</sup></b>						
Highest 24-hour average, µg/m <sup>3</sup>	50	150	<u>116</u>	<u>183</u>	<u>139</u>	NA
Calculated Days over State Standard			186	258	246	NA
Calculated Days over National Standard			0	6	0	NA
Highest annual average, µg/m <sup>3</sup>	30	50	<u>43</u>	<u>65</u>	<u>55</u>	NA

Note: Values shown with underscores are in excess of applicable standard. NA = Not Applicable or Not Available.

<sup>a</sup> This table summarizes the data from all of the monitoring stations within the South Coast.

<sup>b</sup> ppm, parts per million; µg/m<sup>3</sup>, micrograms per cubic meter.

<sup>c</sup> PM<sub>10</sub> is not measured every day of the year. Calculated days over standard are estimated based on available measurements.

Source: CARB, 2002b (<http://www.arb.ca.gov/adam>).

## Los Angeles Basin

*LESS THAN SIGNIFICANT IMPACT WITH MITIGATION INCORPORATED.* As with the Bay Area activities, construction in southern California would result in emissions from use of construction equipment, commuter worker trips, and emissions of fugitive dust from material-moving operations and travel over unpaved surfaces. The ambient air quality standards for ozone, particulate matter, and carbon monoxide are violated more frequently and severely in the Los Angeles Basin than in the SFBAAB. As such, the SCAQMD *1997 Air Quality Management Plan* addresses control strategies for ozone, PM<sub>10</sub>, CO, and NO<sub>2</sub>. Construction equipment would emit exhaust in the form of ozone precursors, carbon monoxide, and particulate matter; and the construction activities cause fugitive dust emissions of particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>).

The *1997 Air Quality Management Plan*, as amended, relies on vehicle tailpipe control requirements and a clean fuels program for managing ozone precursors, carbon monoxide, and nitrogen dioxide from mobile sources (including construction equipment and worker vehicles). These strategies are enforced at the State and federal level on engine manufacturers, petroleum refiners, and fuel retailers. Project construction activities would not conflict with or obstruct the strategies to manage ozone, carbon monoxide, and nitrogen dioxide so long as the equipment and fuel used by construction contractors complies with all applicable State and federal regulations. Proposed equipment use is specified in Table

3-3 of the Project Description (Section 3), and fuel use is restricted by Mitigation Measure **AQ-1** (see below). Use of such construction equipment and fuel would not conflict with or obstruct implementation of the air quality attainment plan.

The PM<sub>10</sub> strategy included in the *1997 Air Quality Management Plan* relies on control of “fugitive” dust sources, such as construction sites, through SCAQMD Rule 403 (Fugitive Dust). All construction activities in the Los Angeles Basin would be subject to this rule. The general requirement prohibits a person from causing or allowing emissions of fugitive dust from construction (or other fugitive dust source) such that the presence of such dust remains visible in the atmosphere beyond the property line of the emissions source. SCAQMD Rule 403 also includes a wide range of specific prohibitions for controlling dust from earthmoving, disturbed surface areas, unpaved roads, open piles, and dirt carried onto paved roads. The prohibitions are more rigorous during high wind conditions. Implementation of the following Mitigation Measures **AQ-1** would reduce the proposed construction activities to less than significant.

**AQ-1** Mitigation of temporary construction impacts on air quality shall consist of implementation of Bay Area Air Quality Management District-recommended dust abatement measures for work in the San Francisco Bay Area study zones and implementation of similar types of measures for work in the Los Angeles Basin study zones as required under the South Coast Air Quality Management District’s Rule 403.

For work in the Los Angeles Basin, construction-related mitigation shall include additional measures to reduce emissions of ozone precursors and particulates from use of construction equipment. LGN shall comply with all SCAQMD permit requirements and SCAQMD Rule 403 as follows:

- Use of diesel fuel with a sulfur content not to exceed 0.05 percent by weight to the extent feasible; and
- Implementation of the measures required under SCAQMD Rule 403 (as described in PEA text) for high wind and normal wind conditions to reduce PM-10 emissions from the various fugitive dust sources associated with project construction, and maintenance of the necessary documentation that demonstrates compliance with the rule.

*b. Would the project violate any air quality standard or contribute to an existing or projected air quality violation?*

## **San Francisco Bay Area**

*LESS THAN SIGNIFICANT IMPACT WITH MITIGATION INCORPORATED.* As discussed above, the northern California portion of the project would be located in a region that experiences occasional exceedances of ozone and State-level PM<sub>10</sub> standards. The project would affect local PM<sub>10</sub> concentrations and possibly regional ozone concentrations from the fugitive dust sources and equipment exhaust emissions that would occur during construction. The construction activities in the SFBAAB would involve the underground installation of new conduit, repair and replacement of existing conduit in some areas and pulling fiber optic cable through the conduit, mostly along public roadway ROWs. LGN anticipates that on any given day, the construction zone at each work site could be approximately 20 to 40 feet wide and, typically, no more than 1,000 feet in length for a total disturbed area of less than one acre. As proposed, there could be as many as 12 active work spreads on any given day of construction over the construction period.

Fugitive dust emissions from construction activities would vary from day to day, depending on the level and type of activity, silt content of the soil, and the weather. The project would include the basic control measures for fugitive dust that are recommended by the BAAQMD (BAAQMD, 1999). These basic control measures and optional control measures are recommended by the BAAQMD for construction sites that are located near sensitive receptors, and they would be required in Mitigation Measure **AQ-2**. Sensitive receptors are defined by the BAAQMD as: facilities or land uses that include members of the population that are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. Examples include schools, hospitals, and residential areas. Implementation of Mitigation Measure **AQ-2** for activities involving large sites near sensitive receptors would reduce potential significant impacts from fugitive dust emissions to less than significant levels.

**AQ-2** For project construction within the Bay Area Air Quality Management District, the Applicant shall implement the following dust abatement measures for individual construction sites that are larger than 4 acres or if any portion of the construction site is within 50 feet of sensitive receptors:

- Water all active construction areas at least twice daily.
- Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least 2 feet of freeboard.
- Pave, apply water 3 times daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas and staging areas at construction sites.
- Sweep daily (with water sweepers) all paved access roads, parking areas and staging areas at construction sites.
- Sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent public streets.
- Install wheel washers for all exiting trucks, or wash off the tires or tracks of all trucks and equipment leaving the site.
- Install windbreaks, or plant trees/vegetative windbreaks at windward side(s) of construction areas.
- Suspend excavation and grading activity when winds (instantaneous gusts) exceed 25 mph.
- Limit the area subject to excavation, grading, and other construction activity at any one time.

Construction activities would also result in the emission of other criteria pollutants like reactive organic gases (ROG), nitrogen oxides (NO<sub>x</sub>), and carbon monoxide (CO) from equipment exhaust, construction-related vehicular activity, and construction worker commute trips. Emissions from these activities would vary depending on the number and type of equipment, duration of use, operation schedules, and the number of construction workers. From this activity, emissions of ROG and NO<sub>x</sub> would incrementally add to the regional atmospheric loading of ozone precursors and could contribute to existing violations of the ozone standards. BAAQMD CEQA Guidelines recognize that construction equipment emits ozone precursors, but indicate that such emissions are included in the emission inventory that is the basis for regional air quality plans. Because emissions from construction equipment exhaust are already anticipated by the BAAQMD, they would not exacerbate the existing or projected violations (BAAQMD, 1999).

Once operational, the project would result in negligible emissions over the long-term. The only long-term activities that could cause emissions would be the few occasional vehicle trips associated with maintenance at the central offices and other auxiliary facilities.

## Los Angeles Basin

*LESS THAN SIGNIFICANT IMPACT WITH MITIGATION INCORPORATED.* As discussed above, the southern California portion of the project would be located in a region that experiences persistent exceedances of ozone, PM<sub>10</sub>, and CO standards. Construction activities would affect local PM<sub>10</sub> concentrations and regional ozone concentrations by causing emissions of PM<sub>10</sub> and ozone precursors. Project-related emissions of CO would also contribute to localized concentrations that occasionally violate the standards. The project construction activities in the SCAB would involve the installation of new underground conduit for fiber optic cable, repair of existing conduit, and pulling fiber optic cable through the conduit in Los Angeles and Orange Counties. Fugitive dust emissions associated with construction would be relatively minor since all of the installation of new conduit for the SCAB would occur in existing roadways, which would minimize the extent of vehicle travel over unpaved surfaces, one of the principal sources of fugitive dust.

Each construction spread would have approximately 6 to 10 workers and a mix of construction equipment depending on the construction technique. Construction equipment is listed in Table 3-3. The emissions that would be associated with both trenching and boring at each spread are summarized in Table 4-7. Simultaneous operation of 10 work crews, as originally proposed by LGN, would cause approximately 200 pounds of NOx emissions per day.

**Table 4-7. Unmitigated Construction Emissions (Los Angeles Basin)**

Pollutant	Trenching (per Crew) lb/day	Boring (per Crew) lb/day	Unmitigated Scenario			Significance Criterion lb/day
			Six Crews Trenching lb/day	Four Crews Boring lb/day	Unmitigated Total lb/day	
Carbon monoxide	21.1	74.8	126	299	426	550
Reactive organic gases	3.2	4.8	18	19	37	75
Nitrogen oxides	23.4	14.9	<b>140</b>	60	<b>200</b>	<b>100</b>
Sulfur oxides	2.0	1.3	12	5	17	150
Particulate matter (PM <sub>10</sub> )	2.7	1.7	16	7	23	150

Notes: Values shown in bold type exceed the applicable criterion.

Maximum emissions with limited activity in the Los Angeles Basin, a total of 10 crews with a maximum of 6 trenching crews working simultaneously.

Significance criteria are from SCAQMD CEQA Air Quality Handbook (May 1993).

Source: LGN, 2002.

The SCAQMD CEQA Air Quality Handbook recommends that lead agencies determine whether a project would result in significant air quality impacts by quantifying the anticipated emissions (SCAQMD, 1993). For evaluating construction-related impacts, the SCAQMD-recommended significance criteria are used herein as mitigation thresholds. The recommended daily construction-related emissions criteria are as follows: 550 pounds of carbon monoxide, 75 pounds of ROG, 100 pounds of NOx, and 150 pounds of sulfur oxides or PM<sub>10</sub>. Emission thresholds previously defined on a quarterly basis are no longer applicable according to consultation with the SCAQMD (SCAQMD, 2001). Table 4-7 shows that simultaneous operation of 10 work crews would cause NOx emissions that are twice the SCAQMD threshold. Mitigation Measures AQ-3 and AQ-4 are required to reduce the impact to less than significant levels.

**AQ-3**

LGN shall comply with the following requirements for project construction:

- Use of California on-road diesel fuel for all diesel-powered construction equipment;
- Use of construction equipment that is properly tuned and maintained in accordance with manufacturer’s specifications;
- Use of best management construction practices to avoid unnecessary emissions (e.g., trucks and vehicles in loading and unloading queues shall be kept with their engines off, when not in use); and
- Suspension of emissions-generating construction activities during “Stage 2” smog alerts. Stage 2 air pollution episodes occur under the California Air Pollution Emergency Episode

**AQ-4**

For project construction within the South Coast Air Quality Management District, LGN shall comply with the following requirements:

- Employ a maximum of 5 work crews on any given workday with a maximum of 3 work crews using the street trenching technique, unless all equipment is compliant with California emission standards for engines manufactured after 1995; or
- Employ a maximum of 6 work crews on any given workday with a maximum of 4 work crews using the street trenching technique, if all equipment is compliant with California emission standards for engines manufactured after 1995.

Implementation of these mitigation measures would reduce the level of construction activity within the Los Angeles Basin to a level that would not cause emissions above the SCAQMD thresholds. The emissions associated with the mitigated scenarios are calculated in Appendix B, and the emissions with Mitigation Measures **AQ-3** and **AQ-4** implemented with post-1995 equipment are summarized in Table 4-8. With the mitigation, the project would not be likely to exacerbate the existing violations of the ozone standards. Implementation of Mitigation Measures **AQ-3** and **AQ-4** would reduce the NOx impact to less than significant levels.

**Table 4-8. Mitigated Construction Emissions (Los Angeles Basin)**

Pollutant	Trenching (per Crew) lb/day	Boring (per Crew) lb/day	Mitigated Scenario			Significance Criterion lb/day
			Four Crews Trenching lb/day	Two Crews Boring lb/day	Mitigated Total lb/day	
Carbon monoxide	18.6	69.2	74	138	213	550
Reactive organic gases	3.2	4.4	13	9	22	75
Nitrogen oxides	18.3	11.5	73	23	96	100
Sulfur oxides	2.0	1.3	8	2	10	150
Particulate matter (PM <sub>10</sub> )	2.7	1.7	11	3	14	150

Notes: No values exceed the applicable criterion.

Maximum emissions with implementation of Mitigation Measure **AQ-4**, which limits activity in the Los Angeles Basin to a total of 6 crews with a maximum of 4 trenching crews working simultaneously and requires use of equipment compliant with post-1995 emission standards.

Significance criteria are from SCAQMD CEQA Air Quality Handbook (April, 1993).

See Appendix B for all assumptions used to calculate the air emissions.

*c. Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable national or State ambient air quality standard (including releasing emissions, which exceed quantitative thresholds for ozone precursors)?*

**LESS THAN SIGNIFICANT IMPACT WITH MITIGATION INCORPORATED.** The project would result in considerable emissions only during the construction phase. The discussions above indicate that



construction-phase impacts could each be mitigated to less than significant levels with appropriate measures implemented. With the mitigation measures recommended above (Mitigation Measure AQ-2 and Mitigation Measures AQ-3 and AQ-4), LGN would implement appropriate emission control programs to minimize construction-phase emissions. Construction and operation of other construction projects in either the San Francisco Bay Area or Los Angeles Basin will also contribute emissions of nonattainment pollutants during the limited phase of LGN construction activities. Other projects, however, are also required to comply with the local rules and regulations, reducing overall simultaneous impacts.

Once operational, the project would not result in any notable emissions of air contaminants from either stationary or motor vehicle sources.

*d. Would the project expose sensitive receptors to substantial pollutant concentrations?*

**LESS THAN SIGNIFICANT IMPACT WITH MITIGATION INCORPORATED.** The project could result in exposure of sensitive receptors, such as residents, to substantial pollutant concentrations during construction if the mitigation measures recommended above were not implemented. The measures recommended by this analysis would minimize fugitive dust emissions sources near residences that could be located along certain portions of the study zones (Mitigation Measure AQ-2) and reduce the potential for significant impacts to regionwide ozone concentrations (Mitigation Measures AQ-3 and AQ-4). With these measures, this impact would be mitigated to less than significant levels.

Once operational, the project would not introduce any notable emissions sources and would not result in exposure of sensitive receptors to substantial pollutant concentrations.

*e. Would the project create objectionable odors affecting a substantial number of people?*

**NO IMPACT.** The project would not include the types of emissions sources or activities that are normally associated with odor impacts.

## 4.5 Biological Resources

This section describes the biological resources that occur within the 15 project study zones in the San Francisco Bay Area and the 9 project study zones in the Los Angeles Basin. It includes a description of common communities of plants and wildlife, wetlands, rare plant communities, and special status plant and wildlife species, followed by an assessment of potential impacts to these resources and mitigation measures designed to offset these impacts. The study zones are broad areas that include the estimated project locations. The specific locations have not been identified, but are expected to be much smaller than the described study zones. The specific areas of project construction would be identified shortly before construction, and evaluated under the Programmatic Process defined in Section 3.5. Consequently, this biological resources analysis examines the potential for impacts within the general study zones.

Information used in preparing this section was derived from the biological resources section of the PEA for the proposed project (LGN, 2002), which included data sources such as the California Natural Diversity Data Base (CNDDDB, 2001), Native Plant Society Database (CNPS, 2000), a list of Threatened and Endangered species from Los Angeles County available on the U.S. Fish and Wildlife Service (USFWS) Ventura Field Office website, a list of species that may occur in the San Francisco Bay Area provided by the USFWS Sacramento Field Office, other planning documents from the project regions, and reconnaissance-level field surveys of the project areas conducted by the Applicant's consultant in March of 2001 (LGN, 2002).

## 4.5.1 Setting

### Natural Communities and Wildlife Habitats

Table 4-9 lists the habitat types and potential biological resources that were identified in the study zones (LGN, 2002). Of the natural communities identified within the San Francisco Bay Area study zones, three are considered sensitive plant communities and within the Los Angeles Basin study zones, four distinct plant communities were identified in the project vicinity. In the San Francisco Bay Area, the mixed riparian forest and woodland communities along with the freshwater emergent marshes were identified along Los Gatos Creek, the Guadalupe River, and Coyote Creek in the San Jose Study Zone and San Francisquito Creek in the Mountain View/Palo Alto Study Zone, while the northern coastal salt marsh was identified in the Mountain View/Palo Alto and Redwood City Study Zones. In the Los Angeles Basin study zones, riparian scrub and forest communities along with freshwater marshes and aquatic habitat were identified in the San Diego Creek, Santa Ana River, and Peter's Canyon Creek within the Irvine/Costa Mesa Study Zone. Coastal sage scrub was also identified in the Irvine/Costa Mesa Study Zone and scattered through other study zones. The "urban and/or landscaped" and "ruderal" plant communities are created conditions and thus are not recognized terrestrial natural communities.

### Special Status Plants and Wildlife

A total of 71 special status plant and 55 special status wildlife species were identified within the San Francisco Bay Area study zones and 39 special status plant species and 38 special status wildlife species were identified in the Los Angeles Basin study zones. Special status species with the potential to occur within the study zones are noted in Table 4-9 under the biological resources for the study zones they potentially occur in. Additionally, the bridge crossings within the project areas are considered potential roosting and maternity habitat for special status bats, and potential nesting habitat for swallows. Appendix C summarizes special status species and their habitats, includes documented locations of special status plant species within one mile of the project study zones, and presents the overall likelihood of special status plant species occurrences within the project study zones.

Table 4-10 presents the special status species with the potential to occur within or in the proximity of the study zones. Of the 126 special status species with the potential to occur within the San Francisco Bay Area study zones, the Applicant's PEA identified 19 that have at least a moderate potential to occur within or adjacent to the project study zones. Of the 77 special status species with the potential to occur within the Los Angeles Basin study zones, the Applicant's PEA identified only one species, the burrowing owl, that could potentially be affected by the proposed project. Five additional species not expected to be affected by the project but that were identified within one mile of the proposed project include: the light-footed clapper rail, California least tern, California gnatcatcher, least Bell's vireo, and western pond turtle.

**Table 4-9. Habitats and Special Status Species Potential in the Proposed Project Study Zones**

Study Zone	Habitats Identified	Biological Resources in the Study Zones
<b>SAN FRANCISCO BAY AREA STUDY ZONES</b>		
San Francisco North	Urban, ruderal	Densely urbanized downtown region. This study zone contains urban and ruderal habitat and does not support special status species.
San Francisco South	Urban, ruderal	Densely urbanized region of the southern portion of San Francisco. This study zone contains urban and ruderal habitat and does not support special status species.
Mid-Peninsula	Urban, ruderal, aquatic	The study zone includes a business park located adjacent to San Bruno Mountain; however, none of the special status plants or wildlife species associated with the mountain would occur in the built out road corridors in the study area. As a result, neither mission blue butterfly, Callippe silverspot butterfly, or San Bruno elfin butterfly were identified as potentially occurring in the study area. The remaining study areas are located in primarily urban or built out areas, though at least one brackish waterway was identified in the study zone just north of San Francisco International Airport. No special status plant or wildlife species were identified in or adjacent to the identified study areas.
Foster City	Urban, ruderal, aquatic	A commercial region with little vegetation other than ornamental landscaping. This study zone includes a highly disturbed part of Seal Slough that lacks adjacent riparian vegetation. The Foster City Study Zone does not support sensitive plant communities nor does it provide habitat for rare, threatened, or endangered species of plants and wildlife.
Redwood City	Urban, ruderal, tidal marsh, aquatic, annual grassland	The northern end of the Mountain View Study Zone includes or is adjacent to various sloughs, creeks, and salt ponds which provide quality aquatic and tidal marsh habitat. The tidal marsh associated with Ravenswood Slough provides potential foraging habitat for mammals such as the salt marsh harvest mouse and the salt marsh wandering shrew, and nesting and foraging habitat to birds such as the California clapper rail and northern harrier. The levees that separate Ravenswood Slough from its neighboring salt ponds are potential nesting sites for western snowy plover and California least tern. In addition, these levees show evidence of ground squirrel activity creating potential habitat for burrowing owl. Burrowing owl could also occupy ruderal habitat in this study zone just east of Highway 92 and in other locations. Additional levees and salt marsh habitat within the study zone may support the aforementioned species and several birds that nest in emergent marsh vegetation: Alameda song sparrow, salt marsh common yellowthroat, and tricolored blackbird. The lower estuarine portions of Ravenswood Slough, Redwood Creek, and associated tidal sloughs may support Pacific lamprey, central California coast steelhead, and central coast Chinook salmon. San Francisquito Creek provides steelhead spawning habitat in its upper reaches and migratory habitat during winter and spring months, but dries seasonally in summer and fall. Similarly, California red-legged frog is present in upper reaches of this creek, but is considered absent from the Mountain View Study Zone.
Mountain View/ Palo Alto	Urban, ruderal, tidal marsh, aquatic, annual grassland	The northern portion of the Study Zone includes various sloughs, drainages and tidal marshes which may support Pacific lamprey, central California coast steelhead, central coast Chinook salmon, western snowy plover, California least tern, salt marsh common yellowthroat, Alameda song sparrow, tricolored blackbird, salt marsh harvest mouse, and salt marsh wandering shrew. Several areas of annual grassland and ruderal habitat, such as the ruderal area adjacent to Moffett Field, provide foraging and nesting habitat for burrowing owl.

