3. PROJECT DESCRIPTION

3.1 Introduction

The Applicant, Looking Glass Networks (LGN), has proposed to install fiber optic conduits and related facilities in the San Francisco Bay Area and the Los Angeles Basin. (The Applicant's proposal is also referred to as "the proposed project.") The fiber optic conduits primarily would be buried underground in existing public rights-of-way, within built-up urban and suburban locations. According to the Applicant, the proposed project would allow Internet-centric service providers (such as broadband access network providers, hosted services providers, and backbone carriers) to better meet the growing bandwidth needs of customers throughout key metropolitan areas of California.

This section provides the description of the proposed project, and its basic project boundaries, activities, and features, as a basis for environmental analysis in all environmental disciplines.

3.2 Project Objectives

LGN is a facilities-based metropolitan area service provider, which proposes to construct fiber optic conduits and related facilities in the San Francisco Bay Area and the Los Angeles Basin. According to the Applicant, metropolitan areas have received significantly less investment in broadband access networks to accommodate network capacity demand, creating a major network bottleneck effect. As such, the Applicant has defined the following objectives for the proposed project:

- Provide greater bandwidth, multiple modes of communication compatible with existing and evolving systems, more predictable delivery of bandwidth, and greater control over the ordering, provisioning, and management of this bandwidth to allow Internet-centric service providers such as broadband access network providers, hosted services providers, and backbone carriers to better meet the growing bandwidth needs of customers throughout multiple metropolitan areas within California.
- Expand and enhance California's national and international telecommunications access and the nation's existing and future demands for telecommunications services by enabling more networks to exchange traffic across California's metropolitan areas and the reliability thereof using high-quality, state-of-the-art fiber optic technology.
- Minimize or mitigate, where possible, construction avoiding major streets to maintain impacts on traffic and circulation at less than significant levels.
- Avoid or mitigate to less than significant levels any significant impacts the project would otherwise have on California's environment.
- Increase competitive pressures among existing telecommunications carriers.
- Promote opportunities for economic growth in California as businesses shift focus to information services and technology.

3.3 Proposed Project Components and Construction

The proposed project would consist of the components described below.

- Install conduit and related facilities as a means of creating metropolitan area networks (MANs) to serve the San Francisco Bay Area and the Los Angeles Basin;
- Install fiber optic equipment in aggregation points (including but not limited to telephone company central offices, carrier points-of-presence, data centers, hosting facilities, carrier hotels, and other buildings) and to then light the fiber optic networks with the latest generation of Ethernet and optical networking access, switching, and multiplexing equipment; and
- Utilize existing conduit networks, limit new conduit construction (primarily only to interconnect existing systems), and/or use backbones of existing (or future) fiber optic networks. Where existing facilities may not be available between the backbone networks and targeted aggregation points, the Applicant may be required to build laterals from these backbones to connect to the targeted buildings. Construction is expected to utilize State and local ROWs and other designated utility corridors.

3.3.1 Description of Study Zones

At the time of publication of this IS/MND, the Applicant has not determined the final alignments to be utilized for proposed project construction. However, using information presently available on the nature of the network, the Applicant has estimated the general areas where construction would occur. These areas are referred to as study zones. Study zones were identified that encompass targeted aggregation points, or target buildings, where laterals may be connected to the existing backbone and include locations where there are known discontinuities of existing conduit systems.

In both the San Francisco Bay Area and the Los Angeles Basin, the Applicant has identified the aggregation points of immediate interest, as well as many potential enterprise business locations (i.e., office buildings) that may be connected at a later date. Nearly all such buildings are adjacent to the Applicant's planned MANs. In the San Francisco Bay Area, the Applicant has also identified gaps in the planned backbone networks that would likely require new construction.

Study zones encompass areas around the potential targeted buildings and the MANs (i.e., connection points) to provide potential future build connections and locations. To fully encompass the desired areas, the study zones extend at least a quarter mile from each build location, and in some cases the cluster of build locations in downtown areas creates larger areas.

There are 15 study zones in the San Francisco Bay Area, and 9 study zones in the Los Angeles Basin. These study zones are described in Table 3-1 and illustrated in Figures 3-1 through 3-27, which appear at the end of Section 3. Table 3-2 lists the addresses of potential target buildings in each study zone.

