City of Mountain View

Project Description
Fiber to the Premises City-Wide Master Plan

April 2016

Project No. 0272480

Environmental Resources Management
99 South Almaden Boulevard, Suite 663
San José, California 95113
T: 408-610-7122

1.0 PROJECT DESCRIPTION

1.1 PROJECT OVERVIEW

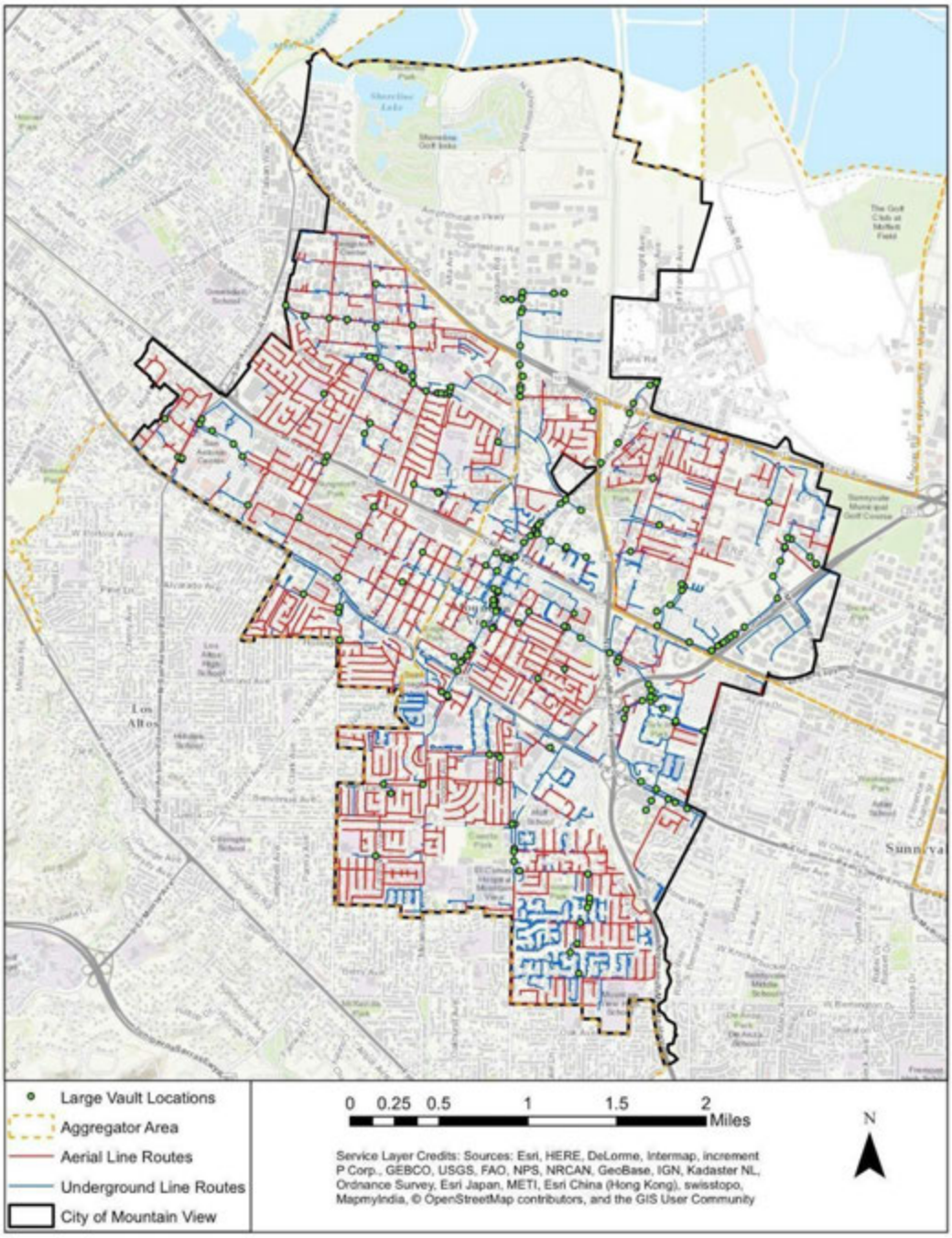
The applicant is proposing to construct a fiber-to-the-premises (FTTP) infrastructure network that would allow the applicant to provide Internet and video service throughout the City of Mountain View. The proposed Project includes the installation of Local Aggregation Sites (aggregators) that connect to main line fiber-optic infrastructure. From these aggregators (placed in equipment rooms of existing facilities), the fiber cables would travel along existing utility corridors (either above or below ground) into underground vaults (or, if necessary, above-ground utility cabinets) and then from the vaults/cabinets to customers.

1.2 PROJECT LOCATION

The proposed Project would be located wholly within the boundary of Mountain View and would largely be limited to public right of way, including utility easements. The City of Mountain View sits at the base of the Santa Cruz and Diablo mountain ranges at the southern end of the San Francisco Peninsula, where the Peninsula joins the Santa Clara Valley. The City is approximately 12 square miles in size and is located in northwestern Santa Clara County. The City is bounded by Palo Alto to the west, Los Altos to the south, Sunnyvale and NASA-Ames/Moffett Federal Airfield complex to the east, and the San Francisco Bay and tidal marshes to the north. Under existing conditions, Mountain View is mostly built out with little remaining vacant land.

The proposed Project would be located within the developed urban areas of the city. Most of the Project would be located within the public rights of way, with limited Project facilities within existing commercial properties. The conceptual layout of proposed facilities for Mountain View is shown in Figure 1, Conceptual Layout of Proposed Facilities.