**Table 4-9. Habitats and Special Status Species Potential in the Proposed Project Study Zones, *cont.***

Study Zone	Habitats Identified	Biological Resources in the Study Zones
Milpitas	Urban, ruderal, aquatic, fresh-water marsh, riparian, annual grassland	Both Coyote Creek and the Guadalupe River flow through the Milpitas Study Zone, providing aquatic, freshwater marsh and riparian habitat for common and special status species. This study zone also contains tidal marsh, ruderal areas and grassland habitat, which may support the special status species described above. Tricolored blackbird, Alameda song sparrow, and salt marsh common yellowthroat may inhabit shoreline emergent vegetation along the lower reaches of Coyote Creek and the Guadalupe River in the Milpitas Study Zone. Large trees within these riparian corridors provide nesting opportunities for raptors including white-tailed kite, Cooper's hawk and sharp-shinned hawk. Though no recorded occurrences of California red-legged frog have been reported within this study zone, slow moving sections of these drainages serve as potential breeding habitat for this species.
Sunnyvale	Urban, ruderal, aquatic, fresh-water marsh, riparian, annual grassland	The CNDDDB reports occurrences of burrowing owl in grassland patches in the Sunnyvale Study Zone. In addition, the Guadalupe River and other drainages provide potential habitat for the aquatic-associated resources mentioned above (Pacific lamprey, central California coast steelhead, central coast Chinook salmon, western pond turtle, and California red-legged frog). Nesting raptors may inhabit the riparian vegetation adjacent to the river. Emergent vegetation, such as tules and cattails, may support salt marsh common yellowthroat and tricolored blackbird.
San Jose	Urban, ruderal, aquatic, fresh-water marsh, riparian, annual grassland	Primarily urban with extensive development throughout. However, some ruderal and grassland areas with the potential to support burrowing owl are present. Coyote Creek, Los Gatos Creek and the Guadalupe River provide aquatic, riparian, and freshwater marsh habitat for the special status species associated with these habitat types.
North San Jose	Urban, ruderal, aquatic, fresh-water marsh, riparian, annual grassland	Primarily urbanized with extensive development throughout. High quality burrowing owl habitat is well documented in the area. Within this zone, Coyote Creek provides aquatic, riparian and freshwater marsh habitat for the special status species associated with these habitat types.
Fremont	Urban	Consists of two small study polygons around specific addresses near Fremont Boulevard. Both polygons are within developed commercial and residential areas with no potential for special status species to occur.
Hayward	Urban, ruderal, annual grassland	Primarily commercial and industrial with the exception of the Hayward Airport, which borders the north side of Winton Avenue. The ruderal fields of the Hayward Airport provide potential habitat for burrowing owl. Occurrences of this species have been recorded at the airport as well (LGN, 2002). No other rare, threatened or endangered species of plants and wildlife are expected within this study zone.
Oakland	Urban	Entirely urban with the exception of a section that covers part of Lake Merritt and its inlet from the San Francisco Bay. Neither Lake Merritt nor its inlet specifically provide habitat for any special status species, though adult and juvenile steelhead and Pacific lamprey may venture into the tidal portions of this waterway, and California least terns may occasionally forage in the Lake. Otherwise, this urban study zone does not support sensitive wildlife or vegetation.
Emeryville	Urban	The Emeryville Study Zone consists of developed commercial areas with no potential for special status species occurrences.
Pleasanton	Urban, ruderal	Primarily commercial business parks with ornamental and landscaped vegetation. Several undeveloped annual grassland and ruderal areas were identified within the study zone, many recently disked or plowed. Ground squirrel activity was evident throughout the disturbed grassland and ruderal areas, providing potential nesting habitat for burrowing owl. No other special status species inhabit the Pleasanton Study Zone.

**Table 4-9. Habitats and Special Status Species Potential in the Proposed Project Study Zones, cont.**

<b>Study Zone</b>	<b>Habitats Identified</b>	<b>Biological Resources in the Study Zones</b>
<b>LOS ANGELES BASIN STUDY ZONES</b>		
Burbank/Glendale	Urban, ruderal	Comprised of dense urban centers that are entirely built out for residential, business and/or industrial development. Given the absence of natural habitats or drainages, no special status species or wetlands issues were identified in these areas. North Hollywood Park is located 2 blocks west of Magnolia Boulevard. This well-maintained park is bisected by the 4-lane Magnolia Blvd and is skirted to the east and west by Tujunga Ave and Highway 170, respectively. Due to a strong recreational emphasis, extensive park manicuring, and intensive urban conditions in the surrounding area, this park does not provide suitable nesting habitat for birds of prey. No other special status species would be expected at the park. Due to the absence of suitable nesting habitat and distance of proposed activities from the park (2 city blocks), project activities on Magnolia Boulevard would not affect biological resources.
Pasadena	Urban, ruderal, coastal sage scrub	Consists of 3 study areas, 2 of which are located in dense urbanized portions of the City of Pasadena. The easternmost study area is located in the historic lower floodplain of Eaton Wash, but the waterway has since been diverted and is now developed. Sensitive species that occur within 2 miles of this location include the federally Endangered mountain yellow-legged frog and the San Diego horned lizard, a federal Species of Concern. Eaton Wash has been substantially altered in the to the point that habitat for these species no longer occurs in the urbanized study area. Some coastal sage scrub habitat occurs in the study area polygon, but would not be altered or otherwise affected by the proposed action.
Santa Monica/ Beverly Hills	Urban, ruderal	Characterized by urbanized shopping districts that do not consequently support sensitive plant communities and do not provide habitat for rare, threatened or endangered species of plants and wildlife.
Downtown Los Angeles	Urban, ruderal	Highly urbanized and does not support sensitive plant communities or provide habitat for rare, threatened or endangered species of plants and wildlife. No streams or wetland resources were identified in this study zone.
LAX/El Segundo	Urban, ruderal	Highly characterized by urban centers that do not support sensitive plant communities or habitat for special status plants and wildlife. A few species that are considered rare, threatened or endangered occur within 2 miles of the proposed project locations (e.g., El Segundo blue butterfly and Pacific pocket mouse), but are not expected in the urbanized project areas.
Long Beach	Urban, ruderal	Consists of 3 residential and commercial regions. The CNDDB reports occurrences of 3 special status species (southern tarplant, San Diego horned lizard, and coast woolly-heads) within one mile of the study regions, but no suitable habitat for these or other species was identified within the urbanized study regions. A concrete-lined drainage channel that runs parallel to Clark Avenue was identified. This engineered feature does not provide habitat for special status plants or wildlife and would not be affected by the proposed project.
Buena Park/ Anaheim	Urban, ruderal	Consists of 3 urbanized regions and a study corridor that follows I-5 and several major city streets. Carbon Creek, a highly disturbed and channelized riprap-lined drainage, crosses the study corridor between La Palma Avenue and Lincoln Avenue and also the study polygon surrounding West Orange Avenue. No sensitive habitat or associated special status species were identified at these crossings or at any other locations within the Buena Park/Anaheim Study Zone.

**Table 4-9. Habitats and Special Status Species Potential in the Proposed Project Study Zones, *cont.***

Study Zone	Habitats Identified	Biological Resources in the Study Zones
Santa Ana	Urban, ruderal	Encompasses a study corridor that winds through commercial and residential areas of Costa Mesa with no associated habitat for native plants or wildlife. The study corridor includes 2000 feet of the Santa Ana River centered at the West Memory Lane crossing that would be avoided by project design. The Santa Ana River has a natural, unlined bed and bank, but the riparian and aquatic habitats have been reduced to a few sparse trees and an overall degraded condition by adjacent uses. An adjacent golf course at Memory Lane manages their lawn and landscaping well into the stream bank and corridor. Both aquatic (fisheries) habitat and riparian habitat are considered lacking in this area, though the river map provides important functions as a migratory corridor for fish and wildlife. Southern tarplant, San Diego horned lizard, and San Fernando valley spineflower were identified by the CNDDDB within one mile of the study corridor; however, no portions of the highly developed Study Zone provide habitat for these or other special status species.
Irvine/Costa Mesa	Urban, ruderal, riparian, chaparral, freshwater marsh, aquatic	Consists mainly of residential and commercial development, though several areas are bordered by ruderal areas and non-native grassland habitat. Several areas were identified where undisturbed ruderal areas and mowed annual grasslands provide potential habitat for burrowing owl. Several areas that are located immediately adjacent to the Irvine/Costa Mesa Study Zone also provide habitat for special status wildlife species, including coastal California gnatcatcher, as described above. San Diego Creek winds along the eastern side of the Irvine/Costa Mesa Study Zone. The creek and its adjacent freshwater marsh support various listed species such as western pond turtle, light-footed clapper rail, and California least tern (LGN, 2002). Several species of birds, including the listed least Bell's vireo, may nest and forage in the riparian forest and scrub vegetation that lines San Diego Creek. The project study corridor overlaps with San Diego Creek; however, San Diego Creek is located more than 1,000 feet from proposed project activities which are centered in commercial regions that do not provide habitat for the above-mentioned species. Other species identified within one mile of the Irvine/Costa Mesa Study Zone are many-stemmed dudleya and <i>Aphanisma</i> .

**Table 4-10. Special Status Species with the Potential to Occur within or in Proximity to the Proposed Project**

San Francisco Bay Area Study Zone		Los Angeles Basin Study Zone	
Common Name <i>Scientific Name</i>	Listing Status USFWS / CDFG	Common Name <i>Scientific Name</i>	Listing Status USFWS / CDFG
Central California coast steelhead <i>Oncorhynchus mykiss</i>	FT/--	Western pond turtle <i>Clemmys marmorata</i>	FSC/CSC
Central coast Chinook salmon	FT/--	Burrowing owl <i>Athene cunicularia</i>	FSC/CSC
Pacific lamprey <i>Lampetra tridentata</i>	FSC/--	Light-footed clapper rail <i>Rallus longirostris levipes</i>	FE/CE
California red-legged frog <i>Rana aurora draytonii</i>	FT/CSC	California least tern <i>Sterna antillarum browni</i>	FE/CE
Western pond turtle <i>Clemmys marmorata</i>	FSC/CSC	California gnatcatcher <i>Polioptila californica californica</i>	FT/CSC
California clapper rail <i>Rallus longirostris obsoletus</i>	FE/CE	Least Bell's vireo <i>Vireo bellii pusillus</i>	FE/CE
Western snowy plover <i>Charadrius alexandrinus nivosus</i>	FT/CSC		
California least tern <i>Sterna antillarum browni</i>	FE/CE		
Northern harrier <i>Circus cyaneus</i>	--/CSC		
White-tailed kite (nesting) <i>Elanus leucurus</i>	DFG fully protected		
Sharp-shinned hawk <i>Accipiter striatus</i>	3503.5		
Cooper's hawk <i>Accipiter cooperi</i>	3503.5		
Burrowing owl <i>Athene cunicularia</i>	FSC/CSC		
Loggerhead shrike <i>Lanius ludovicianus</i>	FSC/CSC		
Salt marsh common yellowthroat <i>Geothlypis trichas sinuosa</i>	FSC/CSC		
Alameda (South Bay) song sparrow <i>Melospiza melodia pusillula</i>	FSC/CSC		
Tricolored blackbird <i>Agelaius tricolor</i>	FSC/CSC		
Salt marsh harvest mouse <i>Reithrodontomys reviventris</i>	FE/CE		
Salt marsh wandering shrew <i>Sorex vagrans halicoetes</i>	FSC		

Source: CNDDDB, 2001

**STATUS CODES:**

FEDERAL: (U.S. Fish and Wildlife Service)

FE = Listed as Endangered (in danger of extinction) by the Federal Government.

FT = Listed as Threatened (likely to become Endangered within the foreseeable future) by the Federal Government.

FP = Proposed for Listing as Endangered or Threatened.

FC = Candidate to become a *proposed* species.

FSC = Federal Species of Concern. May be Endangered or Threatened, but not enough biological information has been gathered to support listing at this time.

STATE: (California Department of Fish and Game)

CE = Listed as Endangered by the State of California

CT = Listed as Threatened by the State of California

CR = Listed as Rare by the State of California (plants only)

CSC = California Species of Special Concern

3503.5=Protection for nesting species of Falconiformes (hawks) and Strigiformes (owls)

This proposed project would require regulatory review and permitting by several agencies that maintain jurisdiction for biological resources and their habitat in the both the San Francisco Bay Area and the Los Angeles Basin. The following is a list of federal and State regulations, permits, and policies pertaining to biological resources and wetlands that are expected to apply to the proposed project.

- U.S. Army Corps of Engineers Section 404 Permit (Individual or Nationwide Permit).
- Regional Water Quality Control Board(s) Section 401 Permit (Water Quality Certification).
- Federal policies on Riparian Communities in California (USFWS mitigation policy identifies California's riparian habitats as belonging to resource Category 2, for which no net loss of existing habitat value is recommended (46 FR 7644, January 23, 1981).
- California Department of Fish and Game (CDFG) Section 1601 Streambed Alteration Agreement.
- Bay Conservation and Development Commission (BCDC jurisdiction includes the San Francisco Bay and a shoreline band that extends inland 100 feet from the high tide line).
- Federal Endangered Species Act (Section 7 with USFWS and/or NMFS).
- California State Endangered Species Act (Section 2081).
- Federal Migratory Bird Treaty Act
- Bald and Gold Eagle Protection Act
- California Fish and Game Code (Section 3503.3 prohibits destroying nests or eggs of birds of prey).
- Native and heritage tree ordinances (local city and county).

## 4.5.2 Environmental Impacts and Mitigation Measures

The mitigation measures presented in this section to reduce potential adverse effects on biological resources (e.g., special-status species, wetlands, riparian habitat) have not been developed through formal consultation or coordination with resource agencies (e.g., California Department of Fish and Game [CDFG] and USFWS). Therefore, these mitigation measures may be modified during coordination with the resource agencies in the implementation of the Programmatic Process. Additional mitigation measures that may be identified as part of the permit review process (e.g., Section 404, 1603 streambed alteration agreement, or Section 7 biological opinion, if needed) shall be implemented as specified by the permit conditions. Throughout the life of the project, additional species may be listed or designated as special status. If new species are listed subsequent to this document and during the life of the project, consultation or coordination with the resource agencies will be required.

- a. Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?*

**LESS THAN SIGNIFICANT IMPACT WITH MITIGATION INCORPORATED.** Installation of cable, supporting equipment and other facilities could result in adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service. The implementation of the following mitigation measures is required to ensure that impacts are reduced to less than significant levels.



**BIO-1** Biological surveys shall be performed prior to installation activity in areas where roads traverse open agricultural areas and grasslands, and are located near streams. Areas that could support special status wildlife species generally shall be avoided by project design (streams, grasslands, marshlands), and other restrictions shall apply to work in close proximity to sensitive resources. Where identified, sensitive resources shall be avoided by minor rerouting of the cable route within roads, boring under the resource (e.g., streams), attaching the conduit to an existing bridge, where applicable, or trenching during a time of year when sensitivity is low (in the case of nesting birds). Conduit shall be bored under streams that could support threatened or endangered species or other resources of special value or attached to bridges. In most cases, no construction activities shall be conducted within 20 feet of the top of bank or riparian stream vegetation. LGN shall acquire all permits and authorizations required by federal, State, regional, and local jurisdictions to construct near areas with sensitive biological resources. Throughout the life of the project, additional species may be listed or designated as special status, and LGN shall comply with any new requirements of the USFWS or CDFG for such species. Specific sensitive areas and widths of approved corridors shall be defined in the work plans submitted in the Programmatic Process.

**BIO-2** The Applicant shall perform no open trench crossings at any stream, wetland feature or other waters of the United States unless otherwise identified by a Stream Bed Alteration Agreement, U.S. Army Corps of Engineer 404 Permit, and/or any other required permits. Stream or wetland crossings shall be performed either by bridge attachment or by directional bore.

For directional bores at streams that do not support sensitive wildlife resources within 500 feet of the construction site (e.g., at channelized or unvegetated waterways), a qualified biological monitor shall visit the site at least once daily during construction. LGN shall provide full-time biological monitoring during all construction activities at stream or channel crossings that contain either flowing water, sensitive species, riparian or wetland vegetation. The LGN monitor shall ensure that State and/or federal wetland protection guidelines are followed and that an adequate setback of at least 20 feet is observed at wetland and/or riparian (woody vegetation) edges that provide suitable habitat for special status species.

The 20-foot setback from riparian vegetation is considered an initial guideline that may be modified at specific sites following informal consultation with federal and State resource agencies, and as new information becomes available regarding wildlife habitat use.

A resource specialist shall inspect all stream crossings prior to construction, additional sites that have not now been identified as potential habitat may become occupied at a later time (e.g., by nesting raptors).

**BIO-3** LGN shall avoid riparian and wetland habitats that support special-status fisheries and wildlife, by establishing and observing exclusion zones consistent with current regulatory requirements for sensitive species and associated habitat. This measure shall apply to, but not be limited to, the following large creeks and streams that provide potential habitat for Pacific lamprey and Central California coast steelhead (and Central coast Chinook salmon in the Guadalupe River): Coyote Creek, Guadalupe River, Los Gatos Creek, and San Francisquito Creek. Additionally, this measure also applies to vegetated tributaries to the above-mentioned waterways and to freshwater and brackish water emergent wetlands and associated upland habitats bordering San Francisco Bay.

**BIO-4** Where construction is proposed to occur near riparian and salt marsh habitats that support special-status nesting birds as defined below, the Applicant shall limit construction periods to outside the breeding season.

- *Tricolored Blackbird, Saltmarsh Common Yellowthroat, Alameda Song Sparrow.* For project activities within 250 feet of potential nesting habitat for tricolored blackbird, saltmarsh common yellowthroat, and Alameda song sparrow, surveys shall be conducted to determine the presence of nesting birds no more than 2 weeks prior to construction in March through August. If pre-nesting or nesting activity is identified, a determination shall be made in consultation with CDFG as to whether or not construction will impact nesting birds. If it is determined that construction will impact nests, construction within 250 feet of the nesting locations shall be delayed until juvenile birds have fledged.
- *Western Snowy Plover, California Least Tern, California Clapper Rail.* To avoid disrupting nesting California clapper rail, western snowy plover, and California least tern, construction activities in areas that provide potential habitat for these species, as identified in the Redwood City Study Zone and Mountain View Study Zone, shall occur outside of the nesting season (February 1 through August 31) for these species. If construction activities take place during the nesting season and the survey methodology is accepted by the USFWS, a qualified biologist shall conduct a pre-construction survey according to accepted protocols and report whether or not there is occupied nesting habitat for the above-listed species within 700 feet of proposed construction activities. If any of the species listed above are identified, construction within 700 feet of the nest shall be delayed until the adult and/or juvenile plovers, terns, or rails are no longer using the nest as the center of their activity. Protocol-level presence/absence surveys may not be feasible in the Redwood City Study Zone due to the large expanse of marshlands present that abut the project alignment. If surveys are deemed infeasible in this area, seasonal avoidance measures shall apply as previously described.

**BIO-5** The Applicant shall retain qualified biologists and resource specialists to monitor construction activities where sensitive resources have been identified, as identified in Table 4-10. A biological resource monitor shall be present constantly for bores or bridge attachments with sensitive in-stream or downstream resources, and in areas where the presence of special status species is known or suspected.

Monitors shall be hired and trained prior to construction and shall be responsible for pre-construction surveys, staking resources, onsite monitoring, documentation of violations and compliance, coordination with contract compliance inspectors, and post-construction documentation. Resource monitors shall be familiar with the wildlife species and other sensitive biological resources in the general project area and qualified to recognize potential construction effects to these resources. Monitoring shall be particularly intensive near identified habitat for federal and State-listed species, as a “no take” approach has been adopted for the project.

**BIO-6** Biological monitors, employed by LGN and approved by the CPUC, shall locate and stake previously identified sensitive resources before construction activities begin in specified segments and shall inspect areas prior to construction to ensure that barrier fencing, stakes, and required setback buffers are maintained. Avoidance measures and buffer distances vary for each species and are specified for some species in Mitigation Measures **BIO-4**, **BIO-11**, and **BIO-13**. The specific buffer zone distance will be determined by the resource agencies (CDFG and USFWS).

The Applicant's biological monitor shall be responsible for monitoring construction activities in areas that support special-status species, woody riparian vegetation, wetlands, and perennial (i.e., flowing at the time of construction) drainage crossings. The monitors shall also be responsible for obtaining clearance from the resource agencies for deviations from avoidance measures described in Mitigation Measures **BIO-2**, **BIO-3**, **BIO-4**, and **BIO-7** (e.g., reducing construction exclusion zone widths near sensitive biological resource locations).

**BIO-7** If avoidance of sensitive wildlife species habitat is not feasible (e.g., by modifying the route or boring), then the Applicant shall conduct field surveys for special status species potentially occurring within sensitive areas using current USFWS or CDFG survey protocols to determine species presence or absence. If species that are listed under either the federal or State Endangered Species Acts are present (e.g., Central California coast steelhead or California red-legged frog), or are presumed to be present after informal consultation with USFWS and/or CDFG, then a formal consultation and Biological Assessment in support of a Biological Opinion may be required if complete habitat avoidance is not feasible. If a Biological Opinion is required, no construction activity will be permitted until the applicable resource agencies determine that the proposed mitigation (in the Biological Opinion) will result in less than significant impacts to the affected species.

**BIO-8** The Applicant shall conduct Worker Environmental Awareness Program (WEAP) training for construction crews. All LGN construction crews and contractors shall participate in WEAP training prior to starting work on the project. The WEAP training shall include a brief review of the special-status species and other sensitive resources that could exist in the project area (including their life history and habitat requirements), the locations of sensitive biological resources, and their legal status and protection under the U.S. Endangered Species Act of 1973 (6 USC 1536). The education program shall include materials describing sensitive resources, resource avoidance, permit conditions, and possible fines for violations of State or federal environmental laws. The program shall cover the mitigation measures, environmental permits, and proposed project plans, reclamation plans, and any other required plans.

The Applicant shall be responsible for ensuring that all project personnel and subcontractors adhere to the guidelines and restrictions. Training shall be conducted as needed — including morning “tailgate” sessions — to update crews as they advance into sensitive areas, and to educate new personnel brought on the job during the construction period. Project personnel will receive a hardhat sticker or be issued a card verifying compliance with the above mitigation measure. In addition, a record of all personnel trained during the project will be maintained and made available for compliance verification.

**BIO-9** The Applicant shall confine construction equipment and associated activities to the approved ROW at all locations. Construction impacts shall be limited to a 20-foot ROW in areas that support sensitive resources (e.g., near areas that support riparian and wetland communities and special-status species adjacent to the work area), as defined in Table 4-10 and delineated by qualified biologists or resource specialists prior to construction.

In sensitive areas that are being avoided by directional boring and drilling, drill rigs and equipment staging shall remain outside of sensitive habitats, with an adequate buffer, consistent with established Resource Agency Guidelines to avoid potential adverse effects to the resource. Work area boundaries shall be delineated with flagging or other marking to minimize surface disturbance associated with vehicle straying and minimize the potential for inadvertent worker intrusion into sensitive areas. Special habitat features identified by the resource monitor shall be avoided and previously disturbed areas within the project ROW shall be utilized for stockpiling excavated materials, equipment storage, and vehicle parking.

During WEAP training (Mitigation Measure **BIO-8**), construction personnel shall be informed of the importance of maintaining a narrow work corridor. The resource coordinator, with support from resource monitors, as necessary, will ensure that construction equipment and associated activities avoid any disturbance of sensitive resources outside the construction corridor.

**BIO-10** After the Applicant has identified specific project routes, the Applicant shall carry out focused pre-construction biological resource surveys consistent with approved survey protocols, to identify the location of sensitive biological resources. Sensitive resources shall be clearly mapped and marked on construction drawings or project maps before construction in these areas. If sensitive resources cannot be avoided, no work shall be authorized until the appropriate resources agencies (CDFG, USFWS, NMFS) determine that the action will not result in significant impacts to biological resources (see Mitigation Measure **BIO-7**).

