# SILVER STAR TELEPHONE COMPANY, INC.

# ENVIRONMENTAL ASSESSMENT
## OF THE
# WYOMING LOOP COMPLETION PROJECTS

Prepared For:
National Telecommunications & Information Administration
Broadband Technology Opportunities Program
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# EXECUTIVE SUMMARY

**Introduction and Setting:** This Environmental Assessment (EA) has been prepared to disclose potential environmental impacts of the *Delivering Opportunities: Investing in Rural Wyoming Broadband* (Award Number: NT10BIX5570077) and *Expanding Greater Yellowstone Area Broadband Opportunities* (Award Number: NT10BIX5570078) projects. The two primary components of the projects are the Teton Pass Segment (EZGID 7080) and the Togwotee Pass Segment (EZGID 7357). For the purposes of this EA, the acronym WLCP (Wyoming Loop Completion Projects) has been created to describe the combined proposed project.

This EA serves several functions. It provides analyses and information required by the Department of Commerce's National Telecommunications and Information Administration (NTIA) under provisions of the National Environmental Policy Act (NEPA) to disclose potential impacts of implementing Silver Star Telephone Company's (SST) applications for grants under the Broadband Technology Opportunity Program (BTOP). The EA also notes that a "special use permit" (SUP) or similar permitting vehicle will be required for SST to install the buried conduit on National Forest System (NFS) or National Park System (NPS) lands. The USFS and NPS will use the information in this EA and other information as appropriate to independently make a decision, in this case a Finding of No Significant Impact (FONSI), as to whether and under what terms and conditions, SST can implement the WLCP on NFS and NPS lands. It was agreed that if the project were approved, a SUP would be issued by the BTNF covering both the BTNF and the SNF with the CTNF issuing an amendment to a previously existing SUP that they have in place with SST. Permits or agreements with other agencies such as WYDOT, municipal and county governments, groups, or entities are part of the analysis and permitting processes related to this EA.

**Project Need:** The State of Wyoming is rectangular with several population centers distributed near its perimeters and in its center. Almost the entire State of Wyoming is by definition, "rural and remote" with a large portion of the state consisting of rugged mountainous terrain. All regions of the country, particularly those as remote and rugged as Wyoming, have a need for dependable, high-speed, available broadband telecommunications in order to remain competitive and to participate in modern forms of communication and services. NTIA under the BTOP criteria recognized the need to significantly advance the broadband capabilities in the region, particularly to improve the reliability and redundancy of communications within Teton County and the State of Wyoming by agreeing to consider funding the projects based on information found in this EA. This need has also been recognized for several years by the various fiber optic service providers in Wyoming. There is a particular need to allow for additional transport, redundancy, reliability, and broadband services through the Town of Jackson and Teton County. The need to provide reliability and redundancy is underscored by the existence of "gaps" in two critical loops within Wyoming's fiber optic system. The need to complete key loops of broadband service in Wyoming is vital in order to ensure continued services when lines are cut, damaged or temporarily taken out of service for repair. Outages of service to Teton County, lasting from days to hours, have resulted from accidental severing of fiber cable at least annually for the past several years. Completing the loops would allow service to continue without disruption even if a line were broken (planned redundancy). The services protected in this case involve national security, safety, and law enforcement, along with support for schools, libraries, and a host of other customer categories including the 911 emergency systems. This need is also recognized and supported by the Office of the Governor in a letter to the Department of Commerce (DOC). Internet speed is always a consideration and thus there is a need to update and maintain speed on a continuing basis.

**Project Purpose:** The purpose of the WLCP is to complete two fiber optic cable rings that provide service to a majority of the State of Wyoming and a portion of eastern Idaho. The purpose is to provide a robust broadband network for use by critical community facilities, community anchor institutions, public safety entities, internet service providers, voice and data providers, and for the transport of that traffic both within and outside the state.

Specifically, the purpose of the proposed project is twofold: 1) to close an existing fiber optic gap over Teton Pass to complete a Wyoming / Idaho loop and 2) to close an existing fiber optic gap between Jackson and Togwotee Pass to complete a major intra-Wyoming loop. It is the intent of the WLCP to create redundancy to ensure reliable broadband services and needed middle-mile infrastructure to meet the future needs of Wyoming's broadband-connected communities. Direct and indirect beneficiaries of a fast, robust and diverse (redundant) fiber optic broadband network topology include: approximately 70 percent of the estimated state population; the University of Wyoming and five community colleges; 222 Wyoming public schools; WYOLINK (Wyoming Homeland Security Communications Initiative) and other local and statewide emergency response teams and related initiatives; 42 healthcare facilities; other providers, telecommunications carriers and adjoining state networks seeking or needing alternate or protected broadband transport and carrier class service routes in and out of Jackson, and the state of Wyoming in general; and start-up businesses looking for network reliability, existing businesses seeking to expand to other communities or connect offices using less costly, shorter transport and circuit routes.

The Teton Pass Segment was proposed in order to close the gap between Jackson, Wyoming, and Victor, Idaho, as the final part in an existing Wyoming / Idaho fiber network. This gap over Teton Pass isolates much of the Teton County area from other communications carriers, business entrepreneurs, healthcare providers, educational facilities, and community services. Completing the fiber network would provide a needed redundant network path for much of Wyoming and Teton County communications subscribers and the aforementioned emergency and other services. This segment would enhance the broadband network opportunities for households and businesses within 11 counties and 26 rural communities in Wyoming and Idaho. In its original submittal to NTIA, SST proposed to provide service opportunities to 12 community anchor institutions (CAIs) for the Teton Pass Segment. Eight of those 12 are education providers, three are public safety entities, and one is a medical/healthcare provider. One of the special award conditions of the award by NTIA under the BTOP directed SST to remove any duplication of effort provided by the Togwotee Pass Segment (EZGID 7357) that is provided by the Teton Pass Segment (EZGID 7080). In many ways this effectively consolidated the two routes into a single project. However, at this time the two projects remain as two awards and retain their identity as such. SST then elected to apply the savings from eliminating the duplicity between the projects towards providing service opportunities to more CAIs within the project area. Hence the Teton Pass Segment was modified to provide service opportunities to 34 CAIs; 10 education providers, 6 public safety entities, 3 medical/healthcare providers, and 15 other government (federal, state, county, and municipal) facilities.

The Togwotee Pass Segment fulfills the need to complete a statewide fiber optic ring that would complete the connections among the larger cities of Jackson, Evanston, Green River, Rock Springs, Rawlins, Laramie, Cheyenne, Casper, Riverton, and Dubois, affecting numerous smaller cities along the route as well as many towns and cities located on spurs or smaller fiber rings. This existing fiber optic network forms a partial ring connecting these communities with a remaining gap between Dubois and Jackson over Togwotee Pass. This gap restricts the availability of robust and protected broadband opportunities for the citizens and businesses of Wyoming. As a result of

implementing the special award conditions of the BTOP award, the Togwotee Pass Segment increased the number of service opportunities for CAIs from 12 to 23 which would include 2 education providers, 1 public safety entity, 1 medical/healthcare provider, 1 public airport authority, and 18 other government facilities.

The proposed WLCP would assist the BTOP and help meet goals of national broadband plans by providing up to 1 gigabyte per second (Gb/sec) connections to anchor institutions and redundant connection reliability to all broadband communities within the areas influenced by these incomplete loops. The proposed project addresses four of the five key purposes of the BTOP as established by the Recovery and Reinvestment Act (ARRA):

1. The project will enhance the availability and provision of broadband services to underserved households and businesses in western Wyoming communities.

2. The project will provide broadband access and support to schools, libraries, medical and healthcare providers, and will serve to facilitate greater use of broadband services by vulnerable populations within the proposed funded service area.

3. The project will serve to improve access to and use of broadband service by public safety agencies within the proposed funding service area, including county law enforcement, fire protection and emergency service, by enhancing the economic viability and availability of high-capacity broadband facilities.

4. The project will stimulate the demand for broadband by enhancing its availability, and will stimulate economic growth and job creation. These two projects alone are estimated to create or save 148 direct jobs according to the Council of Economic Advisor's guide for estimating job creation. This would, foster economic growth and additional job creation.

**Description of the Proposed Action:** The WLCP would traverse multiple jurisdictions including three national forests (BTNF, CTNF, and SNF) and Grand Teton National Park (GTNP) as well as lands controlled or administered by WYDOT, Town of Jackson and Teton County.

**Teton Pass Segment:** The roughly 36 mile Teton Pass Segment would originate a few miles south of Jackson, Wyoming, involve portions of the Town of Jackson, continue north along US 89/26 to the intersection of WYO 22 the segment would head west along WYO 22 towards Wilson and Teton Pass. It would ascend to the pass using a combination of the Trail Creek Road ROW and the Old Teton Pass Highway which is now a bicycle/hiker path and is paved. After crossing Teton Pass it would use a combination of an existing gravel road used to access the Bonneville Power Authority power line easement and areas adjacent to the WYO 22 ROW to eventually reach the Wyoming/Idaho border. The Teton Pass Segment would also provide opportunities for services by constructing spurs to Teton Science School and Teton Village using existing ROWs and easements. It would also connect to an existing service tower directly south of Teton Pass. Following the expansion of the number of CAIs from 12 to 34, two prefabricated equipment cabinets were added to the project in order to allow for more efficient use of the fiber network. One cabinet would be near Wilson Elementary School and another at the junction of WYO 390 and West Lake Creek Drive.