Table 3-1. Study Zone Descriptions

	San Francisco Bay Area Study Zones*
San Francisco North	Surrounds the financial district in downtown San Francisco bounded to the north by Green Street and the South of Market (SOMA) District bounded to the south by 16th Street. It continues south through South San Francisco.
South San Francisco	Extends from 23rd Street in the City of San Francisco to Geneva Avenue in Daly City.
Mid-Peninsula	Begins in the City of South San Francisco and extends through San Bruno, Burlingame, and Millbrae.
Foster City	Includes a small portion of Foster City roughly bordered to the south by Hillsdale Boulevard, to the north by Highway 92, to the east by Foster City Boulevard, and to the west by the Marina Lagoon.
Redwood City	Generally follows Highway 102 between Shoreline Boulevard and Embarcadero and El Camino Real between Embarcadero and Shoreline Boulevard.
Mountain View / Palo Alto	Generally between Highway 101 on the northeast side and El Camino Real on the southwest, and between Edgewood Road and Willow Road.
Milpitas	Covers portions of the City of Milpitas between the Southern Pacific Railroad line to the south, and Highway 237 and Tasman Road to the north.
Sunnyvale	Covers portions of the area between Highway 101 and El Camino Real, and also follows Hollenbeck Avenue south to Stevens Creek Boulevard and then returns north along Wolfe Road.
San Jose	Encompasses the central business district area of San Jose and goes as far south as San Jose Avenue. It is roughly bound on the east by the Union Pacific Railroad (UPRR) and on the west by The Alameda.
North San Jose	Covers a small portion of northern San Jose to the north of Highway 101, west of the UPRR and mostly south of Highway 237.
Fremont	Follows the UPRR and extends 1,000 feet from each side of the railroad corridor.
Hayward	Forms a loop along Winton Avenue, down Cabot Boulevard, back across Depot Road and Culp Avenue, and through the downtown Hayward area.
Oakland	Encompasses the central business district of Oakland.
Emeryville	Extends along San Pablo Avenue between Stanford Avenue and Channing Way.
Pleasanton	Encompasses an area roughly within Las Positas Boulevard, Stoneridge Drive, Owens Drive, and Hopyard Road
	Los Angeles Basin Study Zones*
Burbank / Glendale	Covers the vicinity around the 4 potential future build locations near the intersections of Broadway and Orange Street, Glenoaks Boulevard and Palm Avenue, Thornton Avenue and Ontario Avenue, and Magnolia Boulevard and Tujunga Avenue.
Pasadena	Encompasses study boundaries surrounding 3 target building addresses, two in Altadena and one in central Pasadena.
Santa Monica / Beverly Hills	Includes customer locations along Wilshire Boulevard, Sunset Boulevard, and Melrose Avenue. It extends west almost to the coast.
Downtown Los Angeles	Encompasses the central business district of Los Angeles. It is roughly bordered by Hollywood Avenue on the North, San Julian Street on the east, 23rd Street on the South, and Union Street on the West.
LAX / El Segundo	Includes a small area of Marina del Rey, portions north and south of Los Angeles International Airport, and 3 target building locations east of Interstate 405.
Long Beach	Encompasses small areas north and south of Interstate 405 and east and west of the Pacific Electric railroad.
Buena Park / Anaheim	Follows Interstate 5 from just north of Artesia Avenue to Lincoln Avenue and then to Anaheim Boulevard and Haster Street. The area extends one-quarter mile to either side of these roadways and also includes a few other peripheral addresses.
Santa Ana	Begins in Costa Mesa, encompassing the central and eastern portions of Costa Mesa and then extending northeast, paralleled by Interstate 5.
Irvine / Costa Mesa	Covers an area roughly bounded on the east by the San Diego Creek Channel, on the west by the Upper Newport Bay, and on the north by Macarthur Boulevard. To the south it follows Macarthur Boulevard until it reaches San Joaquin Hills Road.

* See Figures 3-2 through 3-16 for illustrations of the San Francisco Bay Area study zones, and Figures 3-17 through 3-27 for illustrations of the Los Angeles Basin study zones.