**BIO-11** The Applicant shall perform pre-construction surveys for burrowing owls along all new project routes, in all areas that may provide suitable nesting habitat. This includes the entire Mountain View, San Jose, North San Jose, Milpitas, Redwood City Study Zones, and any other zones known or determined to potentially support nesting habitat for this species. All project activity within the five identified study zones shall be surveyed by a qualified biologist to determine the presence of nesting borrowing owls. No more than 2 weeks before construction, a qualified biologist shall conduct a survey for occupied owl burrows within 500 feet of the construction corridor (access permitting) in areas that support potential owl habitat. The survey shall conform to California Burrowing Owl Consortium protocol, which includes up to four surveys on different dates if there are active owl burrows present.

**BIO-12** The Applicant shall avoid disturbing active owl burrows and standard CDFG guidelines shall be implemented during the non-breeding season.

If occupied owl burrows are found during pre-construction surveys (Mitigation Measure **BIO-11**), a qualified biologist shall determine whether or not project construction has the potential to impact the burrows so as to disrupt reproductive behavior. A biologist shall monitor all construction activities, consistent with CDFG requirements.

If construction is determined not to adversely affect occupied burrows or disrupt breeding behavior, construction may proceed without seasonal timing restrictions, though other applicable mitigation measures shall still be implemented.

If construction could adversely affect occupied burrows during the non-breeding season (August 31 through February 1), owls may be passively excluded from the burrow(s) using one-way doors. At least two suitable, unoccupied burrows (natural or artificial burrows — the latter constructed according to current design specifications) must exist within 300 feet of the occupied burrow before one-way doors are installed. Relocation burrows shall be in place at least one-week before one-way doors are installed on occupied burrows. The one-way doors shall remain in place for 48 hours before burrows are excavated.

If construction activities are found to temporarily impact occupied burrows so as to disrupt reproductive behavior during the nesting season (February 1 through August 31), construction within 250 feet of occupied burrows shall be delayed until it is determined that the subject owls are not nesting or until a qualified biologist determines that juvenile owls are self sufficient and no longer using natal burrows as their primary shelter.

As no permanent burrowing owl habitat loss is anticipated, no habitat compensation is proposed. If it is determined, however, that there are unavoidable impacts to owls, LGN shall consult with CDFG to determine the appropriate mitigation strategy (on-site or off-site mitigation) and the required compensation ratio (as defined in the Burrowing Owl Mitigation Guidelines).

**BIO-13**

The Applicant shall avoid disturbance to active raptor nests at all locations. Pre-construction surveys shall be performed in the south San Francisco Bay and Los Angeles Basin study zones to identify additional potential raptor nesting sites within the selected project route(s). To avoid potential adverse effects on nesting raptors, a no-disturbance buffer zone shall be established around active nests during the breeding season. No construction shall occur within the specified buffer zones during the breeding season (February 1 to August 31) or until it is determined that young have fledged.

If construction activities are proposed to occur only during the non-breeding season (August 31 through February 1), no pre-construction surveys shall be required. If, however, construction activities are scheduled to occur during the breeding season, pre-construction surveys of all potentially active nest sites within 500 feet of the construction corridor (access permitting) shall be conducted in areas that may potentially have nesting raptors, as described in Table 4-10. If surveys indicate that nests are inactive or potential habitat is unoccupied during the construction period, no further mitigation shall be required.

If active nests are found, a 500-foot, no-disturbance buffer shall be established around the active nest. The size of individual buffers can be adjusted, following a site evaluation by a qualified raptor biologist, which shall involve the presence of topographical features that obstruct the line of site from the construction activities to the nest or observations of the nesting pair during construction based on the level of ongoing disturbance (e.g., farming activities or road traffic) and the observed sensitivity of the birds. Site evaluations and buffer adjustments shall be made in consultation with the local CDFG representative. The portion of the project that is within the designated buffer shall be identified in the field by staking and flagging.

**BIO-14**

The Applicant shall minimize the disturbance of other waters of the United States and restore the resource to pre-project conditions, as stated in the Corps permit(s). Any waters of the United States disturbed shall be limited to the minimum area necessary to successfully install the fiber optic conduit and cable. In addition, the surface grade shall be restored and topsoil shall be replaced. The Applicant shall implement the following minimum guidelines for reestablishing conditions conducive to natural site regeneration, and shall include any additional measures identified in the Corps permits:

- Stabilize exposed slopes and stream banks immediately on completion of installation activities. This is anticipated to require minimal effort, since only low-energy seasonal streams or ditches shall be considered for trenching. Beds and banks shall be restored in a manner that encourages vegetation to reestablish to its pre-project condition and reduces the effects of erosion on the drainage system.
- Remove trees, shrubs, debris, or soils during construction that are inadvertently deposited below the ordinary high-water mark of drainages in a manner that minimizes disturbance of the drainage bed and bank.
- Implement additional measures that may be required as part of the CDFG, Corps, and/or RWQCB permits that shall be obtained for each project area.
- These measures shall be incorporated into contract specifications and implemented by the construction contractor. Additionally, LGN shall incorporate all permit conditions into construction specifications. The resource monitors shall routinely inspect construction activities to verify that the above protective measures and permit conditions have been implemented.
- Avoid installation activities in saturated or ponded wetlands during the wet season (spring and winter) to the maximum extent possible. Where such activities are unavoidable, protective practices, such as use of padding or vehicles with balloon tires, shall be used consistent with resource agency requirements.
- Where determined necessary by the resource specialists, geotextile cushions and other materials (e.g., timber pads, prefabricated equipment pads, or geotextile fabric) shall be used in saturated conditions to minimize damage to the substrate and vegetation.
- In wetlands or unvegetated waters of the U.S. that are trenched, the top 12 inches of topsoil from the excavated site with intact roots, rhizomes, and seed bank shall be stockpiled (Corps' Nationwide Permit No. 12 requires that topsoil be stockpiled and replaced). The topsoil and subsoil shall be replaced immediately after construction activities are complete.
- Review the ground surface to maintain pre-project wetland hydrology.

LGN shall implement the above measures and all other permit conditions into contract specifications and shall ensure that they are implemented by the construction contractor. Resource monitors shall routinely inspect construction activities to verify that the above protective measures and permit conditions have been implemented.

**BIO-15**

The Applicant shall avoid disturbing active bat roosting or maternity colonies and swallow nesting colonies at bridge crossings. Pre-construction surveys shall be completed in compliance with Mitigation Measure **BIO-10** to identify potential bat roosting or maternity, and swallow nesting colonies at bridge crossing locations.

To avoid potential adverse effects upon bat roosting or maternity and swallow nesting colonies, the designated qualified biologist shall conduct pre-construction surveys of each bridge crossing to determine if bat roosting or maternity, and swallow nesting colonies occur. If pre-construction surveys determine that swallows have begun nesting

on a bridge crossing, construction will be delayed till young have fledged. If bat roosting or maternity colonies occur, no bridge crossing construction shall occur during the roosting and breeding period (variable depending on bat species).

If pre-construction surveys indicate that a bridge crossing is not being utilized for either bat roosting or breeding or swallow nesting, no further mitigation shall be required. Site evaluations and construction timing adjustments shall be made in consultation with the local resource agencies (USFWS and CDFG representative).

**BIO-16** To avoid impacts to nesting shorebirds and songbirds in the San Diego Creek corridor, no project activities shall occur south of Jamboree Boulevard and west of McGaw Avenue in the Irvine/Costa Mesa Study Zone. If necessary, construction may occur within Jamboree Boulevard, provided that other relevant mitigation measures are followed.

*b. Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?*

*LESS THAN SIGNIFICANT IMPACT WITH MITIGATION INCORPORATED.* The Applicant has indicated that no work would be conducted within any sensitive natural communities; therefore, no adverse effects to these resources are expected. Nonetheless, sensitive resources do occur within the study zones and the project could result in adverse effect on riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service. With the implementation of Mitigation Measure **BIO-3**, the impacts are reduced to less than significant levels.

*c. Would the project have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?*

*LESS THAN SIGNIFICANT IMPACT WITH MITIGATION INCORPORATED.* The proposed project could result in adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.

Based on the potential to impact wetland resources and the need to mitigate these impacts, Mitigation Measures **BIO-2**, **BIO-5**, **BIO-6**, **BIO-9**, **BIO-10**, **BIO-14**, **WQ-4**, and the following mitigation measures are required to reduce these potential impacts to less than significant levels.

**BIO-17** The Applicant shall conduct pre-construction wetland delineation surveys (per U.S. Army Corps of Engineer's 1987 Manual Standards). Formal wetland delineations will serve to meet Section 404 requirements and will clearly describe wetland boundaries and impact acreages. A formal wetland delineation report shall be submitted to the Corps as part of the Section 404 permitting process.

Additional compensatory, restoration, or avoidance measures are not anticipated, but could be stipulated by the regulatory agencies (e.g., Corps, RWQCB, BCDC and CDFG) as part of the permitting process.

**BIO-18** The Applicant shall avoid and protect jurisdictional wetlands adjacent to construction areas, as specified in the U.S. Army Corps of Engineers Permit. Construction and

cable installation activities shall avoid all jurisdictional wetland areas, except as expressly identified in the Corps permit. Resource personnel shall identify the specific location of protective barriers before construction activities are initiated near specified jurisdictional wetlands and shall identify these areas on construction drawings. Protective barrier fencing or staking and flagging shall be installed at least 20 feet from wetland areas or as defined in the Corps permit issued for this project to protect wetlands near the work zone. Resource monitors shall routinely inspect protected areas to ensure that barriers remain in place and are effective. Protective barriers shall remain in place until all construction activities are complete in areas near sensitive resources. The following project features shall also tend to reduce adverse effects to sensitive wetland resources:

- Cable installation activities shall not occur in any one location for typically more than a day.
- Only several work sites (based on the number of contractors) shall be affected at any one time throughout the proposed project study zone.
- Reclamation efforts within the disturbance corridor shall begin immediately and shall involve reestablishing site conditions. This shall involve grading to reestablish pre-construction contours, replacing topsoil in specified areas, and seeding with a sterile grass or native vegetation (as dictated by the individual project reclamation plans).

**BIO-19** The Applicant shall contain directional drilling equipment with sedimentation fences, certified weed-free hay bales, sand bags, water bars, and or baffles to contain bentonite around the drilling equipment and ensure protection for waters of the State, sensitive habitat, ditches, and wetlands.

The proposed project would not interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors or impede the use of native wildlife nursery sites. LGN has committed to avoid this adverse effect by adopting the recommended measures as part of the construction strategy of the proposed project to avoid substantial adverse effects on these resources.

*d. Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?*

*LESS THAN SIGNIFICANT IMPACT WITH MITIGATION INCORPORATED.* The proposed project could interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites. Based on the potential for these impacts, Mitigation Measures **BIO-9**, and **WQ-4**, and the following mitigation measure should be adopted to reduce these potential impacts to less than significant levels.

**BIO-20** The Applicant shall avoid directional drilling during the migrational period of special status anadromous species in streams that potentially support these species (see Mitigation Measure **BIO-3**). LGN shall avoid sensitive fish and wildlife migration corridors along streams and provide on-site biological monitors at these locations to address construction activities that may interfere with migration of anadromous special status fish species or wildlife species. No instream construction activities will be allowed during migrational periods within streams that support special status anadromous species, unless otherwise authorized by CDFG and/or NMFS.



LGN shall perform surveys to assess sensitive spawning and rearing areas along the proposed project line. This effort shall be conducted in consultation with CDFG and/or NMFS prior to construction. Spawning and rearing areas shall be identified and construction shall be avoided during critical periods. These surveys shall be conducted only in areas with the potential for special status fish species.

The potential for accidental bentonite seeps through frac-outs will be minimized through the measures specified in Mitigation Measure **WQ-4**. Spills of hazardous materials will be minimized through implementation of measures specified in the SWPPP (Mitigation Measures **BIO-5** and **WQ-3**).

- e. Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?*

*LESS THAN SIGNIFICANT IMPACT.* The Applicant has indicated that no trees are expected to be removed and that, if any variation is required that could adversely affect locally protected trees within the study zones, the project proponent would seek approval from the local regulatory office before proceeding. As such, any impacts should be less than significant. No mitigation measures are necessary.

- f. Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan?*

*LESS THAN SIGNIFICANT IMPACT WITH MITIGATION INCORPORATED.* The Applicant has indicated that no Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan apply to the proposed project. However, as the alignments will not be finalized until shortly before construction commences, impacts associated with aligning the project in or immediately adjacent to an area protected by a habitat conservation plan or natural community conservation plan must be mitigated to prevent impacts to biological resources. With the incorporation of Mitigation Measure **LU-2**, impacts would be reduced to less than significant levels.

## 4.6 Cultural Resources

### 4.6.1 Setting

Information used in preparing this section was derived from the Cultural Resources section of the PEA for the proposed project, which included numerous sources of data and research (LGN, 2002).

### San Francisco Bay Area — Archaeological and Historic Resources

Records and literature research conducted for the study zones for the San Francisco Bay Area revealed that some cultural resource studies/surveys, which vary in scope, have been previously conducted within these study zones. Review and analysis of this supplemental cultural resource site record information revealed that 140 previously recorded prehistoric, historic, and multi-component archaeological sites (those sites that contain both prehistoric and historic constituents) lie within predefined study zones. These include resources from the following three broad general outlines of California History: the Spanish, the Mexican, and the American periods. Resources include several adobes, small and large-scale ranching resources, historic buildings, Gold Rush-era camps and buildings, privies, and trash

scatters. Sensitive areas include the older downtown districts of San Francisco, Redwood City/Palo Alto, and San Jose.

Table 4-11 provides the type of resources found in the study zones. A total of 226 previously discovered resources lie within the San Francisco Bay study area. Of this number, 142 are historic, 78 are prehistoric, two are multi-component, and four were not identified in the literature search. The majority of prehistoric sites are prehistoric shell mounds generally found along the bay margin and along major drainages flowing into the bay. In some instances such as CA-SFR-114, these sites have been buried by fill and were found at depths exceeding 1.2 meters (5 feet). In addition to bay margin shell mounds, several buried sites have been located along major drainages, such as San Francisquito and Coyote Creeks and the Guadalupe River in the alluvial flood plain. Particularly sensitive areas for historic sites would be the San Francisco, Mountain View, Redwood City/Palo Alto, San Jose, Oakland, Oakland South, Fremont, and North San Jose study zones, which contain older downtowns and other historic districts. In addition to the recorded sites, at least nine historic buildings have been targeted as priority or future builds.

The downtown area of the San Francisco study zone in the area of Brannan, Howard, Market, and Broadway contains the majority of resources previously recorded in this study zone. Resources include historic buildings, Gold Rush-era camps, shipwrecks, and other sites associated with the development and subsequent settlement of San Francisco. A portion of the area used to be the old bayshore and wharf area that was subsequently filled in after the 1850s. As such, buried resources found at depths of 3 to 7 meters are common. In addition to previously recorded resources, six of the targeted buildings are designated on local inventories as historic buildings. Four of the resources are prehistoric sites, two of which are buried resources discovered during subsurface construction. Construction of tie-ins to historic buildings must conform to federal, State, or city regulation depending on the property owner.

**Table 4-11. Cultural Resources within the San Francisco Bay Area Study Zones**

Location	Description
San Francisco	Multiple recorded historic sites (P-133, P-163, P-166, SFR-27H, 33H, 40H, 42H, 43H, 44H, 46H, 49H, 51H, 53H, 55H, 61H, 62H, 83H, 90H, 94H, 95H, 96H, 104H, 115H, 116H, 122H, 123H, 127H, and 128H) and prehistoric sites (SFR-112, 113, and 114) in downtown San Francisco, near and around Market Street, and one prehistoric site near the Marine Corps Supply Annex (SFR-15).
Mid-Peninsula	No recorded resources in this study area.
Foster City	No recorded resources in this study area.
Redwood Cit	Several recorded prehistoric and historic sites including prehistoric sites along Adobe Creek (SCL-600, SCL-701); prehistoric sites along Oregon Ave (C-434, SCL-36, 596, 622, 700); prehistoric sites along Hwy. 101 (SCL-583, 439); and historic (P-707, 708, 709, 710, 711, 712, 899, 902, 904) and prehistoric (SCL-22) sites along the Central Expressway/RR. Additional sites include (prehistoric) SCL-1, 23, 413, 624, (historic) 381H, in Palo Alto and C-162 (unknown) in Mountain View.
Mountain View/ Palo Alto	Several recorded sites along the railways, prehistoric sites along San Francisquito Creek in Palo Alto (C-432, ISO-4, SCL-609) and Redwood Creek in Redwood City (C-360), and several sites along Waverly Ave in Palo Alto (SCL-556H, SCL-462H, SCL-391H, SCL-598, P-291).
Milpitas	Several recorded prehistoric sites along or near the Guadalupe River (SCL-5, 6, 7, 268, 276,359, 418, 447, 485, 492, 553, 559, 619). Additional prehistoric sites include SCL-28 and C-1415 north of Sunnyvale.
Sunnyvale	Several recorded prehistoric (C-1280, SCL-8) and historic (P-900, 901, P-905) resources including several sites along the railway, and prehistoric sites along (near) the Central Expressway in Sunnyvale (C-163, SCL-ISO-2, SCL-134, C-169).

San Jose	Several prehistoric (SCL-742, 461, 128) and historic (C-1456, P-646, 1118, 910, 912, 913, 916, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 730, SCL- 377H, 390H, 471H, 331H, 570H, 392H, 376H, 39H, 563H, 469H) sites and one prehistoric/historic site (SCL-443/H) in downtown San Jose. Several sites along the Guadalupe River include historic (C-1294, 1293, P-755, 802H, 879, 808, 809, 810, 811, 812, 813, 814, 815) and prehistoric (SCL-706) sites. A large prehistoric site (SCL-430) is near the San Jose Municipal Airport. There is a historic (SCL- 30H) site north of the University of Santa Clara. Historic sites (SCL-672H, 475H, 476H) are present along Hwy. 280 and Almaden Ave. Two prehistoric sites (SCL-690, C-1) are along the Southern Pacific RR line and W. Alma Ave. A major prehistoric site is (SCL-4) is northwest of Phelan Ave. past E. Alma Ave. between Monterey and Senter Roads. Historic sites along Coyote Creek are C-862, SCL-438H, and P-921. Historic sites near Hwy. 101 and E Julian are P-918, 730. Additional historic sites in San Jose include SCL-442H, C-1413. An additional prehistoric site in San Jose is SCL-478.
North San Jose	Several prehistoric (SCL-300, 302, 288, 566) and historic (P-0975, 0976, 0977, SCL-569H) sites along Alviso Road. Sites along Trimble Road include prehistoric (SCL-311H, 310H) and historic (SCL-288). Several prehistoric (SCL-675 and ISO-17) and historic (SCL-529H, P-735, 923, 924, 925, 926, 927, 928) sites along Coyote Creek. Sites along Hwy 17 and Hwy 237 interchange include prehistoric (SCL-677, 678) and historic (P-644) sites. Several prehistoric (SCL-58, 705, 627, 343, C-872) and one prehistoric/historic site (C-1416) near the intersection of Murphy and Lundy Avenue. Other sites in Milpitas include SCL-126, 38, and 528 (prehistoric). Other sites in San Jose include SCL-450, C-1414, 168, 447 (prehistoric).
Fremont	No recorded resources in this study area.
Hayward	Historic (P-1792, C-97, C-99, C-100) and prehistoric (C-448) sites along Mission Blvd. and Jackson St..
Oakland	Multiple sites along the 880 freeway (P-258, P-257, P-1788, P-256, P-243, P-244, P-16); and two prehistoric sites on Broadway near San Pablo (ALA-22), and on Harrison near the railway (ALA-314).
Emeryville	A major prehistoric site near the Berkeley Marina (ALA-390).
Pleasanton	Three prehistoric sites (C-1281, ALA 467, and S-4933) southwest of the Southern Pacific RR line.

Source: LGN, 2002

## Los Angeles Basin

### Archaeological and Historic Resources

The records and literature search resulted in cultural resource studies/surveys subsumed within the boundaries of the study zones. Review and analysis of this cultural resource information revealed that 76 previously recorded prehistoric, historic, and multi-component archaeological sites (those sites that contain both prehistoric and historic constituents) lie within the predefined study zones. The cultural resources associated with each study zone are described below and summarized in Table 4-12. As a consequence of the intensive urban development in the Los Angeles basin, many of the historic and prehistoric resources have been substantially disturbed. That notwithstanding, the majority of the prehistoric sites present in the proposed study zones consist of shellfish refuse deposits (shell middens), and in some cases may retain additional information that could augment what is already known about prehistoric coastal adaptations in the southern California region. A collection of historic structures and sites of varying historic and cultural significance exist within the Downtown Los Angeles Study Zone. In addition, many ethnographic accounts indicate that the Gabrielino Indian village of *Yang-Na* was located in the vicinity of present-day downtown Los Angeles. Although archaeological evidence of its existence is scant because of rapid development of the area during the 18th century, the potential exists for discovery of constituents related to this site.

### Paleontological Resources

The Los Angeles Basin presents low to moderate potential for fossil resources, particularly at depths of less than 5 feet. The Los Angeles Basin study zones are composed of predominantly Quaternary alluvium, with further distinctions noted as alluvium blended with channel deposits, basin deposits,

Pleistocene marine deposits, and riverbank formations. Beneath the alluvium is a stratum of Upper Tertiary (Pliocene) sediments and volcanic conglomerate. Neither of these strata is identified as fossil bearing deposits. Given the nature of the trenching and construction activities associated with the proposed project, encountering significant fossil deposits is unlikely. However, some portions of the Downtown Los Angeles Study Zone would have a higher potential for fossil remains given its Upper Miocene marine composition and the presence of the RanchoLabrean locality.

**Table 4-12. Cultural Resources within the Los Angeles Basin Study Zones**

Location	Description
Burbank/Glendale	No recorded resources in this study area.
Santa Monica	CA-LAN-1261H; Historic trash site from the Hancock House. CA-LAN-159; Historic trash site. L-3471; High paleontological potential in Wilshire/La Brea intersection.
Downtown L.A.	Two directly impacted historic sites (LA – 356, 357), multiple additional historic structures. One historic isolate (19-100301). Two unidentified prehistoric sites (L-1741, L-483)
LAX	CA-LAN-1018; Prehistoric shell midden. L-1975 (PA-89-38); shell fragments.
Long Beach	No recorded resources in this study zone.
Buena Park/Anaheim	No recorded resources in this study area.
Santa Ana	Multiple historic buildings, e.g., Santa Ana City Hall and the Santora Building.
Irvine	CA-ORA-174; Prehistoric shell midden, CA-ORA-1538; Prehistoric shell midden.
Pasadena	No recorded resources in this study zone.

## 4.6.2 Impacts and Mitigation Measures

### Impact Assessment

- a. *Would the project cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?*

**LESS THAN SIGNIFICANT IMPACT WITH MITIGATION INCORPORATED.** The project could cause substantial adverse changes in the significance of historical resources. Portions of historical resources could be damaged and/or destroyed as a result of construction related activities either from trenching for installation of the conduits, portals excavated for directional boring, or other ground-disturbing activities. However, with implementation of Mitigation Measures **CR-1** through **CR-3** (see below), these impacts would be reduced to less than significant levels.