**Togwotee Pass Segment:** The roughly 66 mile Togwotee Pass Segment would connect to the proposed Teton Pass Segment in the Town of Jackson, involve additional CAIs and portions of the Town of Jackson and then eventually turn north along the west side of US 89/26 in an existing ROW. The route would continue north to provide opportunities for service at the Jackson Hole

Airport then north again to Moose Junction where a spur would connect to GTNP Headquarters at Moose, WY where a telecommunications hut would be constructed. Continuing north from Moose Junction, the line would use ROWs, easements, and several of the unpaved roads themselves in order to avoid heavily forested and other environmentally sensitive areas. The route would again follow US 89/26 north, from a location south and east of the parking lot used for the Cunningham Cabin Historic Site to Wolff Ranch Road, following that road and eventually a power line until it is bored under the Buffalo Fork River. At this point, a spur would go west, along US 26, to Moran to provide service access to the Moran Elementary School, Fire Station, Post Office, and facilities at GTNP including the entrance station. Originally a telecommunications hut was proposed to be built at Morgan but that same hut is now proposed to be placed near the GTNP Headquarters in Moose, Wyoming. After crossing under the Buffalo Fork River, the main route would continue east along US 26 to the Buffalo Ranger District office (Blackrock Ranger Station). At the district office the route would turn north and would follow a system of ROWs and roads to an existing radio communications complex atop the western end of Rosie's Ridge then along various FS roads to Togwotee Mountain Lodge. From the lodge the line would follow a US 26 ROW all the way to its junction with the Dubois Telephone Exchange (DTE) facility about a half mile east of the Bridger-Teton/Shoshone National Forest boundary. At this end point another telecommunications hut would be built to connect to Dubois Telephone Exchange (DTE). This hut is described and its potential impacts are disclosed in this EA but it is a connected action that would be paid for by DTE and not funded under the EZGID 7357 BTOP grant.

**General Construction Provisions:** Each segment would consist of burying two, 1¼- inch plastic conduits with one carrying a 96 SMF optical cable (about ½-inch in diameter) inserted by air compression after the conduit is buried. The extra conduit would provide for future expansion as needed. The 1¼-inch tubing would be 'plowed' about 36 to 48 inches into the ground using special track/wheel-driven machines with a plow tooth. For most of the line the actual width of disturbance from the tooth-plow would average 12-inches or less. Crossing of rivers, streams, and creeks would involve attaching a 4-inch metal conduit to the underside of existing bridges or using directional boring equipment that inserts the conduit under the bed of the water course. Similarly, most wetlands with moving or standing surface water would be traversed by 'boring' under the wetland without the need to disturb soils or create a trench. Crossing of wetlands would be done under the terms and conditions of Nationwide Wetland Permit #12. Lastly, in some situations on a case-by-case basis, a small micro-excavator may be used to work around individual trees or very tight curves. In addition, temporal avoidance would be implemented to avoid disturbances to nesting wildlife or other season-sensitive resources or resource uses.

Multiple crews would install the conduit and cable in a temporary 20-foot wide construction ROW/easement over roughly two seven-month summer seasons beginning in May/June 2011 on the southern and lower portions of the project area and concluding at higher elevations as conditions allow. All work is anticipated to be completed by October 2012 or before.

Installation would be accomplished using standard construction support equipment such as tracked/wheeled cable plows, backhoes, excavators, directional boring equipment, and fuel trucks. Installation of the line in areas of rocky terrain, or in some cases existing pavement, may require rock sawing (using a diamond saw to make a narrow gap to a depth of 36 inches) or using micro ducting where appropriate and approved in urban situations. Electronic transport equipment would be installed in existing rack space and two small prefabricated "huts" constructed specifically for this project at the GTNP Headquarters in Moose and the communications complex on Togwotee Pass. Construction equipment and materials would be stored at one of 10 staging

areas located at appropriate sites along each segment. Aside from the conduit and cable, ancillary facilities would include hand holes evidenced by small, buried boxes that project 4 to 6 inches above grade with treated posts to mark their location and the fiber cable markers as required.

**Alternatives:** In contemplating a route or routes to follow in order to install the fiber optic cable, SST elected to consider only those options/alternatives that met the purpose and need of the proposed project as defined by the NTIA (particularly the BTOP), the technical requirements for fulfilling the purpose and need, and had a very high probability of meeting the following assumptions or provisions: 1) follow and be compatible with existing highway and utility right-of-ways (ROWs) or easements wherever feasible and preferable; 2) take the least damaging environmentally option wherever there was a choice to be made; 3) qualify for issuance under Nationwide Permit #12 for Utility Corridors under the Clean Water Act (1972, as amended); 4) have "No Effect" to plant or wildlife species under provisions of the Endangered Species Act (1973, as amended); 5) have full concurrence with the Wyoming State Historic Preservation Office that implementation would not adversely affect any cultural resources under Section 106 of the Antiquities Act (1906, as amended) 6) receive full concurrence from the NPS and USFS that implementation would not adversely affect the ORVs of any waterways protected under the Wild and Scenic Rivers Act (1968, as amended); 7) qualify for consideration for a SUP or equivalent by the USFS and NPS by being in compliance with the Forest Plans and Management Plan for GTNP; 8) not have any apparent significant impacts as defined by the National Environmental Policy Act (1969, as amended); and 9) be able to complete permitting, analyses, and implementation within the schedule and timeframes of the overall project requirements under the ARRA and BTOP stipulations.

To help refine a proposal that would meet these assumptions, members of the planning staff and consultants for SST reviewed agency planning documents and met or spoke informally with the USFS, NPS, US Army Corps of Engineers, WYDOT, Teton County, the Town of Jackson, and others to solicit ideas on routing and preferred methods to be employed. This resulted in developing a proposed route, schedule and methodologies that met the general expectations of SST and the affected agencies and landowners.

NEPA requires that at a minimum the No Action alternative be evaluated along with a Proposed Action Alternative. Under the No Action Alternative, the proposed fiber optic cable would not be installed. Implementation of the No Action Alternative would maintain the status quo with no changes to the biotic, abiotic, and human environment, including the socioeconomic elements, attributable to the WLCP. For the purposes of the EA, the Preferred Alternative is synonymous with the Proposed Action Alternative.

Other alternatives that have the potential to fulfill the purpose and need for the project also were considered. The Proposed Action Alternative for the WLCP met the basic requirements, assumptions and provisions. In addition, over 20 other routing options were considered during the initial analysis process but each of these was rejected for not meeting one or more of the stated requirements, assumptions, or provisions. A description of these alternatives and options along with discussions of why they were each eliminated is found in the text of the EA.

The EA concluded that no impacts to any resources would occur under implementation of the No Action Alternative but that the adverse conditions described as existing conditions for infrastructure and in the Purpose and Need sections such as the lack of redundancy or the completion of fiber optic loops would persist. It also concluded that the socioeconomic benefits resulting from the construction and operation of the WLCP would not occur, perhaps

disproportionately to those living in outlying areas of Teton County who wanted to involve the internet and communications with economic or business purposes.

