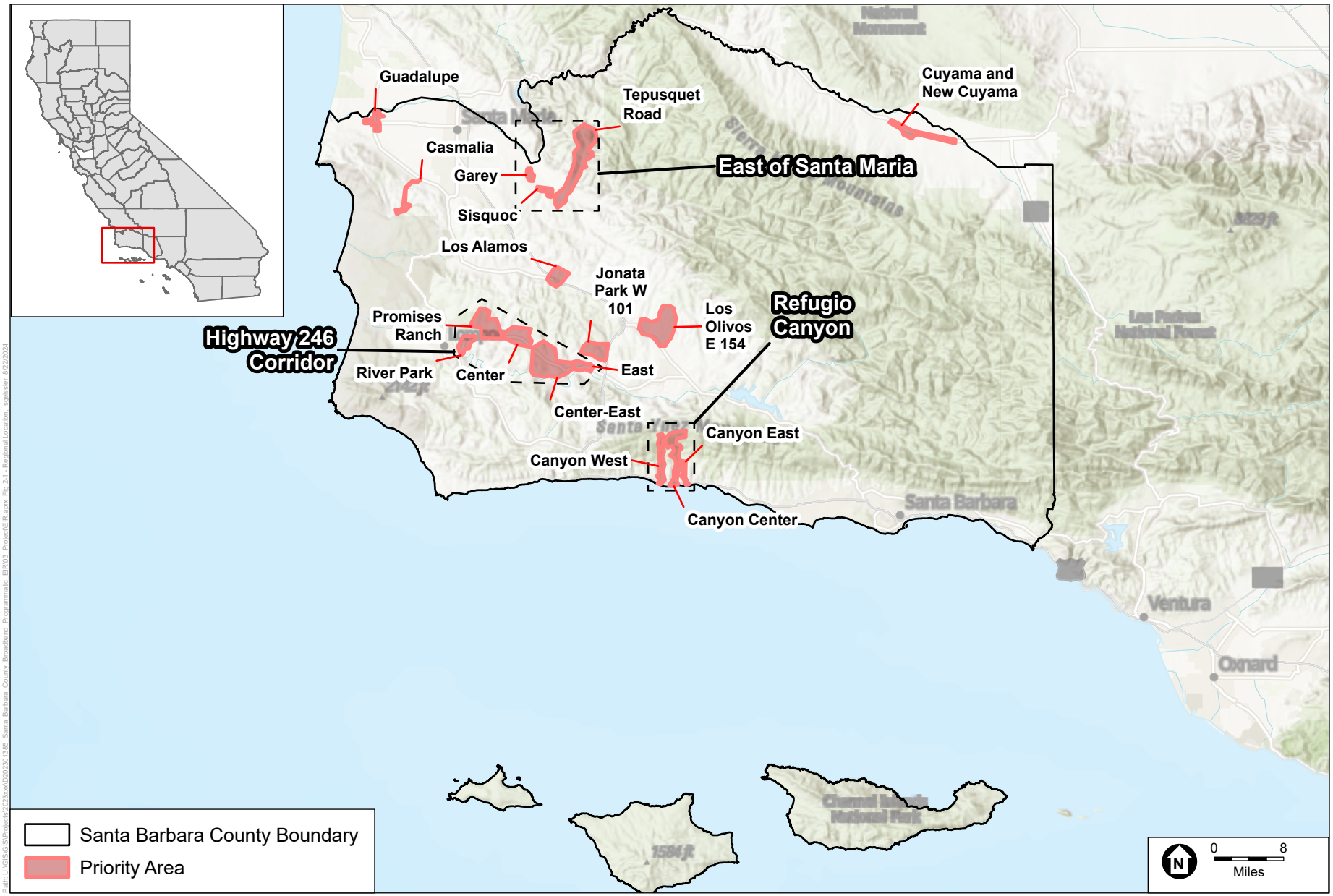
CHAPTER 2
Project Description

The Santa Barbara County Association of Governments (SBCAG), in partnership with the County of Santa Barbara (County), and on behalf of member agencies of SBCAG, and other entities desiring to facilitate the future expansion of the County's high-speed broadband internet network, referred to herein as the Santa Barbara County Last-Mile Broadband Program (Broadband Program or Project). The Project would facilitate implementation of future broadband infrastructure installations in various communities across Santa Barbara County that are currently underserved or unserved by high-speed broadband internet services. These broadband facility installations could include both underground and aerial fiberoptic cable as part of proposed "last-mile" broadband facilities, which are intended to reach end users in these affected communities. These last-mile facilities would provide connections to end users in communities across the County, and connect from the State of California's "middle-mile" broadband network (Statewide Middle Mile Network) currently being implemented by the California Department of Technology (CDT).

2.1 Project Location

The area subject to future broadband facility installations under the proposed Broadband Program (i.e., the Project Area) includes the entire County of Santa Barbara, since, with a few exceptions discussed below, the specific locations of future broadband facility installations are currently not known (see **Figure 2-1**, *Regional Location*, below). Such future installations would be proposed and implemented as part of the Broadband Program, where appropriate, in order to provide adequate high-speed broadband internet services to underserved and unserved communities as priority communities and funding sources are identified. As discussed in greater detail below, a total of nine communities in the County have already been identified as "Priority Areas" under the Broadband Program. Four of these communities were initially identified in the Santa Barbara County Broadband Strategic Plan (BSP, see further discussion below) and thus have already been the subject of high-level engineering design, while the design of the proposed networks to serve the remaining five communities is currently in progress. **Figure 2-2**, *Broadband Facility Locations*, below, provides a County-wide view of the Project Area, including the location of existing and/or approved middle-mile broadband facilities in the County, as well as the locations of all nine identified Priority Areas.



SOURCE: ESA, 2024

Santa Barbara County Last-Mile Broadband Program

Figure 2-1
Regional Location

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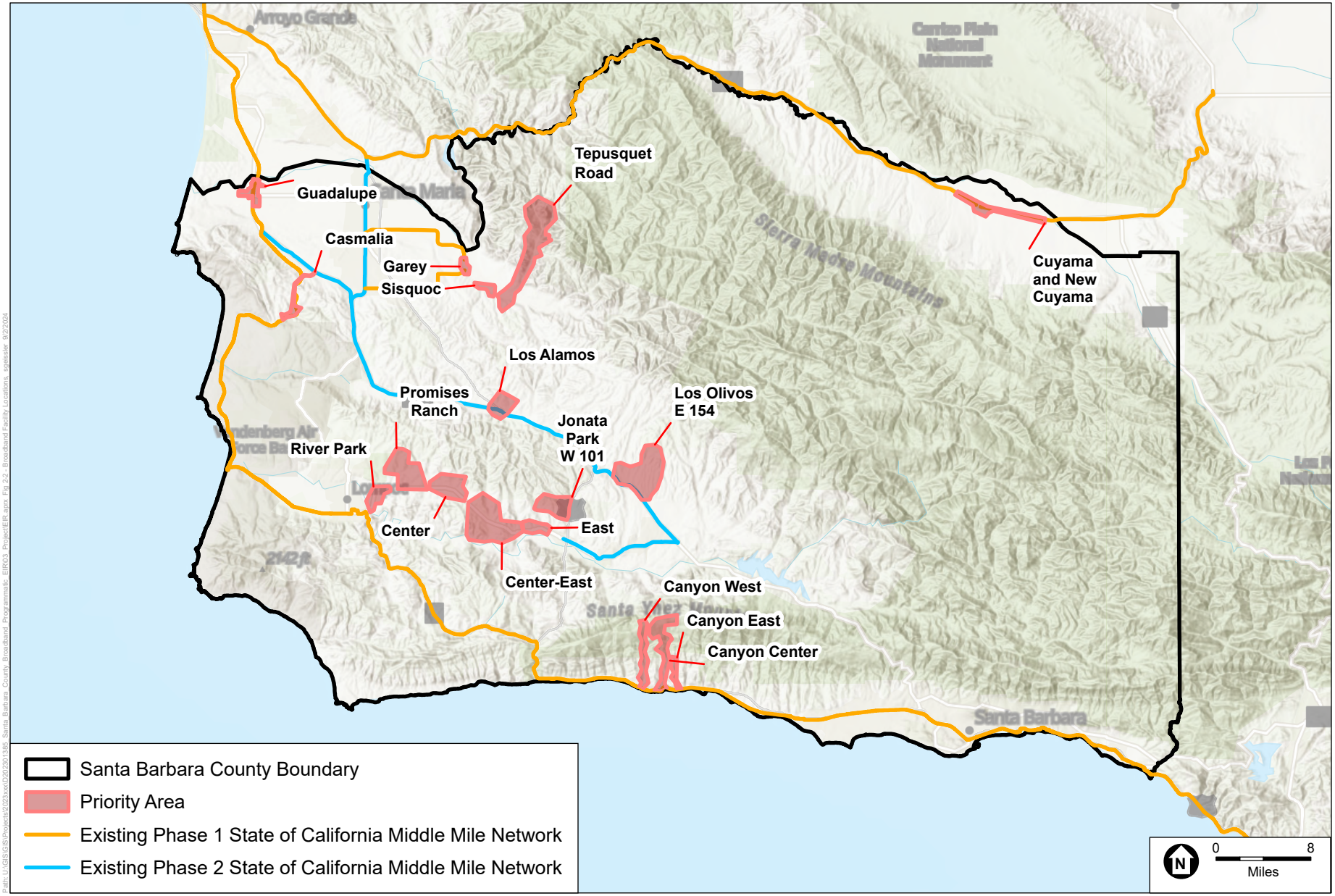

SOURCE: ESA, 2024

Santa Barbara County Last-Mile Broadband Program

Figure 2-2
Broadband Facility Locations

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2.2 Project Background and Need

The State of California has undertaken a significant initiative to build a critical fast-speed internet network and create an equitable, high-speed, open access system. Senate Bill (SB) 156, signed by Governor Gavin Newsom in July 2021, established government pathways and funding mechanisms to acquire, build, maintain, and operate accessible broadband networks. "Middle-mile" broadband network provides that necessary connection from large core internet pipelines (termed the "first-mile" broadband network) to homes and communities (termed the "last-mile" broadband infrastructure). The last mile work looks to provide connections to unserved and underserved communities. Last-mile infrastructure relies on the middle-mile facilities to provide service to broadband customers including residents, large and small businesses, schools, government offices, public safety agencies, and libraries, among others. Therefore, one result of SB 156 was the establishment of the Local Agency Technical Assistance (LATA) grants, which are available to local jurisdictions to build these last-mile network connections to serve end users within unserved and underserved communities.