**CR-1** LGN shall appoint a Cultural Resources Specialist (CRS), or specialists, prior to the start of project-related vegetation clearance, ground disturbance and grading, site or project mobilization, site preparation or excavation activities, implementation of erosion control measures, or movement or parking of heavy equipment or other vehicles onto or over unpaved or natural areas of the project. LGN shall submit to the CPUC, for review and approval, the name(s) and statement of qualifications for its designated cultural resources specialist, or specialists, who will be responsible for implementation of all cultural resources mitigation measures. The statement of qualifications must be sufficient to substantiate that the CRS meets the Secretary of the Interior’s proposed Historic Preservation Qualification Standards as published in the Federal Register.

Prior to the start of any project-related activity defined above, Looking Glass Networks shall confirm in writing to the CPUC that the approved designated CRS will be available at the start of the project and is prepared to implement the mitigation measures. Ten days prior to the termination or release of a designated CRS, Looking Glass Networks shall obtain the CPUC approval of the proposed replacement CRS.

**CR-2**

As soon as the exact routes and locations are known, and prior to construction, the CRS shall review all proposed ground-disturbing activities to determine if the proposed action would impact known or potential archaeological resources. If resources are determined to be in the area of the proposed project, the first level of mitigation shall be to redesign or reroute the activity to avoid impacts if the resource has not been the subject of a previous study or deemed eligible for the California Register of Historical Resources.

If redesign or avoidance is not feasible, testing of the resource to determine its significance and extent within the proposed project area will be required. A site-specific testing plan shall be submitted to the CPUC for review and approval prior to testing. The requirement shall be based on the feasibility of the testing (i.e., it may not be practical or feasible within a paved road that received heavy traffic), and the type of resource to be evaluated. Should the site be determined to be significant, or if testing/evaluation is not feasible, the site shall be avoided. Monitoring shall be required in those areas that are determined to be sensitive but where no resources are officially recorded. A Cultural Resources Technical Report shall be submitted to the CPUC for review and approval prior to the commencement of construction. If the area has not been surveyed within the past 10 years or the information is deemed inadequate, then an on-site field visit by the CRS will be undertaken by the CRS.

**CR-3**

Full-time archaeological monitoring shall occur during ground-disturbing activities at those areas identified as archaeologically sensitive as shown in Tables 4-11 and 4-12. Ground-disturbing activities include, at a minimum, trenching and boring. Monitoring is required within 500 feet of the boundaries of known cultural resources (including extant architectural features) and within 1,000 feet of the locations of modern and historic stream crossings.

Monitors must have 2 years of professional experience and be certified by the CPUC. Monitors shall be under the supervision of the CRS.

A detailed project specific protocol for monitoring shall be provided as an element of the Cultural Resources Technical Report, per **CR-2**, and shall include an Unanticipated Discoveries of Cultural Resources Plan. Following is a synopsis of what shall be included in the plan. If cultural resources are located during monitoring, monitors shall immediately halt construction within 250 feet of the find in non-urban area, and 50 feet of the find in urban areas, and notify the CRS. The CRS shall inspect the find. The CRS shall immediately notify the CPUC Environmental Monitor. If construction personnel discover a cultural resource in the absence of a monitor, construction within 250 feet of the find shall be halted and the environmental compliance officer contacted. Construction may begin once the CRS has completed necessary investigations and a written authorization to proceed has been issued by the CPUC.

*b. Would the project cause a substantial adverse change in the significance of a unique archaeological resource pursuant to §15064.5?*

*LESS THAN SIGNIFICANT IMPACT WITH MITIGATION INCORPORATED.* Possible substantial effects could occur to unknown archaeological (prehistoric and historic) deposits from trenching operations (construction-related impact, particularly open trenches and portals for directional boring within site-specific sensitive areas). The project encompasses areas known to have high potential for cultural resources and other features associated with prehistoric occupation and historic settlement. However, with implementation of Mitigation Measures **CR-1** through **CR-2** (see above), these impacts would be reduced to less than significant levels.

*c. Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?*

*LESS THAN SIGNIFICANT IMPACT WITH MITIGATION INCORPORATED.* Potential discovery or disturbance of unique paleontological resources during construction could result in a significant impact. Conduit installation within identified study zones would involve shallow excavations primarily in pre-disturbed soils within city street ROWs. Some street crossings and waterway crossings would require boring to greater depths. Because significant fossil discoveries can be made in areas designated as low, as well as moderate to high potential, excavation activities could possibly unearth significant paleontological resources. While this is unlikely, should such resources be encountered, this would be a significant impact. However, with implementation of Mitigation Measures **CR-3** (above) and **CR-4** (below), this impact would be reduced to less than significant levels.

**CR-4** In the event that fossil remains are encountered, either by the cultural resources monitor or by construction personnel, qualified paleontological specialists shall be contacted. Construction within 100 feet of the find in non-urban areas and 50 feet in urban areas shall be temporarily halted or diverted until a qualified vertebrate paleontologist examines the discovery. The paleontologist shall notify the appropriate agencies and the CPUC Environmental Monitor to determine procedures that would be followed before construction is allowed to resume at the location of the find. Significant fossils shall be salvaged through a program of excavation, analysis, and documentation approved by the CPUC and appropriate agencies. Fossil remains collected during the salvage program shall be cleaned, sorted, catalogued, and then deposited in a public, non-profit institution with research interests in the materials.

*d. Would the project disturb any human remains, including those interred outside of formal cemeteries?*

*LESS THAN SIGNIFICANT IMPACT WITH MITIGATION INCORPORATED.* Possible substantial effects may occur to human burials from trenching operations (construction-related impact, particularly open trenches and portals for directional boring within specified sensitive area). Trenching and other subsurface excavation in the areas known or suspected to contain burials or archaeological sites of the type known to possess burials (occupation sites) could disturb or destroy human remains, potentially causing significant impacts. This could include burials of prehistoric remains or non-Indian pioneers. However, with implementation of Mitigation Measure **CR-5**, this impact would be reduced to less than significant levels.

**CR-5** The Cultural Resources Technical Report, required pursuant to Mitigation Measure **CR-2**, shall include an Unanticipated Discoveries of Human Remains Plan. Following

is a synopsis of what shall be included in the plan. If human remains are found at any time during project-level vegetation clearance; ground disturbance and grading; site or project mobilization; site preparation or excavation activities; implementation of erosion control measures; or the movement of parking of heavy equipment or other vehicles onto or over the project surface, all work shall immediately stop within 250 feet of the find in non-urban areas and 100 feet of the find in urban areas. The CRS shall be notified immediately and shall, in turn, immediately notify the county coroner for the appropriate county in compliance with Section 7050.5 of the California Health and Safety Code and notify the CPUC Environmental Monitor. Upon the completion of compliance with all relevant sections of the California Health and Safety Code and the conditions of the Unanticipated Discoveries Plan for Human Remains, the CRS shall implement CR-2.

## 4.7 Geology and Soils

### 4.7.1 Setting

#### Geologic and Seismic Characteristics of the Study Zones

The San Francisco Bay Area and Los Angeles Basin regions have similar soil types, seismic regimes, and geology. The geology in both areas can vary widely from upland areas underlain by bedrock to alluvial flatlands. Both the San Francisco Bay Area and Los Angeles Basin contain active and potentially active faults and are considered regions of high seismic activity. Geologic and seismic hazards that could affect the proposed project include:

- Expansive soils,
- Slope instability (landsliding)
- Erosion
- Settlement
- Fault surface rupture (ground displacement)
- Groundshaking
- Ground failure

The Alquist-Priolo Earthquake Fault Zoning Act, Seismic Hazards Mapping Act, and California Building Code provide regulations and standards for development to reduce geologic hazards. The city and county jurisdictions presented in Table 4-13 of Section 4.10 (Land Use) are responsible for permitting and regulation under these State laws. These jurisdictions may have additional local standards and ordinances related to geologic and seismic hazards.

North trending mountain ranges and valleys of the Coast Range geomorphic province characterize the San Francisco Bay Region. The predominant feature is the geologic structural depression that forms the San Francisco Bay. The San Francisco Bay Area study zones in northern California are located primarily within the low-lying flatland regions surrounding the San Francisco Bay margin. The proposed metropolitan systems on the San Francisco peninsula are located in areas of marine sedimentary rock and artificial fill. The Coast Range Mountains in this region are composed of marine sedimentary and volcanic rocks that form the Franciscan Assemblage, which contains primarily greenstone (altered volcanic rocks), basalt, chert (ancient silica-rich ocean deposits), and sandstone that originated as ancient sea floor sediments. The alluvial plains that comprise the San Francisco Bay

margin are composed of Quaternary-aged (up to 2 million years old) sediments consisting of unconsolidated stream and basin deposits, intertidal deposits and artificial fills.

The southern portion of the project extends from the San Fernando Valley and eastern Santa Monica Mountains in Los Angeles County to the Santa Ana River plain in Orange County. The Santa Monica Mountains, associated with the Transverse Ranges of southern California, are an east-west trending coastal range forming the northern edge of the Santa Monica Bay. The Peninsular Ranges, a northwest-southeast trending range, extend from Mexico to the Los Angeles area, including the San Jacinto and Santa Ana Mountains southeast of the project area. Bedrock including sedimentary, igneous, or metamorphic rock is found in the mountains and hills. Sedimentary bedrock found in portions of the Santa Monica Mountains and Palos Verde Hills can be less stable and prone to landslides. Much of the project is located on generally flat, alluvial terrain with slopes of less than 10 percent, between these hills and mountain ranges. However, portions of the project would traverse the Baldwin Hills and Palos Verde formation and cross the Santa Monica Mountains at Beverly Glen Boulevard.

Both the San Francisco Bay Area and Los Angeles Basin study zones are located in areas containing numerous strike-slip faults including the Hayward fault in the San Francisco Bay Area, the Sierra Madre Fault Zone, San Jacinto, Elsinore and Newport-Inglewood faults in the Los Angeles Basin, and the San Andreas fault in both regions. Buried or blind thrust faults are thought to underlay much of the southern California region.

## **Soil Characteristics**

A wide variety of soils form on the alluvial plains bordering the San Francisco Bay. The United States Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS) defines these soil associations. Soils within the Project region are generalized within four major classifications. Depending on localized conditions, these general classifications are grouped into more specific soil types depending on location, localized climate and slope. The Santa Clara valley and the alluvial plains surrounding the San Francisco Bay are classified as deep alluvial plain and flood plain soils. These soils occupy the valleys in areas with higher rainfall and are considered productive when drained and fertilized. Soils occurring closer to the bay margin are generally dark-colored clays that have a high water table or are subject to overflow from flooding. Soils that occupy the extreme edge of the San Francisco Bay are characterized by a moderate to high content of soluble salts and are referred to as "alkali soils." Soils in northern San Mateo County, in the eastern portion of the city of San Francisco are classified as residual soils with a moderate depth to underlying bedrock. These are natural grassland soils occurring where annual rainfall is considered moderately high.

Soils throughout the Los Angeles Basin study zones also differ widely in origin, composition, and slope development. The formation of surficial soils depends on the topography, climate, local vegetation, and the material on which the soil profile is developed. Surficial deposits (including surface soils) within the low-lying plains consist of relatively recent sediments (sand, gravel, silt, and clay) formed by alluvial processes in streams and near coastal areas. The younger alluvial soils tend to be relatively unconsolidated and poorly cemented. Where these deposits are mainly low-density sand and partially saturated (shallow or perched groundwater) liquefaction potential is the highest. Construction on these soils can range from acceptable to very poor. Older alluvium (gravel and sand with much less silt and clay) generally occupies the higher valleys, having been uplifted by faulting. The older sediments tend to be more cemented and consolidated, leading to higher stability.



## 4.7.2 Environmental Impacts and Mitigation Measures

This impact assessment uses a qualitative analysis to address soil resources, geologic hazards and primary and secondary effects of earthquakes. Geologic and seismic hazards that, because of the conduit installation project, would expose people to injury and infrastructure to damage were considered in terms of an adverse impact to public safety. Loss of soil resources from erosion and sedimentation caused by the project were considered in terms of depletion or as having other adverse effects on soil resources.

- a. Would the project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, strong seismic ground shaking, seismic-related ground failure (including liquefaction), or landslides?*

**LESS THAN SIGNIFICANT IMPACT.** Both the San Francisco Bay Area and the Los Angeles Basin study zones will likely experience at least one major earthquake within the next 30 years. The San Andreas Fault Zone, Hayward fault, Sierra Madre Fault Zone, Elsinore fault and Newport-Inglewood fault have high potential for significant fault rupture, though the intensity of such an event will depend on the causative fault and the distance to the epicenter, the magnitude and the duration of shaking. In the San Francisco study zones, liquefaction potential is highest in the areas underlain by bay fills, “bay mud,” and saturated unconsolidated alluvium. In the Los Angeles Basin, liquefaction potential is highest in saturated, loosely consolidated sediments above a depth of 50 feet.

In the event of a regional earthquake, fault surface rupture groundshaking, and displacement of active or potentially active fault traces could affect pavement, utilities and roads, foundations, and buildings within the identified project study zones; it could also damage the fiber optic cable system and temporarily disrupt cable network operation. Damage could occur in the cable conduit if constructed on improperly engineered fills, unconsolidated, saturated alluvium or artificial fills.

The surface fault rupture impact severity would be reduced because the cable system design would incorporate elements that would allow the cable and other facilities to compensate for surface offsets, such as flexible joints in cable segments to offset. The impact severity of liquefaction ground failures would be reduced because the cable system would be placed primarily within existing roadways that contain engineered fills and could withstand adverse effects of liquefaction and other seismically induced ground failure. Given the unobtrusiveness of the installed conduit and the absence of surface structure, any damage due to an earthquake would not affect humans or the environment. The project would not increase the human or environment exposure to ground surface rupture, groundshaking, liquefaction, or other seismic ground failure, therefore, the impact is considered less than significant.

- b. Would the project result in substantial soil erosion or the loss of topsoil?*

**LESS THAN SIGNIFICANT IMPACT.** Soils throughout the identified study zones, many of which are already disturbed, vary widely with respect to their erosion hazard. Ground-disturbing activities, including removal of vegetation, can cause increased water runoff rates and concentrated flows and may cause accelerated erosion, with a consequent loss of soil productivity. Because the area of soil disturbance would be small within a given area, significant erosion would not likely occur. See Section 4.9 (Hydrology and Water Quality) for a discussion of mitigation measures that would reduce potential impacts associated with erosion to less than significant levels. Impact would be less than significant.

- c. Would the project be located on strata or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?*

**LESS THAN SIGNIFICANT IMPACT.** Soil settlement presents a hazard in areas with variable thickness of previous and new fills, as well as natural variations in the thickness and compressibility of the soils. Static or seismically induced settlement of soils could damage LGN system facilities over the life of the project. Structures impose additional weight on the soil and can induce settlement; therefore, settlement would typically be expected to adversely affect facility structures rather than the fiber cable. The impact of settlement is considered less than significant because proper engineering and construction techniques would eliminate this hazard and because any damage that does occur would not have an adverse physical effect on humans or the environment.

The susceptibility of land (slope) failure is dependent on the slope and geology, as well as the amount of rainfall, excavation, or seismic activities. Areas most susceptible to landsliding are characterized by steep slopes and include most existing landslides with substantial evidence of down-slope creep of surface materials. Landslides are least susceptible in areas that are topographically low alluvial fans and at the margin of the San Francisco Bay area. Most of the project areas are located in gently sloping and stable terrain within existing roads, sidewalks, parking lots, and railroad easements (in the Los Angeles Basin). Typically, applicable geotechnical engineering remedies were previously incorporated into the roadway design to reduce the likelihood of soil failure.

However, in a few areas the installation would require excavation into steep slopes, some of which are subject to mass movement (i.e., landsliding, debris flows). The areas of existing and potential instability would be avoided to the extent practicable. Geotechnical analysis would be conducted in areas where the proposed project route must pass through a potentially unstable area. Geotechnical recommendations may include cable rerouting or methods to stabilize the cable route in areas with unstable slopes. The proposed project itself would not increase the potential for slope failures and would not result in exposing people, property or the environment to additional slope stability hazards. Therefore, this impact is considered less than significant.

- d. Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code, creating substantial risks to life or property?*

**LESS THAN SIGNIFICANT IMPACT WITH MITIGATION INCORPORATED.** Some of the study zones pass through areas with soils that are considered expansive by the Uniform Building Code and by the U.S. Natural Resources Conservation Service. Expansive soils could be encountered in various locations underlain fine-grained alluvial soils containing primarily clay. Surface structures with foundations constructed in expansive soils would experience expansion and contraction depending on the season and the amount of surface water infiltration. The expansion and contraction could exert enough pressure on the structures to result in cracking, settlement, and uplift. The effects of expansive soils could damage foundations of aboveground structures, paved roads and streets, and concrete slabs. If not properly engineered, seasonal soil expansion and contraction could damage the cable system as well. Geotechnical recommendations to overcome the adverse effects of expansive soils would be incorporated into the final design and construction of the cable system. While it is unlikely that any damage that could occur would have an adverse physical effect on humans or the environment, implementation of Mitigation Measure **GEO-1** (see below) would reduce this risk to a less than significant impact.

**GEO-1** Prior to the start of construction of a surface structure with a foundation, the Applicant shall provide to the CPUC:

- Schedules for or proof of geophysical testing to be conducted on the soils at the structure pad sites to determine the geophysical properties of the soils.
- Certification of the structure footprint design under the Uniform Building Code Seismic Zone Criteria by a Registered Professional Engineer.
- Certification of engineered fill placement and compaction plans by a Registered Professional Engineer.

*e. Would the project have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?*

*NO IMPACT.* No septic tanks or alternative wastewater disposal systems will be installed as part of the proposed project. No impacts would occur.

## 4.8 Hazards and Hazardous Materials

### 4.8.1 Setting and Introduction

The proposed project study zones include lands utilized for a variety of purposes including: residential housing, commercial uses, oil production and storage, industrial activities, and minor agriculture. Almost all segments of the proposed project would be located in existing roads or utility ROWs. The potential for encountering ground contamination is higher in industrial areas than in residential areas. Land use activities associated with hazardous substances along the alignment include industrial, oil production, and commercial (such as dry cleaners, automotive repair and gas stations) uses. Given the size of the study zones and the diversity of areas covered, there is the potential for project activities to encounter many types of hazardous waste generators, leaking tank sites, and toxic spills.

Existing and past land use activities are used as potential indicators of hazardous material storage and use. For example, many industrial sites, historic and current, are known or suspected to have soil or groundwater contamination by hazardous substances. Properties devoted to oil production, including oil fields and processing facilities, are commonly known or suspected to have environmental contamination from petroleum hydrocarbons, heavy metals, and chlorinated solvents. Other hazardous materials sources include leaking underground tanks in commercial and industrial areas, surface runoff from contaminated sites and migration of contaminated groundwater plumes to conduit installation areas, and pesticides and herbicides in the soil of past agricultural lands. In addition to contaminants found in soils, groundwater is subject to contamination associated with underground storage tanks and other sources.

The primary issues of concern related to contamination are: (a) worker health and safety and (b) public exposure to hazardous materials during construction and waste handling. Potential impacts on air quality and traffic during waste transport must also be considered. Where encountered, contaminated soil may qualify as hazardous waste and thus require handling and disposal according to local, State, and federal regulations. These hazardous materials concerns would apply to the study zones in both the San Francisco Bay Area and the Los Angeles Basin.

Naturally occurring methane gas (CH<sub>4</sub>) and hydrogen sulfide gas (H<sub>2</sub>S) have been known to migrate into shallow geology deposits in certain areas of the Southern California region. In 1985, an explosion occurred in the basement of a commercial retail outlet store (Ross Dress for Less) in Los Angeles caused by methane accumulation through subsurface seepage. Methane and hydrogen sulfide can

follow fissures or leak from improperly abandoned oil wells to the surface or near-surface strata from deeper oil producing formations. Areas above known petroleum resources are of particular concern, including central Los Angeles (Fairfax District), Huntington Beach, and Brea. Methane may be trapped under impervious surfaces where concentrations can cause explosion or hazardous breathing conditions. Hydrogen sulfide can be toxic to humans at elevated concentrations. Excavations in the Los Angeles Basin study zones may experience pockets of accumulated methane or hydrogen sulfide gas at shallow depths.

## 4.8.2 Environmental Impacts and Mitigation Measures

This impact analysis focuses on potential effects of hazardous materials or waste that may be encountered during project construction or that might be associated with the proposed project. The evaluation was made in light of project plans, applicable regulations and guidelines, and the effectiveness of any remedial measures.

*a. Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?*

*LESS THAN SIGNIFICANT IMPACT.* The proposed project would not require long-term storage, treatment, disposal, or transport of significant quantities of hazardous materials; however, small quantities of hazardous materials would be stored, used, and handled during construction of lateral builds. These relatively small quantities would be below reporting requirements for hazardous materials business plans and would not be considered to pose public health and safety hazards through release of emissions or risk of upset. The hazardous materials that would be used are small volumes of petroleum hydrocarbons and their derivatives (e.g., gasoline, oils, lubricants, and solvents) required to operate the construction equipment and bentonite used for boring lubrication. These materials would generally be used with excavation equipment, generators, and other construction equipment and would be contained within vessels engineered for safe storage. Due to the rate of installation, storage of significant quantities of these materials at the construction site is not anticipated. Rather, tender vehicles would most likely provide fuel and lubricant to construction equipment on a daily basis and would be mobilized from an off-site location. Spills during on-site fueling of equipment or an upset condition (e.g., puncture of a fuel tank through operator error or slope instability), could result in a release of fuel or oils into the environment, potentially affecting sensitive waterways along the project alignment.

Materials proposed for long-term use in conduit could include polyethylene and polyvinyl chloride (PVC). Polyethylene is a common inert plastic that does not pose an environmental hazard. PVC is also an inert material commonly used in the residential community for sprinkler piping. While vinyl chloride, a known toxic substance, is used in the production of PVC piping, once fabricated PVC does not pose an immediate environmental hazard. Degradation of some PVC products (such as window blinds) has been shown to release lead dust and chlorine to the environment over time, given exposure to sunlight. However, PVC would be buried in more than 3 feet of soil and would not be exposed to environmental conditions that would result in substantial degradation. Overall, the impacts are considered less than significant and mitigation measures are not necessary.

- b. Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?*

**LESS THAN SIGNIFICANT IMPACT WITH MITIGATION INCORPORATED.** Subsurface hazardous materials may be encountered during underground construction activities, such as trenching. The construction team could encounter unexpected materials (e.g., soil contaminated with petroleum products) that are considered hazardous waste. Procedures of proper handling and disposal of hazardous waste are established by federal, State, and local regulations. LGN's contractors will be trained in the handling of such materials prior to construction.

Material excavated from conduit installation in public ROWs would be loaded into dump trucks and hauled away for disposal. As explained in Section 4.8.1, the potential exists for contaminated soil or groundwater to be encountered during excavation or dewatering activities during conduit installation. If encountered, contaminated materials may be classified as a hazardous waste, a designated waste, or a special waste, depending on the type and degree of contamination. Disposal of excavated soils as standard demolition waste or use as fill for another construction site could result in a significant impact if those soils were contaminated. This would be considered a significant impact. For this reason, the project could result in disposal of materials that pose a hazard to people, or animal or plant populations, in the vicinity of unknown but potentially present site contamination, and mitigation is recommended below.