Figure 1 Proposed Facilities



1.3 PROPOSED PROJECT

The applicant's FTTP infrastructure consists of four primary elements: (1) installation of a Fiber Ring, (2) which is connected to Local Aggregation Sites (LASs), (3) which then connects to underground vaults (or, if necessary, in above-ground cabinets), and (4) connections to customers. The conceptual layout of facilities currently proposed for the City of Mountain View is shown in Figure 1, Conceptual Layout of Proposed Facilities.

Fiber optic cable installation within the existing public right of way and utility easement are fully compatible with existing uses. The core of the cable is made of one or more glass or plastic fibers that transmit signals using light instead of electricity. As such, fiber optic cable is immune to all forms of electrical interference and there is no electromagnetic radiation from fiber optic cable.

1.3.1 The Fiber Ring

The backbone of the build, the Fiber Ring is the base infrastructure for the FTTP network. In practice, the Fiber Ring would not be a smooth concentric circle, but instead would follow existing right of way to circle the city in a manner best suited to provide access throughout the city. From the Fiber Ring, a trunk and branch pattern would extend out into the city, ultimately providing service to customers. If available and suited to the applicant's needs, the Fiber Ring infrastructure could be achieved by acquiring or leasing existing "dark" fiber (i.e., fiber-optic cable that is not currently being used).

1.3.2 Local Aggregation Sites

The proposed Project will include the installation of aggregators within the city. The aggregators will connect to main line fiber-optic infrastructure. The applicant will place the fiber aggregation equipment within existing commercial buildings, such as buildings that are owned or leased by Google. These LAS locations would contain fiber aggregation equipment, including computers, equipment and ladder racks, network equipment, cable trays, and fiber patch panels, inside the existing building with the exception of adding a backup generator outside of the building. Infrastructure to be installed would include conduits to access the building and approximately 8 Type A vaults (see Section 1.3.3)

installed on the property as well as in the public rights of way and utility easements. Power and heating, ventilating and air conditioning in most cases would be provided by the existing infrastructure in each building. However, in some instances, interior improvements or minor modifications to the building(s) where the aggregators would be housed may be necessary as part of the installation, and the applicant would obtain the applicable City approvals.

LAS equipment will require the installation of backup generators, which are detailed further in Section 1.5. These generators will operate in compliance with city noise ordinances for stationary equipment noise, as outlined in Section 1.7.5.1 (Generator Noise), Table 3.

The applicant would install the LASs on private property, in existing buildings in the City of Mountain View. Sites include:

- Site One - 891 West Maude Avenue, Mountain View, CA 94043
  The LAS site is located within the existing building located at the intersection of West Maude Avenue and the 237 freeway entrance ramps.

- Site Two - 946 Linda Vista Avenue, Mountain View, CA 94043
  The LAS site is located within the existing building located near the intersection of Linda Vista Avenue and Moonbeam Drive.

- Site Three - 1400 Terra Bella Avenue, Mountain View, CA 94043
  The LAS site is located within the existing building located at the intersection of Terra Bella Ave and West Middlefield Road

1.3.3 Type A Vaults

Connections between LASs and neighborhoods receiving service ("fiberhoods") would be accomplished by installing Type A Underground Vaults throughout the city. All Type A Vaults would be sized to 36 inches by 48 inches at most, as shown in Figure 3, except Type A vaults installed at LASs, which would be 36 inches by 78 inches at most. Type A Vaults would provide system access as well as space for fiber splice locations and fiber cable storage. Type A Vaults are proposed in lieu of typical above ground utility cabinets. However, certain situations may require the deployment of above ground cabinets as part of the system to enhance system performance.

Figure 3 *Type A Vault shown installed next to a light post*

For Mountain View, the anticipated build-out would require approximately 300 Type A Underground Vaults. Criteria that would be used to site vaults and other network infrastructure include the following:

- Network optimization
- Conflict with other utilities
- Safety
- Impact on residences
- Aesthetics
- Street characteristics

When placing Type A Vaults, attention to the visual impact of the adjacent property owners will be considered. Typical locations would be in the right of way where other similar utility equipment is placed; actual locations will be made in consultation with the City. The applicant would locate Type A Vaults adjacent to existing landscaping and fencing to the maximum extent feasible.

Future system upgrades would be accomplished by adding or replacing internal equipment at Type A Vaults to meet future capacity requirements. Type A Vaults have been designed to accommodate the future addition of card shelves and other technical components without having to make future modifications to the vaults themselves.

1.3.4 Type B Vaults

Additional access to the conduits would be provided by installing Type B Underground Vaults along the proposed route. Type B Vaults generally will be installed at every other residential and small business property along the proposed fiber route, at varying distances depending on parcel size.

As opposed to Type A Vaults, Type B Vaults would only provide a small access point to the cable and would not provide space for any additional equipment, as shown in Figure 4. The majority of Type B Vaults would measure approximately 12 inches by 30 inches. Some vaults may be bigger, but will not exceed 24 inches by 36 inches. All Type B Vaults would be in public right of way outside of the vehicle travel way behind the curb. Vaults would extend up to 48 inches below the existing ground surface. For Mountain View, the anticipated build-out would require up to 3,900 Type B Vaults, in addition to the 300 Type A Vaults discussed above. Like the Type A Vaults, the Type B Vaults would have no above ground profile.