The COVID-19 pandemic highlighted stark inequities in internet access across Santa Barbara County. Some rural schools returned to physical workbooks and printed pages for at-home instruction during school shutdowns, due to a lack of reliable, affordable internet access in their communities. Approximately 25 percent of households with incomes less than $20,000 per year do not have internet access, and on the whole, approximately nine percent of all households in the County do not have access. Therefore, SBCAG and the County, both being partners in the Broadband Alliance of Santa Barbara County (Alliance), collaborated with local agencies, tribal organizations, the Broadband Consortium of the Pacific Coast, and regional economic development organizations to develop the Santa Barbara County Broadband Strategic Plan (BSP) in 2022. Following the strategic planning effort, SBCAG partnered with the County on a LATA grant to facilitate extension of broadband service within the County, and in 2023 the California Public Utilities Commission (CPUC) awarded a LATA grant to the County of Santa Barbara for broadband planning and implementation. The grant funds the creation of a countywide Joint Powers Authority (JPA) to formalize the Alliance, preparation of the necessary California Environmental Quality Act (CEQA) documentation, and completion of high-level design engineering to facilitate and streamline implementation of local broadband projects. In these ways, the LATA grant funds are assisting the County in securing funding to build a last-mile "fiber-to-the-home" network to connect underserved and unserved locations within the County.

Since then, SBCAG initiated a contract with Golden State Connect Authority (GSCA) to implement high-level broadband design for the nine Priority Areas in the County that have been identified as being historically under-resourced and lacking consistent, reliable internet access. As shown in Figure 2, these nine Priority Areas include: the City of Guadalupe and unincorporated communities including portions of Cuyama/New Cuyama, Casmalia, Los Alamos, Los Olivos, Jonata Park, Refugio Canyon, Highway 246 Corridor (five neighborhoods between Lompoc and Buellton), and East of Santa Maria (including the Garey, Sisquoc, and Tepusquet Road communities). In addition, these unincorporated communities are some of the County's identified Environmental Justice Communities currently being considered in the Environmental Justice Element of the County's Comprehensive Plan.

2.3 Broadband Strategic Plan

The BSP, as mentioned above, was prepared by the Alliance, which was formed in 2022 and is comprised of SBCAG, the County of Santa Barbara, the cities of Buellton, Carpinteria, Goleta, Guadalupe, Lompoc, Santa Barbara, Santa Maria, Solvang, and the Santa Ynez Band of Chumash Indians, Broadband Consortium of the Pacific Coast (BCPC), and regional economic development organizations.

The BSP was intended to identify broadband internet infrastructure and affordability needs in the County. The Alliance intends to continue to leverage the BSP to seek funding opportunities for projects to improve County-wide affordable access to high-speed broadband in homes, schools, businesses, healthcare, and to connect community anchor institutions.

The BSP was created to respond to the regional need for high-speed internet access, which was intensified during the COVID-19 pandemic when schools, businesses, public services, and health care support moved online, and many individuals began working from home. Gaps in access to reliable, affordable high-speed internet disenfranchise households by limiting their access to education, the workforce, health care, and democratic processes. The digital divide defines the gap between those with the capacity to use technology and those left out of opportunities provided by digital access. While residents throughout the County have access to moderate levels of connectivity, all households, businesses, and public institutions would benefit from the faster and more reliable internet access that broadband connections deliver.

The purpose of the BSP is to address the planning needs of the region, encourage infrastructure investments in the County, and present models for investment opportunities made by internet service providers (ISPs), public sector investment, and a combination of public-private investment. The BSP utilized a regional context, aligning with the California State Broadband Action Plan (CBAP) and focused on identifying a middle-mile approach, last-mile priorities, policies and resources for broadband readiness, and future feasibility studies for the County and incorporated cities.

The BSP found, through a comprehensive needs assessment, that approximately 7.9 percent of the County's population does not have access to adequate (25 megabits per second [Mbps] download speed and 3 Mbps upload speed, indicated as "25/3 Mbps") internet services, which corresponds with the population within unserved and priority unserved areas. The analysis initially identified priority unserved areas in remote communities including the Priority Areas of Casmalia, Los Alamos, and Cuyama/New Cuyama, as noted above, but also found various other areas that would become important for last-mile infrastructure development including the remaining five unincorporated Priority Areas noted above (also see Figure 2).

After analysis of the existing infrastructure and needs, the BSP identified a path for moving forward including developing local strategies, attracting collaborative funding, and conducting community actions that support ongoing connectivity and adoption. Another step is conducting a last-mile pilot in order to develop processes for applying technical support at the neighborhood level to achieve access and adoption.

The BSP outlined the roles and responsibilities for the main activities associated with implementation of the BSP, including ensuring funding for the detailed network design, constructing the passive infrastructure, deployment of the active infrastructure, network operations and maintenance (O&M)

activities, field maintenance activities, subscriber installation, subscriber management, and customer support. The priorities for middle-mile deployment include ensuring funding for the high-level design of the network in conjunction with stakeholders, coordinating with the work performed by the Santa Ynez Band of Chumash Indians and Econ Alliance for the North County middle-mile analysis and design, and continue coordinating with the State of California as relates to the Statewide Middle-Mile Broadband Network. The last-mile deployment priorities include areas that lack access to 25/3 MBps service based on the data collected; and these areas include portions of the eight unincorporated Priority Area communities of Cuyama/New Cuyama, Casmalia, Los Alamos, Los Olivos, Jonata Park, and Refugio Canyon, Highway 246 Corridor, and East of Santa Maria (Garey, Sisquoc, and Tepusquet Road communities).

As the CDT continues to build out the Statewide Middle Mile Network in Santa Barbara County, SBCAG and the County have initiated last-mile design efforts. Those efforts include entering into an agreement with GSCA to prepare last-mile design for all priority areas identified to date, and perhaps other future areas as additional priorities are identified. GSCA has submitted applications to implement the first nine areas, which are included as components of the Project. As required, the implementation will involve the use of fiber optics and an open-access model, which will allow GSCA to provide residences and businesses with future-proof broadband technology, and the choice of providers and packages that an open-access system provides, thus offering access to competitive speed offerings and pricing. Internet service offerings are anticipated to include minimum speeds of 100 Mbps symmetrical and maximum speeds, which are only limited by the electronics on either end of the fiber connection, but initially will be offered at up to 10 gigabits per second (Gbps)[1] symmetrical for households and up to 100 Gbps symmetrical for businesses. GSCA's service offerings will not have data caps (i.e., no limits on how much data may be transferred by any given network end user).

2.4 Project Objectives

The objectives of the Broadband Program are to:

1. Provide reliable high-speed broadband internet service to residents and businesses located in the identified Priority Areas and any additional unserved and underserved communities in Santa Barbara County in order to improve communication capabilities throughout the County;
2. Provide upgradable and expandable high-speed broadband capacity in the service areas with minimum speeds of 25 megabits per second (Mbps) for downloads and 5 Mbps for uploads, consistent with the federal definition of "adequate service" for broadband and California's definition of broadband;
3. Enable an increase in telecommuting, telehealth services, and distance learning, with a commensurate decrease in vehicle miles traveled, barriers to medical provider access, and digital/educational inequities;
4. Provide broadband infrastructure to support the regional public safety network, including providing network redundancy and resiliency to improve disaster preparation and emergency response;

[1] One gigabit is equal to 1,000 megabits

5. Identify and facilitate funding opportunities for future broadband infrastructure installations under the Broadband Program;
6. Reduce the potential environmental effects of broadband installation projects by utilizing minimally impactful construction techniques and equipment and avoiding construction within or near sensitive environmental resources to the extent feasible;
7. Provide a reliable foundation of data and acceptable methodology to assess impacts for future broadband deployment projects, and streamline the environmental review process for individual broadband projects that are implemented in both incorporated and unincorporated areas of Santa Barbara County; and
8. To implement resources most efficiently within for the County, incorporated cities, and broadband project applicants. This will result in the overall reduction in the amount of County and member agency staff time required to review broadband projects and avoiding duplication of applicant costs.