In the Los Angeles Basin study zones, conduit installation would be constructed within pre-disturbed city streets and excavation would be expected to be up to 5 feet deep. Boring under intersections or waterways could be deeper. Pockets of hydrogen sulfide or methane gas could be encountered during excavation activities near operating or historic oil production fields. Methane can be explosive in elevated concentrations but exhibits no toxicity. Hydrogen sulfide is toxic at elevated concentrations and can be fatal if encountered during excavation or drilling activities. The permissible exposure limit for hydrogen sulfide is 10 parts per million (ppm). The National Institute of Occupational Safety and Health (NIOSH) assigns the immediate danger to life and health (IDLH) concentration for hydrogen sulfide to be 300 ppm. However, the naturally occurring underground gases are generally encountered at depths of 40 feet and deeper (although more shallow occurrence is possible) where concentrations of hydrogen sulfide can exceed 3,000 ppm.<sup>3</sup> Therefore, the likelihood of encountering gases in shallow trenches or borings would be slight.

Implementation of Mitigation Measures **HAZ-1** through **HAZ-3** (see below), which are designed to ensure proper labeling, storage, handling, and use of hazardous materials, to prepare a hazardous materials management/spill prevention plan and to prepare a health and safety plan, would reduce potentially significant impacts to less than significant levels.

**HAZ-1** LGN shall ensure proper labeling, storage, handling, and use of hazardous materials in accordance with best management practices and the Occupational Safety and Health Administration's HAZWOPER requirements. LGN shall ensure that all employees are properly trained in the use and handling of these materials and that each material is accompanied by a material safety data sheet deemed adequate by the CPUC. Additionally, any small quantities of hazardous materials stored temporarily in staging areas shall be stored on pallets within fenced and secured areas and protected from exposure to weather. Incompatible materials shall be stored separately, as appropriate. To avoid unexpected

<sup>3</sup> Concentrations of 3,300 ppm H<sub>2</sub>S were found 56 feet below ground surface at Pico Boulevard and San Vicente Boulevard during sampling activities conducted for the Los Angeles Rail Rapid Transit Project Mid City segment in 1992.

releases of hazardous materials, LGN shall employ individuals trained in accordance with the Occupational Safety and Health Administration's HAZWOPER requirements. Additionally, LGN shall submit a written plan to the CPUC for approval prior to construction outlining how to respond if hazardous materials are unexpectedly encountered. The plan shall specify identification, handling, reporting, and disposal of hazardous materials. All hazardous waste materials removed during construction shall be handled and disposed of by a licensed waste disposal contractor and transported by a licensed hauler to an appropriately licensed and permitted disposal or recycling facility. LGN shall require in its contracts that all contractors meet federal, State, and local requirements.

**HAZ-2**

A Hazardous Materials Management/Spill Prevention Plan shall be developed and submitted to the CPUC for review and approval prior to construction. The purpose of the plan is to provide on-site construction managers, environmental compliance monitors, and regulatory agencies with a detailed description of hazardous materials management, spill prevention, and spill response/cleanup measures associated with the construction of project elements. The primary objective of the plan is to prevent the spill of hazardous materials; the plan shall be given to all contractors working on the project. At least one copy shall be on-site with the construction manager at all times. The plan shall include the following:

- Definition of staging areas where refueling, storage, and maintenance of equipment will take place, Such areas shall not be located within 100 feet of drainages or any other body of water, or wetlands or riparian areas, to reduce the potential of contamination by spills.
- During construction activities, equipment shall be maintained and kept in good operating conditions to reduce the likelihood of line breaks and leakage.
- Fluids drained from machinery during services at staging areas shall be collected in leak-proof containers and disposed of at appropriate disposal or recycling facilities.
- No refueling or servicing shall be done without absorbent material (e.g., absorbent pads, mats, socks, pillows, and granules) or drip pans underneath to contain spilled material.
- Definition of spill control and countermeasures, including but not limited to employee spill prevention/response training and a description of onsite cleanup equipment (e.g., absorbent pads, mats, socks, granules, etc.) available at staging and construction sites.
- Resource agency notification and documentation procedures.

**HAZ-3**

LGN shall prepare a Health and Safety Plan that includes a contingency plan for hazardous materials and waste operations. Before site activities could proceed, LGN shall submit the plan to the CPUC for review and approval, and once approved shall send the plan to each agency with jurisdiction. The Health and Safety Plan, applicable to all excavation activities, shall establish policies and procedures to protect workers and the public from potential hazards posed by hazardous wastes. The plan shall be prepared according to federal and California OSHA regulations for hazardous waste site Health and Safety Plans. This Health and Safety Plan shall also provide for proper storage and/or disposal of any contaminated soils that meet the definition of a hazardous waste. Such a protocol could include off-site treatment of contaminated materials or disposal at an appropriate landfill.

The Health and Safety Plan shall also include contingencies for encountering methane and hydrogen sulfide, including immediate work stoppage if odors are detected. For such a possibility, hydrogen sulfide monitoring equipment shall be available on the

construction sites during boring operations at locations within 500 feet of operating or historic oil production fields. If any odors are detected, work shall stop immediately and the area shall be monitored by the Site Health and Safety Officer using a calibrated hydrogen sulfide meter.

*c. Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?*

*LESS THAN SIGNIFICANT IMPACT WITH MITIGATION INCORPORATED.* No hazardous long-term emissions would be generated by the proposed project. During construction of the project, project personnel would follow all institutional controls governing the storage, transportation, use, handling, and disposal of hazardous materials. LGN would not locate a staging area near an existing or proposed school. Mitigation Measures **HAZ-1** through **HAZ-3** are recommended to ensure minimal risk of an accidental release of hazardous materials, substances, or wastes, as described in 4.8.2(b) above. Therefore, potential impacts to existing proposed schools are less than significant.

*d. Would the project be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?*

*LESS THAN SIGNIFICANT IMPACT WITH MITIGATION INCORPORATED.* As required by Mitigation Measure **HAZ-4** (see below), a database list search would be performed for all proposed new laterals prior to construction in order to locate areas that may be viewed as potential areas of hazardous materials contamination or locations where it is permitted to perform various hazardous waste activities.

**HAZ-4** A list search of known State and federal hazardous waste sites and leaking underground tanks within 1,000 feet of the excavation shall be conducted prior to construction to identify high-risk areas, where a moderate or high potential for encountering contaminated soil or groundwater may exist during shallow (6 feet or less) excavations.

State and federal laws regulate the manner in which contamination and hazardous conditions are investigated and remediated. Contaminated sites can be expected along some of the project routes, particularly in highly urbanized areas. The U.S. Environmental Protection Agency and California Environmental Protection Agency maintain databases listing known contaminated sites. The databases include information on leaking underground storage tanks; hazardous waste generators; treatment, storage, and disposal facilities; sites known to have contaminated groundwater; and sites currently undergoing remediation or corrective action. Coordination with waste disposal activities with local regulatory agencies would be needed along the project routes. To ensure that excavated materials are analyzed for contamination and that excavated contaminated soils would be disposed of according to policies of the accepting landfill and applicable regulations, Mitigation Measures **HAZ-5** and **HAZ-6** (see below) would be implemented.

**HAZ-5** During construction, LGN shall monitor for odors and analyze excavated material with a photo-ionization detector to determine the potential for soil contamination and the need for specialized soil-handling procedures to reduce excavation impacts in areas of suspected contamination.

**HAZ-6** Within high-risk areas identified by Mitigation Measure **HAZ-5**, excavations shall be observed by a trained health and safety professional equipped with an organic vapor analyzer (or other appropriate methods for detecting anticipated contaminants) to screen excavated materials and ensure worker safety. If contamination is encountered, excavated

soils shall be segregated and sampled relative to the profiling requirements of the accepting landfill, and disposed of in accordance with policies of the accepting landfill and applicable regulations.

In addition to implementation of Mitigation Measure **HAZ-5** and **HAZ-6**, Mitigation Measures **HAZ-1** through **HAZ-3** (see above) are recommended to reduce the potential impacts from possible exposure of the public or environment to hazardous materials sites to less than significant levels.

*e. For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?*

*NO IMPACT.* As discussed in Section 3, the proposed project involves the installation of fiber optic cable and conduit underground. There would be no resultant structures that would impair airport operations or endanger other land uses. Any helicopter operations would be undertaken in accordance with Federal Air Administration safety and flight regulations. As a result, the proposed project would have no impact on the safety of aircraft activity at airports near the proposed project laterals.

*f. For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?*

*NO IMPACT.* As discussed above, the proposed project would not result in a safety hazard for people working or residing in the surrounding area. No trenches or holes would be left open overnight, and no equipment or construction materials would be left accessible to the public once construction activities cease for the day.

*g. Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?*

*LESS THAN SIGNIFICANT IMPACT WITH MITIGATION INCORPORATED.* The proposed project would involve the operation of heavy machinery. Emergency response times may be affected in areas where the proposed routes are adjacent to or within road ROWs. However, Mitigation Measure **TRA-2** (see Section 4.16, Transportation and Traffic), which has a provision requiring specific measures to ensure that impacts to emergency service providers are less than significant, is recommended. No additional mitigation measures are necessary.

*h. Would the project expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?*

*NO IMPACT.* The proposed project would not be constructed near wildlands and there would be no impact due to exposure of people or structures to a significant risk of loss, injury, or death attributable to wildland fires.



## 4.9 Hydrology and Water Quality

### 4.9.1 Setting

As described in Section 3.3 of the Project Description, the proposed project would install fiber optic conduit lines in public ROWs within urbanized areas of the San Francisco Bay Area and Los Angeles Basin. The proposed project has been divided into study zones, with 15 study zones located within 4 counties in the San Francisco Bay Area and 9 study zones within 2 counties in the Los Angeles Basin.

#### San Francisco Bay Area

The identified study zones exist within several major watersheds within the San Francisco Bay Area, including the East Bay Plains, Santa Clara Valley, San Pablo Bay, Suisun Bay, and Santa Cruz Mountains. Surface waters potentially affected by the proposed project include creeks and drainages surrounding San Francisco Bay (Bay). Major surface water drainages that occur within the study zones include substantial creeks that drain the Oakland and Hayward Hills, the Santa Clara Valley, and the Santa Cruz Mountains. Additionally, the project study zones include numerous flood control channels and drainages that drain stormwater runoff from urban areas.

Water quality of the Bay is affected by freshwater inflows, tidal mixing, urban and construction runoff, municipal, and industrial discharges, and atmospheric deposition. The water quality parameters of greatest importance to the Bay include salinity, temperature, pH, nutrients, dissolved oxygen, coliform bacteria, trace contaminants, and suspended particulates (sediment). Suspended particulates include microorganisms and inorganic matter that may result in excessive turbidity, discoloration, or other nuisance conditions. Sediment resuspension, tidal mixing, primary productivity, and particulate loadings (erosion and sediment transport) from riverine and runoff sources influence suspended particulate concentrations in the Bay. Fine particulates are transported and deposited throughout the Bay with heaviest deposits in quiescent, lower energy areas of the Bay. Suspended particulate levels attenuate the transmission of light in Bay waters. At elevated concentrations, particulates may deposit on the benthic layer, smothering bottom-dwelling organisms or causing anaerobic conditions. Construction activities that disturb land cover and expose soil layers can be substantial sources of suspended particulates. The Lower San Francisco Bay is impaired (pursuant to Section 303(d) of the Clean Water Act) due to elevated levels of copper, mercury, nickel, exotic species, diazinon, PCBs, chlordane, DDT, Dieldrin, Dioxin, and Furan. These elevated levels are attributed to inputs from the following sources: atmospheric deposition, ballast water, industrial and municipal point sources, natural sources, nonpoint sources, resource extraction, and potential unknown sources.

#### Los Angeles Basin

Surface water resources in the Los Angeles area include creeks, rivers, lakes, and flood control and water storage reservoirs. Since the climate of southern California is predominantly arid, many of the natural rivers and creeks are intermittent or ephemeral, drying up in the summer or flowing only in response to precipitation. Annual rainfall amounts vary depending on elevation and proximity to the coast. The City of Los Angeles averages less than 16 inches per year. However, due to urban landscape watering, some waterways such as Ballona Creek and the Los Angeles River maintain a perennial flow.

The Los Angeles Basin study zones are located primarily in the watersheds of the Los Angeles, San Gabriel, and Santa Ana Rivers and Ballona Creek. The Los Angeles-San Gabriel Hydrologic Unit

covers most of Los Angeles County and small areas of Ventura County. The rivers drain much of the San Gabriel Mountains to the Pacific Ocean. Ballona Creek drains central portions of the City of Los Angeles within the Santa Monica Bay Hydrologic Unit. The Dominguez Channel watershed drains a small area within Torrance to the San Pedro Bay. The Santa Ana River Hydrologic Unit encompasses much of Orange County and the San Bernardino Mountains. Flood control measures such as concrete linings have reduced much of the rivers' natural riparian habitat. Numerous smaller creeks and flood control channels exist within these watersheds. However, the project area is highly urbanized with substantial storm sewer systems in place.

Water quality in the Los Angeles area is significantly affected by stormwater runoff, although point source discharges from wastewater treatment plants and industrial facilities contribute somewhat to reduced quality. Several large wastewater treatment plants operate on the coast including the City of Los Angeles Bureau of Sanitation, the Sanitation Districts of Los Angeles County, and the Orange County Sanitation District. The State Water Resources Control Board (SWRCB) has compiled a list of impaired water bodies pursuant to Section 303(d) of the Clean Water Act. The list includes the Santa Monica Bay as well as the Los Angeles, San Gabriel, and Santa Ana Rivers. The source for much of the pollutants identified in the Section 303(d) list is nonpoint source stormwater runoff. Pollutants range from trash and pathogens to petroleum hydrocarbons and pesticides. Eroded soil from construction sites can enter storm drains and increase sediment loads in local creeks and rivers.

## Regulatory Context

As part of the federal Clean Water Act, the U.S. Environmental Protection Agency has established regulations under the National Pollutant Discharge Elimination System (NPDES) program to control direct stormwater discharges. The State Water Control Board (SWRCB) regulates and administers the NPDES permitting program in California. The SWRCB regulates discharges of storm water runoff associated with construction activity pursuant to SWRCB Order No. 99-08-DWR, NPDES General Permit No. CA S000002. Construction activities of 5 acres or more acres are subject to the permitting requirements (Phase II requirements for permitting areas between 1 and 5 acres will not be fully implemented until early 2003). The NPDES permit requirements include the development and implementation of a Stormwater Pollution Prevention Plan (SWPPP) with appropriate Best Management Practices (BMPs) to minimize the discharge of pollutants from the site.

The U.S. Army Corps of Engineers (USACE) regulates discharges or fill in waters of the United States under Section 404 of the Clean Water Act. Any "Section 404 permit" from the USACE would require a Section 401 Water Quality Certification from the applicable Regional Water Quality Control Board to ensure the proposed activity will not violate State water quality standards. Local agencies may also have applicable water quality standards and regulations.

### 4.9.2 Environmental Impacts and Mitigation Measures

#### *a. Would the project violate any water quality standards or waste discharge requirements?*

*LESS THAN SIGNIFICANT IMPACT WITH MITIGATION INCORPORATED.* The proposed project would involve the installation of fiber optic conduits to underground facilities within previously developed urban ROWs or attaching the conduits to existing aerial structures such as bridges. The proposed project would have the potential to adversely impact water quality during project construction. These potential impacts would be related to the following subjects, which are discussed individually below:

- Stormwater discharges
- Non-stormwater discharges
- Accidental spills of hazardous materials
- Spills/fluid-seepage associated with directional boring

**Stormwater Discharges.** Project construction would involve the disturbance of soils. Without proper precautions, soil erosion rates could be accelerated, particular during storm events, as a result of:

- Grading, trenching and directional boring activities (including the action of leaving exposed trenches)
- Material laydown and storage (e.g., spoils stockpiling)
- Vehicular traffic and vehicle storage

If sediment-laden or polluted runoff enters nearby waterways, it could increase turbidity, increase channel siltation, reduce water quality, and degrade aquatic habitat. The potential for increased erosion resulting from stormwater runoff would represent a significant environmental effect. However, with the implementation of Mitigation Measures **WQ-1** and **WQ-2** presented below, this potential impact would be reduced to a less than significant level.

**WQ-1** The Applicant shall manage construction-induced sediment and excavated spoils in accordance with the requirements of the State Water Resources Control Board (SWRCB) National Pollution Discharge Elimination System (NPDES) permit for stormwater runoff associated with construction activities. Prior to the onset of construction, the Applicant shall complete a Stormwater Prevention Pollution Plan (SWPPP) that outlines Best Management Practices (BMPs) to control discharges from construction areas. The SWPPP shall conform to the standards set forth by the SWRCB and shall be approved by the CPUC and the applicable Regional Water Quality Control Boards. The SWPPP shall ensure that, at a minimum, the following requirements are met:

- Sediment generated on the project site shall be retained using structural drainage controls.
- No construction-related materials, wastes, spills or residues shall be discharged from the project.
- The staging of construction materials, equipment, and excavation spoils shall be performed outside of drainages.
- Excavated or disturbed soil shall be kept within a controlled area surrounded by a perimeter barrier that may entail silt fence, hay bales, straw wattles, or a similarly effective erosion control technique that prevents the transport of sediment from a given stockpile. In addition, all stockpiled material shall be covered or contained in such a way that eliminates offsite runoff from occurring.
- Upon completion of construction activities, excavated soil shall be replaced and graded so that post-construction topography and drainage matches pre-construction conditions.
- Surplus soil shall be transported from the site and disposed of appropriately.

**WQ-2** Prior to the commencement of construction within a particular study zone, the Applicant shall provide the CPUC with an outline of the BMPs that will be employed during construction within that study zone. The BMPs shall be approved by the CPUC prior to construction to ensure that the potential for discharge into surface waters during construction is minimized.

**Non-Stormwater Discharges.** The proposed project would involve trenching and excavation in varied terrain. Depths of excavation would be typically 4 feet with variable depths dependent upon cover and land use. Groundwater levels would vary considerably throughout the project areas and depths of excavation would vary with each project component. Potentially, in some locations, excavation could

encounter saturated soil conditions that require dewatering. Dewatering would result in the temporary drawdown of the localized water table. Extracted groundwater may be of poor quality and, if discharged to surface waters, could degrade water quality.

The potential to degrade water quality through the non-storm discharge of sequestered groundwater would be considered a significant impact. However, with the implementation of Mitigation Measure **WQ-3**, this impact would be reduced to a less than significant level.

**WQ-3** Prior to non-storm discharges into surface waters, the Applicant shall provide the CPUC with documentation of obtaining all necessary and applicable approvals, including the following:

- NPDES general construction permit and SWPPP that describes how non-storm discharges would not adversely impact human health or the environment with the implementation of appropriate BMPs to eliminate or reduce potential pollutants. These BMPs may include, but not necessarily be limited to, the utilization of settling ponds or screens to reduce suspended sediment loads, or if necessary due to contaminated groundwater, use of on-site treatment systems for contaminant removal prior to discharge.
- Section 404 permit from the U.S. Army Corps of Engineers for discharges into waters of the United States (pursuant to Section 404 of the Clean Water Act).
- Water Quality Certification (pursuant to Section 401 of the Clean Water Act) from the applicable Regional Water Quality Control Board.
- The CPUC shall review and approve the non-storm discharge BMPs to ensure impacts are minimized to the maximum extent feasible.

**Accidental Release of Hazardous Materials.** Hazardous materials associated with the proposed project construction would include substances such as gasoline and diesel fuels, engine oil, and hydraulic fluids. Accidental spills of these substances could contaminate drainages, soils, wetlands, and other environmentally sensitive areas. Although the potential for such a spill and release would be low, it nonetheless would represent a potentially significant impact. However, with the incorporation of Mitigation Measure **HAZ-2** (see Section 4.8, Hazards and Hazardous Materials), this impact would be reduced to a less than significant level.

**Directional Drilling Fluid Seepage.** The Applicant has proposed to install fiber optic conduits under sensitive or flowing streams by boring under the streams or attaching the conduit to existing bridges. During the boring operation, drilling fluid would be used to lubricate the bore and help remove cuttings from the borehole. Although unlikely, the drilling fluid mixture could seep to the surface within a stream channel. Accidental seepage of bentonite (material used to refill directional bore) could happen if bores encounter fractures in the underlying rock, and drilling fluids pressures are great enough to force the material to surface. Additionally, drilling fluid could be spilled from the fluid circulation system and enter local drainages. Although the likelihood of such a spill occurring would be low, it would nonetheless represent a potentially significant impact. However, with implementation of Mitigation Measure **WQ-4** (see below), this impact would be reduced to a less than significant level.

**WQ-4** Prior to the commencement of directional boring activities near streams, the Applicant shall provide the CPUC a Frac-out Contingency Plan (Plan). The Plan shall outline procedures the Applicant would put in place to minimize the potential for impacts to sensitive resources, and shall document the containment and cleanup equipment that would be present for use at staging areas and construction sites. Specific requirements shall include requiring boring crews to strictly monitor drilling fluid pressures, no nighttime boring unless absolutely required, retaining containment equipment on site, monitoring water quality downstream of the site, and immediately stopping work if a

seep into a stream is detected. All bentonite seeps into waters of the State or sensitive habitat shall be immediately reported to the LGN resource coordinator, the CPUC, and the appropriate resource agencies. In addition, the Plan shall outline the clean up and reporting measures that would be utilized in the event of a frac-out. The CPUC shall approve the Plan prior to the onset of directional boring activities and the CPUC shall monitor the activities to ensure that all facets of the Plan are carried out.

- b. Would the project substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there should be a net deficit in aquifer volume or a lowering of the local groundwater table level (i.e., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)?*

*LESS THAN SIGNIFICANT IMPACT.* The proposed project would not substantially deplete groundwater supplies or interfere with groundwater recharge. Depth of the conduit typically would not exceed 48 inches, except under special circumstances that would not deplete groundwater. Potential dewatering of saturated soils would not occur often and, when required, would not cause a substantial drawdown of any local water table. No significant impacts to aquifers would occur.

- c. Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on-site or off-site?*

*LESS THAN SIGNIFICANT IMPACT WITH MITIGATION INCORPORATED.* During project construction, there would be the potential for stormwater runoff from the construction site to transport upland spoils into streams, which could result in temporary increases in turbidity and sedimentation in watercourses downstream of the project. Excessive sediment in the water column (increased turbidity) could reduce channel capacity and alter drainage characteristics that could result in substantial erosion. However, this impact would be reduced to a less than significant level with the implementation of Mitigation Measures **WQ-1** and **WQ-2** (described above).

