Chapter 2. Project Description

INTRODUCTION

On December 31, 1998, Williams applied to the California Public Utilities Commission (CPUC) for a Certificate of Public Convenience and Necessity (CPCN) authorizing Williams to provide and resell intraLATA and interLATA interexchange telecommunications services in the State of California (see application number A.98-12-037)[1]. Williams is currently authorized by the Federal Communications Commission (FCC) to provide interstate and international interexchange services and to construct facilities[2]. In conjunction with a nationwide expansion of its fiber optic cable system, Williams also plans to construct and operate additional fiber optic facilities in California. On October 21, 1999, the California Public Utilities Commission-approved an initial study/mitigated negative declaration (IS/MND) for Williams' Fiber Optic Cable System Installation Project - California Network (California Public Utilities Commission 1999). Therefore, the CPUC-approved IS/MND is incorporated in this subsequent IS/MND by reference.

As discussed in Chapter 1, "Introduction", the California network is part of a larger initiative by Williams to build a nationwide fiber optic cable system with connections to international traffic. Project route segments, shown in **Figure 1-1**, have independent utility, which means that each specific project route can function independently between two locations, although part of a larger cable system. Thus, specific project routes are considered a separate construction effort that, when combined, constitute Williams' larger California network.

Williams proposes to construct more than 99% of the fiber optic cable system for this project within existing, disturbed road rights-of-way by trenching, boring, and bridge attachment construction techniques. As part of the project route, two optical amplification (OP-AMP) stations will be installed on private property outside the road rights-of-way. The OP-AMP stations will be spaced approximately 37 miles apart along the project route. A description of the project route is presented in Chapter 3, "Project Route Description".

REGULATORY ENVIRONMENT

The project is subject to several state and federal regulatory processes that serve to mitigate the project's impacts on the environment to less-than-significant levels. The permits of broadest application to the project and their requirements are briefly described here to provide a context for the remainder of this chapter.

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[1] LATA: Local Access and Transport Area. These service or market areas of the Bell Operating Companies were established by order of the Modified Final Judgment for the divestiture of the Bell Operating Companies from AT&T Corp. California is divided into 11 LATAs.

[2] Section 63.07(a) of the FCC's rules authorizes nondominant domestic interstate telecommunications carriers to construct transmission facilities and to provide domestic interstate telecommunications services.

Permits required by other agencies, including the air quality districts and local cities, counties, and special districts, will be discussed in other parts of this subsequent IS/MND.

- Section 402 of the CWA requires a National Pollution Discharge Elimination System (NPDES) certification to be obtained from the applicable RWQCB before construction that may disturb 5 or more acres of land. A storm water pollution prevention plan (SWPPP) containing erosion control measures is required (**Appendix C**).

- Section 7 of the federal Endangered Species Act requires consultation with the U.S. Fish and Wildlife Service and National Marine Fisheries Service regarding necessary means to avoid harm to plant, fish, and wildlife species that are federally listed as threatened or endangered where there is a federal lead agency (e.g., Corps, U.S. Forest Service, U.S. Bureau of Land Management) action. Section 7 requires and establishes protocols for preconstruction wildlife surveys and mitigation measures.

- Section 106 of the National Historic Preservation Act requires examination of cultural resources before various federal agencies can provide permits under their jurisdiction. Section 106 establishes requirements and protocols for preconstruction cultural resource surveys and mitigation of impacts on cultural resources.

- Section 1603 of the California Fish and Game Code requires a streambed alteration agreement from the California Department of Fish and Game (DFG) before any action that will divert or obstruct flow or alter the channel of designated drainages, rivers, streams, and lakes. Potential impacts must be mitigated.

A complete list of permits and approvals for the project is provided in **Appendix B**.

MITIGATION INCORPORATED INTO PROJECT DESIGN AND CONSTRUCTION APPROACHES

This section describes the mitigation measures that Williams has incorporated into the project design and construction approaches. The additional mitigation recommended in Chapter 5, "Environmental Impacts and Mitigation Measures", will also be adopted by Williams and will be implemented as part of the proposed project.

Construction Methods for Fiber Optic Cable and Conduit Installation

The Riverside to San Diego project consists of two fiber optic cable systems, an "A" and "B" fiber, installed at a minimum of 25 feet apart within state, county, and city road rights-of-way for the length of the project route. The two fiber systems will be installed to provide diversity in the network and ensure service will not be interrupted in case of cable break. The "B" cable will leave the corridor shared by the "A" fiber north of Escondido, remaining within existing road rights-of-way before it reenters the corridor shared by the "A" fiber near Miramar.

The fiber optic cable system will consist of the following belowground and aboveground components. The belowground facilities are the fiber optic cable and conduit, utility access vaults, and handholes/manholes. The aboveground facilities are the cable marker posts and the two OP-AMP stations.

- Williams plans to install three or more conduits along the project route. One conduit will accommodate the current fiber optic cable and the remaining conduits will be used for future use by Williams or other carriers. Buried fiber optic cable consists of bundled glass optical fibers wrapped in plastic sheathing. Fiber optic cable is inserted into flexible, high-density polyethylene conduit that has a typical outside diameter of 1.5 to 2 inches. Each conduit can accommodate one fiber optic cable that is about 0.85 inch in diameter and is comprised of 96 to 288 hair-thin glass fibers.