Table 3-2. Target Building Addresses

SANTA MONICA / BEVERLY HILLS
10100 Santa Monica Blvd
10201 W Pico Blvd
1040 N Las Palmas Ave
10866 Wilshire Blvd
10880 Wilshire Blvd
10889 Wilshire Blvd
10900 Wilshire Blvd
10960 Wilshire Blvd
10990 Wilshire Blvd
11100 Santa Monica Blvd
11111 Santa Monica Blvd
11150 Santa Monica Blvd
11355 W Olympic Blvd
11500 W Olympic Blvd
11601 Wilshire Blvd
1255 N Vermont Ave
1314 7th St
1429 N Gower St
1450 S Bundy Dr
1501 Ocean Park Blvd
1544 Cotner Ave
1620 26th St
1640 S Sepulveda Blvd
1800 Avenue of The Stars
1800 Century Park E
1840 Century Park E
1875 Century Park E
1880 Century Park E
1888 Century Park E
1900 Avenue of The Stars
1901 Avenue of the Stars
1925 Century Park E
1999 Avenue of The Stars
2001 Broadway St
2010 Century Park Ln
2020 Avenue of The Stars
2029 Century Park E
2040 Avenue of The Stars
2049 Century Park E
2121 Avenue of The Stars
227 Broadway Ste 303
2400 Broadway
2401 Colorado Ave
2425 Colorado Ave
2425 Olympic Blvd
2450 Broadway
2500 Broadway
2501 Colorado Ave
2525 Colorado Ave
2716 Ocean Park Blvd
315 S Beverly Dr
3847 Cardiff Ave
490 Foothill Blvd
490 N Foothill Rd

SANTA MONICA / BEVERLY HILLS, *cont.*
520 Broadway
640 S San Vicente Blvd
6500 Wilshire Blvd
7323 Sunset Blvd
8075 Melrose Ave
8383 Wilshire Blvd
8670 Wilshire Blvd
9665 Wilshire Blvd
1935 West Adams Blvd
3250 Wilshire Blvd
3333 Wilshire Blvd
3424 Wilshire Blvd
3435 Wilshire Blvd
3440 Wilshire Blvd
3450 Wilshire Blvd
3460 Wilshire Blvd
3470 Wilshire Blvd
3550 Wilshire Blvd
3600 Wilshire Blvd
3699 Wilshire Blvd
3701 Wilshire Blvd
3731 Wilshire Blvd
4727 Wilshire Blvd
502 Shatto Pl
5055 Wilshire Blvd
5670 Wilshire Blvd
5700 Wilshire Blvd
5750 Wilshire Blvd
5757 Wilshire Blvd
666 S La Brea Ave
666 South Lake St
720 South Rampart Blvd

BURBANK / GLENDALE
100 Flower St
100 W Broadway
11272 Magnolia Blvd
124 S Orange St
13800 Ventura Blvd
14800 Ventura Blvd
15003 Ventura Blvd
15250 Ventura Blvd
15303 Ventura Blvd
280 E Palm Ave
3001 Thornton Ave
3015 Winona Ave
3099 N California St
330 N Brand Blvd
440 W Cypress
4480 Kester Ave
500 N Brand Blvd
505 N Brand Blvd
550 N Brand Blvd
611 N Brand Blvd

BURBANK / GLENDALE, *cont.*
6803 N Cedros Ave
701 N Brand Blvd
800 N Brand Blvd
801 N Brand Blvd

DOWNTOWN LOS ANGELES
1 Wilshire Blvd
1000 W Temple St
1000 Wilshire Blvd
1024 S Hope St
1055 W 7th St
1055 Wilshire Blvd
1057 S Olive St
1100 Wilshire Blvd
111 N Hope St
111 N Union Ave
1149 S Broadway St
1149 S Hill St
1150 S Olive St
1200 W 7th St
1201 W 5th St
1401 S Grand Ave
1501 Francisco
1900 South Grand Ave
201 N Figueroa St
201 S Figueroa St
233 S Beaudry Ave
300 S Grand Ave
333 S Beaudry Ave
333 S Grand Ave
333 S Hope St
350 S Grand Ave
355 S Grand Ave
400 S Hope St
420 South Grand Ave
433 South Olive
434 South Grand Ave
444 S Flower St
445 S Figueroa St
500 S Grand Ave
500 W 7th St
510 W 6th St
515 S Figueroa St
515 South Flower
520 S Grand Ave
523 W 6th St
550 S Hope St
555 S Flower St
555 W Fifth St
600 S Spring St
600 W 7th St
600 Wilshire Blvd
601 S Figueroa St

(continued....)