Disturbing the geomorphic characteristics and stability of the channel bed and banks (by trenching or excavating across a stream or river) may initiate chronic erosion in natural channels. Removing riparian vegetation along drainages or disturbing the bed or bank of channels could weaken streambank structure and increase susceptibility to erosion. A significant impact could occur if large amounts of riparian vegetation were removed, if the channel bed and banks on several crossings of one channel or within one watershed were disturbed, or if sensitive crossing sites that have been disturbed mechanically were further disturbed by high-flow events before they were stabilized. The potential for substantial erosion to result in a river or stream from project construction represents a significant impact. However, with the implementation of Mitigation Measure **WQ-5** (see below), this impact would be reduced to a less than significant level.

**WQ-5** The Applicant shall not engage in any trenching or excavation activities across flowing or sensitive waterways. The Applicant shall install the fiber optic conduits to aerial structures (such as bridges) or use directional boring techniques to install the conduits under the waterway. If construction is required across a dry stream or waterway, the Applicant shall provide the CPUC documentation of those activities prior to the start of construction. The CPUC shall review and approve the plans to ensure the activities would not permanently alter existing drainage patterns or substantially disturb existing vegetation such that increased erosion could occur. Prior to construction, the Applicant shall also provide the CPUC with any necessary permits from other regulatory agencies that are required for construction in a channel.

- d. Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on-site or off-site?*

*LESS THAN SIGNIFICANT IMPACT WITH MITIGATION INCORPORATED.* With the implementation of Mitigation Measure **WQ-5** (described above), the proposed project would not significantly alter a drainage in a manner that would result in an increased chance of flooding.

- e. Would the project create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems?*

*LESS THAN SIGNIFICANT IMPACT.* Construction activities could redirect storm flows during a rain event but due to the short duration and size of construction activities, and the built-up environment that most construction activities would take place in (i.e., urban centers with well developed stormwater drainage systems), the proposed project would not cause or contribute to an exceedance of a stormwater drainage system. Impacts would be less than significant.

- f. Would the project otherwise substantially degrade water quality?*

*LESS THAN SIGNIFICANT IMPACT WITH MITIGATION INCORPORATED.* With the implementation of Mitigation Measures **WQ-1** through **WQ-5**, the proposed project would not substantially degrade water quality. Impacts would be less than significant.

- g. Would the project place housing within a 100-year flood hazard area, as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?*

*NO IMPACT.* The proposed project would not include the construction or placement of housing within a 100-year floodplain. No impact would occur.

- h. Would the project place within a 100-year flood hazard area structures that would impede or redirect flood flows?*

*LESS THAN SIGNIFICANT IMPACT.* The proposed fiber optic conduits would be buried over 4 feet below the surface. Construction activities would not occur in such a way that they would impede or redirect flood flows. Impacts would be less than significant.

- i. Would the project expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam?*

*LESS THAN SIGNIFICANT IMPACT.* As described in 4.9.2(h) above, the proposed project would not cause or contribute to the failure of a dam or levee. In addition, as the project does not include structures that would house or accommodate people, it would not expose people or structures to a significant risk of loss, injury, or death involving flooding. Impacts would be less than significant.

- j. Would the project contribute to inundation by seiche, tsunami, or mudflow?*

*NO IMPACT.* The proposed project would not contribute to inundation by seiche, tsunami, or mudflow. No impact would occur.

## 4.10 Land Use

### 4.10.1 Setting

As described in Section 3.3.1 of the Project Description, the proposed project study areas are located in the San Francisco Bay Area and the Los Angeles Basin, and are categorized into 15 study zones within 4 counties in northern California and 9 study zones in 2 counties in southern California. In the San Francisco Bay Area, the study zones roughly follow the U.S. Highway 101 between downtown San Francisco and downtown San Jose on the west and south side of the Bay. On the east side of the Bay, study zones are located in Fremont, Hayward, Oakland, Emeryville, and Pleasanton. In the Los Angeles Basin, study zones are scattered roughly along the Interstate 405 corridor and along Wilshire Boulevard into downtown Los Angeles in the western part of the Basin, located in Pasadena in the northeast, and roughly along Interstate 5 in Orange County down into Irvine.

Land Uses throughout the study zones vary substantially, ranging from residential to commercial to heavy industrial. Table 4-13 provides the land use patterns, jurisdictions, and types of sensitive uses within each study zone.

Applicable federal, State, and local land use plans, policies, and standards govern and regulate the proposed project. Federal agencies, which may have jurisdiction over the project, include:

- The U.S. Army Corps of Engineers
- U.S. Environmental Protection Agency
- U.S. Fish and Wildlife Service
- National Marine Fisheries Service

The CPUC is charged with regulating certain investor-owned public utilities within the State of California, including fiber optic facilities. As previously noted, the CPUC is the Lead Agency for CEQA review of the proposed project and prior to approval, the CPUC would ensure that the project would comply with applicable State and federal regulations, and would require the Applicant to comply with local regulations to the extent feasible. Other State agencies that may have direct jurisdiction over the project include:

- California Department of Fish and Game
- California Department of Transportation
- California Department of Conservation
- California Regional Water Quality Control Board
- Department of Toxic Substances Control
- State Historic Preservation Office

**Table 4-13. Land Use Characteristics of Study Zones**

Study Zone	Land Use Patterns	Jurisdictions	Sensitive Land Uses
<b>SAN FRANCISCO BAY AREA STUDY ZONES</b>			
<b>San Francisco North</b>	High-density commercial Heavy industrial High-density combined residential/commercial Public use	County of San Francisco City of San Francisco	Parks/open space Residential housing

**Table 4-13. Land Use Characteristics of Study Zones, cont.**

<b>Study Zone</b>	<b>Land Use Patterns</b>	<b>Jurisdictions</b>	<b>Sensitive Land Uses</b>
<b>San Francisco South</b>	Commercial Multi-family residential Public use	County of San Francisco City of San Francisco	Parks/open space Residential housing Schools
<b>Mid-Peninsula</b>	Commercial Single and multi-family residential Public use	County of San Mateo City of Brisbane City of South San Francisco City of San Bruno City of Millbrae	Parks/open space Residential housing Schools
<b>Foster City</b>	Commercial Light industrial Single-family residential Public use	County of San Mateo City of San Mateo City of Foster City City of Belmont City of San Carlos	Parks/open space Residential housing
<b>Redwood City</b>	Heavy and light industrial Commercial Single and multi-family residential Public use	County of San Mateo County of Santa Clara City of Redwood City City of Atherton City of Menlo Park City of Palo Alto City of East Palo Alto	Parks/open space Residential housing Hospitals Schools
<b>Mountain View/ Palo Alto</b>	Single family residential Commercial Light industrial	County of Santa Clara City of Palo Alto City of Mountain View City of Sunnyvale	Parks/open space Residential housing Schools
<b>Milpitas</b>	Heavy and light industrial Commercial Single and multi-family residential Public use	County of Santa Clara City of Mountain View City of Sunnyvale City of Santa Clara City of Milpitas	Parks/open space Residential housing Hospitals Schools
<b>Sunnyvale</b>	Light industrial Commercial Single and multi-family residential Public use	County of Santa Clara City of Sunnyvale City of Cupertino	Parks/open space Residential housing Hospitals Schools
<b>North San Jose</b>	Heavy and light industrial Commercial Single and multi-family residential Public use Agriculture	County of Santa Clara City of Sunnyvale City of Milpitas City of Santa Clara City of San Jose	Parks/open space Residential housing Hospitals Schools
<b>San Jose</b>	Heavy and light industrial High-density commercial Single and multi-family residential Public use Agriculture	County of Santa Clara City of San Jose City of Santa Clara	Parks/open space Residential housing Hospitals Schools



**Table 4-13. Land Use Characteristics of Study Zones, cont.**

<b>Study Zone</b>	<b>Land Use Patterns</b>	<b>Jurisdictions</b>	<b>Sensitive Land Uses</b>
<b>Emeryville</b>	Heavy and light industrial Commercial Single and multi-family residential Public use	County of Alameda City of Emeryville City of Berkeley City of Oakland	Parks/open space Residential housing Schools
<b>Oakland</b>	Light industrial High-density commercial High-density combined residential/commercial Public use	County of Alameda City of Oakland	Parks/open space Residential housing Schools
<b>Hayward</b>	Heavy and light industrial Commercial Single and multi-family residential Public use	County of Alameda City of Hayward	Parks/open space Residential housing Schools
<b>Fremont</b>	Commercial Single and multi-family residential Public use	County of Alameda City of Fremont	Parks/open space Residential housing Schools Hospitals Cemeteries Places of worship
<b>Pleasanton</b>	Commercial Single and multi-family residential Public use	County of Alameda City of Pleasanton	Parks/open space Residential housing Schools Hospitals
<b>LOS ANGELES BASIN STUDY ZONES</b>			
<b>Burbank/ Glendale</b>	Light industrial Commercial Single and multi-family residential Public use	County of Los Angeles City of Burbank City of Glendale City of Los Angeles	Parks/open space Residential housing Schools Hospitals Cemeteries
<b>Pasadena</b>	Commercial Single and multi-family residential Public use	County of Los Angeles City of Pasadena City of Altadena	Parks/open space Residential housing Schools Hospitals
<b>Santa Monica/ Beverly Hills</b>	Light- to high-density commercial Multi-family residential High-density combined residential/commercial Public use	County of Los Angeles City of Santa Monica City of Beverly Hills	Parks/open space Residential housing Schools Hospitals Cemeteries
<b>Downtown Los Angeles</b>	High-density commercial Multi-family residential High-density combined residential/commercial Public use	County of Los Angeles City of Los Angeles	Parks/open space Residential housing Schools Hospitals

**Table 4-13. Land Use Characteristics of Study Zones, cont.**

Study Zone	Land Use Patterns	Jurisdictions	Sensitive Land Uses
<b>LAX / El Segundo</b>	Heavy and light industrial Light- to high-density commercial Single and multi-family residential Public use	County of Los Angeles City of Los Angeles City of El Segundo City of Culver City City of Inglewood City of Gardena City of South Gate	Parks/open space Residential housing Schools Hospitals Cemeteries
<b>Long Beach</b>	Heavy and light industrial Light- to high-density commercial Single and multi-family residential Public use	County of Los Angeles City of Lakewood City of Long Beach	Parks/open space Residential housing Schools Hospitals
<b>Buena Park/ Anaheim</b>	Light industrial Commercial Single and multi-family residential Public use	County of Orange City of Fullerton City of Buena Park City of Anaheim	Parks/open space Residential housing Schools Hospitals
<b>Santa Ana</b>	Commercial Single and multi-family residential Public use	County of Orange City of Anaheim City of Orange City of Garden Grove City of Santa Ana City of Irvine	Parks/open space Residential housing Schools Hospitals
<b>Irvine/ Costa Mesa</b>	Heavy and light industrial Commercial Single and multi-family residential Public use	County of Orange City of Irvine City of Fountain Valley City of Costa Mesa	Parks/open space Residential housing Schools Hospitals Places of worship

## 4.10.2 Environmental Impacts and Mitigation Measures

### a. *Would the project physically divide an established community?*

**LESS THAN SIGNIFICANT IMPACT.** The proposed project is not expected to physically divide the established communities in which the fiber optic conduits would be installed. Conduits would primarily be installed in previously disturbed ROWs, utility corridors, or in existing buildings. LGN has estimated that installation could be performed at a rate of 85 to 300 feet per day for street trenching and directional drilling and up to 2,600 feet per day for dirt trenching. The majority of land use conflicts would occur during this construction period. Assuming a reasonable scenario, it can be expected that construction disturbances would occur for approximately two weeks at any given point along the proposed alignment. This would result in daily disturbances of noise, dust, equipment emissions, possible odors, traffic congestion, limited parking, and potential access detours. Refer to Sections 4.4 (Air Quality), 4.12 (Noise), 4.14 (Public Services), 4.15 (Recreation), 4.16 (Transportation and Traffic), and 4.17 (Utilities and Service Systems) for potential impacts associated with these disturbances.

Although the exact alignments of the fiber optic conduits would not be finalized until shortly before construction commences, because the alignments would be buried underground or within buildings, any physical division of established communities would be the result of construction and would therefore be temporary and short-term in nature. Disruptions causing substantial inconveniences are not expected to occur for more than a few hours at a time. Overall, impacts would be considered adverse but less than significant and no mitigation measures are necessary.

- b. Would the project conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?*

*LESS THAN SIGNIFICANT IMPACT WITH MITIGATION INCORPORATED.* Local jurisdictions are required by the State of California to prepare general plans identifying goals and policies that will guide development within their respective jurisdictions. Policies and goals regarding the land use resources are addressed in these general plans. The general plans, specific plans, and zoning ordinances of the cities and counties along the proposed alignments would apply to the project.

As the installation of the fiber optic conduit would largely occur in existing transportation ROWs, which are generally exempt from land use zoning, it is unlikely that the project would conflict with the land use designations or zoning described for the project areas in the applicable general plans, specific plans, and/or zoning ordinances. However, installation of conduit in areas outside of transportation ROWs or existing utility corridors may or may not be considered allowable uses depending on the applicable plans and policies of the jurisdiction. Depending on the applicable plans and policies of the jurisdiction, it may be necessary for the Applicant to obtain encroachment permits, conditional use permits, or other discretionary approvals as necessary from those agencies with jurisdiction over the streets and open spaces along the proposed routes to construct and operate a fiber optic conduit.

The Applicant shall identify and comply with applicable local plans, policies, and regulations, including obtaining necessary local zoning permits and meeting conditions for approval prior to commencing construction activities, written documentation and evidence of compliance must be provided to ensure that any land use impacts associated with conflicts are reduced to less than significant levels. Implementation of Mitigation Measure **LU-1** would ensure that this would occur.

**LU-1** Prior to construction within each study zone, LGN shall submit to the CPUC written documentation, including evidence of review by the appropriate public works, planning, and/or community development agency for the applicable jurisdictions. This documentation shall include the following:

- Site plan showing the dimensions and location of the finalized alignment;
- Evidence that the project meets all necessary requirements;
- Evidence of compliance with design standards;
- Copies of any necessary permits or conditions of approval;
- Records of any discretionary decisions made by of the applicable jurisdictions.

- c. Would the project conflict with any applicable habitat conservation plan or natural community conservation plan?*

*LESS THAN SIGNIFICANT IMPACT WITH MITIGATION INCORPORATED.* The project is not expected to conflict with any applicable habitat conservation plans or natural community conservation plans. While the exact alignments of the project have not been finalized, the general routes for the alignments have been chosen to avoid any habitat or natural community conservation plans. However, as the proposed project may have a significant impact if it would jeopardize a biological resource protected by a habitat conservation or natural community conservation plan, impacts associated with aligning the project in or immediately adjacent to an area protected by a habitat conservation plan or natural community conservation plan must be mitigated to prevent impacts to biological resources. With the incorporation of the mitigation proposed below, impacts would be reduced to less than significant levels.

**LU-2** If a habitat conservation plan or natural habitat conservation plan area is encountered alongside or in the path of a proposed alignment, plan area boundaries shall be flagged and construction activities will not be permitted within the boundaries. If construction activities within the boundaries are unavoidable, prior to construction, the Applicant shall submit to the CPUC written documentation of consultation with the appropriate agencies associated with the plan area regarding the permits and practices that the Applicant would acquire or implement before, during, and after construction.

## 4.11 Mineral Resources

For all urban development, it is important that land use decisions be made with full recognition of the natural resources of the area. Depending on the region, these natural resources can include geologic deposits of moderate to high value, as well as minerals used in manufacturing processes and in the production of construction materials. Aggregate (crushed rock) and limestone used in concrete production are examples of common extractable mineral resources. The past several decades of urban expansion in the San Francisco Bay Area and in Southern California have reduced or restricted access to significant mineral resources, resulting in a net loss of potential resources.

### 4.11.1 Regulatory Context

To limit new development in areas containing significant mineral deposits, the California State Legislature enacted the Surface Mining and Reclamation Act (SMARA) in 1975. SMARA calls for the State Geologist to classify the lands within California based on mineral resource availability. Although California has a wide range of mineral commodities, it was recognized that regionally produced construction materials, like sand, gravel, and crushed stone, are used in every urban area of the State, and require special classification data. The California Division of Mines and Geology (CDMG) has classified urbanizing lands according to the presence or absence of significant sand, gravel, or stone deposits that are suitable as sources of aggregate (LGN, 2002). These areas, called Mineral Resource Zones (MRZ), are described below:

**SZ:** Scientific Resource area containing unique or rare occurrences of rocks, minerals, or fossils that are of outstanding scientific significance.

**MRZ-1:** Mineral Resource Zone where adequate information indicates that no significant mineral deposits are present or likely to be present.

**MRZ-2:** Mineral Resource Zone where adequate information indicates that significant mineral deposits are present, or there is a high likelihood for their presence and development should be controlled.

**MRZ-3:** Mineral Resource Zone where the significance of mineral deposits cannot be determined from the available data.

**MRZ-4:** Mineral Resource Zone where there is insufficient data to assign any other MRZ designation.

The classification system is intended to ensure that through appropriate lead agency policies and procedures, mineral deposits of statewide or regional significance are considered in agency decisions. Each lead agency develops and adopts mineral resource management policies to incorporate into its planning policies, based on the mineral classification data provided. Most of the comprehensive mineral resource mapping in California has been completed for urban areas where there is a high probability that converted land uses would be incompatible with mining.

## 4.11.2 Setting

### San Francisco Bay Area

Looking Glass Networks' project components would be installed within identified study zones in already disturbed public road ROWs. Most of the alignment is on land classified as MRZ-1. Certain portions of the project in the South Hayward and Fremont Study Zones are classified as MRZ-3. The study zones do not include encompass any areas designated as SZ or MRZ-2.

### Los Angeles Basin

The Los Angeles Basin includes several areas designated as MRZ-2, predominantly in the eastern San Fernando Valley and along the San Gabriel, Los Angeles, and Santa Ana Rivers. The Los Angeles Basin study zones do not encompass these areas. Most of the Los Angeles Basin study zones are located in designated MRZ-1 areas.

## 4.11.3 Environmental Impacts and Mitigation Measures

### San Francisco Bay Area

- a. Would the project result in the loss of availability of a known mineral resource classified MRZ-2 by the State Geologist that would be of value to the region and the residents of the State?*

*NO IMPACT.* Most of the San Francisco Bay Area study zones are located within areas designated as MRZ-1, indicating that no significant mineral deposits are present or likely to be present. Though sections of the South Hayward and Fremont Study Zones are classified as MRZ-2, conduit installation would occur within existing road ROWs, which would not be available for surface mining in any case. Therefore, the installation of the project components would not reduce the availability of any minerals that could be of value to the region or State. Impacts would not occur.

- b. Would the project result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?*

*NO IMPACT.* There are no mineral resource recovery sites within any of the project study zones whose operations or availability would be affected by the installation of the project components. Impacts would not occur.

### Los Angeles Basin

- a. Would the project result in the loss of availability of a known mineral resource classified MRZ-2 by the State Geologist that would be of value to the region and the residents of the State?*

*NO IMPACT.* Because potential conduit installation within the Los Angeles Basin study zones would be in city streets exclusively, the proposed project would not lead to any additional disturbance or obstruction of mineral resources. Impacts would not occur.

- b. Would the project result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?*

*NO IMPACT.* There are no operational mineral resource recovery sites within any of the project study zones whose operations or availability would be affected by the installation of the project components.

## 4.12 Noise

### 4.12.1 Introduction

#### Noise Descriptors and Principles

Noise is defined as unwanted sound. Sound, traveling in the form of pressure waves from a source, exerts a sound pressure level, which causes a force registered by the human ear as sound. Human response to noise is subjective and can vary greatly from person to person. Factors that can influence individual response include the intensity, pitch, and persistence of the noise; the amount of background noise present prior to the intruding noise; and the nature of work or human activity that is exposed to the noise. The adverse effects of noise include interference with concentration, communication, and sleep. At the highest levels, noise can induce hearing damage.

Environmental noise is usually measured in A-weighted decibels (dBA). The decibel (dB) is a unit of sound energy intensity, and the A-weighted scale corrects the sound levels to correlate to the frequency response of the typical human ear. Environmental noise typically fluctuates over time, and different types of noise descriptors are used to account for this variability. Some of the noise descriptors commonly used are:

- $L_{max}$ , maximum noise level, the highest instantaneous noise level observed in a given period.
- $L_{eq}$ , energy-equivalent noise level (or “average” noise level), the equivalent steady-state continuous noise level which, in a stated period of time, contains the same acoustic energy as the time-varying sound level that actually occurs during the same period.
- DNL, the day-night average noise level, is a weighted 24-hour noise level. With the DNL descriptor, average noise levels (in terms of  $L_{eq}$ ) between 10:00 p.m. and 7:00 a.m. are adjusted upward by 10 dBA to take into account the greater annoyance of nighttime noise as compared to daytime noise. The DNL noise descriptor is commonly used in establishing noise exposure guidelines for specific land uses.

Some representative noise sources, their associated dBA noise levels, and corresponding effects are provided in Figure 4-1.

The decibel scale is logarithmic rather than linear. On a logarithmic scale, the sum of two noise sources of equal loudness is 3 dBA greater than the noise generated by just one of the noise sources (e.g., a noise source of 60 dBA plus another noise source of 60 dBA generate a composite noise level of 63 dBA). The noise level experienced at a receptor depends on the distance between the source and the receptor, presence or absence of noise barriers and other shielding features, and the amount of noise attenuation (lessening) provided by the intervening terrain. For a linear source, such as moving traffic on a road, noise decreases by about 3.0 to 4.5 dBA for every doubling of the distance from the roadway. For point or stationary noise sources, such as a piece of stationary construction equipment, a noise reduction of 6.0 to 7.5 dBA is experienced for each doubling of the distance from the source.

Figure 4-1: Effects of Noise on People

[Click here to view](#)

## **Noise Sources and Levels**

Transportation sources, such as automobiles, trucks, trains, and aircraft, are usually the principal sources of noise in an urban environment. Along major transportation corridors noise levels can reach 80 DNL, while along arterial streets noise levels typically range from 65 to 70 DNL. Industrial and commercial equipment and operations also contribute to the ambient noise environment in their vicinities.

## **Sensitive Receptors**

Some land uses are considered more sensitive to elevated noise levels because of the purpose and intent of the use. Places where people are meant to sleep or places where quiet is necessary for the function of the land use are normally considered sensitive. For instance, residential areas, schools, places of worship, and hospitals are more sensitive to noise than are commercial and industrial land uses.

### **4.12.2 Setting**

#### **San Francisco Bay Area and Los Angeles Basin**

##### **Noise Sources and Levels**

LGN's proposed conduit installation in the San Francisco Bay Area and Los Angeles Basin would primarily occur within public roadway ROWs where the noise environment is primarily dominated by traffic noise. Along such areas, the ambient noise level varies depending upon traffic volumes, the average vehicle speed, and percentage of heavy trucks in the vehicle mix.

##### **Sensitive Receptors**

New conduit installation associated with LGN's construction would occur within public road ROWs of the San Francisco Bay Area and the Los Angeles Basin. Many different types of land uses lie along these ROWs, including possibly residences, schools, places of worship, and hospitals.