- Utility access vaults and handholes/manholes are usually placed at intervals of 3 to 5 miles to serve as splice points and to assist fiber optic cable installation and maintenance (**Figure 2-1**). The utility access vaults and handholes measure approximately 30 by 48 by 24 inches and will typically be buried 48 inches below the surface.

- In some areas, such as streets or OP-AMP station sites, manholes measuring approximately 4 by 4 by 6 feet may be installed (**Figure 2-1**). Only the manhole lids will be visible at the surface.

- Cable marker posts will be located at approximately 700- to 1,000-foot intervals to alert people of the presence of the fiber optic cable. The posts are typically 3½-inch-diameter round PVC posts with orange caps 4 feet aboveground. The caps are imprinted with embossed lettering that indicates the presence of fiber optic cable. The caps are imprinted with embossed lettering indicating the presence of fiber optic cable. These marker posts will be located on road shoulders in accordance with the conditions of the required encroachment permits.

- Two OP-AMP stations will be constructed along the project route. OP-AMP stations house the electronic equipment to optically amplify the transmitted signal along the fiber optic cable. The outside elements of the OP-AMP stations are identical (e.g., overall footprint, buildings). Each station will consist of a fenced area measuring approximately 300 by 550 feet. Within the fenced area at each station, an approximately 30- by 97-foot concrete pad will be installed. Three to eight precast concrete buildings will be placed side by side on the pads to house the electronic equipment. A second pad measuring approximately 150 square feet will also be installed at each station to house a diesel-powered emergency back-up generator to provide power to the facility during electrical outages. OP-AMP station locations for the project route are described in Chapter 3, "Project Route Description".

A general discussion of the types of construction methods that will be used at various locations to install the fiber optic cable and conduit is provided below. All these methods will be used at various locations on the project route to accommodate geographic or topographic constraints, resource avoidance considerations, or availability of rights-of-way. The specific construction methods that will be used along the project route are listed in Chapter 3, "Project Route Description".

Plowed and Trenched Installation in Existing Road Rights-of-Way

Plowed installation uses a tracked vehicle with a cable reel in front and a plow blade in back (**Figure 2-2**). As the vehicle moves, it simultaneously furrows the soil and installs the conduit or cable. In some instances, the soil may be preripped by a tractor in front of the plow. Ripping is a technique in which a slit is made in the surface of the soil to loosen it. The amount of surface disturbed by plowing is typically less than with the trenching method. The construction corridor is usually 20 to 40 feet wide. In sensitive

areas, the construction corridor can occasionally be restricted to less than 20 feet wide. A contractor can typically complete a minimum of 3,000 feet of construction per day under normal circumstances.

Trenched installations typically involve a rubber-tired backhoe or an excavator digging a trench approximately 12 inches wide by 48 inches deep (**Figure 2-3**). Typically, no more than 1,000 feet of trench will be exposed by a crew at any time during construction, and trenches will be filled at the end of each day. If conditions do not allow for small isolated areas, such as handholes or assist points, to be backfilled at the end of each day, appropriate safety, erosion, and wildlife control features will be installed. Access vaults or handholes/manholes will be installed approximately every 3 to 5 miles. The construction corridors will typically be confined to within the existing rights-of-way. In some cases, the conduit and cable may be installed in the roadbed to avoid sensitive resources in the road shoulder or right-of-way margin.

Trenches are dug or plowed in or along road shoulders or other portions of the rights-of-way parallel to the road. However, this technique will not be possible in very narrow roadbeds such as those installed on extremely steep slopes. In some cases, the conduit and cable may be installed in the roadbed to avoid sensitive resources in the road shoulder or right-of-way margins.

Bridge attachments will be used at stream crossings wherever boring is not viable. Flowing streams with sensitive resources (e.g., high-value habitat for threatened or endangered species) will be crossed by attaching the conduit to an existing bridge or by boring under the stream (**Figure 2-4**). No in-water trenching is proposed in flowing streams with sensitive resources located at or downstream of the crossing.

Directional Boring

Directional boring will be used in various locations along the project route to cross areas where surface disturbance must be avoided (e.g., crossing railroads, highways, rivers, or sensitive streams) (**Figure 2-5**). Directional bore lengths range from less than 100 feet to more than 800 feet, depending on the type of equipment used. To complete the bore, a work area is established on each side of the crossing. For river, stream, and wetland crossings, the work areas will be located at least 25 feet from the bank or edge of the wetland resource. One work area contains the "pilot hole" and drilling equipment. The other work area contains the "receiving hole", where the drill bit emerges, and is used to fabricate the steel casing that will be pulled through the hole. For relatively short bores, smaller drilling equipment is used, and the two work areas will measure approximately 100 by 50 feet. Larger equipment, and a correspondingly larger work area (approximately 150 by 100 feet), is needed for longer bores. Drilling equipment most suitable for site-specific conditions will be used for each bore. Silt fences, straw bails, and other erosion control measures will be installed around these work areas, consistent with the SWPPP.

During the boring process, a bentonite slurry is typically pumped through the bore hole to help lubricate the drill bit, prevent the bore tunnel from collapsing, and carry drill cuttings to the surface. Bentonite is a naturally occurring Wyoming clay known for its hydrophilic characteristics. Material Safety Data Sheets are readily available for bentonite if required. The slurry is pumped through the bore hole, collected at the surface, passed through machinery to remove the bore cuttings, and then recirculated through the hole. The slurry is stored in tanks at the drill site when not in use. Any excess slurry remaining after the bore is complete will be removed from the site and either reused by the drilling contractor or discarded at an appropriate location.