Table 3-2. Target Building Addresses, *cont.*

DOWNTOWN LOS ANGELES, *cont.*
601 W 5th St
606 S Olive St
609 W 7th Ave
611 Wilshire Blvd
617 W 7th St
624 South Grand Ave
626 Wilshire Blvd
633 W 5th St
650 South Grand Ave
700 South Flower St
700 Wilshire Blvd
707 Wilshire Blvd
725 S Figueroa St
727 W 7th St
800 South Hope St
800 West 6th St
800 Wilshire Blvd
801 S Grand Ave
801 S Figueroa St
811 Wilshire Blvd
818 West Seventh St
865 S Figueroa St
888 S Figueroa St
900 N Alameda St
900 Wilshire Blvd
911 Wilshire Blvd
950 S Grand Ave

LAX / EL SEGUNDO
10600 S Vermont Ave
16208 South Vermont Ave
17200 S Vermont Ave
17900 S Central Ave
1920 E Maple Ave
200 N Sepulveda Blvd
200 N Nash St
201 South Douglas St
2150 E Grand Ave
2160 E Grand Ave
222 N Sepulveda Blvd
2230 E Imperial Hwy
2250 E Imperial Hwy
2350 E El Segundo Blvd
301 South La Brea St
333 Continental Blvd
4505 Glencoe Ave
4640 Admiralty Way
4670 Admiralty Way
4676 Admiralty Way
5757 W Century Blvd
5777 W Century Blvd
5933 W Century Blvd

LAX / EL SEGUNDO, *cont.*
5959 W Century Blvd
601 E Compton Blvd
608 E Compton Blvd
6701 Center Dr W
6822 Santa Fe Ave
6900 S Vermont Ave
8530 Airport Blvd
9841 Airport Blvd
9920 S La Cienega Blvd

LONG BEACH
1625 Clark Ave
2665 W Seaside Blvd
3440 California Ave
3965 Clark Ave
3980 East 7th St
5077 East Lew Davis St
550 Elm Ave

BUENA PARK / ANAHEIM
1104 N Gilbert St
217 North Lemon St
2461 W La Palma Ave
2463 W La Palma Ave
300 S Harbor Blvd
3502 W Orange Ave
704 North Valley St
7701 Artesia Ave
905 E Discovery Ln

SANTA ANA
1055 N Main St
14452 Franklin Ave
1452 Edinger Ave
1600 E Saint Andrew Pl
17552 Gothard St
19111 Bushard St
1971 Irvine Blvd
2121 S Towne Centre Pl
4245 W Chapman Ave
4918 Irvine Ctr Drive
507 N Bush St
507 North Bush St
5117 W 1st St
602 S Santa Fe St
750 The City Dr S
770 The City Dr S
911 E Chapman Ave
1221 E Dyer Rd
1241 W Alton Ave
1251 E Dyer Rd
16842 Von Karman Ave
17222 Von Karman Ave

SANTA ANA, *cont.*
17642 Armstrong Ave
17770 Cartwright Rd
17836 Gillette Ave
17922 Fitch
1924 Deere Ave
200 Sandpointe Ave
2001 E Dyer Rd
2182 Alton Pkwy
2350 Main St
2501 Alton Pkwy
3150 Bristol St
3200 Bristol St
3200 Park Center Dr
3220 S Bristol St
3220 South Bristol St
555 Anton Blvd
600 Anton Blvd
611 Anton Blvd
650 Town Center Dr
695 Town Center Dr
72 Corporate Park
96 Corporate Park

IRVINE / COSTA MESA
1 Park Plaza
18101 Von Karman Ave
18201 Von Karman Ave
18401 Von Karman Ave
18700 Von Karman Ave
18831 Von Karman Ave
18881 Von Karman Ave
19000 Macarthur Blvd
19100 Von Karman Ave
19200 Von Karman Ave
2 Park Plaza
2525 Dupont Dr
2592 Dupont Ave
2640 Main St
2850 Red Hill Ave
3 Park Plaza
4 Park Plaza
4000 Macarthur Blvd
4023 Birch St
4400 Macarthur Blvd
4590 Macarthur Blvd
4695 Macarthur Ct
5 Park Plaza

PASADENA
1615 N Lake Ave
2947 Bradley St
600 E Green St

3.3.2 Proposed Project Construction

This section describes the Applicant's proposed project design and construction methods. The construction process for the installation of new underground conduit typically involves conduit installation, fiber optic line installation, and splicing of the fiber optic lines. These processes are described below.