##### **Regulatory Context**

As a general matter, federal and State agencies regulate mobile noise sources. Federal and State agencies regulate noise from mobile sources by establishing and enforcing noise standards on vehicle manufacturers.

Local agencies regulate stationary noise sources and the activities of the general public to the extent that they could disturb neighboring land uses. Local agencies regulate noise through three principal means: enforcement of local noise ordinances; implementation of noise-related policies contained in the local general plan, such as noise/land use compatibility guidelines; and enforcement of noise-related conditions on permit approvals. Tables 4-14 and 4-15 summarize the limitations on construction hours and construction equipment noise standards that would be applicable in the various jurisdictions in which the project would be constructed. The information in these tables is compiled from a survey of local noise ordinances, local general plans, and conditions of approval typically imposed by the affected local jurisdictions for building or grading permits.



**Table 4-14. Construction-Related Noise Standards for San Francisco Bay Area Study Zones**

Jurisdiction	Construction-Hour Limitations	Construction Equipment Standards
San Francisco	<ul style="list-style-type: none"> <li>7:00 a.m. to 8:00 p.m. for buildings or structures, unless special permit issued by Director of Public Works.</li> </ul>	<ul style="list-style-type: none"> <li>Powered Construction Equipment: no more than 80 dBA at 100 feet;</li> <li>Impact Tools and Equipment: equip with intake and exhaust mufflers.</li> <li>Pavement Breakers and Jackhammers: equip with acoustically attenuating shields or shrouds.</li> </ul>
Brisbane	<ul style="list-style-type: none"> <li>7:00 a.m. to 7:00 p.m.</li> </ul>	<ul style="list-style-type: none"> <li>86 dBA at the property line.</li> </ul>
South San Francisco	<ul style="list-style-type: none"> <li>8:00 a.m. to 8:00 p.m., weekdays.</li> <li>9:00 a.m. to 8:00 p.m. Saturdays.</li> <li>10:00 a.m. to 6:00 p.m. on Sundays and holidays.</li> </ul>	None.
San Bruno	<ul style="list-style-type: none"> <li>7:00 a.m. to 10:00 p.m.</li> </ul>	<ul style="list-style-type: none"> <li>85 dBA at 100 feet.</li> </ul>
Millbrae	<ul style="list-style-type: none"> <li>7:30 a.m. to 7:00 p.m., Monday through Friday; and</li> <li>8:00 a.m. to 6:00 p.m. on weekends and holidays.</li> </ul>	None.
Foster City	None.	None.
Belmont	<ul style="list-style-type: none"> <li>8:00 a.m. to 5:00 p.m., weekdays.</li> <li>10:00 a.m. to 5:00 p.m., Saturdays.</li> <li>No construction on Sundays and holidays.</li> </ul>	None.
San Carlos	<ul style="list-style-type: none"> <li>7:00 a.m. to 6:00 p.m., weekdays.</li> <li>9:00 a.m. to 5:00 p.m., weekends or holidays.</li> </ul>	None.
Redwood City	<ul style="list-style-type: none"> <li>8:00 a.m. to 7:00 p.m., weekdays.</li> <li>No construction on weekends and holidays</li> <li>Posting of construction site notice that identifies the hours and maximum levels allowed for construction under the ordinance.</li> </ul>	<ul style="list-style-type: none"> <li>Individual item of construction equipment used in or near a residential district: no more than 110 dBA at 25 feet.</li> <li>Construction work at any point outside of the construction site property plane: no more than 110 dBA within any part of a residential district.</li> </ul>
Atherton	<ul style="list-style-type: none"> <li>8:00 a.m. to 5:00 p.m., weekdays.</li> <li>No construction on weekends or holidays.</li> </ul>	None.
Menlo Park	<ul style="list-style-type: none"> <li>8:00 a.m. to 6:00 p.m., weekdays.</li> <li>No construction on weekends or holidays.</li> </ul>	None.
San Mateo County	<ul style="list-style-type: none"> <li>7:00 a.m. to 6:00 p.m., weekdays.</li> <li>9:00 a.m. to 5:00 p.m., Saturday.</li> <li>No construction on Sundays and holidays.</li> </ul>	<ul style="list-style-type: none"> <li>Property-line standard: no more than 80 dBA.</li> </ul>
Palo Alto	<ul style="list-style-type: none"> <li>8:00 a.m. to 8:00 p.m., weekdays;</li> <li>9:00 a.m. to 8:00 p.m., Saturdays.</li> <li>10:00 a.m. to 6:00 p.m., Sundays and holidays.</li> <li>Posting of construction site notice that identifies the hours and maximum levels allowed for construction under the ordinance.</li> </ul>	<ul style="list-style-type: none"> <li>Individual equipment: no more than 110 dBA at 25 feet; and</li> <li>Construction site boundary: no more than 110 dBA.</li> </ul>
Mountain View	<ul style="list-style-type: none"> <li>7:00 a.m. to 6:00 p.m., weekdays.</li> <li>No construction on weekends.</li> </ul>	None.
Sunnyvale	<ul style="list-style-type: none"> <li>7:00 a.m. to 6:00 p.m., weekdays.</li> <li>8:00 a.m. to 5:00 p.m., Saturdays.</li> <li>No construction on Sundays or holidays.</li> </ul>	None.
Cupertino	<ul style="list-style-type: none"> <li>7:00 a.m. to 8:00 p.m., weekdays.</li> <li>9:00 a.m. to 6:00 p.m., weekends.</li> <li>No construction on holidays.</li> </ul>	<ul style="list-style-type: none"> <li>87 dBA at 25 feet from equipment</li> <li>80 dBA at adjacent property boundaries</li> <li>No work allowed within 750 feet of a residential area Saturdays, Sundays, and holidays.</li> </ul>
Santa Clara	<ul style="list-style-type: none"> <li>7:00 a.m. to 6:00 p.m., weekdays.</li> <li>9:00 a.m. to 6:00 p.m., Saturdays.</li> <li>No construction on Sundays or holidays.</li> </ul>	None.
San Jose	<ul style="list-style-type: none"> <li>7:00 a.m. to 7:00 p.m., Monday through Saturday.</li> <li>No construction on Sunday or holidays.</li> </ul>	<ul style="list-style-type: none"> <li>Use available noise suppression devices and properly maintain and muffle loud construction equipment.</li> </ul>
Milpitas	<ul style="list-style-type: none"> <li>7:00 a.m. to 7:00 p.m., any day except holidays.</li> <li>No holiday construction work.</li> <li>Construction of utility-type service facilities is exempted from the hours limitations.</li> </ul>	None.
Santa Clara County	<ul style="list-style-type: none"> <li>7:00 a.m. to 7:00 p.m., Monday through Saturday.</li> <li>No construction on Sunday or holidays.</li> </ul>	None.

**Table 4-14. Construction-Related Noise Standards for San Francisco Bay Area Study Zones, cont.**

Jurisdiction	Construction-Hour Limitations	Construction Equipment Standards
Fremont	<ul style="list-style-type: none"> <li>7:00 a.m. to 7:00 p.m., weekdays.</li> <li>9:00 a.m. to 6:00 p.m., weekends.</li> </ul>	None.
Hayward	<ul style="list-style-type: none"> <li>7:00 a.m. to 7:00 p.m., Monday through Saturday.</li> <li>10:00 a.m. to 6:00 p.m., Sunday and holidays.</li> </ul>	None.
Oakland	<ul style="list-style-type: none"> <li>7:00 a.m. to 7:00 p.m., weekdays.</li> <li>9:00 a.m. to 8:00 p.m., weekends.</li> </ul>	<ul style="list-style-type: none"> <li>Weekdays (7:00 a.m. to 7:00 p.m.):</li> <li><math>L_{max}</math> of 80 dBA at residential properties; and</li> <li><math>L_{max}</math> of 85 dBA at commercial/industrial properties.</li> <li>Weekends (9:00 a.m. to 8:00 p.m.):</li> <li><math>L_{max}</math> of 65 dBA at residential properties; and</li> <li><math>L_{max}</math> of 70 dBA at commercial/industrial properties.</li> </ul>
Emeryville	None	None.
Berkeley	<ul style="list-style-type: none"> <li>7:00 a.m. to 7:00 p.m., weekdays.</li> <li>9:00 a.m. to 8:00 p.m., weekends and holidays.</li> </ul>	<ul style="list-style-type: none"> <li>75 dBA in R1 and R2 residential zones, weekdays</li> <li>60 dBA in R1 and R2 residential zones, Saturdays, Sundays, and holidays</li> <li>80 dBA in R3 and above residential zones, weekdays</li> <li>65 dBA in R3 and above residential zones, Saturdays, Sundays, and holidays</li> </ul>
Pleasanton	<ul style="list-style-type: none"> <li>8:00 a.m. to 6:00 p.m., Monday through Friday.</li> </ul>	None.
Alameda County	<ul style="list-style-type: none"> <li>7:00 a.m. to 7:00 p.m., weekdays.</li> <li>8:00 a.m. to 5:00 p.m., weekends.</li> </ul>	None.

**Table 4-15. Construction-Related Noise Standards for Los Angeles Basin Study Zones**

Jurisdiction	Construction-Hour Limitations	Construction Equipment Standards
Burbank	<ul style="list-style-type: none"> <li>Nighttime within a residential zone or within a 500-foot radius of a residential zone.</li> </ul>	None.
Pasadena	<ul style="list-style-type: none"> <li>7:00 a.m. to 9:00 p.m., weekdays and Saturdays, within a residential district or within a 500-foot radius of a residential district.</li> </ul>	<ul style="list-style-type: none"> <li>85 dBA at 100 feet.</li> </ul>
Santa Monica	<ul style="list-style-type: none"> <li>7:00 a.m. to 8:00 p.m., weekdays.</li> <li>9:00 a.m. to 8:00 p.m., Saturdays.</li> </ul>	None.
Glendale	<ul style="list-style-type: none"> <li>7:00 a.m. to 7:00 p.m., weekdays and Saturdays, within a residential zone or within a 500-foot radius of a residential zone.</li> <li>No construction permitted on Sundays and holidays.</li> </ul>	None.
Los Angeles	<ul style="list-style-type: none"> <li>7:00 a.m. to 9:00 p.m., weekdays.</li> <li>8:00 a.m. to 6:00 p.m., Saturdays and national holidays, within 500 feet of residential properties.</li> <li>No construction permitted on Sundays.</li> </ul>	<ul style="list-style-type: none"> <li>75 dBA at 50 feet from the construction equipment, when technically feasible.</li> </ul>
Beverly Hills	<ul style="list-style-type: none"> <li>8:00 a.m. to 6:00 p.m., weekdays and Saturdays.</li> <li>No construction permitted on Sundays and public holidays.</li> </ul>	None.
Culver City	<ul style="list-style-type: none"> <li>8:00 a.m. to 7:00 p.m., weekdays.</li> <li>10:00 a.m. to 5:00 p.m., weekends and holidays.</li> </ul>	None.
El Segundo	<ul style="list-style-type: none"> <li>7:00 a.m. to 6:00 p.m., weekdays and Saturdays.</li> <li>No construction permitted on Sundays and federal holidays.</li> </ul>	<ul style="list-style-type: none"> <li>65 dBA plus 5 dBA at residential property lines; 65 dBA plus 8 dBA at commercial and industrial property lines.</li> </ul>
Inglewood	<ul style="list-style-type: none"> <li>7:00 a.m. to 8:00 p.m., any day, within a residential zone or within a 500-foot radius of a residential zone.</li> </ul>	<ul style="list-style-type: none"> <li>75 dBA at the nearest property line.</li> </ul>
Gardena	<ul style="list-style-type: none"> <li>7:00 a.m. to 6:00 p.m., weekdays.</li> <li>9:00 a.m. to 6:00 p.m., Saturdays.</li> <li>No construction permitted on Sundays or holidays.</li> </ul>	None.
South Gate	None.	None.
Long Beach	<ul style="list-style-type: none"> <li>7:00 a.m. to 7:00 p.m., weekdays and federal holidays.</li> <li>9:00 a.m. to 6:00 p.m., Saturdays.</li> <li>No construction permitted on Sundays.</li> </ul>	None.
Lakewood	<ul style="list-style-type: none"> <li>7:00 a.m. to 7:00 p.m., weekdays and Saturdays.</li> <li>9:00 a.m. to 7:00 p.m., Sundays.</li> </ul>	None.
Los Angeles County	<ul style="list-style-type: none"> <li>6:30 a.m. to 8:00 p.m., Mondays through Saturdays, near the following locations: sleeping quarters in a dwelling, apartment, hotel, mobile home, or other place or residence.</li> <li>No construction on Sundays.</li> </ul>	None.
Buena Park	<ul style="list-style-type: none"> <li>7:00 a.m. to 8:00 p.m., weekdays and Saturdays.</li> <li>No construction permitted on Sundays.</li> </ul>	None.
Fullerton	<ul style="list-style-type: none"> <li>7:00 a.m. to 8:00 p.m., weekdays and Saturdays.</li> <li>9:00 a.m. to 8:00 p.m., Sundays and holidays.</li> </ul>	None.
Anaheim	None.	None.
Garden Grove	<ul style="list-style-type: none"> <li>7:00 a.m. to 8:00 p.m., weekdays and Saturdays.</li> <li>No construction permitted on Sundays and holidays.</li> </ul>	None.
Fountain Valley	<ul style="list-style-type: none"> <li>7:00 a.m. to 8:00 p.m., weekdays and Saturdays.</li> <li>No construction permitted on Sundays and holidays.</li> </ul>	None.
Santa Ana	None.	None.
Costa Mesa	<ul style="list-style-type: none"> <li>7:00 a.m. to 8:00 p.m.</li> </ul>	None.
Irvine	<ul style="list-style-type: none"> <li>7:00 a.m. to 7:00 p.m., weekdays.</li> <li>9:00 a.m. to 6:00 p.m., Saturdays.</li> <li>No construction permitted on Sundays and federal holidays unless the Chief Building Official grants a temporary waiver.</li> </ul>	None.

### 4.12.3 Environmental Impacts and Mitigation Measures

- a. *Would the project expose persons to or generate noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?*

*LESS THAN SIGNIFICANT IMPACT WITH MITIGATION INCORPORATED.* The project would primarily involve temporary noise sources associated with construction. Such noise sources are typically regulated on the local level through enforcement of noise ordinances, implementation of general plan policies, and imposition of conditions of approval for permits.

Construction would primarily consist of installation of new underground conduit for fiber optic cable within public roadway ROWs. Construction within public roadway ROWs typically proceeds at a rate of approximately 85 feet per day (metropolitan street trenching) to 200 feet per day (industrial or residential street trenching). Directional drilling or boring, which would potentially be used for conduit installation, typically proceeds at a rate of approximately 300 feet per day. However, the noise source associated with each directional bore is stationary; that is, noise levels do not increase with the linear progress of the bore bit, as they do with the progress of trenching activities. As many as 12 construction crews would be working on any given workday during the construction period.

During the construction period, noise levels generated by project construction would vary depending on the particular type, number, and duration of use of various pieces of construction equipment. The types of equipment that would be used include backhoes, excavators, trucks, pavers, and rollers. Such equipment typically generates noise levels between 80 and 90 dBA at 50 feet (USDOT, 1995). During conduit installation, the duration of noise impacts would be relatively brief, approximately 1 to 3 days, given the rate at which project construction would proceed.

As indicated in Tables 4-14 and 4-15, most of the various jurisdictions allow construction during specified hours and, in some cases, have established construction equipment noise standards. Mitigation Measure **NOI-1** (see below) requires LGN's contractors to comply with the applicable construction-hour limitations and equipment standards contained in Tables 4-14 and 4-15. For construction in those jurisdictions where there are no specific construction-related standards, LGN would require its contractors to limit noisy construction activity to the hours of 7:00 a.m. to 7:00 p.m., Monday through Saturday. Compliance with the full requirements of each local jurisdiction would ensure that project construction would not cause a significant impact. With implementation of Mitigation Measure **NOI-1**, project construction would not expose persons to or generate noise levels in excess of standards established in local general plans or noise ordinances, or applicable standards of other agencies, and the potential impact would be reduced to a less than significant level.

**NOI-1** LGN shall require construction contractors to comply with the construction-hour limitations and construction equipment standards set forth by each local jurisdiction (summarized in Tables 4-14 and 4-15). For construction in those jurisdictions where there are no specific construction-related standards, LGN shall require its contractors to limit any noise-producing construction activity to the hours of 7:00 a.m. to 7:00 p.m., Monday through Saturday.

Over the long-term, operation of the project would introduce few if any new noise sources that would be subject to standards established in local general plans or noise ordinances. Therefore, operation-related impacts would be less than significant.

***b. Would the project expose persons to or generate excessive groundborne vibration or groundborne noise levels?***

***LESS THAN SIGNIFICANT IMPACT.*** During construction, the project would involve use of heavy equipment that could occasionally cause localized groundborne vibration and groundborne noise that could be perceptible at residences or other sensitive uses in the immediate vicinity of the proposed construction sites. However, since the duration of impact at any one location would be very brief (from 1 to 3 days) and since the impact would occur during the daytime hours, when receptors would be less sensitive, the impact from construction-related groundborne vibration and groundborne noise would be less than significant.

Over the long-term, operation and maintenance of the project would not involve any potential source of groundborne vibration and groundborne noise. Therefore, no operation-related impacts would occur.

***c. Would the project result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?***

***NO IMPACT.*** Long-term operation and maintenance of the project would not introduce any new permanent sources of noise to the ambient environment of any of the study zones. Therefore, there would not be a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project. No impacts would occur.

***d. Would the project result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?***

***LESS THAN SIGNIFICANT IMPACT WITH MITIGATION INCORPORATED.*** The project would result in temporary and intermittent noise increases due to construction activities. Project construction-related equipment and activities are introduced in 4.12.3(a) above. The effects of construction noise would depend upon specific equipment in use, the duration of equipment operation, the distance between construction activities and the nearest noise-sensitive uses, and the existing noise levels at those sensitive uses. As discussed above, project construction would include use of equipment that would typically generate noise levels in the 80- to 90-dBA range within 50 feet. Residential uses could be located as close as 20 to 30 feet from construction equipment along some segments of the public roadway ROWs. In some areas, intervening structures, walls, berms, or grade separation (between the construction zone and residences) may provide some noise attenuation.

While existing background noise levels along roadways may be elevated due to motor vehicle traffic and other nearby sources, the noise from construction equipment would be substantially above those background levels.

As discussed above, LGN would require its contractors to limit the schedule and nature of the construction activities so that the project would comply with local standards and ordinances. This means that project construction would occur when a majority of people would be at work. However, retired persons, people who work at home, and people caring for children in their homes could be annoyed by noise if construction activities occur in their immediate vicinity. Schools, places of worship, and hospitals that would be in use during the daytime hours may also be disrupted by a temporary increase in noise, even if construction is in compliance with local noise limitations. To ensure that substantial temporary increases in ambient noise levels would be avoided to the extent possible, an additional measure is recommended to reduce the daytime noise impacts associated with construction. Mitigation Measure **NOI-2** would ensure that environmentally sensitive construction methods would be implemented and that this impact would be reduced to a level that would not be significant.

**NOI-2** To reduce daytime noise impacts associated with construction, LGN shall require construction contractors to implement the following measures:

- All equipment shall have sound-control devices no less effective than those provided on original equipment.
- No equipment shall have an unmuffled exhaust.
- Construction equipment shall be located as far from sensitive receptors (e.g., residences, schools, places of worship, and hospitals) as possible.
- If traffic control devices requiring electrical power are employed within 500 feet of sensitive receptors, the devices shall be battery/solar powered instead of powered by electrical generators.

*e. For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise level?*

*NO IMPACT.* The project does not involve the development of a noise-sensitive land use, and thus, would not expose people to excessive aircraft noise. No impacts would occur.

*f. For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise?*

*NO IMPACT.* The project does not involve the development of a noise-sensitive land use, and thus, would not expose people to excessive aircraft noise. No impacts would occur.

## 4.13 Population and Housing

### 4.13.1 Setting

As described in Section 3 (Project Description), the proposed project is located in the San Francisco Bay Area and the Los Angeles Basin, and has been divided into 15 study zones within 4 counties in northern California and 9 study zones within 2 counties in southern California.

Table 4-16 provides population and housing data for the San Francisco Bay Area and Los Angeles Basin counties and cities that coincide with the study zones.

As described in Table 4-16, the project area contains a variety of current vacancy rates ranging from 15.9% (City of Marina Del Rey) as the highest, to 1.5% (City of Belmont) as the lowest. As a whole, the counties within the Los Angeles Basin contain a larger total population (12,365,627) and a larger housing-unit total (4,240,393) than the counties within the San Francisco Bay Area (4,610,220 and 1,726,615, respectively).

**Table 4-16. Population and Housing Data – Year 2000**

Location	Population	Housing Units	Vacancy Rate	Location	Population	Housing Units	Vacancy Rate
<b>SAN FRANCISCO BAY AREA</b>				<b>LOS ANGELES BASIN</b>			
<b>San Francisco County</b>	776,733	346,527	4.9%	<b>Los Angeles County</b>	9,519,338	3,270,909	4.2%
San Francisco	776,733	346,527	4.9%	Altadena	42,610	15,250	3.1%
<b>San Mateo County</b>	707,161	260,576	2.5%	Beverly Hills	33,784	15,846	5.2%
Atherton	7,194	2,505	3.7%	Burbank	100,316	42,847	2.9%
Belmont	25,123	10,577	1.5%	Culver City	38,816	17,130	3.0%
Brisbane	3,597	1,831	11.5%	El Segundo	16,033	7,261	2.8%
East Palo Alto	29,506	7,091	1.6%	Gardena	57,746	21,041	3.4%
Foster City	28,803	12,009	3.3%	Glendale	194,973	73,313	2.6%
Menlo Park	30,785	12,714	2.6%	Inglewood	112,580	38,648	4.8%
Millbrae	20,718	8,113	1.9%	Lakewood	79,345	27,310	1.7%
Redwood City	75,402	28,921	3.0%	Long Beach	461,522	171,632	5.0%
San Bruno	40,165	14,980	2.0%	Los Angeles	3,694,820	1,337,706	4.7%
San Carlos	27,718	11,691	2.0%	Manhattan Beach	33,852	15,034	3.7%
San Mateo	92,482	38,249	2.4%	Marina Del Rey	8,176	6,321	15.9%
South San Francisco	60,552	20,138	2.3%	Pasadena	133,936	54,132	4.2%
<b>Santa Clara County</b>	1,682,585	579,329	2.3%	Redondo Beach	63,261	29,543	3.3%
Cupertino	50,546	18,682	2.6%	Santa Monica	84,084	47,863	7.0%
Milpitas	62,698	17,364	1.3%	West Hollywood	35,716	24,110	4.1%
Mountainview	70,708	32,432	3.7%	<b>Orange County</b>	2,846,289	969,484	3.5%
Palo Alto	58,598	26,048	3.2%	Anaheim	328,014	99,719	2.8%
San Jose	894,943	281,841	1.9%	Buena Park	78,282	23,826	2.1%
Santa Clara	102,361	39,630	2.8%	Costa Mesa	108,724	40,406	3.0%
Sunnyvale	131,760	53,753	2.3%	Fullerton	126,003	44,771	2.6%
<b>Alameda County</b>	1,443,741	540,183	3.1%	Garden Grove	165,196	46,703	2.0%
Berkeley	102,743	46,875	4.1%	Huntington Beach	189,594	75,662	2.6%
Emeryville	6,882	4,274	7.0%	Irvine	143,072	53,711	4.7%
Fremont	203,413	69,452	1.7%	Orange	128,821	41,904	2.3%
Oakland	399,484	157,508	4.3%	Santa Ana	337,977	74,588	2.1%
Pleasanton	63,654	23,968	2.7%				

Source: US Census, 2000 accessed via Internet Database.