Although it is highly unlikely, the slurry can escape from the bore hole through cracks or fissures in the soil and reach the ground surface. All efforts will be made to complete directional bores at sufficient depths to prevent bentonite releases. For relatively short or simple bores, the drilling contractor often determines the appropriate bore depth based on professional experience and site-specific conditions. For longer or more complex bores, a geotechnical engineer is often used to evaluate soil conditions and determine a minimal bore depth. If necessary, the geotechnical engineer will order site-specific soil borings to determine subsurface soil conditions.

The SWPPP includes a discussion of various slurry containment measures. A specific contingency plan for bentonite releases and potential bore abandonment will be prepared for more complex river crossings, such as the San Dieguito River, San Luis Rey River, San Jacinto River, and others.

OP-AMP Stations

The signal transmitted along a fiber optic cable must be amplified (i.e., boosted) approximately every 30 to 40 miles. Williams plans to install two OP-AMP stations approximately every 30 to 40 miles along the project route. Typical OP-AMP stations consist of three to eight precast concrete buildings (each measuring 12 by 30 feet) lined up side by side on a concrete pad. More buildings can be added if fiber optic cable system traffic levels require it (**Figure 2-6**). Each building is manufactured with one or two heating, ventilation, and air conditioning (HVAC) units to maintain a steady temperature for the electronic equipment. The HVAC units operate from the same electrical source as the rest of the station.

The buildings will be located within a 300- by 550-foot fenced area. The unstaffed, locked facility requires commercial electric power and periodic maintenance. Each station will have an overhead security light and a small light over the door. A diesel-powered emergency backup generator will be installed to be used during power outages.

During the planning process, Williams developed the following criteria for siting OP-AMP stations and their access. OP-AMP stations will not be sited in areas that:

- have not been surveyed, documented, and ensured clear of sensitive biological and cultural resources by Williams' environmental consultant, with approval by the CPUC;
- are within a designated 100-year floodplain, unless absolutely necessary;
- are immediately adjacent to waterbodies, including wetlands, drainages, vernal pools, rivers, streams, or lakes;
- are on sites with known contamination; or
- are in areas that are designated as scenic.

As part of the OP-AMP station site selection, qualified biologists and archeologists have accompanied Williams project engineers, and right-of-way and construction personnel to ensure that sites are clear of sensitive biological and cultural resources before they are selected.

If the locations of OP-AMP stations must be modified because of environmental factors or inability to negotiate with a property owner, Williams' environmental consultants will fill out the environmental clearance compliance checklist shown in **Appendix D** for each modified OP-AMP station and submit it to the CPUC for review and approval. If the criteria listed above are not met, or clearance cannot be granted as specified in the checklist, Williams will find another location that is acceptable to the CPUC, meets the above criteria, and is ensured to be environmentally clear, consistent with the checklist. No construction will occur until approval has been granted by the CPUC.

The two OP-AMP stations for this project, as described in Chapter 3, "Project Route Description", have been analyzed in this subsequent IS/MND.

Staging Area Establishment

Staging areas for construction equipment, materials, fuels, lubricants, and solvents will be established along the project route during construction to allow more efficient use and distribution of materials and equipment. Staging areas are typically where materials and equipment are stored for more than 2 days. Temporary parking areas may also be established to park vehicles and equipment during the workday or overnight. No new staging areas will be established in undisturbed areas or on public lands. All staging areas will be located on private lands in existing contractor yards; existing commercial areas used for storing and maintaining equipment; previously cleared, graded, or paved areas; or level areas where grading and vegetation clearing are not required.

Staging and parking areas are typically selected by the construction contractor, as needed, before and/or during construction. This practice is consistent with construction methods used throughout California and the United States. To ensure that sensitive environmental resources are avoided or adequately protected, the locations of staging and parking areas will be determined in consultation with qualified biologists and archeologists. Because fuels, lubricants, and solvents will be stored in staging areas, all staging areas will be located at least 150 feet from sensitive stream/drainages.

Access Roads

Access to the project route will be by existing access roads. No new access roads will be created for fiber optic cable installation; however, some existing roads in isolated areas may require minimal repairs to make them usable for construction. After completion of fiber optic cable installation, access roads will be repaired, if necessary, to prevent future erosion.

After installation, access to the project route for maintenance will also be by existing access roads to the road or railroad rights-of-way. Activities following installation will consist mainly of implementing erosion control measures or repairing or replacing cable or conduit because of storm damage, landslides, or other emergencies.

Specific access roads are not selected until the early stages of construction planning. Selection of access roads will be determined after consultation with qualified biologists and archeologists to ensure that sensitive environmental resources are adequately protected or avoided.

Facility Operation and Maintenance

Ground-disturbing activities associated with ongoing operation and maintenance of telecommunications projects are normally minor to nonexistent. Best management practices (BMPs) detailed in the SWPPP will be implemented to reduce or avoid unchecked runoff. In most emergency situations requiring immediate attention, such as a fiber optic cable cut, access to inspect damaged areas will be by public roads.

Avoidance of Sensitive Resources

Qualified biologists, archeologists, and paleontologists have been working closely with Williams project engineers in the field to design the project route around sensitive resources and to site OP-AMP stations, directional drilling points, handholes/manholes, and other project features in areas that do not support sensitive resources.