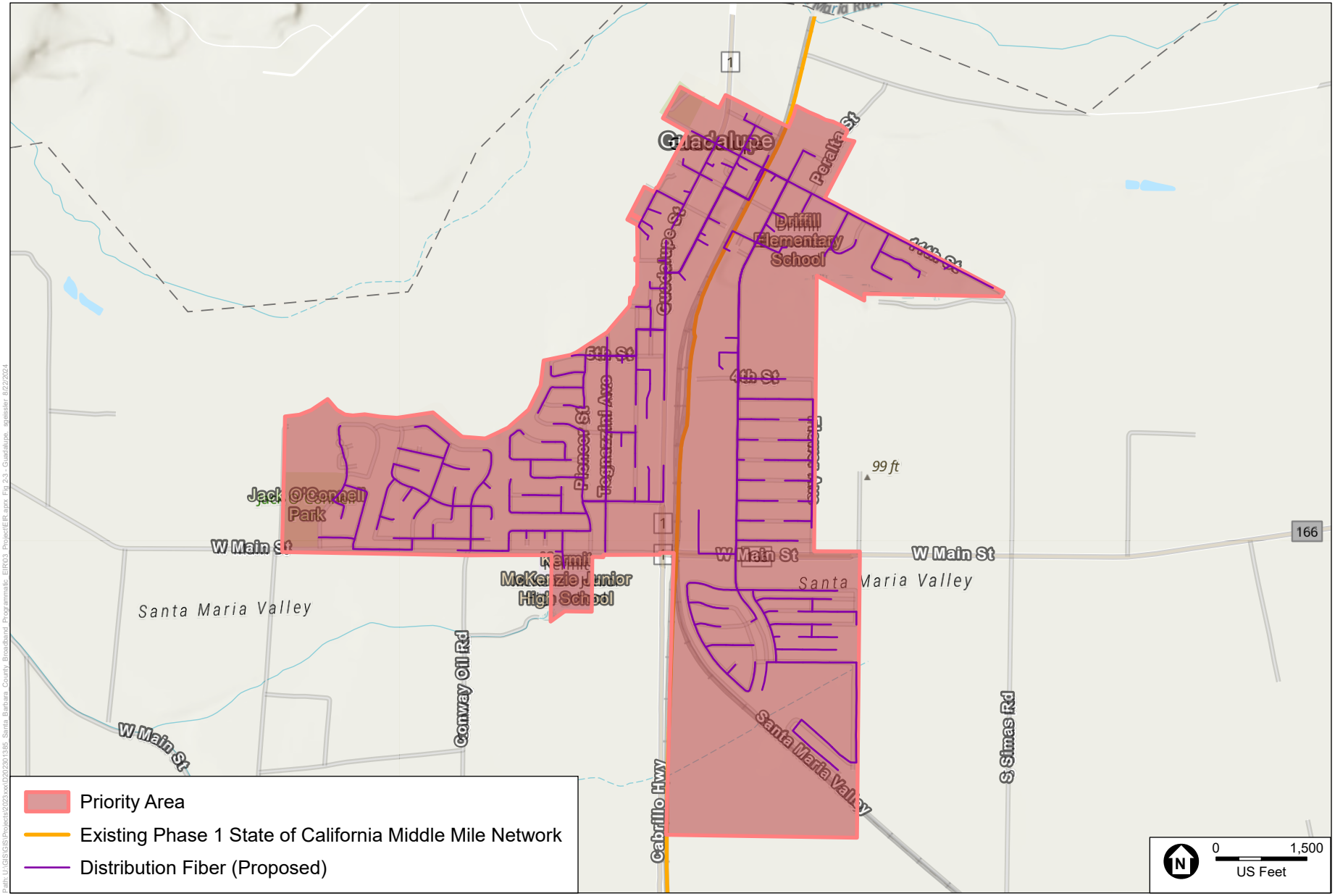
2.5 Proposed Project Components

The Project would include the installation of fiber optic cable in various locations throughout the County, including within the nine Priority Area communities. For the nine Priority Areas, GSCA has prepared high-level engineering designs that indicate the location of new broadband lines within each community. **Figure 2-3**, *Priority Area Site Plan – Guadalupe*, **Figure 2-4**, *Priority Area Site Plan – Casmalia*, **Figure 2-5**, *Priority Area Site Plan – Los Alamos*, **Figure 2-6**, *Priority Area Site Plan – Cuyama and New Cuyama*, **Figure 2-7**, *Priority Area Site Plan – East of Santa Maria*, **Figure 2-8**, *Highway 246 Corridor*, **Figure 2-9**, *Priority Area Site Plan – Jonata Park*, **Figure 2-10**, *Priority Area Site Plan – Los Olivos*, **Figure 2-11**, *Priority Area Site Plan – Refugio Canyon*, below, illustrate the proposed extent and locations for last-mile network installations within each of these communities. It should be noted that GSCA, as a full-service broadband infrastructure provider, would design, permit, construct, operate, and maintain all proposed broadband network facilities in perpetuity within the nine Priority Areas.

2.5.1 New Fiber Conduit

In general, the new fiber optic lines would be installed underground following public or private roadways up to 10 feet from the edge of the road, with the intention to minimize or avoid disturbance of roadway surfaces wherever feasible. However, it is possible some fiber optic lines could be installed directly under roadways in areas with limited shoulder space or where existing conduit under the road may be used, thus avoiding new surface disturbance.

The Project also includes installation and construction activities within those areas where lateral lines are installed between public or private roadways and individual businesses or residences. Individual residence or business connections typically would be installed within previously disturbed and/or developed areas (e.g., adjacent to driveways or in landscaped areas), and generally would avoid drainages and sensitive habitats. Lateral alignments would typically follow other utility installations.



SOURCE: ESA, 2024

Santa Barbara County Last-Mile Broadband Program

Figure 2-3
Priority Area – Guadalupe

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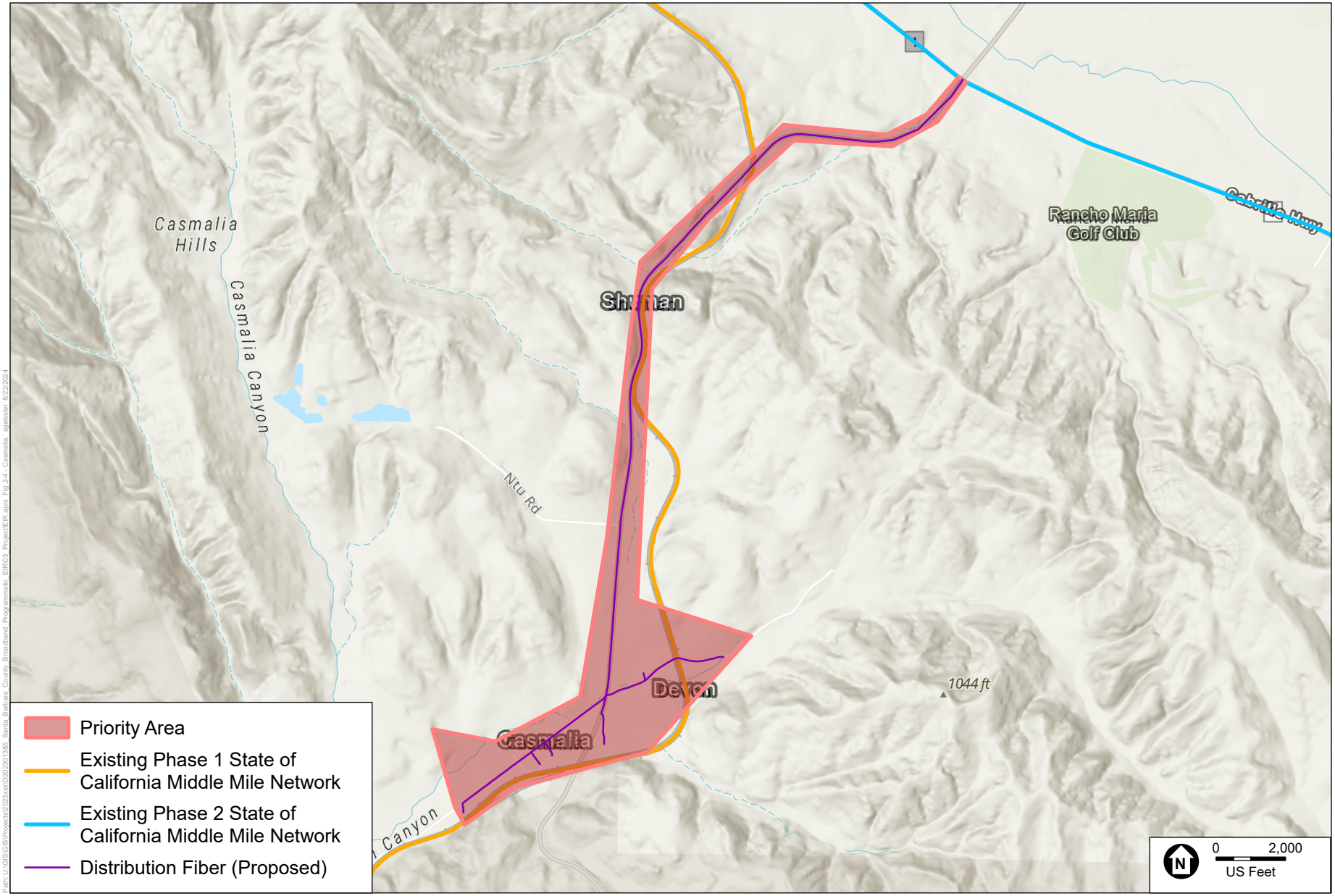