Construction Methods for Conduit Installation

The Applicant proposes to utilize a mixture of company-owned outside plant (OSP) facilities. Potentially leased conduit and/or fiber would be deployed in one of three fashions:

- In new underground facilities,
- On existing aerial structures, or
- In existing underground structures leased from current owners.

Underground Facilities

Underground facilities are cables placed in subsurface conduits using maintenance holes and/or pull boxes as access points. The vast majority of these underground facilities would be installed beneath public ROWs, such as public streets, sidewalks, and greenbelts.

The method of conduit installation would be either by trenching or directional boring depending on one of several determining factors. These factors include governing authority requirements and/or restrictions, density and location of existing buried utilities, soil or environmental conditions, surface conditions, vehicular traffic, and installation costs. Trenching involves excavation by machine trench, backhoe, hand, etc. and includes the work required for shoring, bracing, and maintenance hole installation and entrances. Directional boring involves a surface-operated drilling device angled into the ground from the surface and subsequently directed to its destination by remote control. Some surface excavation is required for the location of pilot holes, bore pits (conduit tie-in points), and the placement of maintenance holes.

Generally, the Applicant's preference is to install underground facilities via trenching in dense urban areas and to utilize directional boring methods in suburban or less dense urban areas. The method of installation would dictate the type of subsurface conduits being installed. For trench installations, LGN would install two 4-way 1.5-inch rigid polyvinyl chloride (PVC) conduit packs buried at a depth of 36 inches (top of conduit). LGN's trench installation may be approximately 10 to 18 inches wide. Depending on the location of the trench, backfill materials would be either a concrete slurry mixture or native soil. For directional boring installation, 8 high-density polyethylene (HDPE) conduits would be pulled through the borehole. For both installation methods, maintenance holes would generally be 4 feet by 4 feet wide and 5 feet deep, with pre-cast, reinforced concrete. Restoration of the ROWs would be in accordance with best industry practices and governing authority requirements.

Any excess excavated materials remaining after the trench is backfilled would be transported to an appropriate disposal facility. Finally, the disturbed areas would be returned to their original condition or better. The conduit construction corridors would be confined within the existing ROWs or within the existing utility portals, channels, and corridors.

Aerial Facilities

Aerial facilities are cables and their associated supporting hardware (e.g. suspension strands, clamps) placed on poles or other supporting structures owned or provided by a third party, such as a power company, telephone company, or municipality. Generally a joint-use or attachment agreement with the third party entity would be required prior to installation. In addition, depending on the location of the poles, traffic control permits for construction of aerial facilities may be required from the governing authority.

LGN's basic method of installation for aerial facilities would be to install suspension clamps at each pole or supporting structure location. Cables would then be supported (lashed) to high-strength galvanized suspension strands held in place by the suspension clamps. Basic equipment required for aerial installations would be bucket trucks and cable reel trucks or cable trailers. All LGN aerial installations would follow best industry practices and all requirements specified in the joint-use or attachment agreement with local jurisdictions.

Aerial facilities could also be in the form of a bridge attachment that could be used as a means for crossing rivers and streams to avoid unnecessary impacts to biological resources. Bridge attachments commonly occur either by hanging the conduit to the exterior of the bridge structure or by installing the conduit within an existing cell or continuous void that runs the entire length of the bridge.

Leased Structures

Use of a leased structure would involve leasing existing subsurface conduit and/or fiber from a telephone company, municipality, or other third party entity. LGN would then install company-owned cable within the leased conduit. Depending on the location of the maintenance holes, traffic control permits may be required by the applicable governing authority prior to cable installation.

Table 3-3 provides a summary overview of construction methods for conduit installation.

Fiber Optic Cable Installation

After the conduit is in place and tested, fiber optic cable would be installed. In general, LGN contractors would install fiber optic cable into conduit by using a powered pulling device with hydraulic-powered assist wheels. A pull line would be attached to a plug that would be pushed through the conduit by air pressure. When the plug emerges at the end of the conduit section or access point, the pull line would be attached to the fiber optic cable. The pull line would then be pulled back though the conduit section, threading the cable through the conduit as it returns to the point of entry. A maximum pulling force of 600 pounds, or as specified by the manufacturer, would be applied to the lubricated cable using a pulling swivel break away rated at the required force. In some cases, compressed air cable-blowing machines may be utilized to install the cable. The cable would be spliced in splice cases located in handholes or manholes with sufficient slack allowed. The splices would be made with a profile alignment fusion-splicing machine.