If the WLCP were implemented as described in the EA, the EA concluded that no significant impacts (as defined under NEPA) would occur to any of the resources or disciplines of interest. It also concluded that no permanent adverse impacts would occur to any of the resources or disciplines if the WLCP were implemented as described and the best management practices and reclamation practices as intended were also followed. Short term impacts ranged from none to and long term impacts ranged from none to minor for all disciplines or areas of interest. Most disciplines would have negligible short term impacts and no long term impacts associated with the implementation of the proposed WLCP. In regards to specific resources and resource areas the EA concluded that: 1) short- term increases to ambient noise would occur in the immediate vicinity of the installation equipment but would cease as the equipment moved along the route; 2) geological resources would not be altered from existing conditions and that soil erosion would also be unlikely, particularly if best management and reclamation measures were followed; 3) there would be no adverse effect to water resources with concurrence by the USACE and WDEQ because of avoidance (using bridges) or boring under rivers, streams and wetlands and by adhering to the terms and conditions of NWP #12 and associated permits; 4) there would be "No Effect" to listed plant or wildlife species with concurrence by the USFWS and that putting the route in already disturbed sites and adhering to the best management provisions (including surveying for nesting birds ahead of construction) avoided new impacts to plants and wildlife; 5) there would be no impacts to Historic and Cultural resources because the line avoided all areas of potential and known occurrences and would follow provisions required by the NTIA, USFS, NPS, and SHPO; 6) aesthetic and visual resources including those associated with state and national scenic byways, Wild and Scenic Rivers, national forests, national parks, Wilderness Areas, municipal and county lands, and wildlife refuges would not be adversely affected because the actions are short term, mostly buried, and conform with requirements, terms and conditions of permits, and oversight by the affected agencies; 7) implementing the WLCP would not result in any changes to existing land use; 8) there would be no adverse impacts to infrastructure aside from perhaps short term traffic delays coupled with improvements in the telecommunication infrastructure; 9) there would be many direct, indirect and cumulative benefits in the socioeconomic conditions as a result of meeting the need and fulfilling the purpose of the WLCP; 10) there would be overall benefits to the health and safety of the affected environment after installation but there would be minimal, short term impacts associated with the construction phase of the project (mostly associated with traffic delays and equipment operation); 11) the proposed project would add cumulatively to the negative short term impacts associated with traffic and highway construction, repeated disturbance of existing ROWs and utility easements, general construction and road maintenance, human activity in remote areas but positively for many statewide, unserved or underserved socioeconomic and infrastructure elements; and 12) The amounts of emissions from vehicles, operation of equipment will generate an estimated 100,000 pounds of $CO_2$ during the combined two construction periods. Operation of construction vehicles along unpaved portions of the proposed routes will directly create fugitive dust and will contribute cumulatively to fugitive dust generation. However, the net effect of direct and cumulative impacts to air quality will not affect air quality attainment status. The entire area would remain in attainment. With implementation of the mitigation measures, installation and operation of the proposed fiber optic cable project would not conflict with or obstruct implementation of any applicable air quality goals nor violate any air quality standards including those associated with greenhouse gases.

# ACRONYMS AND GLOSSARY OF TERMS

| Acronym/ Term | Description |
|---|---|
| 23 CFR 772 | Title 23 of the Code of Federal Regulation Part 772 |
| AADT | Average annual daily traffic |
| Anchor institution(s) | Universities, hospitals, sports facilities, performing arts and other cultural facilities (like museums and libraries), public utilities, and some large churches and corporations within a city or state. |
| AKA | Also Known As |
| ANSI | American National Standards Institute |
| ARRA | American Recovery and Reinvestment Act of 2009 |
| BIP | Broadband Initiatives Program |
| BLM | Bureau of Land Management |
| BMP | Best Management Practices |
| BPA | Bonneville Power Administration |
| BTNF | Bridger-Teton National Forest |
| BTOP | Broadband Technology Opportunities Program |
| CERCLA | Comprehensive Environmental Response, Compensation, and Liability Act of 1980 |
| CFR | Code of Federal Regulations |
| cfs | Cubic feet per second |
| CO | Carbon Monoxide |
| CO2 | Carbon Dioxide |
| CTNF | Caribou-Targhee National Forest |
| CTSHLA | Craig Thomas Snake Headwaters Legacy Act of 2008 |
| dB | Decibel, used to measure sound level as a logarithmic unit used to describe a ratio |
| dBA | Measurements of sound made on the "A" scale, the most widely used sound filter to interpret or approximate what humans would most likely hear |
| dba | Doing Business As, such as SST dba SSC |
| DTE | Dubois Telephone Exchange |
| EA | Environmental Assessment |
| EPA | Environmental Protection Agency |
| FAA | Federal Aviation Administration |
| FEMA | Federal Emergency Management Agency |
| FHWA | Federal Highway Administration |
| FIRM | Flood Insurance Rate Maps |
| FS | Forest Service |
| Gb/s | Gigabits per second |
| GTNP | Grand Teton National Park |
| GYA | Greater Yellowstone Area |
| ISEA | International Safety Equipment Association |
| Jackson Hole | Includes the Town of Jackson and neighboring vicinities within Teton County, Wyoming. |

## ACRONYMS AND GLOSSARY OF TERMS

| Acronym/ Term | Description |
|---|---|
| LVE | Lower Valley Energy |
| m | meter |
| MAWDT | Mean average weekday traffic |
| Middle Mile Services | Middle mile facilities provide relatively fast, large-capacity connections between backbone (main trunk lines) and last mile (end users). Middle mile facilities can range from a few miles to a few hundred miles. |
| mph | Miles per Hour |
| NAAQS | National Ambient Air Quality Standards |
| NEPA | National Environmental Policy Act (1969, as Amended) |
| NFMA | National Forest Management Act |
| NFSL | National Forest System Land |
| NPDES | National Pollution Discharge Elimination System |
| NPL | National Priorities List |
| NPS | National Park Service |
| NPSL | National Park Service Land |
| NRCS | Natural Resource Conservation Service |
| NTIA | National Telecommunications and Information Administration |
| NWP | Nationwide Permit |
| NWSRS | National Wild and Scenic Rivers System |
| OTPH | Old Teton Pass Highway |
| ORV | Outstanding Remarkable Values |
| OSHA | Occupational Safety and Health Administration |
| PESI / Pioneer | Pioneer Environmental Services, Inc. |
| PM | Particulate Matter |
| RF | Radio Frequency |
| Robust (fiber optic cable) | Temperature resistance multi-layered protective tube ensuring high tensile strength and extraordinarily resistant to mechanical influences and harsh environmental conditions. |
| ROW | Right of Way |
| RUS | Rural Utility Service |
| SHPO | State Historic Preservation Office |
| SIP | State Implementation Plan |
| SMF | Single Mode Fiber |
| SNF | Shoshone National Forest |
| SSC | Silver Star Communications (synonymous to SST) |
| SST | Silver Star Telephone Company, Inc. |
| SUP | Special Use Permit |
| TCNS | Tower Construction Notification System |
| USACE | US Army Corps of Engineers |

## ACRONYMS AND GLOSSARY OF TERMS

| Acronym/ Term | Description |
|---|---|
| USBR | U.S. Bureau of Reclamation |
| USDA | U.S. Department of Agriculture |
| USFS | U.S. Forest Service |
| USFWS | U.S. Fish and Wildlife Service |
| USGS | U.S. Geological Survey |
| VHF | very high frequency |
| VOR | VHF Omnidirectional Range |
| WCSB | Wyoming Centennial Scenic Byway |
| WDEQ | Wyoming Department of Environmental Quality |
| WGFD | Wyoming Game and Fish Department |
| WLCP | Wyoming Loop Completion Projects |
| WSR | Wild and Scenic River |
| WSRA | Wild and Scenic Rivers Act |
| WYDOT | Wyoming Department of Transportation |
| WYNDD | Wyoming Natural Diversity Database |
| WYOLINK | Wyoming Homeland Security Communications Initiative |
| YNP | Yellowstone National Park |

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# 1.0 PURPOSE AND NEED FOR ACTION

## 1.1 INTRODUCTION

This Environmental Assessment (EA) has been prepared to disclose potential environmental impacts of the *Delivering Opportunities: Investing in Rural Wyoming Broadband* (Award Number: NT10BIX5570077 [EZGID 7080]) and *Expanding Greater Yellowstone Area Broadband Opportunities* (Award Number: NT10BIX5570078 [EZGID 7357]) projects. The two primary components of the projects, the Teton Pass Segment and the Togwotee Pass Segment, are shown in Figure 1-1 below and are described in detail in Chapter 2. For the purposes of this EA, the acronym WLCP (Wyoming Loop Completion Projects) has been created to describe the proposed project. Where appropriate, each proposed project is defined separately as one of two segments; the Teton Pass Segment or the Togwotee Pass Segment or jointly as WLCP.

In 2009, Congress passed the American Recovery and Reinvestment Act of 2009 (ARRA, 2009) as a direct response to the economic crisis. The ARRA has three immediate goals:

- Create new jobs and save existing ones
- Spur economic activity and invest in long-term growth; and
- Foster unprecedented levels of accountability and transparency in government spending

The proposed WLCP is partly funded by the ARRA and meets the intent of this legislation,

This EA serves several functions. It provides analyses and information required by the Department of Commerce's (DOC) National Telecommunications and Information Administration (NTIA) under provisions of the National Environmental Policy Act (NEPA) to disclose potential impacts of Silver Star Telephone Company's (SST) applications for grants under the Broadband Technology Opportunity Program (BTOP). The EA also notes that a special use permit (SUP) or similar permitting vehicle will be required for SST to install the buried conduit on National Forest System (NFS) or National Park System (NPS) lands. Each of these agencies will use the information in this EA and other information as appropriate to independently make a decision as to whether and under what conditions, SST can implement the WLCP on NFS and NPS lands. It was agreed that if the project were approved, a SUP would be issued by the Bridger-Teton National Forest (BTNF) which will cover both the BTNF and the Shoshone National Forest (SNF) with the Caribou-Targhee National Forest (CTNF) issuing an amendment to a previously existing SUP which they have with SST. Permits or agreements with other agencies such as Wyoming Department of Transportation (WYDOT), municipal and county governments, groups, or entities are part of the analysis and permitting processes related to this EA and are identified in the text as well.