Figure 4 Type B Vaults shown installed

1.3.5 Utility Cabinets

Although it is anticipated that traditional utility cabinets would not be necessary, certain situations may require the deployment of above ground cabinets as part of the system to enhance system performance. If necessary, cabinets would also be placed in public rights of way, as shown in Figure 5. If needed, cabinets would be sited away from where they could be seen by customers. If utilized, some of the above ground cabinets could be up to 33 inches by 17 inches and less than 3 feet high. Most cabinets would generally only be 17 by 17 inches and less than 3 feet high. Cabinet measurements represent maximum size and would commonly be smaller. If necessary, the anticipated build-out in the city of Mountain View would require up to 10 cabinets. Criteria that would be used to site cabinets would follow the protocol for Type A Vaults. Cabinet installations shall meet the City's permitting requirements.

Figure 5 Utility Cabinet (during installation)

1.3.6 Fiber Cable/Conduit

The Fiber Ring, LASs, vaults, and cabinets are all interconnected by the basic trunk and branch architecture of the system. To the maximum extent practicable, cable required for the proposed Project would be installed aerially on existing utility poles. With new aerial construction, the fiber cables will be lashed to new strand wire connected to existing above ground poles.

Where aerial installation is not available or practicable, conduit required to carry cable for the proposed Project would be installed within existing rights of way using rock-sawing, horizontal directional drilling (HDD), trenching and micro-trenching (if approved by the city). Up to six conduits with innerducts would be installed approximately 24 inches below the ground surface; site-specific depth would be determined in consultation with the City. The conduits would be 2-inch-diameter and 4-inch, standard-dimension-ratio polyethylene or polyvinyl chloride pipe, depending on the design. To comply with specific design requirements, borings under rail, Santa Clara Valley Water District (SCVWD) creeks/facilities, San Francisco Public Utilities Commission (SFPUC) Hetch Hetchy lines and highway corridors could require installation of steel pipe.

1.4 CONSTRUCTION

Prior to commencing construction activities, field teams would mark the necessary underground areas with spray paint along the conduit alignments for route location identification purposes to assist in pre-clearance surveys. Surveys of both underground and aboveground build corridors would identify potential build risks or potential tree-trimming needs. Pre-clearance surveys for migratory birds where tree trimming is identified shall include a certified arborist and a qualified biologist.

In terms of construction schedule, it is anticipated that the Fiber Ring and LASs would be installed within approximately 36 months of beginning construction in Mountain View. Construction of the FTTP service would be staggered throughout the City as build-out would be conducted in the most efficient way possible. Based on build-out in previous communities, the applicant anticipates complete build-out within the City would be achieved within approximately 36 months of Project approval.

An individual portion of the network might have multiple separate construction crews working at any given time, with aerial installation, rock sawing, trenching or micro-trenching (if approved by the City), directional drilling, and cabinet installation occurring at the same time in different locations. These techniques are described in more detail later in this section.

All construction activity conducted along roads and highways would employ specific traffic control measures in accordance with the standards published in California Department of Transportation (Caltrans), California *Manual on Uniform Traffic Control Plans* (CA-MUTCD 2014).

1.4.1 Local Aggregation Sites Installation

The Project would require up to three LASs for the city-wide network. LAS infrastructure would be installed in commercial buildings and fiber aggregation equipment would be delivered to the site by trailer truck and installed within the building.

Two construction crews of six workers could complete each LAS site in approximately 8 weeks.

1.4.2 Fiber-Optic Line Installation

As introduced above, the majority of the conduit required for the proposed Project would be installed using five construction methods—aerial installation, rock-sawing, HDD, trenching and micro-trenching (if approved by the City). The applicant anticipates 45 percent utilization of rock-sawing/HDD/trenching methods and 55 percent utilization of aerial installation, subject to change based on final design and construction constraints. Construction methods will be determined on a site-by-site basis as agreed in the Master Encroachment Agreement and through site-specific permits; however, a description of potential construction methods is provided here.

1.4.2.1 Aerial Installation

For the percentage of the proposed Project that will be installed aerially, fiber cables will be attached to existing utility poles. The Project will follow the path of these existing utility poles and will not require the installation of any additional poles. However, if the condition of an existing pole is not acceptable for construction, replacement poles may need to be installed.

The basic method of installation for aerial facilities would be to install suspension clamps at each pole. Cables would then be supported by (lashed to) high-strength galvanized suspension strands held in place by the suspension clamps. The strand is high-tensile steel and would be placed under tension to control sag.

Standard aerial construction techniques and typical two-axle, rubber-tire vehicles would be used to attach cables and associated equipment to most utility poles. Basic equipment required for aerial installation includes bucket trucks and cable reel trucks or cable trailers. At least one crew and one bucket truck would travel the pole line alignment. The cable reel truck would carry spooled fiber that would be unwound for installation on the existing poles.

1.4.2.2 Rock-Sawing

A rubber-tired rock-saw excavator would be used to dig trenches approximately 2 feet deep and 6 inches wide, typically 3 to 6 feet from the edge of the roadway. The conduit would be placed in the trench. A T-Cut method would be utilized for pavement restoration. Once trenching has been completed, debris would be removed, backfilled with controlled density fill (CDF) and the asphalt or concrete surface would be restored per the City's permitting requirements. If rock-sawing is used in dirt, the trench would be restored with native backfill.