Splicing of Cable Ends at Access Points

Splicing of sections of fiber optic cable at access points would be conducted consistent with LGN specifications regarding equipment, procedures, and testing. Appropriate lengths of excess (slack loop) fiber optic cable would be left at all splice locations to allow for cable expansion and contraction due to temperature and for any necessary future splicing.

Table 3-3. Summary of Construction Methods for Conduit Installation

Installation Process	Summary of Components
Underground Facilities	• Underground facilities consist of cables placed in subsurface conduits using maintenance holes and/or pull boxes. • Installation would be either by trenching or directional boring • Trenching involves excavation by machine trench, backhoe, hand, etc. and includes the work required for shoring, bracing, and maintenance hole installation and entrances. • Directional boring involves a surface-operated drilling device angled into the ground from the surface and subsequently directed to its destination by remote control. • For trench installations, LGN would install two 4-way 1.5-inch rigid PVC conduit packs buried at a depth of 36 inches (top of conduit). For directional boring installation, 8 HDPE conduits would be pulled through the borehole. • Any excess excavated materials remaining after the trench is refilled would be transported to an appropriate facility. • The disturbed areas would be returned to their original or better condition. • The conduit construction corridors would be confined within the existing ROWs or within the existing utility portals, channels, and corridors.
Aerial Facilities	• Aerial facilities are cables and their associated supporting hardware (e.g. suspension strands, clamps) placed on poles or other supporting structures owned or provided by a third party • Requires installation of suspension clamps at each pole or supporting structure location. Cables are then supported (lashed) to high-strength galvanized suspension strands held in place by the suspension clamps. • Equipment requirements include bucket trucks and cable reel trucks or cable trailers. • Bridge attachments are used as a means for crossing rivers and streams, by hanging the conduit to the exterior of the bridge or installing the conduit within an existing cell.
Leased Structures	• Leased structures involve the leasing of existing subsurface conduit and/or fiber lines. • Requires a cable reel truck or cable trailer, hydraulic cable pick-up wheel, and in certain instances a compressed air cable blowing device

Staging areas are locations where equipment and supplies are gathered and stored, or where preparations for directional boring are made. LGN has committed that no new staging areas for equipment would be established in undisturbed areas or on public lands, and that all staging areas would be located on private lands. No access roads would be constructed.

After installation of conduit, LGN would check each construction site for compliance and quality of site restoration. All deficits noted would be corrected or reported to the appropriate supervisor.

3.3.3 Construction Equipment and Workforce

This subsection outlines the types of crews, typical size of each crew (although the actual number of crew personnel could vary depending on the type of work to be done and the prevailing conditions at the time of construction), and equipment associated with each construction activity. Table 3-4 identifies the necessary crew and equipment for each construction activity that would be associated with the project.