SOURCE: ESA, 2024

Santa Barbara County Last-Mile Broadband Program

Figure 2-4
Priority Area – Casmalia

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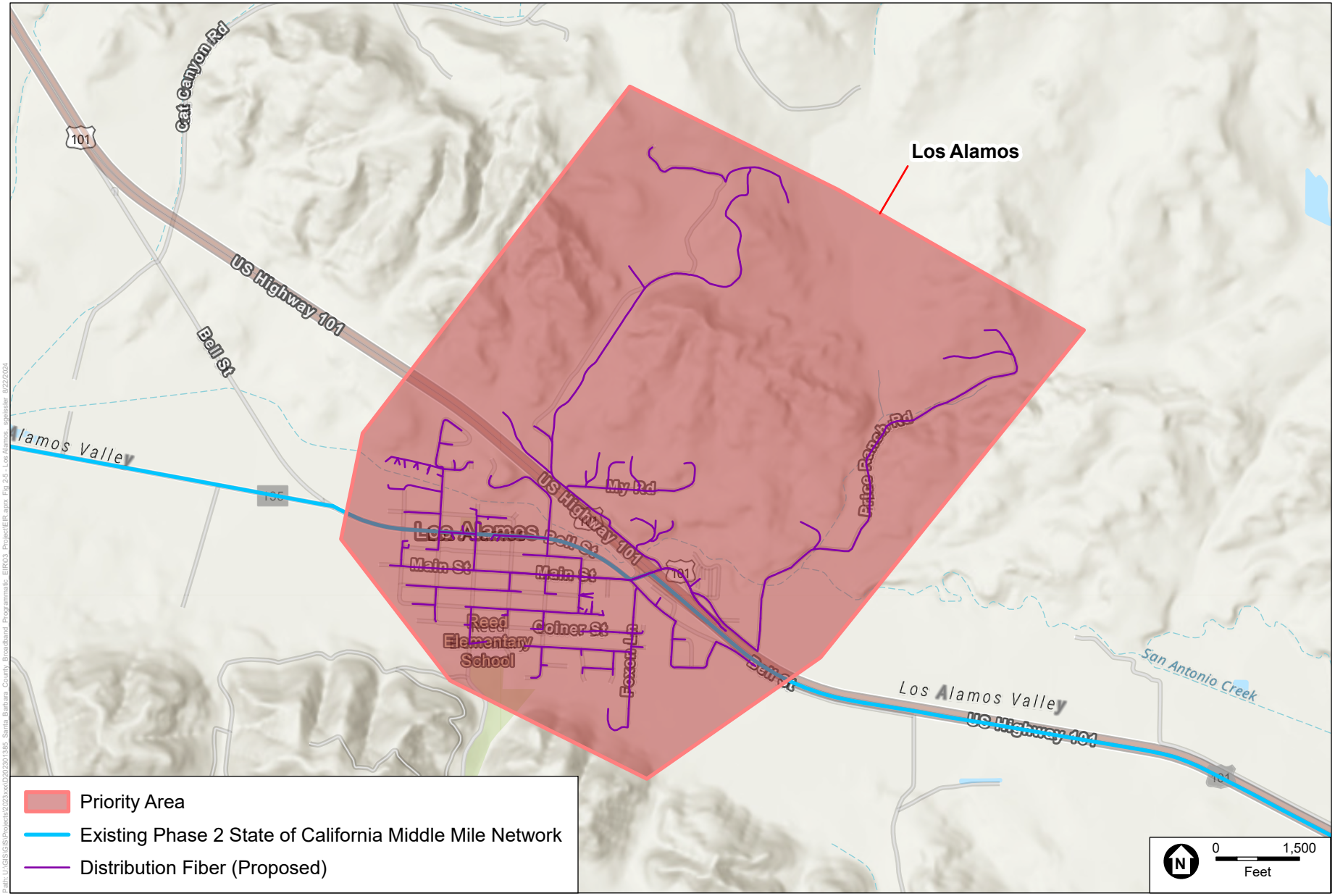

SOURCE: ESA, 2024

Santa Barbara County Last-Mile Broadband Program

Figure 2-5
Priority Area – Los Alamos

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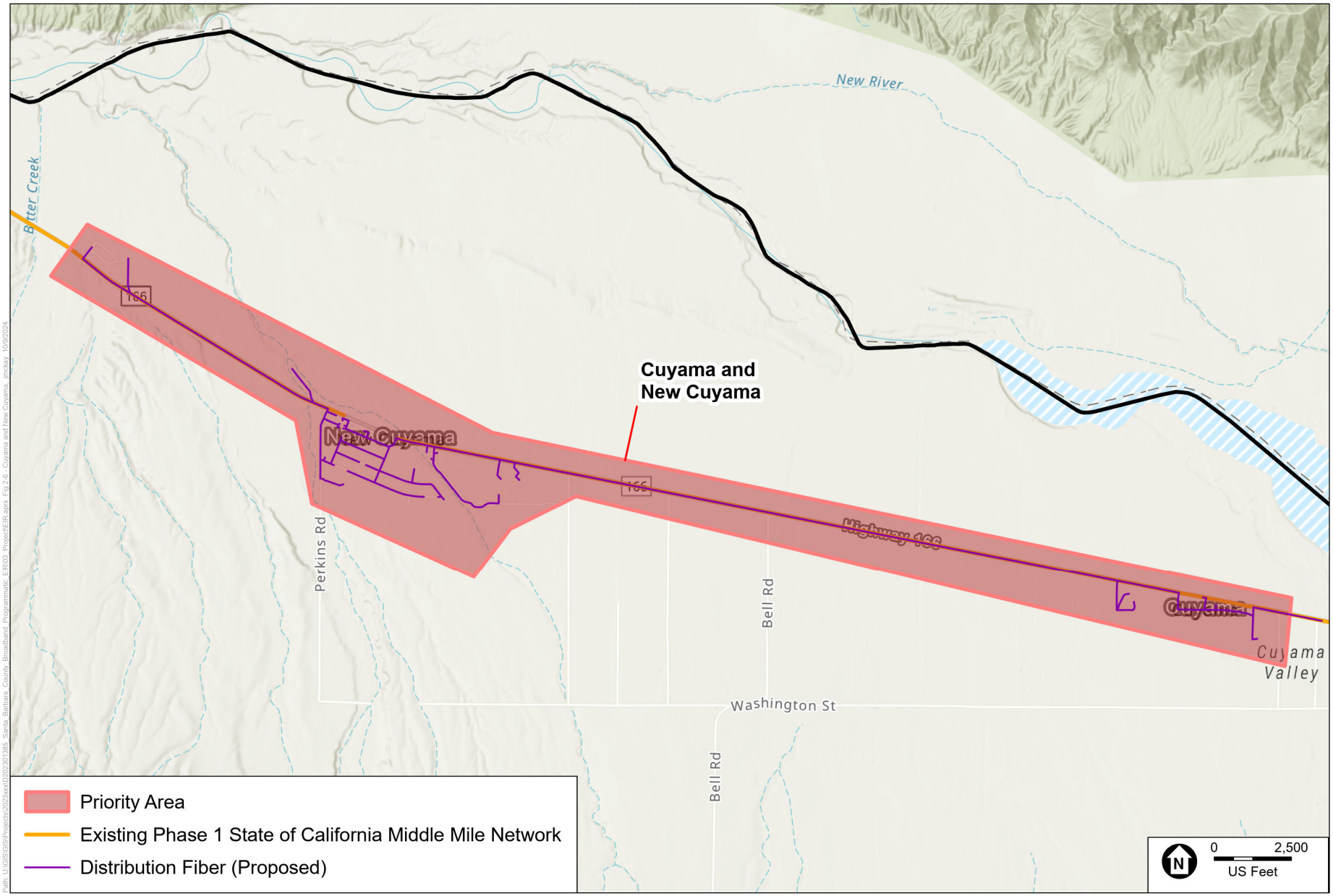