Sensitive resources (i.e., biological and cultural resources) will be avoided through various means identified during the project design phase. However, there will also be avoidance measures occurring in the field during construction as a result of preconstruction surveys or at the direction of construction inspectors monitoring construction. If required, the construction technique will be coordinated through a resource specialist (i.e., wildlife biologist, wetland ecologist, botanist, archaeologist, or paleontologist) familiar with the resource issue being avoided. Typical avoidance measures include minor modification of the project route around the sensitive resource within the disturbed right-of-way, boring under the resource, or attaching the fiber optic cable to an existing bridge. The locations of all sensitive resources and the methods to avoid them will be shown on the construction drawings.

All sensitive resources will be staked and flagged in the field and marked on the construction drawings prior to initiating construction.

Stream/Water Crossings

All significant impacts will be avoided at sensitive drainages, including perennial stream crossings or streams that are flowing at the time of construction and have sensitive resources located at or downstream of the crossing. At all streams that provide important habitat, contribute significantly to water quality, or support sensitive or listed aquatic species, conduit and cable will be installed either by boring under the drainage or by attaching the fiber optic cable to bridges, where available. These methods will also be used for wetlands. The avoidance methods for each sensitive resource will be shown on the construction drawings.

Guided or directional bore/drill machines operated at ground level will be used to bore under streams or other sensitive resources (**Figure 2-5**). The bore will return to the surface on the opposite side of the stream or sensitive resource. Equipment for guided bores comes in various sizes and larger equipment can traverse distances exceeding 5,000 feet. For most bores under streams and other sensitive resources associated with the project, equipment capable of boring 500 to 1,000 feet will be adequate. Guided bores typically use bentonite, a fine, nontoxic clay that, when mixed with water, provides the necessary lubricant and operating fluid for the drilling process. The mixture is injected into the drill under pressure and recirculated back to the surface, where it is filtered and reused.

Spill prevention countermeasures contained in the SWPPP (required under the NPDES permit mandated by the RWQCB) have been developed for the project route to prevent or minimize the risk of bentonite entering surface waters during directional boring. Although bentonite contamination seldom occurs, bentonite

can reach the ground surface and enter surface waters if the bore encounters a rock fracture during high-pressure boring operations conducted over long distances. However, the risk of bentonite reaching the surface or surface waters is minimized because contractors typically use the smallest available boring equipment, which injects bentonite at lower pressures.

Sensitive Biological/Archeological Sites

Williams has conducted botanical, wildlife, wetlands, riparian, archeological, and paleontological studies to ensure that sensitive resources are identified and completely avoided or any impacts on sensitive resources that cannot be avoided are minimized to less-than-significant levels. Biologists and archeologists are working closely with Williams' project engineers and resource agency staff to site the project route and associated facilities (i.e., OP-AMP stations) in areas with no sensitive resources. All sensitive resources will be staked and flagged in the field and marked on construction drawings before construction begins. Refer to the "Biological Resources" and "Cultural Resources" sections of Chapter 5, "Environmental Impacts and Mitigation Measures".

The results of biological and archeological field surveys for the project route are shown in **Appendix E**. All of the field studies necessary to support the engineering design have been completed. Sensitive resources will be avoided by either locating the project route, and facilities away from the sensitive resource, or boring the conduit and cable under the resource. Fiber optic cable conduits often can be relocated into pavement, if necessary. The avoidance methods for each sensitive resource will be staked and flagged in the field, where appropriate and necessary, and shown on the construction drawings for the project route.

Appendix D contains an environmental compliance checklist that will be completed for any site modifications to the proposed locations of the OP-AMP stations. This checklist will ensure that the appropriate biological and archeological clearances have been documented, received, and approved by the CPUC before construction of the facilities begin.

Work Zones

Fiber optic cable system installation activities will be confined to existing disturbed road rights-of-way. In the very few areas that facilities could be located outside these existing rights-of-way (i.e., private access roads and OP-AMP stations), the same environmental clearance processes and mitigation measures will be implemented as within the right-of-way. In both instances, the construction area will typically be 20 to 40 feet wide for conduit and cable installation. Larger areas will be used for OP-AMP construction and directional bores, as described previously.

Work within Permanent Rights-of-Way

Roads and bridges have permanent rights-of-way that vary in width. All excavation and grading activities associated with conduit and cable installation will be confined to the rights-of-way and their access roads. In most cases, construction will take place within the permanent rights-of-way or on the access and maintenance roads.

Work outside Permanent Rights-of-Way

Only minimal excavating or grading activities, such as for OP-AMP stations, will occur outside permanent rights-of-way. Operation outside the rights-of-way will not be allowed in any areas identified as supporting sensitive resources. Sensitive resources will be staked and flagged before construction and identified on the construction drawings, as necessary and appropriate, and activities will be monitored by trained construction inspectors, with support from qualified biologists or archeologists.

Surface Reclamation

Right-of-way reclamation is the final step in the conduit and cable installation process. The short-term objectives of reclamation are to return the roadway to its pre-existing condition, control potential accelerated erosion, and sedimentation and minimize impacts on adjacent waters, land uses, and other sensitive resources. Properly executed construction practices and timely progress typically mitigate temporary and short-term construction impacts to less-than-significant levels. Long-term objectives include erosion and sedimentation control, as well as reclamation of topography to preinstallation conditions (i.e., conditions prevailing before installation of the conduit and cable). The reclamation effort will focus on the following objectives:

- restoration of the right-of-way and associated maintenance and access roads and
- monitoring to ensure long-term success.