### 1.1.1 *BACKGROUND AND HISTORY*

Originally, SST (also dba Silver Star Communications [SSC]) provided basic telephone service to Star Valley, Wyoming. SST has since evolved into a full-scale technology company offering communications and broadband services to a wide geographic area covering eastern Idaho and northwestern Wyoming. SST provides services in all of Star Valley, Wyoming; Soda Springs, Idaho; Irwin, Idaho; Swan Valley, Idaho; Teton Valley, Idaho; Jackson, Wyoming; and Teton County, Wyoming. SST provides these rural communities with a variety of services, directly and/or by providing services to other commercial carriers. Most recently SST sought to make a large investment into the communications and broadband infrastructure to ensure that they could meet

the future demands of the industry and serve the residents with state-of-the-art, high standard communication services, as well as complete "loops" for their wholesale clients and other carriers in the West, including SST. SST has fiber connectivity throughout their network and has made plans to continue modifying and improving their systems to handle future technologies, Hence, when the opportunity arose to make those technological enhancements under new federal programs such as the Broadband Technology Opportunities Program (BTOP) and Rural Utility Service (RUS) program, SST responded with applications for constructing several proposed fiber optic routes in Wyoming.

The AARA supports the federal government's longstanding goal of making high-speed internet access widely available across the United States. The ARRA has, in part, made funding available to the Department of Commerce's NTIA and the Agricultural Department's Rural Utility Service (RUS). With this funding the NTIA developed the BTOP and the RUS developed the Broadband Initiatives Program (BIP).

The NTIA supports grants and loans for projects that document and map existing broadband; increase broadband use in underserved areas; provide broadband training and support to schools, libraries, healthcare providers, and other organizations; and improve broadband access to local police and fire departments. The BIP was formed to fund grants and loans exclusively for broadband in rural and remote areas.

SST's proposed project is specifically supported by the Office of the Wyoming Governor, as stated in their April 30, 2010 letter included in Appendix E. The letter states that, "A special priority for broadband stimulus in Wyoming is to complete a statewide fiber network with redundant, self-healing network architecture capable of supporting a robust broadband environment". Redundant in this context refers to a closed fiber optic loop, which protects service along the line if disruption (planned or unplanned) occurs.

## 1.2 PROJECT NEED

Teton County has been one of the fastest growing counties in Wyoming due to the scenic and natural value of the area. It is home to Grand Teton National Park (GTNP) and serves as a gateway to Yellowstone National Park (YNP). Teton County includes the population centers of Jackson, Wilson, Moran, Kelly, Teton Village, and Moose.

NTIA under the BTOP criteria recognized the need to significantly advance the broadband capabilities in the region, particularly improving the reliability and redundancy of communications within the State of Wyoming by agreeing to fund the projects. This need has also been recognized for several years by the various fiber optic service providers in Wyoming. There is a particular need to allow for additional transport, redundancy, reliability, and broadband services through the Town of Jackson and Teton County.

The need to provide reliability and redundancy is underscored by "gaps" in two critical loops within Wyoming's fiber optic system. The need to complete key loops of broadband service in Wyoming is vital in order to ensure continued services in case lines are cut, damaged or temporarily taken out of service for repair. Completing the loops would allow service to continue without disruption even if a line were broken (planned redundancy). Services in this case involve national security, safety, and law enforcement, along with support for schools, libraries, and a host of other customer categories including the 911 emergency system. The need for this type of redundancy for the entire State of Wyoming as well as Teton County has been demonstrated in recent years when a line near

Evanston was accidentally cut during construction leaving much of the state, including Jackson and Teton County, without 911 service, landline voice service, internet access, and cellular service. Planned redundancy is even more crucial when one considers that nearly all of the data transfer, internet, long-distance telephone service and other telecommunication services are usually routed through distant points such as Casper or Cheyenne for distribution and completion. Outages in fiber optic service as a result of construction accidents have occurred in Glenrock, Glendo, Evanston, and elsewhere in Wyoming during the last few years. The longest outage was 26 hours and affected nearly all of the state's population centers. Although this need could potentially be met using a combination of aerial, buried and even wireless broadband systems; meeting this need using buried cable has many distinct advantages including speed, dependability, security, reduced energy demands, routine maintenance demands including the need to revisit remote areas within GTNP, being more universally compatible with other systems, reduced visual impacts, and reduced need for transfer equipment and facilities. This need is also supported by the Office of the Governor in a letter to the DOC included in Appendix E.

Although several portions of Teton County are served by buried fiber optic line, some of that fiber is connected to buried-copper lines. Connecting fiber optic service to copper can readily be done but requires specialized equipment and facilities and can be quite expensive. When fiber optic is connected to copper facilities, all of the downsides associated with copper become inherent in that portion of a line. Infrastructure serviced by copper has less speed, lower capacity, less utility and is subject to influences such as temperature and electrical conductivity whereas fiber optic is not. Part of the need for this project is to provide broadband service that is not connected to copper and hence avoids the disadvantages and provides the advantages of continuous fiber optic cable.

### 1.2.1 *TETON PASS SEGMENT*

The Teton Pass Segment would provide an additional communications path out of Teton County and complete a loop which provides services through Teton, Bonneville, Bingham, and Caribou counties in Idaho along with Teton and Lincoln counties in Wyoming (Appendix B, Figure B13). This gap over Teton Pass isolates much of the Teton County area from other communications carriers, business entrepreneurs, healthcare providers, educational facilities, and community services. This segment would be utilized to prevent isolation of these counties due to a failure or disruption of the existing or planned fiber cable. The project would benefit almost every institution in those counties including schools, fire stations, emergency management offices (including the 911 system), and medical facilities. The Teton Pass Segment is a middle-mile project that would construct approximately 36 miles of fiber optic facilities between Jackson, Wyoming and the Wyoming / Idaho border. The project "closes the gap," (i.e., completes the loop) in an existing 159-mile fiber optic network, which is one of the primary and most important functions of the proposed project (Appendix B, Figure B13). Middle-mile facilities provide relatively fast, large-capacity connections between backbone (main trunk lines) and last mile (end users). Middle mile facilities can range from a few miles to a few hundred miles. The Teton Pass Segment would provide a needed redundant network path for much of Wyoming and Teton County communications subscribers and the aforementioned emergency and other services. This segment would enhance broadband network opportunities for households and businesses within 11 counties and 26 rural communities in Wyoming and Idaho. This project would also connect to 34 community anchor institutions (CAIs), ten of which are education providers (Table A7, Appendix A). This segment is needed in order to not only provide connections to anchor institutions but to also allow redundant connections, reliability, and economic stimulation.

### 1.2.2 *TOGWOTEE PASS SEGMENT*

The Togwotee Pass Segment fulfills the need to complete a statewide fiber optic ring that would connect the larger cities of Jackson, Evanston, Green River, Rock Springs, Rawlins, Laramie, Cheyenne, Casper, Riverton, and Dubois, affecting numerous smaller cities along the route as well as many towns and cities located on spurs or smaller fiber rings. The existing fiber optic network forms a partial ring connecting many of these communities with a remaining gap between Dubois and Jackson over Togwotee Pass (Appendix B, Figure B14). This gap has restricted the availability of robust and protected broadband opportunities for the citizens and businesses of Wyoming for over a decade.

Of the 86 miles originally proposed for fiber optic installation, several sections do not have any existing fiber optic cable (unserved areas). Much of the remaining proposed route is underserved in that the existing fiber optic cable is insufficient. It cannot handle expected broadband traffic or provide connection speed up to 1 gigabits per second (Gb/sec) that would adequately accommodate anchor institutions. Also there are very limited opportunities for future expansion and to provide for redundancy in the case of an unplanned outage. In essence, the existing fiber cable is not adequate to meet expected needs. This same conclusion was reached by NTIA in their review under the BTOP criteria that there was a need for middle-mile services within the affected area.

Eliminating the gap in the existing intra-Wyoming fiber optic loop would complete connections that traverse nearly two-thirds of the State of Wyoming. The Governor's Office, the Wyoming Business Council, Office of the State Chief Information Officer, numerous state agencies, other communications carriers, business entrepreneurs, healthcare providers, educational facilities and community leaders have identified "closing the gap" as a high priority broadband stimulus-funded project for Wyoming (See Appendix E, Governor's Letter).

In its original submittal under the BTOP, SST proposed to traverse approximately 86 miles via the Togwotee Pass Segment (SST 2010). As a Special Award Condition, SST was directed to remove any redundancy from the Togwotee Pass Segment that was part of the Teton Pass Segment. SST eliminated the redundancy and then elected to apply the savings toward construction of similar, allowable activities within the proposed funded service area. Once the redundancy was taken into account, the actual length of the Togwotee Pass Segment became approximately 66 miles but the overall (both segments) number of CAIs being offered services rose from 34 to 57 (Tables A7 and A8, Appendix A).

## 1.3 PROJECT PURPOSE

The purpose of the WLCP is to complete two fiber optic cable rings throughout a majority of the State of Wyoming in order to provide a robust broadband network for use by critical community facilities, community anchor institutions, public safety entities, internet service providers, voice and data providers, and for the transport of that traffic both within and outside the state.