Table 3-4. Description of Construction Activities, Equipment, and Personnel

Activity	Crew	Equipment
TRENCHING AND CONDUIT INSTALLATION		
Directional Drill Boring	**Directional Drill Crew.** Typically consists of 6 to 8 people who would perform directional drilling to install conduit. Its function would include digging the hole where directional drilling would be initiated, drilling under sensitive areas, pulling back conduit, and restoring construction areas to their original condition. This crew would ensure that any directional drilling spoils are transported to an appropriate facility for disposal.	• 1 water truck • 1 vacuum trailer • 1 drilling machine • 1 rubber tired backhoe • 1 bobcat or mini excavator
Dirt Open Trenching	**Dirt Trench Crew.** Typically consists of 8 people who would dig an open trench in non-paved alignments such as railroad ROWs. The crew would excavate the trench for the conduit, install conduit, install handholes and/or manholes at appropriate intervals, refill the trench, compact trench fill, and restore the surface. Most of the excavated dirt would be used to refill the excavation, and any dirt trench spoils would be transported to an appropriate facility for disposal.	• 1 backhoe • 1 tractor • 1 trencher
Street Open Trenching	**Street Trench Crew.** Typically consists of 10 people who would be responsible for open trenching in roadway ROWs. The crew would excavate the trench, install the conduit on native soil, install manholes and/or handholes at appropriate intervals, refill the trench, compact trench fill, and repave the roadway surface. Most of the excavated dirt would be used to refill the excavation. Any street trench spoils, such as paving materials, would be returned to the asphalt manufacturer or transported to an appropriate facility for disposal.	• 2 rubber tired backhoe • 1 tilt deck dump truck Repaving spread • Paving machine • Roller • Windrow elevator • Grinder
CABLE INSTALLATION		
Pulling Cable in Existing Conduit	**Cable Pulling Crew.** Typically consists of 8 people who would place fiber optic cable in the conduit. This crew would insert a cable-pulling line into the conduit, attach the line to the optic fiber cable, and pull the cable through the conduit. The crew at manholes and/or handholes would splice the cable as needed.	• 1 2-ton truck • 1 1-ton truck (winch truck) • 1 fiber trailer • 3 Capstan intermediate assist
Aerial Installations	**Aerial Cable Installation Crew.** Typically consists of 8 people who would perform all strand and cable installation work on aerial structures. The crew would install all necessary supporting hardware and cable-supporting strand on the structures and would lash the cable to the stand. The crew would also install riser conduits to provide transitions from underground conduit systems to the aerial structures.	• 4 bucket trucks • 1 fiber reel trailer

3.3.4 Construction Schedule

Construction of the project is scheduled to start as soon as the Applicant receives all necessary authorizations from the CPUC and other applicable governing agencies. Construction on some segments of the project may be subject to scheduling windows (i.e. time of day or year) to accommodate access constraints, such as roadway rush hours, or to avoid undesirable environmental effects, such as disruption of the breeding season of a sensitive species. Typical rates of progress for installation of conduit using open trenching and directional drilling construction methods are presented in Table 3-5.

Table 3-5. Typical Progress Rates by Construction Method and Site Condition

Crew & Site Condition	Typical Daily Progress
Metropolitan street trenching	85 ft.
Industrial street trenching	200 ft.
Residential street trenching	200 ft.
Dirt trenching	2,600 ft.
Directional drilling	300 ft.

3.4 Regulatory Requirements

The proposed project would cross multiple jurisdictions and would potentially require consultation, approval, and/or permits from various federal, State, and local agencies. Table 3-6 describes the regulations that would likely apply to the proposed project. In addition, the Applicant would be required to obtain encroachment permits for work within public roadway ROWs from affected local jurisdictions. For State highways, the Applicant would be required to obtain encroachment permits from the California Department of Transportation (Caltrans).

Table 3-6. Applicable Regulations

Regulation	Brief Description
Section 401 of the Clean Water Act	Requires the Applicant to obtain a Water Quality Certification from the applicable Regional Water Quality Control Board (RWQCB) for discharges into regulated waters.
Section 402 of the Clean Water Act	Requires that a National Pollution Discharge Elimination System (NPDES) certification be obtained from the applicable RWQCB before construction of a project that may disturb one or more acres of land.
Section 404 of the Clean Water Act	Requires the issuance of an individual or nationwide permit from the U.S. Army Corps of Engineers before discharging into the waters of the United States, including wetlands.
Section 7 of the Federal Endangered Species Act	Requires consultation with the U.S. Fish and Wildlife Service and National Marine Fisheries Service regarding measures to avoid harm to plant, fish, and wildlife species that are federally listed as threatened or endangered under the Endangered Species Act.
Section 106 of the National Historic Preservation Act	Requires examination of cultural resources before various federal agencies can provide permits under their jurisdiction. Section 106 establishes requirements and protocols for pre-construction cultural resource surveys and mitigation of impacts on cultural resources.
Section 1603 of the California Fish and Game Code	Requires a streambed alteration agreement from the California Department of Fish and Game (CDFG) before any action is taken that would obstruct or divert the flow or alter the channel of designated drainages, rivers, streams, and lakes. Potential impacts must be mitigated.
California Native Plant Protection Act of 1977	Provides protection for certain native plants.
California Endangered Species Act of 1984	Protects California State-listed threatened or endangered species from takings that cause harm to the species or the species' habitat.