Restoration of Right-of-Way and Associated Maintenance and Access Roads

On completion of conduit and cable installation, the plowed or trenched area will be restored to a condition equal to the preconstruction condition.

Erosion Control

Erosion is the process of soil being displaced and transported by wind or water. Conduit and cable installation will disturb soil and vegetation, exposing sites to possible erosion. The hazard of erosion is increased by the presence of steep slopes, concentrated or channelized water flow, and high stream flows. This section summarizes the BMPs that will be undertaken in accordance with the California Code of Regulations and measures that will be implemented by Williams' contractor as specified in the SWPPP that has been prepared for the project route.

Erosion and Sediment Control Measures

Erosion and sediment control measures are used to reduce both the amount of soil that is displaced from a land area and the rate of soil discharge. The following standard erosion and sediment control measures and practices will be used during and after construction to control accelerated soil erosion and sedimentation to less-than-significant levels:

- minimize site disturbance;
- perform initial cleanup;
- compact subsurface backfill material;
- leave topsoil in roughened condition, except in road shoulders;

- install trench plugs;
- perform seeding and mulching;
- install erosion control blankets;
- install silt fencing and straw bale dikes;
- where necessary, construct water bars, install baffle boards, and armor drainage banks with riprap; and
- conduct periodic maintenance of erosion and sediment control measures.

These measures, described below, are routinely implemented in the construction industry and have been proven successful for similar fiber optic cable system installations.

Minimize Site Disturbance. The most basic way to avoid erosion is to minimize site disturbance. Williams' contractor will be directed at the environmental training program (described later in this chapter) to implement practices that minimize site disturbance to ensure that impacts are avoided or reduced to less-than-significant levels. The contractor will be directed to:

- remove only the vegetation that is absolutely necessary to remove,
- avoid off-road vehicle use,
- avoid all sensitive resource areas,
- avoid excessive trips along the right-of-way or access or maintenance roads, and
- instruct all personnel about the concepts of stormwater pollution prevention to ensure that they are conscious of how their actions affect the potential for erosion and sedimentation.

Williams inspectors will be onsite during all construction activities and reinforce the importance of confining all vehicular traffic to the existing right-of-way and maintenance and access roads.

Perform Initial Cleanup. Williams' contractor will be directed to perform initial site cleanup immediately following conduit and cable installation. Initial cleanup includes removing debris and spoils and restoring original contours. Initial cleanup performed as part of construction will contribute significantly to the overall site stability and make final cleanup easier. The site will immediately begin to stabilize naturally with little additional disturbance during final cleanup. A site that is not initially cleaned up is more susceptible to erosion.

Compact Subsurface Backfill Material. Proper compaction of subsurface soil serves as an erosion control measure. Uncompacted plow or trench furrows are susceptible to subsurface erosion through the migration of surface and subsurface water. Proper compaction of the subsurface material and plow furrows is necessary to help prevent surface and subsurface migration of water along the plow or trench furrow and prevent trench settlement.

Leave Topsoil in Roughened Condition. Reapplied topsoil will be left in roughened condition to facilitate the establishment of vegetation and reduce the potential for erosion.

Install Trench Plugs. A trench plug is a permanent mechanical erosion control measure consisting of soil-filled burlap bags placed in the excavated trench before backfilling. Trench plugs control erosion by stopping subsurface water flow. Trench plugs are placed in the trench at regular intervals along areas with steep slopes. The spacing is determined by slope grade, topography, and soil characteristics. Trench plugs will be installed as shown on the construction drawings.

Perform Seeding and Mulching. Seeding consists of sowing soil-stabilizing grasses on areas disturbed by construction activities (except crop land and areas surfaced with pavement or gravel). Vegetation promotes both erosion and sedimentation control. The root structure of vegetation holds soil in place, resisting erosion. Grasses slow the flow of surface water, allowing suspended soil particles to settle. Mulch, typically consisting of wheat straw, is usually applied over the seed to protect the soil surface until the grasses become established.

Install Erosion Control Blankets. On steep slopes that are susceptible to erosion, erosion control blankets will be installed to hold seed and soil in place until vegetation is established. The onsite spread supervisor will determine where erosion control blankets are necessary.

Install Silt Fencing and Straw Bale Dikes. Silt fences and straw bale dikes will be installed, as needed, at the toe of slopes below disturbed areas to prevent sediment from reaching streams and wetlands. These sediment barriers retain sediment while allowing water to seep through them. Straw bale dikes may also be installed around drop inlets and in small swales to retain sediment.

Additional Measures

The following measures may be used, but will only be used rarely because Williams will avoid construction on steep slopes.

Construct Water Bars. A water bar is an earthen berm permanently placed along the ground across the disturbed area of construction. Water bars control erosion by slowing runoff rates and diverting runoff from the disturbed area.

Install Baffle Boards. A baffle board consists of pressure-treated 2- by 12-foot boards and 4-inch-diameter wooden posts. Baffle boards work like water bars, but are used on slopes too steep for water bars to function. Baffle boards cannot be used on roads. Baffle board spacing is determined by slope grade, topography, and soil type. Baffle boards will be installed, as necessary, by the contractor during final cleanup.