SOURCE: ESA, 2024

Santa Barbara County Last-Mile Broadband Program

Figure 2-6
Priority Area – Cuyama and New Cuyama

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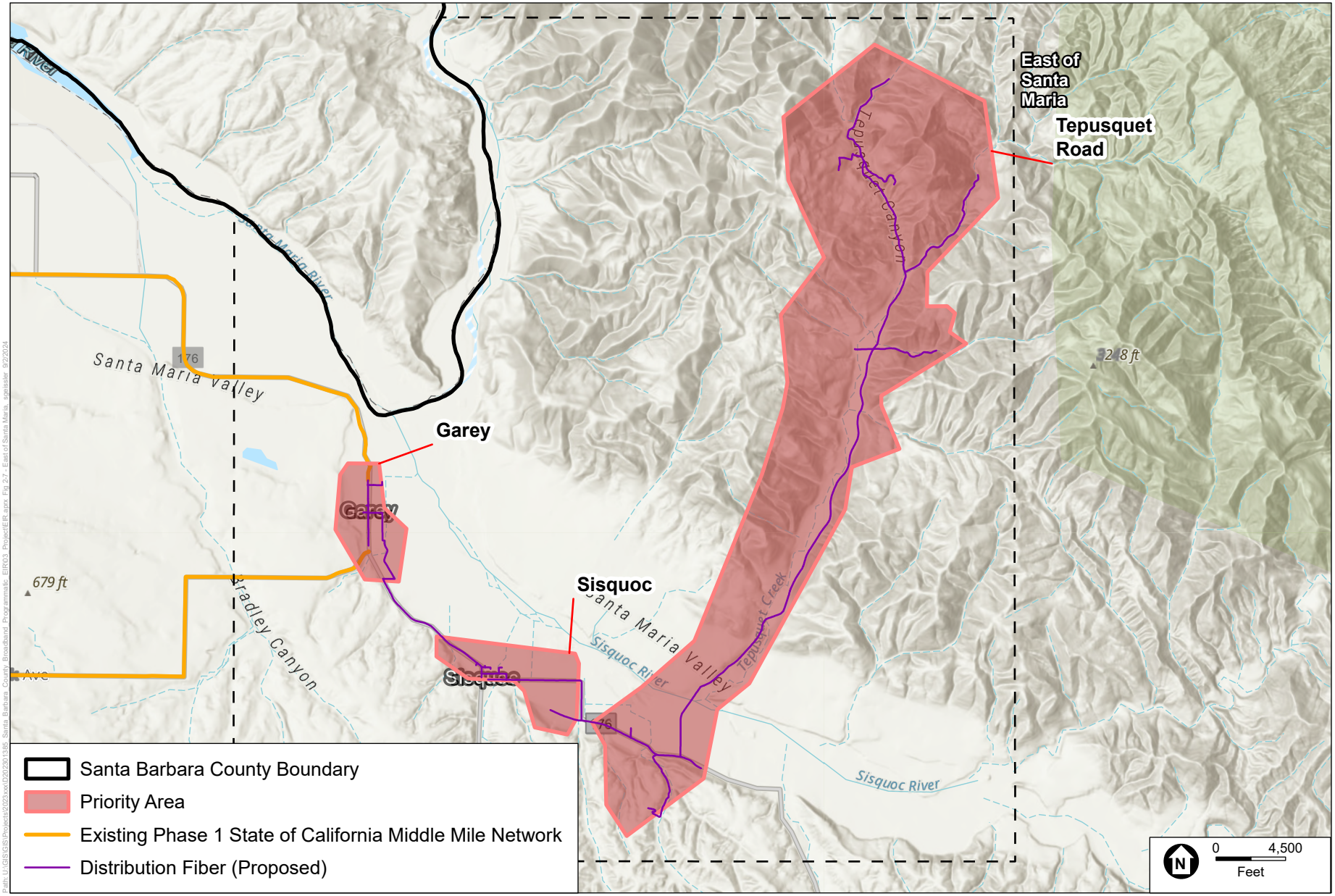

SOURCE: ESA, 2024

Santa Barbara County Last-Mile Broadband Program

Figure 2-7
Priority Area – East of Santa Maria

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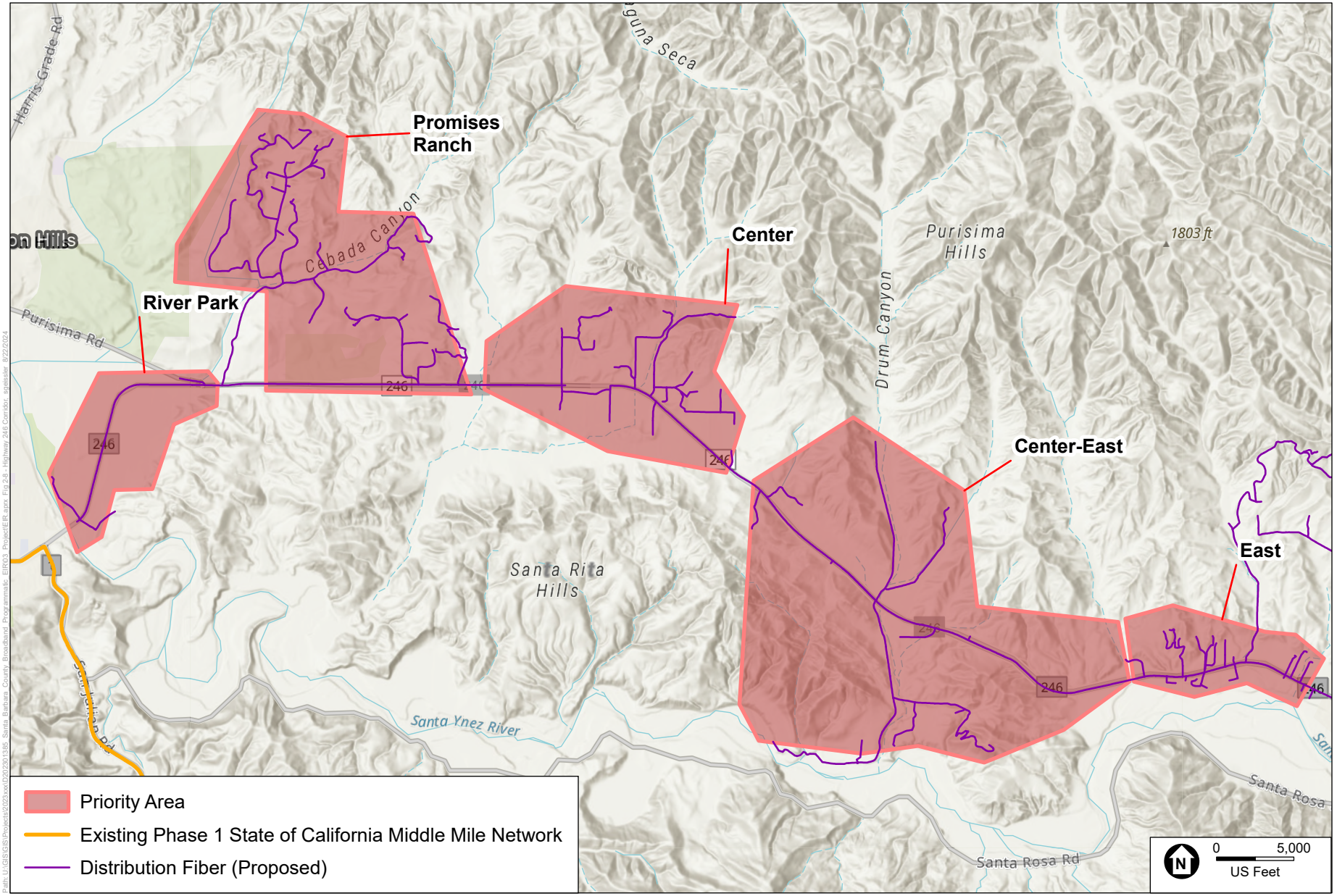