1.4.2.3 Trenching

When an open trench is utilized for construction in concrete or asphalt, the typical construction process would consist of using trenching/excavating equipment to cut a minimum 14-inch-wide opening, preferably immediately off the concrete curb and gutter line in the street area. The trench would be excavated to a depth of approximately 24 inches. The 24-inch depth below existing grade would be maintained during installation, except where existing obstructions, underground congestion, or other reasons necessitate a shallower depth. Conduits would be placed at the bottom of the trench. Trenches in asphalt would be restored using a T-Cut method, backfilled with CDF and the surface restored per the City's permitting requirements. Trenches in concrete would be backfilled with CDF, and the surface would be restored per the City's permitting requirements. If trenching is used in dirt, the trench would be restored with native backfill, and the surface would be restored per the City's permitting requirements.

1.4.2.4 Micro-Trenching

Micro-trenching will only be used if approved by the City. Micro-trenching is used to cut a shallower trench, less than 2 inches wide and to a maximum depth of about 24 inches. Micro-trenching is performed using a saw that looks like a large circular saw, which can make a trench in either concrete or asphalt. Crews are able to trench more efficiently, laying the fiber-optic cable inside the trench immediately behind the micro-trenching. As with regular trenching, the micro-trench backfill and surface would then be restored per the City's permitting requirements.

1.4.2.5 Horizontal Directional Drilling

The HDD method of construction, if required, would be used to place conduit bundles under road and railroad crossings, utilities, or other obstacles in the ground. This method of construction consists of subsurface boring using a guided drill head. To start the bore, a typical surface-operated drilling device would be angled into the ground near the entry pit, creating a 3- to 4-inch pilot hole. Typically, a 6-inch back ream would then be attached and pulled back through the pilot hole, connecting the receiving pit to the entry pit. The back ream would increase the pilot hole to the required diameter, approximately 6 inches, to a maximum depth of approximately 96 inches. The depth will be agreed with the City on a site-specific basis to address subsurface features such as tree roots and other potential obstructions to be avoided.

HDD uses a bentonite/water mixture that is pumped down the drill stem to run the drill head, lubricate the drill pipe, maintain the bore hole, and remove bore cuttings. Bentonite is a non-toxic fine clay that, when mixed with water, provides the necessary lubrication and operating fluid for the drilling process. The bentonite/water mix would be prepared on site and circulated in tanks and/or tanker trucks.

1.4.2.6 Stream Crossings

In cases where the Project would need to cross streams and waters, such crossings would be achieved by use of existing infrastructure (such as bridges or poles) to go over the stream or water, such that no work would occur within the bed or banks of the stream or water. The applicant would consult with the appropriate regulatory authorities to obtain the necessary permits and approvals.

1.4.2.7 Potholing

Potholing will be required in conjunction with underground construction for all types of excavation including HDD operations. Potholing is the practice of excavating a test hole to expose underground utilities to ascertain the horizontal and vertical location of the facility prior to construction activities. While potholing can be accomplished through various types of excavation methods, vacuum excavation is a preferred method for nondestructive exposure of buried facilities. This

method utilizes pressurized water or air to break up soil that is removed through a truck mounted suction hose and deposited into a debris tank on the truck. Once the dirt is removed, the exact location of the utility is exposed. After the drilling is completed, the pothole will be restored in accordance with the City's standards and specifications. This technique can also be utilized in situations where other sensitive underground features, need to be avoided. Potholing near tree roots will require the hand-digging method.

1.4.3 Installation of Vaults and Cabinets

All vaults (Type A or Type B), would be installed underground to a depth of up to approximately 48 inches with the top of the vault at grade or, in a few cases, be installed in above ground cabinets (see Section 2.3.5). For Type A Vaults, the ground would be excavated using a backhoe or excavator, and Type B Vaults would be excavated by manual labor. All vaults would be installed in direct line with or directly adjacent to the installed buried conduit. Above ground cabinets, if necessary, would be installed at grade; curbs and storm water infrastructure would not need to be modified, but may be temporarily taken out of service during construction. Construction affecting these structures would be avoided during rainy seasons or other storm events.

1.4.4 Labor Force, Construction Vehicles, and Equipment

A labor pool of approximately 34 crews of various types at Project peak would be needed to complete the construction activities noted above, as summarized in Table 1, below.

Table 1 Projected Construction Labor Force

Construction Phase	Labor (Each Crew)	Peak Crews
LASs	Foreman (1) Equipment Operator (1) Laborers (4)	2
Rock-Sawing	Foreman (1) Equipment Operator (4) Laborers (6)	5
Trenching/Micro-trenching	Foreman (1) Equipment Operator (2) Laborers (4)	5
Aerial Installation	Foreman (1) Equipment Operator (2) Laborers (4)	5

Directional Drilling	Foreman (1) Equipment Operator (2) Laborers (4)	8
Vault Installation	Foreman (1) Equipment Operator (1) Laborers (2)	2
Construction of Cabinets	Foreman (1) Equipment Operator (1) Laborers (4)	2
Underground Cable Placement	Foreman (1) Equipment Operator (1) Laborers (4)	2
Aerial Cable Placement	Foreman (1) Equipment Operator (2) Laborers (4)	2

Notes:
LAS = Local Aggregation Sites

Estimates of construction activities are based on the following quantities and assumed average production rates:

- LAS Installation: Up to three LASs to install/place, with one crew averaging a LAS installation in up to 60 working days.
- Vault Installation: Approximately 4200 underground vaults to place, with one crew averaging ten vaults per day over a 400 working day construction period.
- Aerial: Approximately 97 miles (512,160 linear feet) to place, with one crew averaging 2,000 feet per day over a 200 working day construction period.
- Rock-Sawing/Trenching: Approximately 6 miles (31,680 linear feet) to place, with one crew averaging 500 feet per day over a 63 working day construction period.
- HDD: Approximately 75 miles (396,000 linear feet), with one crew averaging 450 feet per day over a 420 working day construction period.
- Cabinet Installation (if necessary): Up to 10 cabinets to place, with one crew averaging up to one cabinet per day for 30 working days.
- Cable placement:
    - Underground conduit: Approximately 81 miles to place, with 2 underground crews averaging 4000 feet per day over a 500 day work window.
    - Aerial: Approximately 97 miles to place, with 2 aerial crews averaging 2000 feet per day over a 500 day work window.