Specifically, the purpose of the proposed project is twofold: 1) to close an existing fiber optic gap over Teton Pass to complete a Wyoming / Idaho loop and 2) to close an existing fiber optic gap between Jackson and Togwotee Pass to complete a major intra-Wyoming loop. It is the intent of the WLCP to create redundancy to ensure reliable broadband services and needed middle-mile infrastructure to meet the future needs of Wyoming's broadband-connected communities. These middle-mile projects "close the gaps," (i.e., complete the loops) in an existing intra-Wyoming /

region-wide fiber optic network, enabling robust, redundant broadband network opportunities for 11 counties and 26 communities in Wyoming and Idaho. The existing gaps over Teton Pass and Togwotee Pass isolate much of Teton County and adjacent areas from other communication carriers, business entrepreneurs, healthcare providers, emergency services, educational facilities, and community services. The resulting fiber optic ring topology would consist of this project, existing fiber segments owned by the applicant, and existing fiber optic segments owned by other established telecommunications companies serving Wyoming and Idaho.

The proposed WLCP project would assist the Broadband Stimulus Program and help meet goals of national broadband plans by providing up to 1 Gb/sec connections to anchor institutions and redundant connection reliability to all broadband communities within the areas influenced by these incomplete loops. The WLCP would also provide substantial direct and indirect economic stimulation through direct spending within the Teton County area and by establishing a telecommunication infrastructure that allows local businesses or organizations to be more competitive.

The proposed projects address four of the five key purposes of the national broadband service development and expansion program, as established by the ARRA:

1. The project will enhance the availability and provision of broadband services to underserved households and businesses in western Wyoming communities.

2. The project will provide broadband access and support to schools, libraries, medical and healthcare providers, and facilitate greater use of broadband services by vulnerable populations within the proposed funded service area.

3. The project will improve access to and use of broadband service by public safety agencies within the proposed funding service area, including county law enforcement, fire protection and emergency service, by enhancing the economic viability and availability of high-capacity broadband facilities.

4. The project will stimulate the demand for broadband by enhancing its availability, and will stimulate economic growth and job creation. In their application to the BTOP, SST estimated that these two projects alone would create or save 148 direct jobs according to the Council of Economic Advisor's guide for estimating job creation (http://www.whitehouse.gov/administration/eop/cea/Estimate-of-job-creation). In this way it would also foster direct economic growth and promote additional job creation.

Completion of the WLCP would ensure survivable fiber optic rings upon which 911 emergency services systems and other essential services will be carried continuously. In other words, services such as internet, telephone communications, and data transfer via fiber optic cable would not be rendered inoperable region-wide by a single cut in the fiber system. Direct and indirect beneficiaries of a robust and diverse (redundant) fiber optic broadband network topology include:

- Approximately 70 percent of the estimated state population (about 395,000 people based on the 2010 US Census);

- The University of Wyoming and five community colleges;

- 222 Wyoming public schools;

- WYOLINK (Wyoming Homeland Security Communications Initiative) and other local and statewide emergency response teams and related initiatives;

- 42 healthcare facilities;

- Other providers, telecommunications carriers and adjoining state networks seeking alternate or protected broadband transport and carrier class service routes in and out of Jackson, and the state of Wyoming in general; and

- Start-up businesses looking for network reliability, existing businesses seeking to expand to other communities or connect offices using less costly, shorter transport and circuit routes.

Healthcare and educational opportunities would include adequate capacity and a redundant, protected, secure facility to transport critical information to and from remote locations to specialized medical facilities and learning centers. This project would create a high capacity, redundant and secure broadband facility for use by all of the existing healthcare facilities, emergency services and public schools located within proposed funded service area.

# 2.0 DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

## 2.1 PROJECT DESCRIPTION (PREFERRED ALTERNATIVE)

In contemplating a route or routes to follow in order to install the fiber optic cable, several alternative configurations became apparent that offered opportunities to reduce or minimize potential impacts. These configurations were considered and either rejected or adopted on a case-by-case basis. SST proposes to bury fiber optic cable within existing rights-of-way (ROW) or easements wherever feasible and preferable. By choosing existing utility and transportation ROWs or easements, creating new impacts to the existing environment and disruptions to private property owners would be further minimized. While all impacts could not be avoided along the proposed route, the side of a road with an existing utility ROW or easement that had the least potential for creating environmental impacts was chosen. Some of the concerns or potential issues that drove the proposed line from one side of a road to the other included: wetland crossings, cultural resources, technical installation concerns, wildlife or plant habitat, lack of property easements, and safety considerations. SST has consulted with the US Forest Service (USFS), National Park Service (NPS), US Army Corps of Engineers (USACE), Teton County, the Town of Jackson, and others to solicit ideas on routing and methods to be employed.

In addition to the Proposed Action, the NEPA process requires that a No Action alternative be evaluated along with other reasonable alternatives that have the potential to fulfill the purpose and need for the project(s). The Proposed Action, No Action Alternative, Alternatives, and alternatives considered but dismissed from detailed analyses are all described in this chapter.

SST submitted three proposals under the BTOP. The three projects were closely related in location and function but sufficiently distinct in their purpose to be evaluated independently. Eventually, SST was awarded two of the three projects. The Teton Pass Segment is officially numbered and titled as NT10BIX5570077-Delivering Opportunities: Investing in Rural Wyoming Broadband Projects while the Togwotee Pass Segment is NT10BIX5570078-Expanding Greater Yellowstone Area Broadband Opportunities. The Easy Grant Identification (EZGID) numbers for each of these projects are 7080 and 7357, respectively. Together these projects constitute the Proposed Actions for the Wyoming Loop Completion Projects (WLCP) and are described graphically in Appendix B, Figures B1-B12 as the Teton Pass Segment and the Togwotee Pass Segment.

The Teton Pass project was awarded by NTIA as proposed, while the Togwotee Pass project award included a Special Award Condition to remove the duplication of facilities between the two projects. SST then elected to reallocate the dollars saved to allowable project purposes within the proposed funded service area. Originally, the two segments were not connected actions as defined under the NEPA. However, in an effort to accommodate the Special Award Condition, those portions of the Togwotee Pass Segment that duplicated those of the Teton Pass Segment were removed making the Togwotee Pass Segment dependent on the Teton Pass Segment. However, they remained as two grants under the BTOP. In addition, during discussions with various government agencies it became evident that changes to the proposed routes would be necessary in order to accommodate public safety, land ownership, and other potential permitting issues. The consolidation and accommodations resulted in a reduction of the overall length of the combined fiber optic lines but an increase in the community anchor institutions (CAIs) served without compromising the function

of either segment. Originally the two segments were to have a combined length of about 127 miles and provide service to 28 CAIs (12 for Teton Pass Segment and 16 for the Togwotee Pass Segment). After consolidation per the Special Award Condition and accommodations to routing, the combined length is about 102 miles. Following the consolidation and rerouting process more funding was available to provide potential service to CAIs. As a result, the combined total of CAIs now stands at 57; 34 for the Teton Pass Segment and 23 for the Togwotee Pass Segment. More CAIs may be added as appropriate as available funding under the BTOP awards become firmly established. Tables A7 and A8 (Appendix A) list the CAIs for the Teton Pass and Togwotee Pass segments, respectively. The locations of the CAIs are also noted on Figures B2-B12 of Appendix B. A verbal description of each of these segments is given below.

### 2.1.1 *ELEMENTS COMMON TO BOTH ROUTE SEGMENTS*

Each segment would consist of burying two, 1¼- inch plastic conduits with one carrying a 98 SMF optic cable (about ½-inch in diameter) inserted by air compression after the conduit is buried. The extra conduit would provide for future expansion as needed. In addition to avoiding undisturbed areas by staying in existing ROWs and easements; SST plans to implement several construction techniques in order to minimize environmental impacts. First and foremost, the 1¼-inch tubing would be 'plowed' about 36 to 48 inches into the ground using a special track-driven machine with a plow tooth (sometimes a vibrating plow tooth is used) so that digging or creating a trench would not be necessary for almost the entire line. For most of the line the actual width of disturbance from the tooth-plow will average 12-inches or less. In some cases, smaller or wheel-driven machines may be used so that surface impacts are further minimized. The exact locations of areas where burying would not be the least environmentally best option or where wheeled rather than tracked vehicles would cause the least damage has to be determined on a site by site or case by case basis because of local conditions at the time of implementation. Use of a method other than plowing or use of wheeled vehicles would be very minimal (<1% of the entire line).

Crossing of rivers, streams, and creeks would involve attaching a 4-inch metal conduit on the underside of existing bridges or use of directional boring equipment that inserts the conduit three feet or more under the bed of the water course. For instance, in order to avoid a narrow, unstable, sensitive area along US 89/26 and the Buffalo Fork River south of Moran, the crossing is proposed at a strategic, upstream location that avoids potential impact to the river and adjacent riparian habitats. The river would be crossed by boring about 4 feet (deeper if site specific data dictate) under the actual river channel for a length of about 500 feet (total bore at this site would be close to 850 feet).