## 4.13.2 Environmental Impacts and Mitigation Measures

- a. *Would the project induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?*

**LESS THAN SIGNIFICANT IMPACT.** As stated in the Section 3 (Project Description), the average construction crew would consist of 8 to 10 persons. It is assumed that construction personnel would reside near the local construction areas; however, any increase to a local population as a result of construction workforce would be considered short-term and would not result in any permanent population increases to the project areas. As presented in Table 4-16, should any portion of the construction workforce come from outside the local construction area, each community has an acceptable vacancy rate to house construction workers should they choose rental housing apposed to temporary short-term housing (hotels).

While the proposed project would include the extension of existing infrastructure in the way of fiber-optic telecommunication lines, this type of infrastructure development is not associated with inducing population growth since it would not initiate or be a catalyst for residential housing development. The proposed project is designed to accommodate existing and projected future demands for Metropolitan Area Network (MAN) services for the San Francisco Bay Area and the Los Angeles Basin. The proposed project is therefore, growth accommodating, rather than growth inducing. The existing and projected future demands for MAN services are the primary motives for the development of the proposed project. The proposed project would not result in any direct increase to the population of the areas identified within Table 4-16, nor would it require the extension of any public infrastructure or utilities, which could induce residential housing development. Thus, the project would not induce population growth into the area.

As discussed above, construction activities and operation of the proposed project would not induce population growth, nor would it affect or create additional demand for new housing, directly, indirectly, or cumulatively. Less than significant impacts on population and housing would occur. No mitigation measures are necessary.

***b. Would the project displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?***

*NO IMPACT.* Construction staging activities for the proposed project would utilize existing contractor storage yards or LGN leased/owned private ROW yards. These areas would not contain any housing units, and would not result in the displacement of any existing housing. Construction activities within the communities identified in Table 4-16 would be located within previously established transportation ROWs, utility corridors, or in existing structures. Although the exact alignments of the fiber optic conduits would not be finalized until shortly before construction commences, because the construction and installation of the fiber optic conduit would not result in the demolition of buildings of any type, the project would not result in the removal of any existing housing units. Because implementation of the proposed project would not require the removal of any existing housing units, it would not result in the need to construct replacement housing. Therefore, no project impacts would occur and no mitigation measures are necessary.

***c. Would the project displace substantial numbers of people necessitating the construction of replacement housing elsewhere?***

*NO IMPACT.* As discussed in 4.13.2(b) above, the proposed project would not result in or include the construction or demolition of structures that could house people. Therefore, people would not be displaced and replacement housing would not be necessary as a result of the proposed project. No impacts would occur.

## **4.14 Public Services**

### **4.14.1 Setting**

As described in Section 3.3 of the Project Description, the proposed project includes installation of fiber optic conduit lines and equipment in mostly developed (previously disturbed) ROWs within urbanized areas of the San Francisco Bay Area and the Los Angeles Basin. The proposed project has been divided into study zones, with 15 study zones located in 4 counties in the San Francisco Bay Area and 9 study zones in 2 counties in the Los Angeles Basin.



Public services are provided by local agencies throughout the 24 study zones. Fire and police protection are provided by either city- or county-wide departments. School districts usually define their boundaries by population and age densities of their students so school district boundaries do not precisely match up with city or county boundaries. Other public services, such as libraries, are provided by local agencies as needed and as funds permit. See Section 4.10 (Land Use) for a complete description of the local jurisdictions associated with each of the study zones.

## 4.14.2 Environmental Impacts and Mitigation Measures

*a. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:*

*(i) Fire protection?*

*LESS THAN SIGNIFICANT IMPACT WITH MITIGATION INCORPORATED.*

**Construction.** Fire protection services could be required at a project construction site in the event of an accident. The likelihood of an accident requiring such a response would be low. The service capacities of city and/or county fire departments in which accidents could occur would not be affected. Since the potential for a construction accident is low and the respective fire departments are prepared to respond to accidents across their jurisdictions, this would represent a less than significant impact.

Construction activities could potentially interfere with emergency response by ambulance, fire, paramedic, and police vehicles. Since conduit installation would occur in a number of roadways, the proposed project would have the potential to temporarily cause the closure of traffic lanes and subsequent impedance of traffic on various roadways. The possibility exists that traffic congestion resulting from the lane closures could disrupt emergency service providers. Moreover, there is a possibility that emergency services may be needed at a location where access is temporarily blocked by the construction zone. Although the likelihood of this impact is low, it is considered potentially significant. Mitigation Measure **TRA-2** (see Section 4.16, Transportation and Traffic) includes a requirement for LGN to develop an Emergency Vehicle Access Plan to ensure that impacts to emergency service providers are less than significant.

**Operation.** Long-term physical impacts to public services and facilities are usually associated with population in-migration and growth in an area, which increases the demand for a particular service, which in turn leads to the need for expanded or new facilities. However, the proposed project would not result in a significant increase in the population of the area, as described in Section 4.13 (Population and Housing). The proposed project is intended to meet an existing demand, and as such would not stimulate significant population in-migration nor would it increase demands on public services. Therefore, no significant long-term effects on public services would result from the proposed project.

*(ii) Police Protection?*

*LESS THAN SIGNIFICANT IMPACT WITH MITIGATION INCORPORATED.* As described in 4.14.2(a)(i) above, the proposed project would not have a significant long-term impact on public services such as police protection since it would not cause a significant increase in population or in-migration, as described in Section 4.13 (Population and Housing). Any potential short-term construction impacts to emergency service providers would be reduced to less than significant levels with implementation of Mitigation Measure **TRA-2**.

***(iii) Schools?***

*NO IMPACT.* As described in 4.14.2(a)(i) above, the proposed project would not have a significant long-term impact on public services such as schools because it would not cause a significant increase in population or in-migration, as described in Section 4.13 (Population and Housing). Therefore, the proposed project would not increase any long-term demands on existing schools in the project area and no new schools would be required because of the proposed project. There would be no impacts to schools and mitigation measures are not necessary.

***(iv) Parks?***

*NO IMPACT.* As described in 4.14.2(a)(i) above, the proposed project would not have a significant long-term impact on public services such as parks since it would not cause a significant increase in population or in-migration, as described in Section 4.13 (Population and Housing). As such, the proposed project would not increase any long-term demands on existing parks in the project area and no new parks would be required because of the proposed project. Therefore, there would be no impacts associated with demand for parks and mitigation measures are not necessary. For potential impacts associated with disruption of recreational activities, see Section 4.15 (Recreation), checklist item (c).

***(v) Other Public Facilities?***

*LESS THAN SIGNIFICANT IMPACT WITH MITIGATION INCORPORATED.* As described in 4.14.2(a)(i) above, the proposed project would not have a significant long-term impact on other public services, such as libraries, since it would not cause a significant increase in population or in-migration, as described in Section 4.13 (Population and Housing). Therefore, the proposed project would not increase any long-term demands on existing public services in the project area. Any potential short-term construction impacts to services that provide emergency response would be reduced less than significant levels with implementation of Mitigation Measure **TRA-2**.

## **4.15 Recreation**

### **4.15.1 Setting**

As indicated in Table 4-13 in Section 4.10 (Land Use), within the 15 San Francisco Bay Area study zones and the 9 Los Angeles Basin study zones, parks and open space have been identified in every study zone. The San Francisco Bay Area contains 7 National Park sites and 42 State Parks. The Los Angeles Basin contains one National Park, two National Forests, 52 State Parks, and 11 wilderness parks. Both areas include many other regional, county, and local parks; trails; open space areas; and wilderness areas.

Notable agencies governing recreational facilities in the San Francisco Bay Area include:

- **National Park Service** manages the Golden Gate National Recreational Area in San Francisco and San Mateo Counties;
- **East Bay Regional Park District (EBPRD)** maintains the regional parks, recreation areas, preserves, shorelines, and trails in Alameda County.
- **Mid-Peninsula Regional Open Space District (MROSD)** manages open space preserves in San Mateo and Santa Clara Counties.

- **Association of Bay Area Governments (ABAG)** maintains undeveloped or predominantly undeveloped land in the Bay Area including the Bay Trail, which encircles the San Francisco and San Pablo Bays and will include a continuous 400-mile network of bicycling and hiking trails. When complete, the Bay Trail will connect the shoreline of all 9 Bay Area counties, link 47 cities, and cross the major toll bridges in the region. Approximately one-third of the trail already exists, as either hiking-only paths, combined hiking and bicycling paths, or on-street bicycle lanes.
- **Bay Conservation and Development Commission (BCDC)** maintains undeveloped or predominantly undeveloped bay resources that provide public recreational areas.

Notable agencies governing recreational facilities in the Los Angeles Basin include:

- **National Park Service** manages the Santa Monica Mountains National Recreation Area in Los Angeles County.
- **National Forest Service** manages the Angeles and Cleveland National Forests in Los Angeles and Orange Counties, respectively. The Angeles National Forest includes the Cucamonga, San Gabriel, and Sheep Mountain Wilderness Parks, while the Cleveland National Forest includes the Aqua Tibia, Hauser, Pine Creek, and San Mateo Canyon Wilderness Parks.
- **Southern California Association of Governments (SCAG)** maintains undeveloped or predominantly undeveloped land in the Los Angeles Basin that provides a variety of public recreational resources.

City-owned parks and recreation facilities are operated and maintained by the parks and recreation departments of their respective cities. Table 4-13 in Section 4.10 (Land Use) indicates the jurisdictions that manage neighborhood and county parks within each study zone.

## 4.15.2 Environmental Impacts and Mitigation Measures

- a. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?*

*NO IMPACT.* The increase in use of recreational facilities is generally spurred by population growth in an area. As demonstrated in Section 4.13 (Population and Housing), the proposed project would not induce growth, but rather is a response to accommodate demands for fiber optic infrastructure. As such, there would be no increase in the use of existing neighborhood and regional parks or other recreational facilities that would cause substantial physical deterioration or accelerated deterioration of the facility. No impacts would occur.

- b. Would the project include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?*

*NO IMPACT.* The proposed project consists of new conduit installation, conduit repair, and replacement work primarily within existing road or utility ROWs. The project does not include the construction or expansion of recreational facilities. Therefore, no impacts would occur.

- c. Would the project result in permanent and/or temporary impacts, such as possible disruption of recreational activities, affecting the recreational value of existing facilities?*

*LESS THAN SIGNIFICANT IMPACT WITH MITIGATION INCORPORATED.* Table 4-13 in Section 4.10 (Land Use) indicates that all of the project study zones include parks that could be located in the vicinity of the estimated project alignments. The proposed route alignments would likely be adjacent to

Orchards Gardens Park in Sunnyvale and Saint James Park in San Jose. However, because the exact alignments of the fiber optic conduits would not be finalized until after the release of this document, it is not known which other parks would be adjacent to the alignments.

The fiber optic conduits would be buried underground, placed on existing aerial facilities (e.g., power and telephone poles), or located within buildings. Therefore, any impacts to recreational facilities or activities would be associated with construction and would be temporary and short-term in nature. Construction disturbances (e.g., noise, dust, and traffic congestion) would occur and may conflict with adjacent recreational uses. Due to the expected rate of construction activities (see Table 3-5), individual access points would likely be blocked for a maximum of only a few days. Temporary impacts due to the disruption of recreational activities will be reduced to less than significant levels with the implementation of the mitigation proposed below and Programmatic Process (see Section 3.5).

**REC-1** The Applicant shall schedule construction to avoid peak use periods (e.g., weekends and holidays) for recreational facilities. The Applicant shall provide onsite notification of recreational access closures at least 2 weeks in advance, through the posting of signs and/or notices.

## **4.16 Transportation and Traffic**

### **4.16.1 Setting**

The San Francisco Bay Area and the Los Angeles Basin are served by well-developed networks of freeways, regional arterials, local streets, and mass transit systems. Caltrans is responsible for managing and maintaining State and Interstate highways. Cities and counties are responsible for all other roads with their boundaries. Table 3-2 (see Section 3, Project Description) lists some of the streets that could potentially be impacted by the proposed project. Major mass transit systems in the Bay Area include San Francisco's Muni, the Peninsula corridor's Caltrain, San Mateo Transit (SAMTRANS), and Bay Area Rapid Transit (BART). Public transportation in the Los Angeles Area is provided by the Los Angeles County Metropolitan Transit Authority (MTA). The Union Pacific (UP) rail system provides freight service in both the Bay Area and Los Angeles Area.

### **4.16.2 Regulatory Context**

The California Department of Transportation requires an encroachment permit for construction activities, including installation of facilities in Interstate and State highway ROWs. Cities and counties also require encroachment permits or conditional-use permits for such activities in their public road ROWs. Specific permit requirements vary from one local jurisdiction to another, but commonly include site-specific traffic management measures designed to avoid or reduce construction-related traffic and transportation impacts to a less than significant level. Railroads require similar approval of construction activities within their ROWs.

### 4.16.3 Environmental Impacts and Mitigation Measures

- a. *Would the project cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume-to-capacity ratio on roads, or congestion at intersections)?*

*LESS THAN SIGNIFICANT IMPACT WITH MITIGATION INCORPORATED.* Construction-related traffic congestion associated with road encroachments at any one location could last for several days. Disruption of traffic flows would potentially include lane blockages, street closures, reduced curb parking, and the establishment of traffic detours. Traffic congestion impacts would be localized and short-term in nature.

Construction of the proposed project would add daily arrivals and departures of up to 15 trips associated with construction workers, and approximately 12 truck trips for hauling equipment and materials to and from each work site and hauling spoils to and from each work site. This level of short-term project-related traffic would be negligible when added to the existing daily traffic on roadways in the project areas and would not permanently exceed the established level of service standards for roads in the project area. However, to reduce potentially significant traffic congestion impacts associated with road encroachments to levels that are less than significant, implementation of Mitigation Measures **TRA-1** and **TRA-2** are recommended.

**TRA-1** LGN shall obtain all necessary local and State road encroachment permits, and railroad encroachment permits, prior to construction and shall comply with all the applicable conditions of approval. As deemed necessary by the applicable jurisdiction, the road encroachment permits shall require the contractor to prepare a traffic control plan in accordance with professional engineering standards prior to construction. The traffic control plan shall include the following requirements unless the applicable jurisdiction directs otherwise:

- Identify all roadway locations where special construction techniques (e.g., directional drilling or night construction) would be used to minimize impacts to traffic flow.
- Develop circulation and detour plans to minimize impacts to local street circulation. This shall include the use of signing and flagging to guide vehicles through and/or around the construction zone.
- Schedule truck trips outside of peak morning and evening commute hours.
- Limit lane closures during peak hours to the extent possible.
- Use haul routes minimizing truck traffic on local roadways to the extent possible.
- Include detours for bicycles and pedestrians in all areas potentially affected by project construction.
- Install traffic control devices as specified in the California Department of Transportation Manual of Traffic Controls for Construction and Maintenance Work Zones.
- Store construction materials only in designated areas.
- Coordinate with local transit agencies for temporary relocation of routes or bus stops in work zones, as necessary

**TRA-2** LGN shall develop an Emergency Vehicle Access Plan that includes the following:

- Evidence of advanced coordination with emergency service providers, including but not necessarily limited to police departments, fire departments, ambulance services, and paramedic services. Emergency service providers shall be notified of the proposed project

locations, nature, timing, and duration of any construction activities, and shall be asked for advice about any road access restrictions that could impact their response effectiveness.

- Project construction schedules and routes designed to avoid restricting movement of emergency vehicles to the best extent possible.
- Provisions to be ready at all times to accommodate emergency vehicles at locations where access to nearby properties may be blocked. Provisions could include the use of platings over excavations, short detours, and/or alternate routes.

***b. Would the project cause, either individually or cumulatively, a level-of-service standard established by the county congestion management agency for designated roads or highways to be exceeded?***

*LESS THAN SIGNIFICANT IMPACT.* County Congestion Management Plans address ongoing traffic condition, not temporary conditions, such as those caused by short-term construction projects. Therefore, the proposed project would not be affected by, nor affect, the congestion management plans in the project areas. Impacts are less than significant.

***c. Would the project result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?***

*NO IMPACT.* The proposed project primarily involves underground conduit placements and cable pulling, and aerial installations on existing utility poles. The project would not change or impact air traffic patterns or result in air traffic risks. No impacts would occur.

***d. Would the project substantially increase hazards because of a design feature or incompatible uses?***

*LESS THAN SIGNIFICANT IMPACT WITH MITIGATION INCORPORATED.* Construction activities associated with underground conduit placement and cable pulling within roadways and railroad ROWs, or aerial cable installation, could temporarily increase the potential for accidents. Construction-generated trucks on project area roadways would increase the potential for traffic accidents in residential areas, or other commercial and industrial vehicles in commercial and industrial zones. The potential for accidents would be further increased if construction sites are not safely secured and marked at night and on weekends. Heavy equipment operating adjacent to or within a railroad or road ROW would also increase the risk of accidents. However, implementation of Mitigation Measure **TRA-1** (see below), which requires compliance with all necessary encroachment permit stipulations, would reduce impacts to less than significant levels.

***e. Would the project result in inadequate emergency access?***

*LESS THAN SIGNIFICANT IMPACT WITH MITIGATION INCORPORATED.* Trenching for new or replacement conduits in public streets could temporarily impede ingress and egress at fire and police stations, hospitals, and schools. It could also disrupt access for emergency and other vehicles to industrial facilities, commercial establishments, and residences. However, Mitigation Measure **TRA-2** (see above), which includes a requirement to develop an Emergency Vehicle Access Plan, is recommended to ensure that impacts are reduced to levels that are less than significant.

***f. Would the project result in inadequate parking capacity?***

*LESS THAN SIGNIFICANT IMPACT WITH MITIGATION INCORPORATED.* Construction of all project components would generate a temporary demand for parking spaces for construction worker vehicles. It would temporarily displace existing on-street parking and may impede ingress and egress at

parking lots along construction routes. However, implementation of Mitigation Measure **TRA-1** (see above), which requires compliance with all necessary encroachment permit stipulations, would ensure that impacts are less than significant.

- g. Would the project conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?*

*NO IMPACT.* The proposed project would not conflict with adopted policies that support alternative transportation.

## 4.17 Utilities and Service Systems

### 4.17.1 Setting

Utility and service system facilities associated with electricity, domestic (potable) water, stormwater, solid waste, communications, and natural gas, are typically provided and maintained by a variety of local purveyors, including cities, counties, special districts, water agencies, and private companies. Utilities such as domestic water, wastewater and stormwater sewers, and natural gas are usually transmitted via underground pipelines or conduits. Increasingly, electricity and telecommunication services are also installed underground. The vast majority of the urban utility and public service infrastructure exists within public ROWs.

### 4.17.2 Environmental Impacts and Mitigation Measures

- a. Would the project exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?*

*NO IMPACT.* The proposed project would not generate wastewater. Therefore, the wastewater treatment requirements of the San Francisco Bay Area and the Los Angeles and Santa Ana RWQCBs would not be exceeded. No impacts would occur.

- b. Would the project require, or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?*

*NO IMPACT.* The proposed project would not generate wastewater and would require only a minor amount of water for dust suppression during project construction. Therefore, the proposed project would not require, or result in the construction of, new water or wastewater treatment facilities or expansion of existing facilities. No impacts would occur.

- c. Would the project require, or result in the construction of, new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?*

*NO IMPACT.* The proposed project would not create new impermeable surfaces that would substantially increase drainage runoff beyond current conditions. Accordingly, the proposed project would not require or result in the construction or expansion of stormwater drainage facilities. No impacts would occur.

- d. Would the project have sufficient water supplies available to serve the proposed project from existing entitlements and resources, or would new or expanded entitlements be needed?*

*NO IMPACT.* As discussed under 4.17.2(b) above, water needs of the project would be minor and temporary. Existing water supply would be sufficient to meet those needs. No water would be required for project operation. Therefore, existing water supplies would be sufficient to meet project needs without new or expanded entitlements. No impacts would occur.

- e. Would the project result in a determination by the wastewater treatment provider that serves or may serve the proposed project that it has adequate capacity to serve the proposed project's projected demand in addition to the provider's existing commitments?*

Refer to 4.17.2(a) above. No impacts would occur.

- f. Would the project be served by a landfill with sufficient permitted capacity to accommodate the proposed project's solid waste disposal needs?*

*LESS THAN SIGNIFICANT IMPACT.* Most of the soil excavated during trenching would be used to refill the excavation, and trench spoils such as paving materials would be returned to the asphalt manufacturer, a local recycler, or transported to an appropriate facility for disposal. The quantity of construction-related materials transported to area landfills would be minor relative to the daily volumes handled at those facilities and would not substantially affect their remaining capacities. Project operation would not generate solid waste and would therefore not affect existing landfill capacities. Impacts would be less than significant.

- g. Would the project comply with federal, State, and local statutes and regulations related to solid waste?*

*LESS THAN SIGNIFICANT IMPACT WITH MITIGATION INCORPORATED.* Solid wastes that would be generated by the proposed project include soil displaced by project construction, fiber spools, and other packaging material associated with the conduit and cable pulling. The proposed project would not produce substantial amounts of other solid waste materials. Most of the soil removed during trenching operations would be used to refill the excavation. Pursuant to Mitigation Measure **HAZ-1** (see Section 4.8, Hazards and Hazardous Materials), all hazardous waste materials, which includes contaminated soil, would be handled and disposed of by a licensed waste disposal contractor and transported to an appropriate disposal or recycling facility to meet federal, State, and local requirements. In addition, Mitigation Measures **HAZ-5** and **HAZ-6** require the use of vapor analyzers and photo-ionization detectors to screen excavated materials from high-risk areas. Implementation of these mitigation measures would ensure compliance with applicable regulations. Spools and other packaging for conduit and cable would not be contaminated and would be taken away for reuse, recycling, or disposal at an appropriate landfill. Once construction is complete, the proposed project would not produce solid wastes. Impacts would be less than significant.

## 4.18 Mandatory Findings of Significance

The CEQA Environmental Checklist presents the following three issues for which a finding of a significant impact would result in requiring preparation of an Environmental Impact Report:

- (a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?



- (b) Does the project have impacts that are individually limited, but cumulative considerable? (“Cumulative considerable” means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?
- (c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

As documented in Appendix A (Environmental Checklist), the IS/MND concludes that, with implementation of the mitigation measures included herein, impacts in each of the three categories would be less than significant.