The following identifies the currently anticipated equipment for each construction activity type:

- LAS within existing Commercial Building Installation:
  - Three pickup/utility trucks
  - One Semi-Truck
- Rock-Sawing:
  - Three pickup/utility trucks
  - One excavator/rock saw/crusher
  - One cable/ conduit trailer
  - Two dump trucks
- Trenching:
  - Three pickup/utility trucks
  - One trencher
  - One excavator
  - Two dump trucks
  - One backhoe
- Directional Drilling:
  - Two pickup/utility trucks
  - One boring rig
  - One backhoe
  - Aerial Installation
  - One pickup/utility truck
  - One bucket truck
  - One cable/ strand reel trailer
- Vault Installation (and Cabinets, if necessary)
  - Two pickup/utility trucks

The majority of construction equipment and materials would be stored at contractor and/or supplier facilities until needed. Staging areas, if necessary, would be established only within standard working hours, within public rights of way or other disturbed areas along the proposed construction route, prior to issuance of the permit. If it is not possible to locate staging areas in the rights of way due to narrow roads or other constraints, the contractor would locate staging areas, equipment lay-down areas, and storage areas in paved or graveled yards or other disturbed areas as close to the construction areas as possible. Proposed staging areas would be submitted for review during the permitting stage, and will be established prior to issuance of the permit.

1.5 OPERATIONS

Following construction of the proposed Project, operations and maintenance activities would be minimal. Operations would be limited to the intermittent maintenance of the new fiber-optic line and associated equipment installed throughout the network.

Two diesel-fired 600-kilowatt backup generators will be located at Site One (as described in Section 1.3.2), immediately adjacent to the existing commercial building. The generators would be cycled approximately 1 hour every two weeks for testing, plus an additional hour each year in full standby mode for maintenance and testing purposes. The generators would also need to run during power outages.

One natural gas-fired 125-kilowatt backup generator will be located at both Site Two and Site Three, immediately adjacent to the existing commercial building. The generators would be cycled approximately 1 hour every two weeks for testing, plus an additional hour each year in full standby mode for maintenance and testing purposes.

These generators will operate in compliance with city noise ordinances for stationary equipment noise, as outlined in Section 1.7.5.1 (Generator Noise), Table 3. These generators will also operate within Bay Area Air Quality Management District CEQA thresholds, as outlined further in Section 1.7.1.3 (Exhaust Emissions from Generators).

Since the proposed Project would be located within an existing public right of way, there are as-needed maintenance activities, similar to those already occurring at pole locations and within public right of way to maintain these existing utilities. Maintenance activities associated with the proposed Project would consist of periodic inspection by patrol in a pickup truck of the Project route facilities to determine if repairs and/or vegetation trimming would be required. If repairs are necessary, these activities would generally be similar to construction-related activities; however, the duration, intensity, and/or frequency of said activities would be substantially less.

1.6 REQUIRED PERMITS AND APPROVALS ANTICIPATED

The following permits and approvals may be required to implement the proposed Project, depending on site-specific plans:

- City of Mountain View – Use/Encroachment Permit.
- City of Mountain View – Excavation Permit for actual work in the right of way.
- City of Mountain View – Building and Grading Permits.
- Bay Area Air Quality Management District (BAAQMD) —Authority to Construct and Permit to Operate backup generators at LAS sites
- California Department of Transportation (Caltrans) – Right of way permits, if needed.
- City of Los Altos, City of Sunnyvale and City of Palo Alto, if needed.

The following agencies may be consulted to determine whether rights of way or other related approval may be required:

- Santa Clara Valley Water District (SCVWD)
- Santa Clara County Roads and Airports Department
- CalTrain Joint Powers Board
- Santa Clara Valley Transportation Authority
- San Francisco Public Utility Commission (SFPUC)
- Environmental Protection Agency
- California Regional Water Quality Control Board (CA RWQCB)
- U.S. Environmental Protection Agency
- National Aeronautics and Space Administration (NASA)/AMES

1.7 ENVIRONMENTAL COMMITMENTS

The commitments below are included as integral components of the Project design and operations as a matter of sound and standard practice.

1.7.1 Air Quality

1.7.1.1 Dust Emissions

BAAQMD basic construction measures will be implemented to reduce dust emissions. The applicant will require all construction contractors to

implement the following standard BAAQMD emission reduction measures to reduce dust emissions:

- All vehicle speeds on unpaved roads will be limited to 15 miles per hour (mph).
- A publicly visible sign will be posted with the telephone number and person to contact with the Project Applicant and at the Lead Agency regarding dust complaints. This person will respond and take corrective action within 48 hours. The air district's phone number will also be visible to ensure compliance with applicable regulations.