SOURCE: ESA, 2024

Santa Barbara County Last-Mile Broadband Program

Figure 2-8
Priority Area – Highway 246 Corridor

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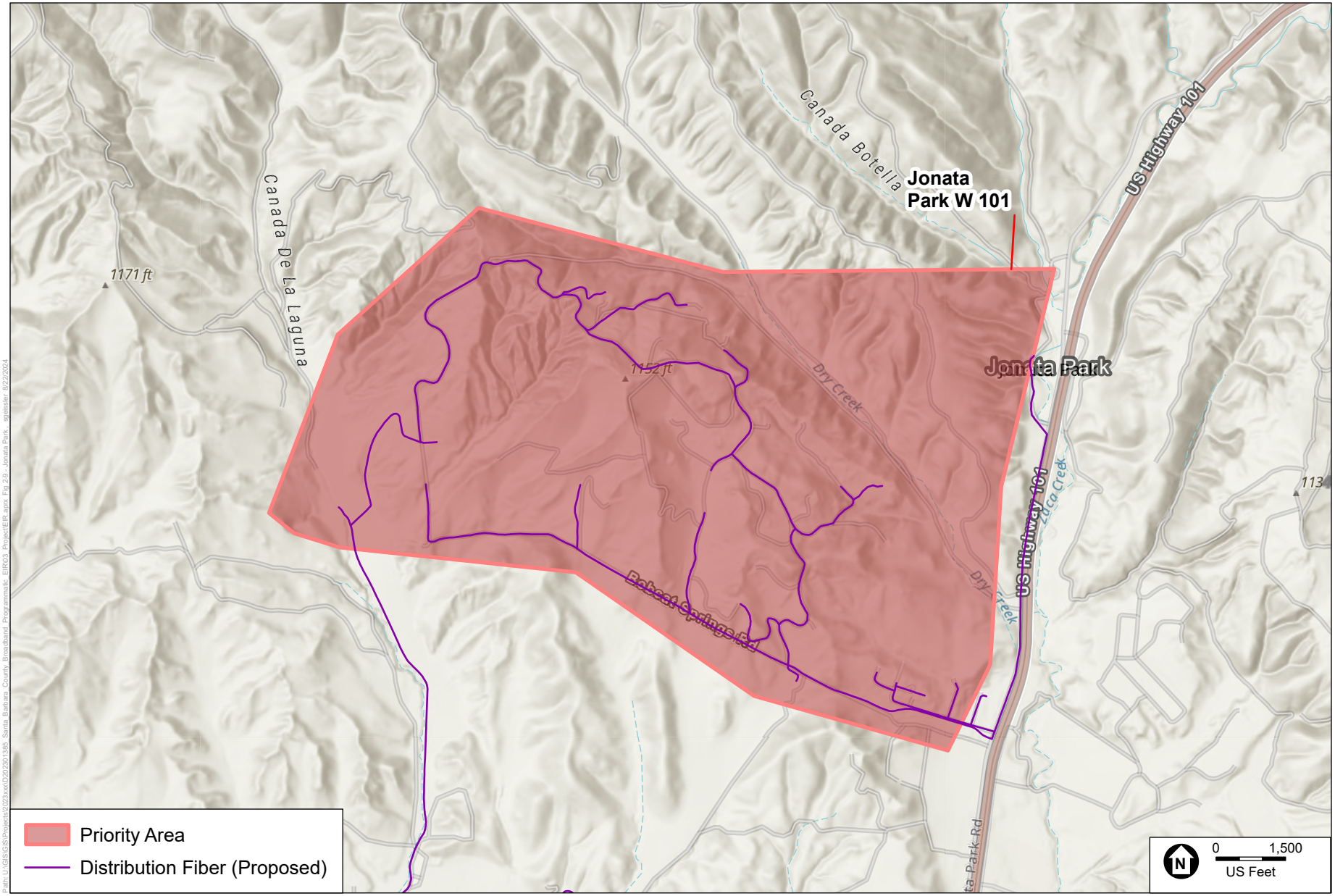
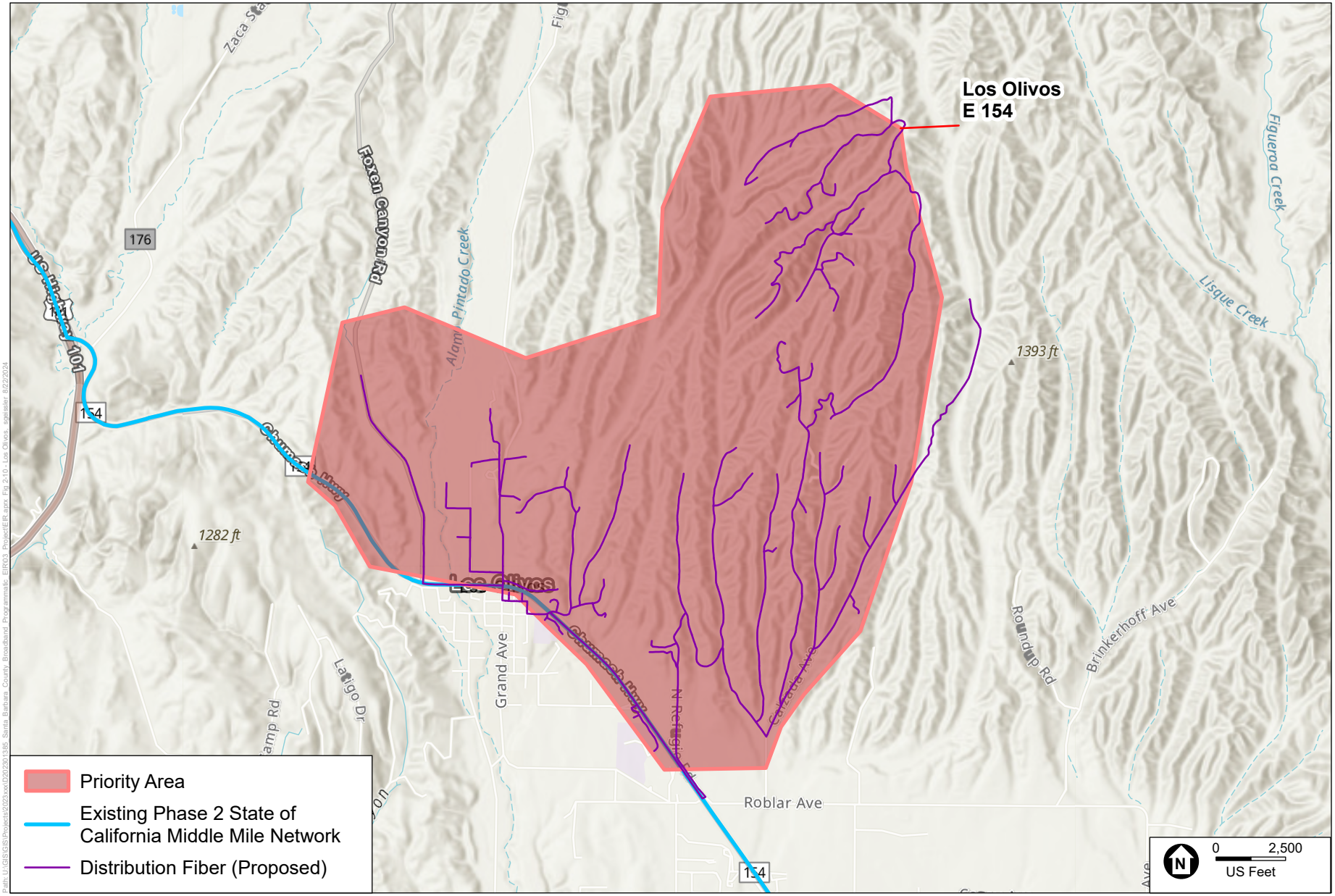


SOURCE: ESA, 2024

Santa Barbara County Last-Mile Broadband Program

Figure 2-9
Priority Area – Jonata Park

ESA

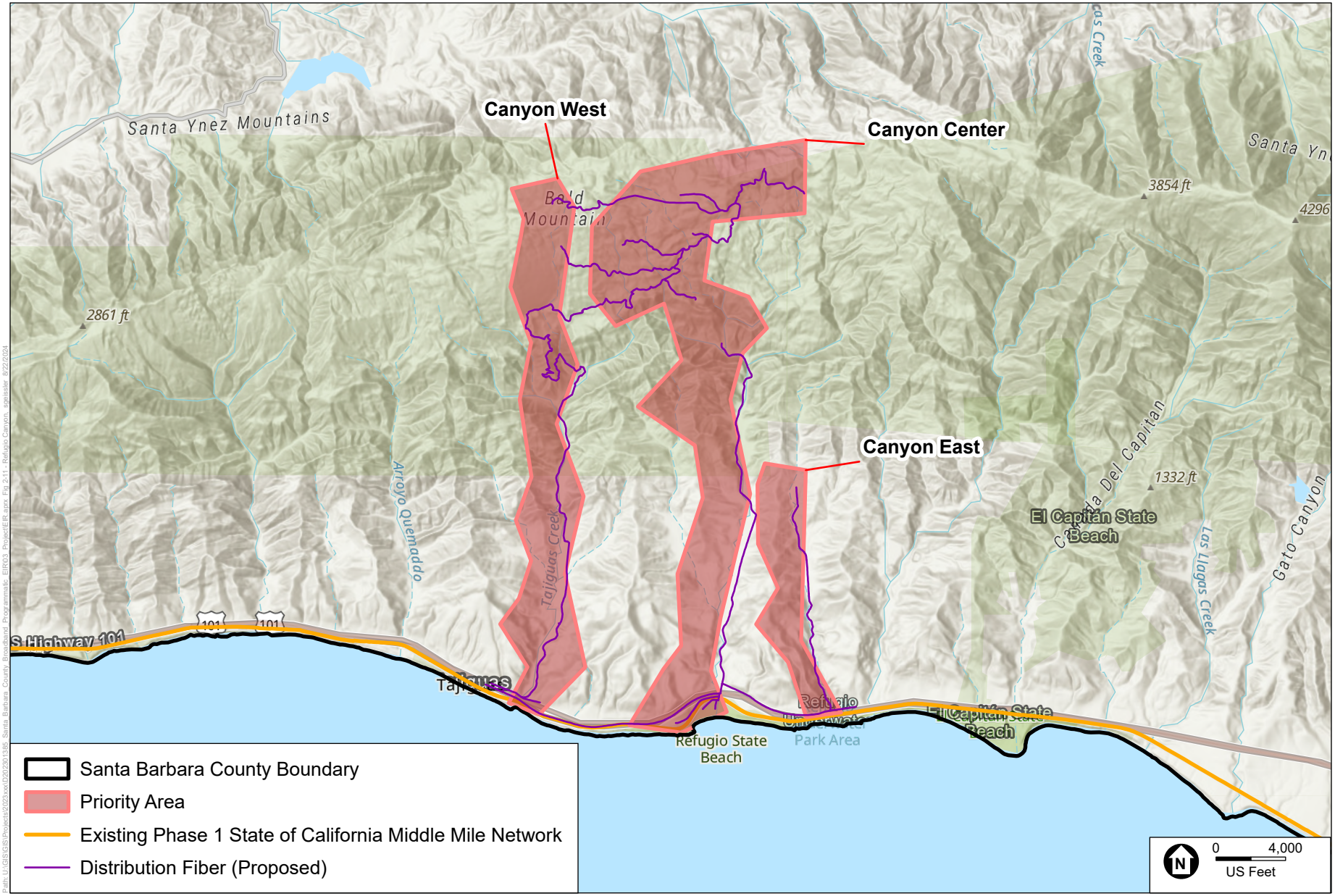


SOURCE: ESA, 2024

Santa Barbara County Last-Mile Broadband Program

Figure 2-10
Priority Area – Los Olivos

ESA



SOURCE: ESA, 2024

Santa Barbara County Last-Mile Broadband Program

Figure 2-11
Priority Area – Refugio Canyon

ESA

2.5.2 Aboveground Poles

Although not anticipated, where subsurface installation of fiber optic cable is infeasible, aerial installation along existing utility poles would be undertaken. GSCA and other future implementation entities are anticipated to follow General Order 95 pole safety and loading requirements.