3.5 Programmatic Process

Because this document evaluates impacts on a programmatic level, it will be necessary for the CPUC and other agencies to review, prior to construction, the specific construction activities that LGN will complete, in order to determine whether the current program-level of environmental review is appropriate for the individual work areas, schedules, and methods that are defined in the future. To serve this purpose, 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 cited in this IS/MND.

3.5.1 Work Plan Submittal/Request For Notice to Proceed

Pursuant to the proposed Programmatic Process, LGN may not begin construction on any activities within a given study zone until the CPUC specifically authorizes the construction of such facilities in that study zone by issuance of a Notice to Proceed (NTP). To initiate the NTP approval process for each of the 24 study zones, LGN must submit to the CPUC the proposed route-specific construction plans and a detailed description of the proposed activity in the form of work plans. Each work plan must contain the following information at a minimum:

- **Description of Proposed Construction**: LGN shall describe the proposed connections and/or installations in a text description that includes the name of the applicable study zone, a proposed construction schedule, construction plans, a detailed map with a scale indicated, and the purpose of the specific installation.
- **Environmental Checklist**: LGN must submit an environmental checklist with each work plan to determine whether the environmental effects of the proposed activities were covered in the IS/MND and which mitigation measures developed within this IS/MND would be applicable to and required for implementation of the work plan.
- **Agency Review**: LGN must provide all required permits for authorization of the proposed activities, including all required permit stipulations or findings of the subject review or consultation (e.g., encroachment permits, traffic control plans, 404 permits).

If the results of the environmental checklist indicate that environmental effects may occur that are not covered in this IS/MND, then LGN must either revise the work plan to avoid such effects (and revise the checklist as appropriate for re-submission) or submit a complete application (and all accompanying documents) to modify the existing CPCN.

3.5.2 Notification Requirements

Prior to submittal of a work plan for a particular study area, LGN must identify and submit a list of all trustee and responsible agencies, including all special districts, and all local jurisdictions (cities and counties) in which activities under the work plan will occur, as well as all regional resource and planning agencies related to the location of the proposed activities. LGN shall provide a draft notice of construction and the list of agencies described above to the CPUC for review and approval 14 days prior to the submittal of the work plan.

The notice shall include the following information:

- A concise description of the proposed construction and facilities; their purpose; and route/location.
- A list of mitigation measures that would be implemented in connection with the activity (e.g., dust-control, noise suppression, species and habitat avoidance, etc).
- Instructions on how to comment on the proposed construction (contact information at both CPUC and LGN) and deadlines.
- Instruction on how to obtain a copy of the work plan submitted to the CPUC.
- Proposed dates of construction (i.e., starting date and duration).

Following the approval of the draft notice, LGN may submit a work plan for the proposed activities within the applicable study zone that is specifically described in the notice of construction. Upon submittal of the work plan to the CPUC, LGN will issue the notice of construction and the work plan to all agencies verified by the CPUC and others the CPUC may deem appropriate for a 21-day review period.

Additionally, in conjunction with the agency notification and in coordination with the CPUC, LGN shall post a notice of construction along the project route/location and notify all current occupants and property owners adjacent to the proposed work plan location(s). Both the agency notification and public notification shall solicit comments on whether the IS/MND and its mitigation covers the project activities and their impacts described in the work plan. During the 21-day notification period, the CPUC will consider any relevant comments or concerns from the agencies and the public that may substantially influence issuance of an NTP for the proposal within the applicable study zone.

3.5.3 CPUC Review and Authorization

CPUC staff will review the work plan and supporting documentation upon receipt of the proposal and provide comments to LGN. If the work plan is reviewed and it is determined that the activity does not fall within the scope of the approved IS/MND, then the work plan would be considered outside the scope and LGN would be informed that subsequent environmental analysis would be required.

If all conditions listed below are met, the CPUC will issue an NTP within approximately 21 days of the end of the notification period (or approximately 42 days from work plan submittal) regarding its acceptance or denial of the activities proposed within the work plan:

- The information is deemed complete;
- LGN demonstrates compliance with the IS/MND;
- Comments received from relevant agencies and the public during notification of the work plan do not indicate any substantially new or more severe impacts; and
- The information included in the work plan demonstrates that (a) identified impacts are neither broader in scope nor more severe than those previously analyzed in the IS/MND, and (b) all proposed mitigation was previously disclosed in the IS/MND.