Armor Drainage Banks with Riprap. Armoring drainage banks with riprap may be used on rare occasions. Riprap is a method of permanent erosion control used for slope stabilization, water energy dissipation, and armoring of stream banks. Riprap will be used only on stream banks where the existing channel consists of rock or in highly erodible drainages that lack woody riparian vegetation.

Assessment and Implementation of Erosion Control Measures

Existing permanent erosion control measures are likely in place along many existing rights-of-way as a result of previous facility construction. The effectiveness of these measures will be evaluated before construction. Any existing measures will be restored as required and left in place after the installation of the fiber optic cable system is complete. Following construction activities, the right-of-way will also be assessed by the spread superintendent to determine where additional erosion control measures are necessary.

Equipment Maintenance and Refueling

The equipment used for the project will require periodic maintenance and refueling. These activities will be accomplished responsibly, using prescribed spill prevention countermeasures (**Appendix C**). To reduce the potential of contamination by spills, no refueling, storage, servicing, or maintenance of equipment will occur within 150 feet of drainages or other sensitive environmental resources. No refueling or servicing will be done without placing absorbent material or drip pans underneath the vehicle to contain spilled fuel. Any fluids drained from the machinery during servicing will be collected in leak-proof containers and taken to an appropriate disposal or recycling facility. If these activities result in damage to or accumulation of a product on the soil, it will be assessed and disposed of properly. Under no circumstances will contaminated soils be added to a spoils pile.

Onsite refueling of construction equipment will be done by mobile refueling trucks. The refueling trucks will be independently licensed and regulated to transport and dispense fuels. This licensing and regulation will help ensure that the appropriate spill prevention techniques are implemented.

Restrictions will be placed on all equipment refueling, servicing, and maintenance supplies and activities. All maintenance materials, oils, grease, lubricants, antifreeze, and similar materials will be stored in offsite staging areas. If these materials are required during field operations, they will be placed in a designated area away from site activities and sensitive resources.

During construction, all vehicles and equipment required onsite will be parked or stored at least 150 feet away from rivers, streams, wetlands, known archeological sites, and other sensitive resource areas. These areas will be identified on the ground and noted on U.S. Geological Survey 7.5-minute quadrangles and on the construction drawings, as appropriate. All wash-down activities will be conducted at least 150 feet from sensitive environmental resources.

CONSTRUCTION MANAGEMENT STRUCTURE

Williams has extensive experience constructing fiber optic cable facilities. Since 1997, the company has installed over 8,000 miles of fiber optic cable in the United States. Before 1997, a former affiliate of Williams pioneered fiber optic installation within idle pipelines and pipeline corridors while constructing and operating a 13,000-mile fiber optic cable system spanning 37 states.

To provide the best potential for success of the project, a proper management structure, adequate training of field personnel, an environmental awareness program, and the ability to respond to changing circumstances are critical. A field management structure has been established (**Figure 2-7**) and a mitigation monitoring plan prepared and adopted (**Appendix F**) for overseeing the construction process. In addition, training classes for the contractor and construction crews will be held to cover issues such as environmental protection, safety, spill prevention and response, fire prevention and management, and proper management of storm water runoff.

The field management structure established for the project route will include engineering, construction, and environmental personnel, such as spread superintendents, spread supervisors, contract compliance inspectors, environmental resource coordinators, and biological and archeological support. The roles and responsibilities of each onsite representative will be clearly understood and communicated during the training program and are summarized below.

Spread Superintendent

The Williams spread superintendent will be onsite to address engineering questions, make field decisions, and coordinate with permitting agencies. The spread superintendent has the overall responsibility for onsite decisions and direct reporting responsibilities to the Williams' project manager for contract compliance, as well as the ability to halt construction operations in case of environmental noncompliance, emergencies, safety issues, and disputes with the construction contractor.

Spread Supervisor

Williams' spread supervisor will be onsite to oversee the individual contract compliance inspectors and work with the contractor to resolve field conflicts. The spread supervisor will report directly to the spread superintendent and performs most of the administrative duties. The spread supervisor will communicate all information on construction activities related to compliance, safety, and administration on a daily basis.

Contract Compliance Inspectors

Contract compliance inspectors will be assigned to each construction crew to observe their work. If multiple crews work in the same area, one inspector may monitor more than one crew. The contract compliance inspector will monitor environmental resource concerns and check implementation of erosion protection measures. The contract compliance inspector will be trained in environmental issues that may be encountered during construction and will have immediate access to qualified biologists, archeologists, and paleontologists when necessary.

Environmental Resource Coordinator

An environmental resource coordinator will be assigned to the project route. The environmental resource coordinator will work with the contract compliance inspector, biologists, archeologists, agencies, and the engineering and construction representatives to resolve conflicts and coordinate resource avoidance and protection. The environmental resource coordinator will patrol the construction site periodically (while maintaining contact with spread superintendents, spread supervisors, and contract compliance inspectors) to help monitor implementation of resource protection measures.

Biological and Archeological Resource Monitors

Qualified biologists and archeologists will locate and stake in the field and locate on the construction drawings previously identified sensitive resources and identify the necessary protection methods for the contractor. Biologists and archaeologists will also be onsite during construction where their presence is needed, as required in this document, or as a condition of required permits. In addition, they will coordinate, as necessary, with monitors from the CPUC and any other appropriate agencies. Other resource monitors (i.e., Native American and paleontological monitors) will be available, as necessary and appropriate.