2.5.3 Priority Area Components

Components to be installed/constructed within the nine Priority Areas according to the high-level design plans include the following: broadband conduit (i.e., rigid casing to protect fiber optic cables from physical damage and the elements) with diameters between ¾-inch and 2 inches to be installed within road rights-of-way (ROWs) approximately 48 inches below ground surface (bgs); aboveground, prefabricated walk-in hut/shelters made of aggregate wall materials and measuring 12 feet long by 10 feet wide with a height of up to 10 feet above grade (placed on a poured concrete pad); aboveground steel distribution cabinets/enclosures ranging in size between 28 by 39 inches and 47 by 128 inches; distribution fiber, splice points, and drops; drop hubs; and small underground structures such as hand holes measuring between less than 12 inches by 12 inches (less than one foot depth below grade) and 45 inches by 32 inches (27-inch depth below grade). Additional Project components that may be necessary to connect end-users to the middle-mile broadband network may include: utility poles with aerial fiber and connection points; underground fiber markers; and signage.

2.6 Construction Schedule and Assumptions

2.6.1 Construction Schedule

While the specific size and location of all potential future broadband projects under the Broadband Program have not yet been identified, it is assumed that the nature and intensity of such future installation projects would be similar in scope and scale to those identified for the nine Priority Area projects. As such, similar to the Priority Area projects, future installations would be expected to predominantly entail the installation of small-diameter fiber optic conduit and cabling along existing street rights-of-way with very limited ground disturbance, that would include small-scale above- and below-ground features such as access vaults (also known as handholes, pull boxes, and splice boxes), and potentially incidental small sheds housing network equipment. Accordingly, for the purposes of analysis in this CEQA document, construction activities and methods employed for the initial nine Priority Area projects would be comparable to those necessary for the installation of future broadband facilities in other portions of the County.

The nine Priority Area projects would be constructed in nine phases (i.e., each Priority Area project representing a single phase) over a period of approximately 24 months, which includes any necessary permitting and construction of the new facilities. It is anticipated that future broadband projects of similar size and scale located in other areas of the County would require a comparable construction effort in terms of overall intensity, would employ a similar mix of construction methods and equipment, and would result in similar construction durations as those assumed for the nine Priority Area projects.

While the specific timing of construction of individual fiber projects under the Broadband Program is currently unknown, it is anticipated that one or more projects in the Priority Areas would begin as early as

late 2025. In general, for one mile of underground fiber optic conduit, boring activities would take an estimated average of 10 days and trenching would take an estimated average of 18-20 days. Implementation of future individual fiber projects under the program would occur over many years. It is possible that multiple, individual fiber projects could have overlapping construction timeframes. Additionally, any individual segment could involve multiple construction crews working simultaneously, with plowing, trenching, and directional drilling occurring at the same time in different locations of the segment. For the purposes of analysis, it is assumed that up to five individual fiber projects could be implemented at one time. Construction activities would typically occur between 7:00 a.m. and 6:00 p.m. on weekdays (or within the most restrictive hours for noise control purposes that may vary by jurisdiction). Some construction activities could occur on Saturdays. No construction activities would occur at night. The average daily crew size required to complete an individual aboveground fiber project would be three crewmembers and the crew size required for an underground fiber project would be five crewmembers.

2.6.2 Construction Methods

The initial nine Priority Area installations would involve installing a total of approximately 52.57 miles of underground conduit/fiber. Construction methods would primarily include horizontal point-to-point underground boring, and if necessary, could include micro-trenching and/or aerial stringing from utility poles. The construction method used for a given project would be determined based on the location, site conditions, and constraints that may be present at an individual project site (e.g., size of road shoulder, water crossing, sensitive habitat, cultural resources, locations of existing buried utilities). The estimated maximum width of ground disturbance would be 10 feet. The width of disturbance for microtrenching would be approximately 1-4 inches. In the Project area, trees and other vegetation may be growing in road shoulders or otherwise along individual fiber alignments that could interfere with construction and would require removal. Typical hazardous materials (e.g., gasoline, oils, solvents) would be used during construction activities. If any existing wood utility poles are removed to accommodate installation, the poles would be properly disposed of as treated wood waste. For construction activities involving excavation, the excavated material would be re-used as fill material. In some cases, new fill material could be needed, and the specific amount would depend on the type and location of the construction activities.

The following describes the construction methods that would be used to install fiber optic lines.

Horizontal Directional Drilling

Horizontal directional drilling (boring) allows new conduit to be installed to the desired depth with minimal surface disturbance along the alignment. Bore entry and exit pits measuring approximately 2 feet by 6 feet and 3 to 5 feet deep would be excavated by a backhoe. A horizontal directional bore machine would drill an approximately 4-inch-wide horizontal pilot hole along the designed alignment and at a depth of 3 to 5 feet bgs.

Typical boring depths would be up to 12 feet, depending on subsurface conditions and the need to avoid conflicts with existing utilities beneath street intersections. Under some circumstances or to accommodate a local jurisdiction’s preference, the conduit may be installed by cutting pavement, excavating a narrow trench, and backfilling and repaving the cut pavement.

Typically, the bore rig would drill towards the preceding buried access vaults, then the bore rig would be turned in the opposite direction and drilled to the succeeding access point (i.e., drilled from opposite directions to meet in the middle). Once the pilot bore string reaches its receiving pit, the conduit would be attached to the end. The pilot pipe would then be pulled back to the bore machine thereby installing the conduit. The conduits would be spliced together, or an access vault would be installed. The typical bore lengths would be approximately 700 feet.

A temporary work area of approximately 20 by 40 feet would be needed at the bore entry and exit pit locations to accommodate the bore rig, to allow for connection of the conduits and for the installation of access vaults. These temporary work areas would generally be sited within previously disturbed areas and would not require site preparation/grading. The excavation area would be 2 feet by 6 feet, as described above, but some temporary surface disturbance beyond that could occur from vehicle maneuvering and workers. Water trucks are generally not required for dust suppression because horizontal directional drilling, the only activity that would involve appreciable soil excavation and stockpiles, would use directional bore rigs that have water on board that would be used for dust control, if necessary.

The bore rig would use a mixture of water and fine clay (usually bentonite) to help lubricate the pilot pipe and keep the hole drilled open. The water and clay would be mixed on-site in a mixer attached to or as part of the bore rig. Earth cuttings from the bore hole and the water/clay mixture returns to the bore entry pit where it would be pumped into a receiving tank. The mixture would be filtered for reuse if possible or stored in a tank until it could be discarded in a local landfill approved to receive the material. Drilling fluid is classified as non-toxic and can be disposed of accordingly. In areas of hard rock, the boring machine may use air and/or foam instead of drilling fluid.

Excavated or disturbed soil would 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 would be covered or contained in such a way that eliminates off-site sediment runoff from occurring. Upon completion of construction activities, excavated soil would be replaced.

Directional Drilling at Streams or Rivers

Directional drilling beneath streams or rivers may also be used to avoid sensitive resources. Directional drilling operations would typically range from 25 to 1,500 feet in length. Trenching, boring, or plowing would not go through any streams, rivers, or other waters of the US or State.

The depth of a bore would be at least 15 feet below the sensitive resource being avoided, including streambed alluvium; the depth may be greater than 15 feet based on site-specific conditions and recommendations from regulatory agencies. Stream crossing origination and completion points would be a minimum of 100 feet from the edge of a waterway; the points could be sited closer with an approved Management Plan prepared pursuant to [applicable code sections to be included by ESA], which includes specifications for compliance with applicable requirements of the US Fish and Wildlife Service, US Army Corps of Engineers, and California Department of Fish and Wildlife. Equipment used for directional drilling would vary based on the particular needs of the site and the contractor's preferences, but generally would include a drilling rig with fluid management systems and a drill pipe. In most cases

fiber optic line would cross streams and rivers by directional drilling beneath the stream if aerial stringing of conduit on a bridge was not an option.

Directional Drilling at Railroads and State Highways

The Project area intersects with several highways (State Route [SR] 101, SR 154, SR 246, etc.); thus, railroads or state highways could be crossed by fiber optic line. In instances where a railroad alignment or state highway would be crossed, directional drilling would occur below the railroad tracks or highway, at a minimum of 18 feet below the base of the centerline of the tracks or highway. Directional drilling would originate and terminate in the Project area, outside of the railroad ROW or state highway ROW. Fiber optic line would not be placed within any railroad or state highway ROW as part of the proposed Project.

Trenching

In areas where conditions are unsuitable for plowing (for example, if the soil matrix is characterized by a high density of rocks greater than 6 inches in diameter, or where existing underground infrastructure prohibits plowing) trenching would be needed to install the conduits. To create the conduit trench, a backhoe or other equipment is used to open a trench generally ranging from 9 to 18 inches wide and 48 inches deep. The conduit would be placed at the bottom of the trench, and the trench would be backfilled and compacted using trenching spoils, imported fill material or sand slurry as required. The trench is typically refilled the same day that it is created, and if a trench is left open at the end of the workday it is covered in accordance with standard best management practices.

In areas where the right-of-way or shoulder is very narrow or where sensitive biological or cultural resources must be avoided, trenches can be cut into paved areas and the conduits installed below the pavement. In such circumstances, the trench would be backfilled with slurry to ensure proper compaction and pavement integrity.

Microtrenching

Future broadband projects could be installed using microtrenching for installation of subsurface pipe or conduit. Microtrenching could be used in paved areas or sidewalks. Micro-trenching is a narrow open excavation trench that would place conduit generally between 12 and 26 inches bgs, with 18 inches being the average depth. Microtrenching excavation widths would typically be limited to between 0.5-inch and 2 inches depending on conduit diameter, which would result in a very limited construction footprint along the proposed cable alignments. Access to the new conduits for maintenance purposes would be provided by installing access boxes (vaults) at intervals of not more than 3,000 feet along a route for an individual fiber project. Vaults are sized to accommodate pulling fiber through conduits. The general dimensions for each access vault would be 17 inches by 30 inches, 36 inches by 60 inches, or 24 inches by 36 inches, and would extend to 48 inches bgs. A tractor with a microtrenching cutting blade or trencher would cut into pavement or a sidewalk. As trenching occurs, excavated material is collected by a vacuum excavator connected to the tractor or trencher. The microtrench would be backfilled with either a slurry or cement and a grout, epoxy, or other sealer.