1.7.1.2 Exhaust Emissions From Construction Equipment

The Bay Area Air Quality Management District (BAAQMD) does not require permits for exhaust emissions from off-road heavy construction equipment or mobile sources associated with construction (per Rule 114.2.5). Therefore, construction-related exhaust emissions will be minimized by the use of standard measures and best practices.

The applicant will require all construction contractors to implement the following standard BAAQMD emission reduction measures to reduce temporary construction-related exhaust emissions:

- Idling times will be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR 2014]). Clear signage will be provided for construction workers at all access points.
- All construction equipment will be maintained and properly tuned in accordance with manufacturer specifications. All equipment will be checked by a certified mechanic and determined to be running in proper condition prior to operation.

1.7.1.3 Exhaust Emissions from Generators

As described in Section 1.5, we will be installing generators outside of each of our Local Aggregation Sites. All types of generators used (natural gas-fired and diesel-fired) will operate well within Bay Area Air Quality Management District CEQA thresholds, as outlined below in Table 2.

Table 2 Exhaust Emissions from Generators

Generator Type	Projected Generator	Bay Area Air Quality Management

	Emissions (lb/day)[1]				District CEQA Threshold (lb/day)			
	ROG	NOx	PM10	PM2.5	ROG	NOx	PM10	PM2.5
125 kW Natural Gas-Fed Generator[2]	0.15	0.61	0.04	0.04	54	54	82	54
600 kW Diesel-Fed Generator[3]	0.97	2.65	0.30	0.30	54	54	82	54

1.7.2 Biological Resources

1.7.2.1 Habitat

The applicant will not perform construction in the North Bayshore Precise Plan Habitat Overlay Zones. The applicant will consult the North Bayshore Precise Plan (NBSPP) for work adjacent to Habitat Overlay Zones, and will comply with standard practices and guidelines, including seasonal restrictions, to avoid impacts to sensitive habitats.

The City of Mountain View General Plan 2030 identifies goals and policies to protect and sustainably manage unique biological resources within the city (Policies INC 16.1-16.6), as well as to promote an integrated approach to sustainable watershed management (Policies 17.1.-17.4). Development will be required to be consistent with all local policies and ordinances protecting biological resources; therefore, no conflict would occur.

1.7.2.2 Vegetation

Vegetation will be protected by observing the following standard measures:

[1] The emergency generators would operate approximately one hour every two weeks for testing, plus an additional hour each year at "full standby" mode. These hours of operation were used to estimate the diesel particulate matter emissions, based on the factors included in the generator spec sheets.
[2] Make: Cummings, Model number: GGHJ
[3] Make: Cummings, Model number: DQCA

- Surface stabilization and reclamation will be accomplished by removing all construction debris from the Project area and returning the soil to its original contours.
- Vegetation restoration will only use native seeding.
- The applicant will not perform construction in the NBSPP Habitat Overlay Zone.

1.7.2.3 Trees

There may be a need for tree-trimming as part of the project but removal of trees is not proposed or anticipated. If tree trimming were to occur, it would comply with the City's tree trimming guidelines. In addition, trees within the construction zone will be protected by observing the following standard BMPs, which are incorporated into the project:

- Damage to any tree during construction will be reported by the responsible contractor or the owner to the director within 48 hours, and the contractor and/or owner will treat the tree for damage in the manner specified by a certified City arborist.
- No construction equipment, vehicles, or materials will be stored, parked, or standing within portions of the tree dripline on bare ground.
- Drains will be installed according to City specifications so as to avoid harm to trees due to excess watering.
- Wires, signs, and other items will not be attached to trees.
- Cutting and filling around the bases of trees will be done only after consultation with the certified arborist and a biologist qualified to identify active nests, and then only to the extent authorized.
- No liquid or solid excess, waste construction materials, or wastewater will be dumped on the ground or into any grate between the dripline and the base of a tree or uphill from any tree where certain substances might reach the roots.
- Barricades will be constructed around the trunks of trees as indicated by the City so as to prevent injury to trees making them susceptible to disease-causing organisms.
- Appropriate measures will be taken to prevent exposed soil from drying out and causing damage to tree roots.

1.7.3 Cultural Resources

The following standard measures will apply to ensure known cultural resources are avoided:

- Prior to permitting and construction, the applicant will consult with the Mountain View Register of Historic Resources to review the proposed final network design to ensure consistency with the City of Mountain View General Plan and General Plan policies, as applicable.
- Prior to the initiation of any site preparation and/or start of construction, Google Fiber will ensure that all construction workers receive training overseen by a qualified professional who is experienced in teaching non-specialists, to ensure that forepersons and field supervisors can recognize archaeological or paleontological resources in the event that any are discovered during construction.

The following standard measures will apply in the event unknown cultural resources are encountered during construction:

- All construction activity within a minimum of 30 feet of the find/feature/site will cease immediately.
- All remains or materials are to be left in place unless in jeopardy because of Project activities.
- The area will be secured to prevent any damage or loss of removable objects. If feasible, a fence or other barrier will be erected to demarcate and protect the find.
- The Consulting Archaeologist or Paleontologist will be notified and once on scene will record the find location and delineate the extent of the find relative to planned project activities. The Consulting Archaeologist or Paleontologist will assess, record, and photograph the find.
- Within 48 hours of the find, the Consulting Archaeologist or Paleontologist will notify the appropriate agency officials. If cultural resources or remains have the potential to be culturally significant to a living Native American Tribe, agency officials will notify the California Native American Heritage Commission (NAHC).
- The Consulting Archaeologist or Paleontologist will make a recommendation on the NRHP eligibility of the resources, and the effect of project activity on historic properties, if present.
- If the historic properties cannot be avoided, the Archeologist or Paleontologist will identify actions to minimize impacts, which could include one or more of the following: shifting the Project footprint away from the resource; limiting activities in the vicinity of the resource; or monitoring construction activities near the resource to inform whether additional actions are warranted. If none can be identified, a Data Recovery Plan will be developed, in consultation with the appropriate agency officials and consulting parties, in

accordance with Section 21083.2 of the PRC and Title 14, Section 15126.4 of the CCR.