ENVIRONMENTAL TRAINING AND AWARENESS

An important component of implementing construction successfully is education through training and awareness programs. All levels of field management and construction personnel will be informed about environmental protection and the seriousness of noncompliance. Training will take place at the Williams engineering level and the contractor level. Appropriate personnel from the CPUC and other regulatory agencies will be invited.

Williams and its Consultant Team

Williams and its consultant team includes contract compliance inspectors, environmental resource coordinators, biologists and archeologists, and spread superintendents and supervisors. Training seminars led by project managers and qualified biologists and archeologists will be held before construction to explain and educate construction supervisors and managers about the following:

- the need for and importance of resource avoidance and protection,
- resource mapping format and interpretation of construction drawings,
- resource protection staking methods,
- construction process as it relates to required mitigation measures,
- roles and responsibilities, and
- project management structure and contacts.

All contract compliance inspectors will be required to complete an inspector training class covering issues such as the environmental concerns mentioned above, resource mapping and construction drawing interpretation, roles and responsibilities, and site safety.

Contractor Team

The contractor team will include the job superintendent, crew foremen, and crew members. Training and education will take place through several processes beginning with the preconstruction meetings and continuing with field meetings to reinforce previous training.

Preconstruction Meetings

Meetings with the contractor will be held before construction begins on the project route. These meetings will be used to reinforce the need for and importance of compliance with environmental resource avoidance and protection measures.

The following issues related to environmental protection will be explained at these meetings:

- the need for and importance of resource avoidance and protection,
- resource mapping format and interpretation of construction drawings,
- resource protection staking methods,
- construction process as it relates to required mitigation measures,
- roles and responsibilities, and
- project management structure and contacts.

Field Meetings - Contractor Job Superintendents and Foremen

The spread superintendents and supervisors, contract compliance inspectors, and environmental coordinators will regularly conduct meetings with the contractors' superintendents and foremen to coordinate the construction and mitigation processes.

Contractor Crew Members

The contractors' foremen will be responsible for transmitting the information discussed in the preconstruction meetings to the individual crew members through tailgate meetings in the field. These tailgate meetings are usually held weekly to discuss safety issues and will be attended by the contract compliance inspectors and environmental resource coordinator. Environmental issues will also be included and discussed in these meetings.

LAND USES ISSUES

The project route crosses land owned and/or used by other entities, including public roads, utilities, railroads, and private property.

Public Roads

The project route will be constructed within existing road rights-of-way. Permits will be acquired from the appropriate governing agency, including the California Department of Transportation (Caltrans), where necessary before construction in public road rights-of-way.

In coordination with affected jurisdictions, Williams will comply with local requirements for installation activities within public road and highway rights-of-way to reduce construction-related impacts on traffic and circulation patterns during the construction period. All construction activities will follow the standard construction specifications of the affected jurisdictions.

Utility Crossings

Conduit and cable installation will not threaten overhead utilities because of the amount of vertical clearance under the utilities. For underground facilities, "One Call" utility location services will be contacted a minimum of 48 hours before construction. One Call services alert all registered utilities about the scheduled construction activities, allowing the utilities to identify the location of their underground facilities and thus greatly reduce the possibility of interruptions in utility services.

Private Property

The OP-AMP stations will be located on private property. Landowners will be contacted and permission received before construction. Right-of-way personnel will be available to answer landowners' questions during construction and to negotiate any cleanup or restoration issues that may arise.

CONSTRUCTION SCHEDULE AND WORKFORCE

Construction Schedule

Construction of the fiber optic cable system is scheduled to commence in May 2000, or on receipt of all necessary authorizations from the CPUC and other applicable governing agencies, and scheduled to be completed by November 2000. All appropriate permits and approvals will be in place before construction commences in a particular area and will be provided to the CPUC. Construction segments and schedules may vary according to environmental constraints (biological, archeological, seasonal work windows) and the completion of permitting processes.

Sequence of Work

Monitoring activities associated with construction will proceed as follows:

- locate all sensitive resources, construction methods, and avoidance measures or mitigation measures on the construction drawings;
- acquire permits and approvals from governing agencies;
- conduct preconstruction wildlife surveys in predetermined suitable habitat areas;
- stake and flag resources as stipulated in the environmental documentation and from results of field surveys conducted for the project route;
- prepare the rights-of-way and install sedimentation control measures where needed;
- install conduit and cable and construct associated facilities;
- restore the rights-of-way and install erosion control measures;
- apply seed and mulch as specified in the SWPPP and reclamation plan;
- monitor erosion control; and
- monitor success of mitigation.

Construction Workforce

The labor and equipment associated with each type of construction method were discussed previously. The number and types of crews associated with each route segment (spread) and the flow of construction activities along the project route are discussed below. The actual number and composition of the workforce may vary with conditions at the time of construction. The contractor is responsible for determining the most efficient methods for completing the work within the given parameters.

Williams is anticipating hiring multiple contractors to install the conduit and cable and construct associated facilities. On past similar fiber optic installation projects with multiple contractors, each contractor has been expected to operate one spread on the project route. The number of spreads may vary depending on the contractor's ability to meet the schedule for fiber optic cable system installation. Each spread will consist of the following crews:

- **Preparation Crew** – The preparation crews will prepare the rights-of-way for construction by placing temporary gates in fences, clearing vegetation where necessary, and repairing erosion problems on existing roads to provide access.