Similarly, wetlands with moving or standing surface water would be traversed by 'boring' under the wetland without the need to disturb soils or create a trench. The locations of the proposed sites for boring are noted in Appendix A, Tables A1 and A3 and Appendix B, Figures B2-B12. Sites that are bored will require that a bore hole approximately 3 feet wide, 6 feet long, and 3 to 4 feet deep be dug at the beginning and ending of each section being bored. In some cases, placement of the cable in drier wetland sites such as sub-irrigated meadow or similar types can be done by plowing the conduit into the ground as described for certain locations noted in Table A1 and A3 of Appendix A. In all cases regarding wetlands, adherence to the terms and conditions noted in the USACE Nationwide Permit #12 would be followed (See Appendix E). Lastly, in some sites, a small micro-excavator may be the preferred method to work around individual trees or very tight curves in order to avoid cutting trees or creating other impacts to the soil or existing facilities. The location of these sites would be very limited and determined in the field on a site-specific basis. In addition to these five methods of inserting the conduit, temporal avoidance or surveying ahead of

construction would be implemented to avoid disturbances to nesting wildlife or other season-sensitive resources or resource uses.

Construction would involve multiple crews in order to complete the project within the limited construction seasons available. Construction would occur over roughly two seven-month summer seasons beginning in May/June 2011 on the southern and lower portions of each segment. The work at higher elevations would be completed as snow, ground, and soil conditions become appropriate. Some specific sites may require that construction take place at times when concerns for wildlife and other resources can be accommodated. Construction in wetlands would not occur during times of peak flow. Work is anticipated to be completed by October 2012 or before. Although the duration of construction would be spread over two seasons, actual construction activities for a given area would last only a matter of a day or two. On average, over flat terrain approximately 2 miles of conduit can be plowed per day. Rougher terrain and other site-specific conditions would reduce that rate to one-half to three-quarter miles per day.

Installation would be accomplished using standard construction, equipment such as cable plows, small backhoes/excavators, boring equipment, trucks hauling conduit and cable, fuel trucks (no fuel tanks will be established along the route or at staging areas) and rock sawing equipment to make a narrow gap to a depth of 36 inches. In some cases, such as on remote roads, an offset plow tooth may be used to place the conduit near the shoulder or borrow ditch so that little off-road travel would be needed. In order to further reduce potential impacts and to expedite installation, SST is proposing to use "micro ducting" as a means to install cable in urban settings within the Town of Jackson.. In general , micro ducting is thought to be less intrusive because it requires that only a narrow slot be cut, at a depth of about 24 inches, and would be closed almost immediately using a cement/paving slurry. However, it is not appropriate for all paved settings and would be used only with concurrence of the Town of Jackson or other agencies having jurisdiction. It is currently proposed that the conduit would be inserted along the side of the Old Teton Pass Highway (OTPH) by plowing the conduit into the ground immediately adjacent to the pavement with excavation or cutting of the pavement held to an absolute minimum. Boring under the road would be done in order to change from one side of the Old Highway to the other. Also, in the areas of the Old Highway having narrow, sharp turns; boring would be used to facilitate installation in these areas in order to minimize the need to disturb the pavement. This insertion method would only change with concurrence between SST and the USFS at this site if a different approach was determined to be less intrusive. No hand holes are planned for construction along the OTPH but if the fiber cable roll runs out along this stretch of the route, a hand hole would be needed in order to splice between fiber optic cables. Running out of a roll of the conduit would not necessitate having a hand hole.

The 10 staging areas would be established at the following locations (Appendix B, Figures B1-B12):

- WYO 22 west of Wilson (MP 7.25) at a pull out across from the runaway truck ramp;
- WYO 22 (MP 14.6) near Squaw Canyon;
- US 89 east of Jackson Hole Airport;
- along an unnamed GTNP road (Forest Service (FS) road 30333) near Lost Creek Ranch;
- near the junction of US 89/Wolff Ranch Road;
- at the USFS compound north of Buffalo Ranger District Office;
- Turpin Meadow Road near the US 26 junction;
- an existing staging area used for US 26 about 4 miles east of Togwotee Lodge;
- the junction of USFS 30010 Road and US 26, and
- at the communication complex at the terminus of the proposed Togwotee Pass Segment

Because this would be a buried-line project with the cable protected in a plastic conduit, revisiting a site for repair or malfunction would be very rare. However, if a site had to be revisited, remote electronic equipment located in the huts or elsewhere can pinpoint the problem site within inches of its location. The problem would then be handled on a case-by-case basis. Electronic transport equipment would be installed in existing rack space in existing buildings and in the two huts proposed for this project. Construction equipment and materials would be stored at staging areas at the locations noted in Appendix B, Figures B2-B12 pending agreement or consultation from administrative agencies. The equipment that would be found at the staging areas would include: standard construction equipment such as cable plows, small backhoes/excavators, boring equipment, trucks hauling conduit and cable, fuel trucks (no fuel tanks will be established along the route or at staging areas), pickup trucks, cars (daily transport use for workers), and rock sawing equipment. In addition materials such as rolls of conduit, fiber optic cable, and supplies needed for hand holes and marking the line would be found at the staging areas. At any given staging area any, all, multiples of all or none of the above equipment could be found at the site depending on what stage of installation is going on and how many crews are working along a given stretch of each segment. Fuel would not be stored at staging area along the routes but would be delivered by approved fuel handling services. Appendix C provides drawings, figures and photos of ancillary facilities and equipment proposed for use on this project.

Four small structures would be built along the two routes to facilitate data transfer (Appendix B). The four structures would include: two huts (GTNP headquarters in Moose or Moran as directed by the NPS (12' x 20') and at the communications compound near Togwotee Pass (10' x 16'), See Appendix C for details) and two 41 inches W x 27 inches D x 60 inches H (one near Wilson School and another along Highway 390 at West Lake Creek Drive). All four of these structures would be located in areas with similar structures. There would also be small, buried hand hole boxes that project 4 to 6 inches above grade with treated posts to mark their location and fiber cable markers as required. These hand holes would be installed at 10,000- to 15,000-foot intervals or as needed to join cable sections and provide opportunities for services. None of the buried boxes would be in traffic (vehicle, pedestrian, or bicycle) areas or environmentally sensitive sites. The exact number of hand holes will be determined in the field pending site-specific conditions.

Installation would result in temporary disturbance to a width of up to 20 feet (the construction corridor) but would often be much narrower because of the cable insertion techniques being implemented. The width of actual soil disturbance would be 12-inches or less in good soils with no large buried rocks. Nearly all of this proposed project would be built within existing ROWs or easements. A distance of at least five feet from existing buried utility lines within these ROWs or easements would be necessary for normal operations and potential maintenance activities. In those rare instances where a new ROW or easement may be needed, a permanent width of 10 feet would be requested.

Choosing which side of a road or which portion of a ROW or easement to use was driven by SST electing to minimize impacts as much as feasible. Figures B2-B12 of Appendix B note the side of the road where the fiber optic line is proposed to be buried. Each side of the existing ROWs along the potential routes was evaluated for any issues that may adversely affect the existing conditions and/or installation procedures of the proposed cable. While all impacts could not be avoided along the proposed route, the ROW side with the least amount of environmental impacts was chosen. Some of the concerns or potential issues that drove the proposed line from one side of a road to the other included: wetland crossings, technical installation concerns, wildlife or plant habitat, lack of property easements, and safety considerations.

The WLCP would cross multiple jurisdictions including easements within NFS and NPS land as well as easements for WYDOT, Town of Jackson and Teton County (Tables 2-1 and 2-2). Within the Town of Jackson multiple zoning districts would be crossed or adjacent to the fiber optic cable route including public/semi-public, residential-business, and neighborhood conservation-planned unit development. Within Teton County jurisdiction, rural, neighborhood conservation-single family, planned unit development, park, suburban and public/semi-public zoning districts would be crossed or adjacent to the fiber optic cable route.