Installation of Fiber Optic Line into Conduit

Once the conduit system is installed, the fiber optic line or microducts would be pulled or blown into the conduits in new or existing conduit. The installation would be accomplished using compressed air or a

series of hydraulic pullers consisting of a main-line puller and sufficient intermediate assist pullers to ensure smooth pulling within specified tension restrictions. First, the pull line would be attached to a plug that is 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 line through a swivel to prevent the line from twisting during the pulling operation. Then the pull line would be pulled back though the conduit section, threading the line through the conduit. The main-line puller would be equipped with a tension limiter and a tension monitor to provide an accurate record of actual pulling tensions encountered.

These methods would be used to pull the line from one handhole to the next. If there is damage to the conduit, it may be necessary to excavate temporary assist points to facilitate fiber installation. These could be required for a small number of vaults. In such cases, an excavation approximately 2 feet wide, 3 feet long, and 3 feet deep would be dug to provide access to the conduit and would be backfilled once the line is installed.

Installation of fiber into existing conduits using these methods would not require any new ground disturbance—only access to existing buried vaults—and would require two vehicles and an air compressor.

Installation of Access Vaults

To allow for fiber optic line-placing assist locations, fiber optic line splice locations, and future access to the buried conduits and line, access vaults (also known as handholes, pull boxes, and splice boxes) would be placed along the alignment. Once installation is complete, the vaults would be accessed only rarely for maintenance or line replacement. Each vault would typically house 80 to 100 feet of line slack.

Each access vault would be equipped with a traffic-bearing cover, even if it would be out of the path of traffic. The cover may be visible at the surface or may be buried just below the surface. Generally, road shoulders or other easily accessible areas are the preferred locations for vaults. A vault would be necessary at the beginning and end points, with intermediate vaults being placed within the alignment at typical intervals of approximately 1,000 to 1,500 feet for the laterals and 700 feet for the rest of the alignment; intervals would be spaced at no more than 3,000 feet along a route for an individual fiber project. These vaults would be installed as the final step in the horizontal directional drill process and installed in the same excavations that would be created as drill entry and exit points. No additional ground disturbance would be required for the vaults.

Access vaults would typically be installed at midblock locations under the shoulder or under existing sidewalks.

Splicing of Fiber Optic Line Ends at Access Vaults

The reels of fiber optic line would be spliced where necessary at access vaults. Appropriate lengths of excess (slack loop) fiber optic line—generally at least 30 feet—would be left at all splice locations to allow for line expansion and contraction due to temperature and for any splicing required in the future. The line would be spliced in splice cases (i.e., protective encasements) in a line, with sufficient slack allowed. The splices would be made with a profile alignment fusion splicing machine and protected by heat-shrink tubing.

Aerial Stringing/Utility Poles

In areas where trenching would be difficult for placing fiber optic line underground (e.g., rocky areas) and areas characterized by extreme topography (e.g., steep slopes, water crossings), fiber optic installation would occur using existing utility poles and/or new poles could be installed for aerial stringing of fiber optic line. New poles would be approximately 50 to 100 feet tall and spaced approximately 300 feet apart. The diameter of the poles would generally range from 15 to 19 inches at the base for aboveground poles. Poles would generally be buried 7 to 10 feet deep, depending on height. Guy wires may be connected to the poles in areas that need additional stability.

Self-supporting poles may be used where use of guy wires is infeasible (e.g., where there are existing structures next to the site) or where conditions prohibit adequate burial of the pole base. Self-supporting poles would be mounted on concrete foundations, each of which would typically be 3 to 6 feet in diameter. These foundations typically extend above the ground surface to a height of 6 to 12 inches, but there could be site-specific circumstances where up to 2 feet of height would be required. The diameter of the foundation for self-supporting poles could be as much as 4.5 feet if they are attached to concrete foundations.

Bridges

Broadband conduit installations that cross grade-separated features (road underpasses, stream or drainage crossings, railroad crossings, etc.) would be attached to existing bridges in order to minimize physical impacts to the feature being crossed and/or the surrounding ground surface. Given the limited size and weight of the proposed conduits being installed throughout the County, the attachment of proposed fiber optic lines to existing bridges would not present a structural risk to affected bridges and would be attached in a manner that minimizes visibility from the surrounding area. The aerial stringing may be accomplished with conduit attachment to bridges using a 4- to 6-inch galvanized iron pipe attached beneath or to the side of the bridge, depending on the age and condition of the bridge and the preferences of the agency with jurisdiction. Permits would need to be obtained from each respective bridge owner/jurisdiction to allow for this activity, and any permit conditions implemented to ensure that no adverse effects on the existing form or function of the bridge occurs as a result of the broadband installations.

2.6.3 Surface Restoration

Site cleanup and surface restoration under the Broadband Program would be performed promptly following conduit and line installation. Cleanup would include removing debris and restoring original surfacing and contours. Any disturbed areas would be returned to their original or better condition by replacing all asphalt, landscaping, or any earthen areas.

2.6.4 Construction Staging Areas and Equipment

Construction Staging Areas

Construction worker parking, material stockpiling, and equipment staging and storage would occur within appropriate locations for each future broadband installation project, subject to review and approval by the respective local jurisdiction(s) and/or CEQA Lead Agency. It is anticipated that such temporary

construction parking, stockpiling, and staging areas would be selected in consideration of a number of factors including the size and configuration of the property, proximity to active or planned construction areas, sensitivity of resources on or near the site, safety or security concerns, and accessibility by construction workers and equipment, among others.

Staging areas would be established along public and private roadways or other existing disturbed areas along construction routes in the Project area and would generally not exceed areas greater than approximately 200 feet by 200 feet. If it is not possible to locate staging areas along roadways due to narrow roads or other constraints, the contractor would locate staging areas and equipment lay-down areas and storage areas in paved or graveled yards or other existing disturbed areas as close to the construction areas as possible. The exact locations of construction staging areas and equipment lay-down areas have not been determined and would be identified as part of the final construction plans for each individual fiber project implemented under the Broadband Program. Locations would be selected by construction companies that would be awarded contracts for construction of individual segments. Crews would be mobilized from staging areas with no refueling occurring in the field. Any construction work, including use of staging areas, within county or incorporated city or town ROWs would be required to obtain an encroachment permit from the applicable jurisdiction.

All construction activity conducted along roadways would employ standard traffic control measures documented in a Traffic Control Plan submitted for review and approval by the Santa Barbara County Department of Public Works or the appropriate City department for work within the limits of an incorporated jurisdiction.

Construction Vehicles and Equipment

The types of construction vehicles and equipment that would be used during construction of individual fiber projects would vary depending on the type of installation occurring at any given location. In general, there would be five different construction activity types that could be conducted along each segment: trenching, directional drilling, fiber blowing, aerial fiber installation, and fiber splicing. The types of equipment that would be used include pickup/utility trucks, plows, trenchers, jackhammers, cutting blades, excavators with a rock saw or rock breaker, dump trucks, backhoes, boring rigs, and bucket trucks (for aerial installation). It is assumed that all locations of fiber installation are accessible by trucks and other construction equipment and that helicopter use would not be required. The types of equipment needed for a given project would vary depending on construction methods and site conditions. The following identifies the potential types of construction equipment that could be used for each construction activity type:

- Directional Drilling
  - Pick-up/utility trucks
  - Boring rig
  - Backhoes
- Plowing
  - Vibratory cable plow
  - Bulldozer
  - Spider plow
- Trenching
  - Pick-up/utility trucks
  - Cable plows
  - Trenchers
  - Excavators/rock saw/crushers
  - Dump trucks

  - Backhoes
  - Jackhammer
  - Cutting blades
- Microtrenching
  - Tractor
  - Cutting blades
  - Trencher
  - Vacuum excavator
- Fiber blowing
  - Pick-up/utility trucks
  - Air compressor
  - Backhoes
- Fiber splicing
  - Pick-up/utility truck
- Aerial Stringing
  - Pick-up/utility and bucket trucks
  - Line truck with an auger and tamper
  - Tracked equipment with an auger and tamper
  - Mini excavator
  - Backhoe

2.6.5 Project Operations

Operational activities for any individual fiber project implemented under the Project would be limited to routine maintenance to check the vaults that access the fiber optic line. Once constructed, the fiber optic facilities would generally operate passively unless additional service connections are installed or if incidental repairs are required due to damage (e.g., fiber cables are damaged by nearby construction, severe weather, natural disaster, etc.).

2.7 Potential Permits and Approvals Required

The following actions may be required for implementation of the Broadband Program:

- Regional Water Quality Control Board – National Pollutant Discharge Elimination Construction General Permit (General Permit) and Section 401 Water Quality Certification (Section 401 Permit)
- California Department of Fish and Wildlife – Section 1602 Lake and Streambed Alteration Agreement (1602 Permit)
- United States Army Corps of Engineers – Section 404 Permit
- California Coastal Commission – Coastal Development Permit
- California Department of Transportation – Encroachment Permit
- Local Agency Approvals – Conditional Use Permits (CUPs), Grading Permits, Building Permits