A consulting archeologist will visit the discovery site as soon as practicable for identification and evaluation pursuant to Section 21083.2 of the PRC and Title 14, Section 15126.4 of the CCR. If the archaeologist determines the artifact is not significant, construction may resume. If the archaeologist determines the artifact is significant, the archaeologist will determine if the artifact can be avoided and, if so, will detail avoidance procedures. If the artifact cannot be avoided, the archeologist will develop within 48 hours an Action Plan that will include provisions to minimize impacts and, if required, a Data Recovery Plan for recovery of artifacts in accordance with Section 21083.2 of the PRC and Title 14, Section 15126.4 of the CCR.

State laws pertaining to the discovery of human remains will be followed. Work in areas where any burial site is found will be restricted or stopped until proper protocols are met. Upon discovering any burial site as evidenced by human skeletal remains, the County Coroner will be notified within 24 hours. No further excavation or disturbance within 30 feet of the site or any nearby area reasonably suspected to overlie adjacent remains may be made except as authorized by the County Coroner, California NAHC, and/or the County Coordinator of Indian Affairs.

1.7.4 Hazardous Materials and Safety

The following standard safety measures will be observed:

- All Occupational Safety and Health Administration (OSHA) mandatory health and safety standards for construction sites will be followed, including mandatory incident reporting, weekly tailgate meetings, and monthly safety meetings with the contractor.
- All trenches will be backfilled and/or covered at the end of each workday.
- Site-specific project safety plan and health and safety plan prepared by a qualified health and safety personnel will be available at the job site at all times.

Hazardous materials releases are not anticipated during construction. However, the following standard measures will be implemented to minimize any risk of a hazardous materials release during construction:

- A Soil Management and Transportation Plan (SMTP) will be created for the Project to assist construction workers in identifying potentially hazardous materials and guide the handling, storage, and transportation of materials excavated during fiber-optic infrastructure installation. The SMTP will detail the necessary actions to comply with applicable hazardous materials regulations, some of which include Health and Safety Code Section 25100 et seq. and Section 25163 et seq., 22 CCR 66263.10 et seq., 13 CCR 1160 et seq., California Vehicle Code Sections 12804 et seq. and 31300 et seq. This plan will establish criteria for reuse of excavated materials or off-site transport for disposal at appropriate State-approved facilities. The SMTP will be reviewed and approved by the City prior to the issuance of construction permits. Examples of the types of measures that the plan could include are:
  - Requirements for field screening to identify potentially contaminated soil;
  - Requirements for field screening to identify potentially contaminated groundwater;
  - Procedures for stockpiling and stockpile management to isolate apparently contaminated materials and minimize migration of those materials from stockpile areas;
  - Procedures for stockpile sampling and analysis to characterize the soil for appropriate transport and disposal;
  - Identification of appropriate 'clean' dirt and 'contaminated' dirt disposal facilities; and
  - Requirements for sedimentation controls during soil handling and transportation to minimize the spread of potentially contaminated sediments, including impacts to surface water run-off.

- Special precautions will be undertaken in the event any material is encountered that may contain asbestos. An Asbestos Dust Plan will be developed for the Project that will provide guidance and help maintain compliance with all applicable federal, state, and local regulations, including the Asbestos Airborne Toxic Control Measure for Construction, Grading, Quarrying, and Surface Mining activities. The Asbestos Dust Plan will be reviewed and approved by the City prior to the issuance of construction permits. Examples of the types of measures that the plan could include are:
  - Dust control measures to avoid tracking of dust containing asbestos from the site onto public roads;
  - Dust control measures for earth moving activities that may include wetting and other forms of material stabilization;

- Requirements for appropriate off-site transport vehicles to include asbestos-containing soils and/or debris; and
- Procedures for air monitoring during specific types of activities that could encounter and disturb asbestos.

The following standard protocol will be observed when using or handling hazardous materials:

- All labeling, storage, handling, and use of hazardous materials will be in accordance with OSHA Hazardous Waste Operations and Emergency Response (HAZWOPER) requirements.
- Employees working with hazardous materials will be properly trained in the use and handling of hazardous materials.
- Each material will have a corresponding material safety data sheet maintained by the contractor with each work crew.
- All hazardous waste materials removed during construction will 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.
- Releases or threatened releases of hazardous materials are not anticipated to occur. In the unlikely event such a release were to occur, the applicable reporting and response requirements will be followed.

1.7.5 Noise

1.7.5.1 Generator Noise

As outlined in section 1.3.2, Local Aggregation Sites for the proposed Project will be placed within existing commercial buildings. These sites will require the installation of backup generators, all of which will operate in compliance with city noise ordinances for stationary equipment noise, as outlined below in Table 3.