### 2.1.2 *TETON PASS SEGMENT*

The Teton Pass Segment would start within Teton County at the existing SST hut at 4000 S. US 89, south of Jackson, near Lower Valley Energy and Rafter J Ranch (Appendix B, Figure B1 and B2). The fiber optic cable route would follow north along US 89/26 to High School Road, where it enters the Town of Jackson, then turns west along High School Road to pick up schools and other key facilities. At Middle School Road, a stub would continue west to the intersection of High School Road and South Park Loop Road. The main line would continue north along Middle School Road and then east along South Park Loop Road to the junction with US 89/26. Fiber optic cable would also be installed along US 89/26 between High School Road and the junction of South Park Loop Road with US 89/26 (boring under Flat Creek). At the intersection of South Park Loop Road and US 89/26, the proposed segment continues north along US 89/26 to the intersection of WYO 22. At the intersection of US 89/26 and Meadowlark Lane, a segment would be installed to a connection point with the proposed Togwotee Pass Segment near the existing Lower Valley Energy facility at 435 E. Kelly Avenue, Jackson. The route for this segment would follow Meadowlark Lane east to Powderhorn Lane then north to Maple Way, turn north on Scott Lane, east on Snow King Avenue, north on Vine Street and east on Kelly Avenue, terminating in an existing building.
Continuing from the intersection of US 89/26 and WYO 22, the segment would enter Teton County or WYDOT jurisdiction and head west along WYO 22 towards Wilson and Teton Pass providing opportunities for services to the Teton County Search and Rescue facilities and Teton Science School. It would cross the Snake River by being attached to the existing bridge on WYO 22 which is about 12 miles south of any waters within the National Wild and Scenic Rivers System (NWSRS). At the intersection of WYO 22 and WYO 390 (Moose-Wilson Road) a section of the cable would be installed adjacent to the Moose-Wilson Road that would continue north towards Teton Village providing opportunities for services to the C Bar V Ranch School, Bonneville Power, the Wilson Fire/Emergency Medical Services (EMS) Station, and other public and private facilities. A prefabricated cabinet 41 inches W x 27 inches D x 60 inches H would be installed near the junction of WYO 390 and West Lake Creek Drive. After boring under Lake Creek, this branch of the Teton Pass Segment would then terminate within Teton Village as a hand hole/cabinet or within an existing common communications vault as appropriate, providing opportunities for services to the Teton Village Post Office, fire station, and other infrastructure elements.

Continuing from the intersection of WYO 22 and WYO 390, the route would travel west to Wilson providing service access to the Wilson School and public facilities. A prefabricated cabinet41 inches W x 27 inches D x 60 inches H would be installed within Wilson at the intersection of WYO 22 and HHR Ranch Road. After crossing on the Fish Creek Bridge in Wilson, the route would continue west for about one mile within the WYO 22 ROW then cross onto the ROW of Trail Creek Road. Approximately 0.4 miles along Trail Creek Road the route would enter the Bridger-Teton National Forest (BTNF) and proceed to the hiking/biking path parking lot located at the west end of the road. The line would continue adjacent to the hiking/biking path (Old Teton Pass Highway route) and intersect back with WYO 22 near the top of Teton Pass. At the summit of Teton Pass the route enters the Caribou-Targhee National Forest (CTNF). A spur would service facilities at the top of the

pass to the south of WYO 22 using an existing road. The fiber optic line would continue west in the WYO 22 ROW, for approximately a quarter-mile where it would be located uphill to the north to an existing unimproved dirt road which is part of the OTPH route but is now used to access the Bonneville Power Authority (BPA) power line easement. It would follow this dirt road to the west until it again joins with WYO 22 near Coal Creek and would continue west on the WYO 22 ROW and terminate at mile marker 17.49 on the Wyoming side of the Wyoming/Idaho border. The Teton Pass Segment is a middle-mile facility which would provide relatively fast, large-capacity connections between backbone (main trunk lines) and last mile (end users). Middle mile facilities can range from a few miles to a few hundred miles. The proposed Teton Pass Segment would be approximately 36 miles long and would traverse several jurisdictions. The agencies involved and the approximate length of proposed fiber optic line within the affected area are listed in Table 2-1 below.

**Table 2-1. Total miles of jurisdictions crossed by the proposed Teton Pass Segment.**

| Agencies Involved | Description of Proposed Alignment | Miles |
|---|---|---|
| BTNF – Jackson Ranger District | BTNF lands. | 0.44 |
| BTNF - Jackson Ranger District / Pathways | BTNF lands adjacent to or within the hiking/biking path on Teton Pass. | 3.64 |
| WYDOT / BTNF – Jackson Ranger District | WYDOT ROWs/easements on BTNF lands. | 0.13 |
| | **Bridger-Teton National Forest Subtotal** | **4.21** |
| | | |
| CTNF – Driggs Ranger District | CTNF lands | 3.14 |
| WYDOT / CTNF – Driggs Ranger District | WYDOT ROWs/easements on CTNF lands. | 4.34 |
| | **Caribou-Targhee National Forest Subtotal** | **7.48** |
| | | |
| Teton County (with ROWs/easements) | Teton County: located within existing ROWs/easements. | 1.13 |
| Teton County (without ROWs/easements) | Teton County: located in areas without existing ROWs/easements (Coyote Canyon Road to Teton Science School). | 1.02 |
| WYDOT / Teton County | WYDOT ROWs/easements in Teton County. | 16.20 |
| | **Teton County Subtotal** | **18.35** |
| | | |
| Town of Jackson | Town of Jackson ROWs/easements. | 4.45 |

| Table 2-1. Total miles of jurisdictions crossed by the proposed Teton Pass Segment. | | |
|---|---|---|
| **Agencies Involved** | **Description of Proposed Alignment** | **Miles** |
| WYDOT / Town of Jackson | WYDOT ROWs/easements in the Town of Jackson. | 1.18 |
| | **Town of Jackson Subtotal** | **5.63** |
| | | |
| | **GRAND TOTAL** | **35.67** |

The Teton Pass Segment was proposed in order to close the gap between Jackson, Wyoming, and Victor, Idaho, as the final part in an existing Wyoming / Idaho fiber network. This gap over Teton Pass isolates much of the Teton County area from other communications carriers, business entrepreneurs, heath care providers, educational facilities, and community services. It would provide a needed redundant network path for much of Wyoming and Teton County communications subscribers and the aforementioned emergency and other services. This segment would enhance the broadband network opportunities for households and businesses within 11 counties and 26 rural communities in Wyoming and Idaho. In its original submittal to NTIA, SST proposed to provide service opportunities to 12 community anchor institutions (CAIs) for the Teton Pass Segment. Eight of those 12 are education providers, three are public safety entities, and one is a medical/healthcare provider. One of the special conditions of the award by NTIA under the BTOP directed SST to remove any duplication of effort provided by the Teton Pass Segment from the Togwotee Pass Segment. In many ways this effectively consolidated the two routes into a single project. However, at this time the two projects remain as two awards and retain their identity as such. Removing the redundancy from the Togwotee Pass Segment resulted in savings which SST then, in complying with the provisions of the BTOP awards, elected to apply toward providing similar, allowable activities within the proposed funded service area. SST specifically elected to provide service opportunities to more CAIs within the project area. Hence the Teton Pass Segment was modified to provide service opportunities to 34 CAIs; 10 education providers, 6 public safety entities, 3 medical/healthcare providers, and 15 other government (federal, state, county, and municipal) facilities. Additional CAIs could be added to those listed in Table A7 (Appendix A) provided they qualify under the provisions of the BTOP award for this segment including the Special Award Conditions and there are BTOP funds still available. If a CAI is identified after the funds for the awards have been allocated, SST may elect to provide opportunities for service to additional CAIs on a case-by-case basis without expending BTOP funds.

### 2.1.3 *TOGWOTEE PASS SEGMENT*

This middle-mile project closes the gap in the existing 960-mile state-wide fiber network enabling robust, redundant broadband network opportunities for 11 counties and 26 communities in Wyoming (Appendix B, Figure B14). The project would result in the installation of approximately 66 miles of fiber facilities (Appendix B, Figure B1). Middle-mile facilities provide relatively fast, large-capacity connections between backbone (main trunk lines) and last mile (end users). Middle mile facilities can range from a few miles to a few hundred miles.

The Togwotee Pass Segment would connect to the proposed Teton Pass Segment in the Town of Jackson within an existing building at the Lower Valley Energy (LVE) facility (435 E. Kelly Avenue, Jackson). The line would go west on Kelly Avenue then north on Willow Street, providing

opportunities for service to the Teton County and Town of Jackson offices. Prior to passing the Teton County Offices a stub intended to service the area near the Jackson Hole Center for the Arts building, which includes the University of Wyoming and Central Wyoming College (Jackson campuses), would stem off to the west on Simpson Avenue, turn north on King Street for half a block, turn west through an alleyway and then turn south onto Cache Street terminating near the south side of the Center for the Arts building. Another stub, ending near St. John's Hospital, stems off from Willow Lane to the east through an alleyway between Pearl Avenue and Broadway. The stem continues east through the alleyway until it intersects with (South) Gros Ventre Street then turns to the north and then east on Broadway ending at St. John's Hospital and providing opportunities serving the hospital facilities as well as the USFWS Elk Refuge office. The main line would continue north on Willow Street, turning west on Gill Avenue to the intersection with North Cache Street (US 89/26).

Continuing from the intersection of Gill Street and North Cache Street, the route would provide service opportunities for the US Forest Service and Wyoming Game and Fish Department (WGFD). The route would continue north on North Cache Street, exiting Jackson and entering Teton County near the Flat Creek Bridge (attached to the bridge). The route would remain on the west side of US 89/26 within the WYDOT ROW to the Grand Teton National Park (GTNP) boundary near Elk View Terrace Road. There the proposed route would enter GTNP within the existing ROW for US 89/26 but on NPS land. Prior to Gros Ventre Junction the line would cross the Gros Ventre River (attached to the west side of the bridge) and several other water features (all bored). The currently planned bore locations are identified in the Tables in Appendix A and on the maps in Appendix B.