- **Installation Crew** – The installation crews will install the conduit and cable using the construction methods discussed in this chapter.

- **Cleanup Crew** – The cleanup crews will perform final cleanup of the rights-of-way, restoring preinstallation ground contours, installing erosion protection measures (e.g., erosion control blankets), and restoring affected stream channels.

- **Seeding Crew** – The seeding crews will apply seed and mulch where necessary.

SUMMARY OF MITIGATION MEASURES INCORPORATED INTO DESIGN AND CONSTRUCTION APPROACH

Williams will be responsible for implementing the mitigation measures identified in this document and other measures that will be determined by the associated permitting agencies and through the CEQA review process (e.g., DFG, Caltrans, RWQCBs). Some of the general mitigation measures that are known at the time of the preparation of this document are described below. The measures have been developed and designed as part of the project to avoid potential significant impacts or reduce them to less-than-significant levels.

Staging Areas

No new equipment staging areas will be established in undisturbed areas or on public lands; all staging areas will be located on private lands. To the fullest extent possible, access to the project will be by existing access roads to the road right-of-way used for the project. If any new access roads to OP-AMP stations are required, surveys will be conducted to identify sensitive biological and archeological resources. These resources will be fully avoided and approved for use by the CPUC prior to construction.

Sensitive Resources

All sensitive resources (i.e., biological and archeological resources, sensitive stream crossings, wetlands) will be identified during field studies and staked and flagged in the field and marked on construction drawings before construction. All known sensitive resources already have been identified along the project route and are specifically addressed and documented in this subsequent IS/MND. All sensitive resources will be identified and documented for the CPUC and other regulatory agencies at the permitting stage and prior to construction. Sensitive resources will be avoided by boring under the resource, attaching the conduit to an existing bridge, or rerouting the running line within the project study area. The conduit and cable will be bored under sensitive streams (streams supporting threatened or endangered species or other resources of special value) or attached to bridges, and no construction activities will be conducted within the limits of the stream. No construction equipment will be operated in sensitive streams.

Work Scheduling

Construction activities will be scheduled so they do not interfere with the reproductive cycles of sensitive plant and animal species. Construction work windows will be included, where applicable, in the construction specifications.

Work in Wet Weather

In consultation with the contract compliance inspector and environmental professionals, as needed, no construction or routine maintenance activities will be performed during periods when the soil is too wet to support the construction equipment.

Storm Water Pollution Prevention Plan

A SWPPP has been developed (**Appendix C**) and submitted to the appropriate RWQCB for the project route in support of NPDES regulations, as required by the RWQCB. The plan identifies activities that may cause pollutant discharge (including sediment) during storms, and the BMPs that will be employed to control pollutant discharge. Construction techniques that reduce the potential for runoff, including minimizing site disturbance, controlling water flow over construction sites, stabilizing bare soil, and ensuring proper site cleanup are identified. In addition, the plan specifies the erosion and sedimentation control measures to be implemented, such as silt fences, trench plugs, terraces, water bars, baffle boards, and seeding and mulching.

The SWPPP also specifies spill prevention countermeasures, the types of materials used for equipment operation (mainly vehicle fluids such as fuel and hydraulic fluids), and measures to prevent or cleanup hazardous material and waste spills. Emergency procedures for responding to spills are also identified.

The SWPPP will be included in the contract specifications for this project.

Fire Prevention and Response Plan

A fire prevention and response plan has been developed and will be submitted to the appropriate regulatory agencies. The plan was developed with input from the fire response managers of affected agencies and will be submitted prior to construction. The plan identifies the fire precaution and suppression measures that will be implemented and the parties responsible for fire prevention and response. Prevention and response measures, such as requirements to have firefighting water tanks onsite and extinguishers and shovels in vehicles, have been identified (**Appendix G**).

The fire prevention and response plan will be included in the contract specifications for this project.

NO-PROJECT ALTERNATIVE

The No-Project Alternative is the circumstance under which the proposed fiber optic network is not installed. The temporary impacts of installing the network will not occur. Because the proposed project will not have significant effects that cannot be avoided or mitigated, selection of the No-Project Alternative will have no net environmental benefits.

The telecommunications market is constantly changing as new technology is introduced, and there are corresponding changes in regulations, supply, and demand. Given the increasing number of users of telecommunications services and the greater number of available devices (Internet, digital television, and video

conferences), the demand for additional telecommunications capacity will continue to increase whether or not the proposed project is implemented. However, any attempt to describe how that demand will manifest itself in environmental change under the No-Project Alternative would be largely speculative. For that reason, the following discussion is very general.

One result might be an increase in the already growing demand for wireless communications (e.g., cellular telephones, satellite communications, and microwave facilities), leading to an unknown number of additional wireless facilities such as cellular towers, earth satellite antennae, and microwave towers. The lack of adequate fiber optic facilities could encourage the deployment of alternative telecommunications facilities that may result in effects on the environment. Unlike traditional bulky copper cable systems, fiber optic cable systems rely on small cables with minimum visibility and require less maintenance excavation. Intercity fiber optic networks are transporting more bits of information than all other intercity telecommunications systems combined. Adequate, reliable, inexpensive intercity telecommunications capacity can reduce travel needs by providing video conferencing, replacing door-to-door shipments of documents, and encouraging telecommuting.