Table 3 Aggregation Site Noise Levels

LAS Site	***Distance Between Generator and Nearest Residential Line (m)***	***Noise Level @ Nearest Residential Property (dBA)***[4]	***City's Daytime Noise Criteria, Can Not Exceed (dBA)***[5]	***City's Nighttime Noise Criteria, Can Not Exceed (dBA)***[6]
Site One (891 West Maude *Avenue*) South Generator[6]	265	42.6	55	***50***
Site One (891 West Maude Avenue) West Generator[7]	303	41.5	***55***	***50***
Site Two (946 Linda Vista Avenue)[7]	67	47[8]	***55***	***50***
Site Three (1400 Terra Bella)[8]	128	50	***55***	***50***

[4] Analysis follows guidance from FTA Transit Noise and Vibration Impact Assessment, FTA-VA-90-1003-06May 2006. Conservative noise estimates assume hard services and clear line of site between generator and residential receptor. For example, for Site Three, expect noise levels to be significantly less than predicted above due to buildings blocking line of site between generator to residential receptor.

[5] Ordinance criteria assumes only testing during the day (50 dBA is the criteria at night, 10 pm to 7 am, per Section 21.26 of Mountain View City Ordinance).

[6] Site One noise levels based on the use of a 600 kW QSK23 generator set equipped with a F202-Quiet Site II Second Stage.

[7] Site Two and Site Three noise levels based on the use of a 125 kW GGHJ generator set.

[8] Noise calculation based on site design incorporating a masonry wall around the generator.

1.7.5.2 Construction Noise

Noise generated during the proposed Project will be regulated by the City's work hour limitations and construction equipment standards summarized in Table 4.

Table 4 Project Construction Hours and Equipment Standards

Jurisdiction	Construction Location	Construction Hours Limitations	Construction Equipment Standards	Reference
Mountain View	Private Property	7:00 a.m. to 6:00 p.m. weekdays; and no construction on weekends and holidays without written approval from the City.	Use available noise suppression devices and properly maintain and muffle loud construction equipment.	City of Mountain View City Code Section 8.23, effective March 27, 2001 (City of Mountain View 2001).
Mountain View	Public Right-of-Way	7:30 a.m. to 4:30 p.m.		

The following standard measures will be taken to minimize any noise-related disturbance.

- All equipment will be properly maintained and equipped with noise control, such as mufflers, according to manufacturer specifications.
- Construction equipment will be located as far from sensitive receptors (e.g., residences, schools, places of worship, and hospitals) as possible, will be arranged to minimize travel adjacent to noise-sensitive receptors, and will be turned off during prolonged periods of non-use.
- Reasonable and customary noise reduction measures, including the use of sound barriers or sound curtains, will be implemented and the name and telephone number of a person for the public to contact to resolve noise-related problems will be posted.

1.7.6 Traffic

The following standard measures will be implemented to reduce potential roadway damage and traffic congestion:

- Roadways damaged during construction will be returned to their preconstruction condition as soon as is practicable after construction has been completed.
- Damage to City traffic signal facilities (i.e. signal loops, wiring, interconnect, etc.) will be repaired or returned to their preconstruction condition the same day.
- Appropriate routes for truck travel will be determined prior to the start of construction meeting the requirements of the City of Mountain View.
- Prior to construction, contractor will coordinate with the traffic agencies regarding planned improvements near the facility to limit interference with the implementation of roadway improvements or other trenching.
- Circulation and detour plans will be developed to minimize impacts to local street circulation, including the use of signage and flagging to guide vehicles through and/or around the construction zone.
- Traffic control devices will be installed as specified in the *California Manual on Uniform Traffic Control Plans (CA-MUTCD 2014).*
- Work hours and crew work locations will be staggered for transit priority corridors and arterials with high traffic volume to minimize service interruptions during commute hours. In order to minimize traffic disruption, work hours for some transit priority corridors may require night and weekend work in non-residential areas. This work would be subject to city permitting guidelines and noise ordinances.
- Directional drilling will be used for streets with a moratorium on repaving to prevent degradation of the roadways.
- Property owners will be notified concerning blocked driveways prior to work commencing, and contractors will limit hours of disruption of driveways.
- A traffic plan will be prepared that incorporates all of the above measures and any additional measures required by the City. The traffic control plans shall be prepared by a California professional registered engineer, with the plans stamped and signed by the engineer. The plan shall include bicycle and pedestrian traffic controls. The applicant will provide the traffic plan to the City for review as part of the construction permit submittal. Both parties will ensure that revisions are agreed upon and the final traffic plan is

approved by both the applicant and the City prior to the issuance of construction permits.

1.7.7 Utilities and Public Services

The applicant or its contractors will utilize the Underground Service Alert to identify existing utilities and mark them in the field. The applicant will ensure that affected local utilities are notified of planned work activities.

To minimize solid waste generated by the Project and disposal rates to local landfills, the applicant will ensure that construction materials will be recycled and disposed of to the maximum extent practicable.

1.7.8 Water Quality

The following standard measures will be followed to reduce the impact of the construction activities on water quality:

- A Storm Water Pollution Prevention Plan (SWPPP) will be prepared, outlining BMPs for construction activities. The applicant will provide the SWPPP to the City for review as part of the construction permit submittal. A Notice of Intent (NOI) and SWPPP shall be filed with the State Water Resources Control Board prior to issuance of construction permits. Both parties will ensure that revisions are agreed upon and the final SWPPP is approved by both the applicant and the City prior to the issuance of construction permits and the start of construction activities.
- Excavated or disturbed soil will 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.
- All stockpiled material will be covered or contained in such a way that eliminates off-site runoff from occurring.
- Upon completion of construction activities, excavated soil will be replaced and the area restored to pre-construction conditions.