At Gros Ventre Junction the route turns west along the south side of Lower Gros Ventre Road then north on the east side of Spring Gulch Road to the southern perimeter fence line of the Jackson Hole Airport. The line would follow on the inside of the GTNP boundary fence boring under Enterprise Ditch following the existing utility easement on the east side of the access road to general aviation and on to service other airport facilities. Eventually the line will turn east on the north side of Airport Road. At the junction of Airport Road with US 89/26, the line would be bored under US 89/26 and then proceed north along a remnant of an old, vegetated two-track road (buried adjacent to the existing buried Qwest route) east of US 89/26 from the Airport Road to Moose Junction. Here it would be bored under US 89/26 to provide a stem to the GTNP Headquarters complex. The route would follow the existing buried Qwest line, north of Teton Park Road, be attached to the north side of the existing Snake River bridge in order to provide service to the complex. A prefabricated hut (12 feet x 20 feet) would be built within the headquarters at a site acceptable to GTNP in order to facilitate use of the fiber optic services to the area. Details for a similar hut that is 12 feet x 24 feet in size are included in Appendix C. Final construction drawings for the Moose hut will be submitted to GTNP for approval.

Continuing north from Moose Junction, the line would continue across Ditch Creek (the SST line would follow Antelope Flats Road, parallel but no closer than 5 feet from the existing buried Qwest service, east to East Boundary Road then north where it would parallel the existing overhead power line. The cable would follow the existing power line until it intersects with FS road 30333 (unnamed NPS road) near Lost Creek Ranch. Following this unimproved road it would continue north. These roads are mostly on NPS land with some bordering or making short crossings within NFS land. At Brush Creek Road the route would re-enter the US 89/26 ROW on the south side of US 89/26 in order to avoid the parking lot for the Cunningham Cabin Historic Site which is located about 2,000 feet north of the parking lot. It would continue north for a short distance then cross to the north/west side of the US 89/26 ROW before continuing north. The crossing of Spread Creek would be by boring, as directed by the NPS to minimize long term impacts. Just north of Spread

Creek the line would turn east onto Wolff Ranch Road, then following the road the line would turn north to a point that it is under an existing overhead power line route. It would follow this existing power line ROW deviating slightly to the west as the power line approaches the bank of the Buffalo Fork River. It would cross the Buffalo Fork River by being bored well under the channel starting at a distance of over 200 feet from the south bank and ending up about 75 feet beyond the north bank of the river along US 26. The route would provide a stem that goes west to Moran to provide service access to the Moran Elementary School, Fire Station, and Post Office, and the GTNP entrance gate and other NPS facilities.

The main route would continue towards the east within the US 26 ROW. About 1.6 miles east of the Buffalo Fork River crossing (within GTNP) the route enters a combination of BTNF and private lands until it once again crosses the Buffalo Fork River on an existing bridge, near the Buffalo Valley Road. At the bridge crossing the route re-enters GTNP for about 1mile then it would enter private lands for about 2.5 miles then it would re-enter the BTNF and continue within the US 26 ROW to the Buffalo Ranger District office (Blackrock Ranger Station). At the district office the route would turn north, boring under Blackrock Creek to the BTNF Forest Service compound. The route would follow an existing power line ROW north then east and finally south to the Federal Aviation Administration (FAA) very high frequency (VHF) Omnidirectional Range (VOR) radio tower and Forest Service radio towers on Rosie's Ridge. The route would then follow east along the edge of Forest Service roads 30060 and 30040, where an existing buried communication line is currently located. Using the Forest Service roads keeps the SST line within existing easements and utility ROWs and avoids construction traffic delays on US 26. Using the FS road 30040 route brings the fiber to the Togwotee Mountain Lodge. The line would then be located within the US 26 ROW all the way to its junction with the Dubois Telephone Exchange (DTE) facility, which is located on the south side of US 26, about a half mile east of the Bridger-Teton/Shoshone forest boundary (Appendix B, Figures B5-B12). A prefabricated hut (10 feet x 16 feet) would be constructed within the existing communication building complex where it connects to the DTE facility. This hut would be similar to the one described in Appendix C but of smaller dimensions. Final construction drawings for the DTE hut near Togwotee Pass will be submitted to USFS for approval. The color of the hut would be dark green with the USFS approving the final color prior to construction.

The proposed Togwotee Pass Segment would cross several different jurisdictions; however, the majority is proposed to follow federal highways within GTNP and small gravel or dirt roads within NPS and NFS lands. A ROW just north of Jackson on US 89/26 administered by WYDOT and ROWs within the Town of Jackson provide routing for nearly all of the remainder of the proposed project. The agencies involved and the approximate length of proposed fiber optic line within the affected area are listed in Table 2-2 below.

The Togwotee Pass Segment fulfills the need to complete a statewide fiber optic ring that would complete the connections among the larger cities of Jackson, Evanston, Green River, Rock Springs, Rawlins, Laramie, Cheyenne, Casper, Riverton, and Dubois, affecting numerous smaller cities along the route as well as many towns and cities located on spurs or smaller fiber rings. This existing fiber optic network forms a partial ring connecting these communities with a remaining gap between Dubois and Jackson over Togwotee Pass. This gap has restricted the availability of robust and protected broadband opportunities for the citizens and businesses of Wyoming for over a decade. As a result of implementing the special conditions of the BTOP award, the Togwotee Pass Segment increased the number of service opportunities for CAIs from 12 to 23 which include 2 education providers, 1 public safety entity, 1 medical/healthcare provider, 1 public airport authority, and 18 other government facilities. Additional CAIs could be added to those listed in Table A8 (Appendix A) provided they qualify under the provisions of the BTOP awards including

the Special Award Conditions and there are BTOP funds still available. If a CAI is identified after the funds for the awards have been allocated, SST may elect to provide opportunities for service to additional CAIs on a case-by-case basis without expending BTOP funds.

**Table 2-2. Total miles of jurisdictions crossed by the proposed Togwotee Pass Segment.**

| Agencies Involved | Description | Miles |
|---|---|---|
| BTNF - Buffalo Ranger District | BTNF lands. | 12.90 |
| WYDOT / BTNF - Buffalo Ranger District | WYDOT ROWs/easements on BTNF lands. | 11.29 |
| | **Bridger-Teton National Forest Subtotal** | **24.19** |
| | | |
| GTNP | GTNP lands within an existing WYDOT ROW. | 31.44 |
| GTNP / Airport | GTNP lands within or adjacent to the Jackson Hole Airport boundary. | 0.88 |
| | **Grand Teton National Park Subtotal** | **32.32** |
| | | |
| SNF - Wind River Ranger District | SNF lands. | 0.05 |
| WYDOT / SNF - Wind River Ranger District | WYDOT ROWs/easements on SNF lands. | 0.31 |
| | **Shoshone National Forest Subtotal** | **0.36** |
| | | |
| WYDOT / Teton County | WYDOT ROWs/easements in Teton County. | 4.85 |
| | **Teton County Subtotal** | **4.85** |
| | | |
| Town of Jackson | Town of Jackson ROWs/easements. | 1.80 |
| WYDOT / Town of Jackson | WYDOT ROWs/easements in the Town of Jackson. | 0.50 |
| | **Town of Jackson Subtotal** | **2.30** |
| | | |
| WYDOT / USFWS | WYDOT ROWs/easements on USFWS lands (National Elk Refuge). | 1.72 |
| | **US Fish and Wildlife Service Subtotal** | **1.72** |
| | | |
| | **TOTAL** | **65.74** |

Within the Town of Jackson the route would be within road/highway ROWs that are adjacent to the auto-urban commercial, business park, and rural zoning districts. There are about four miles of the WYDOT ROW along US 26 immediately west of the Buffalo Fork River Bridge (east of Moran) and east of the GTNP boundary. These portions of the proposed route lie within conservation easements held by Jackson Hole Land Trust or are within private lands that have existing highway/utility ROW/easements traversing them. The proposed Togwotee Pass route would remain within those existing ROWs/easements.

### 2.1.4 *GEOGRAPHIC SETTING*

The State of Wyoming is rectangular with several population centers distributed near its perimeters and in its center. Almost the entire State of Wyoming is by definition, "rural and remote" with a large portion of the state consisting of rugged mountain terrain. Wyoming has a land area of 97,814 square miles and estimated population of only 563,626 (2010) which makes it the ninth-largest state in area, but the least populated state in the nation. The entire state has an average of 5.8 people per square mile. Cities, towns and small communities are predominantly distributed across the state with two- to three-hour drives between population centers of 25,000 to 50,000 people. Wyoming businesses and citizens have, by necessity, begun to strongly embrace broadband technology to overcome the distance, terrain, and density factors.

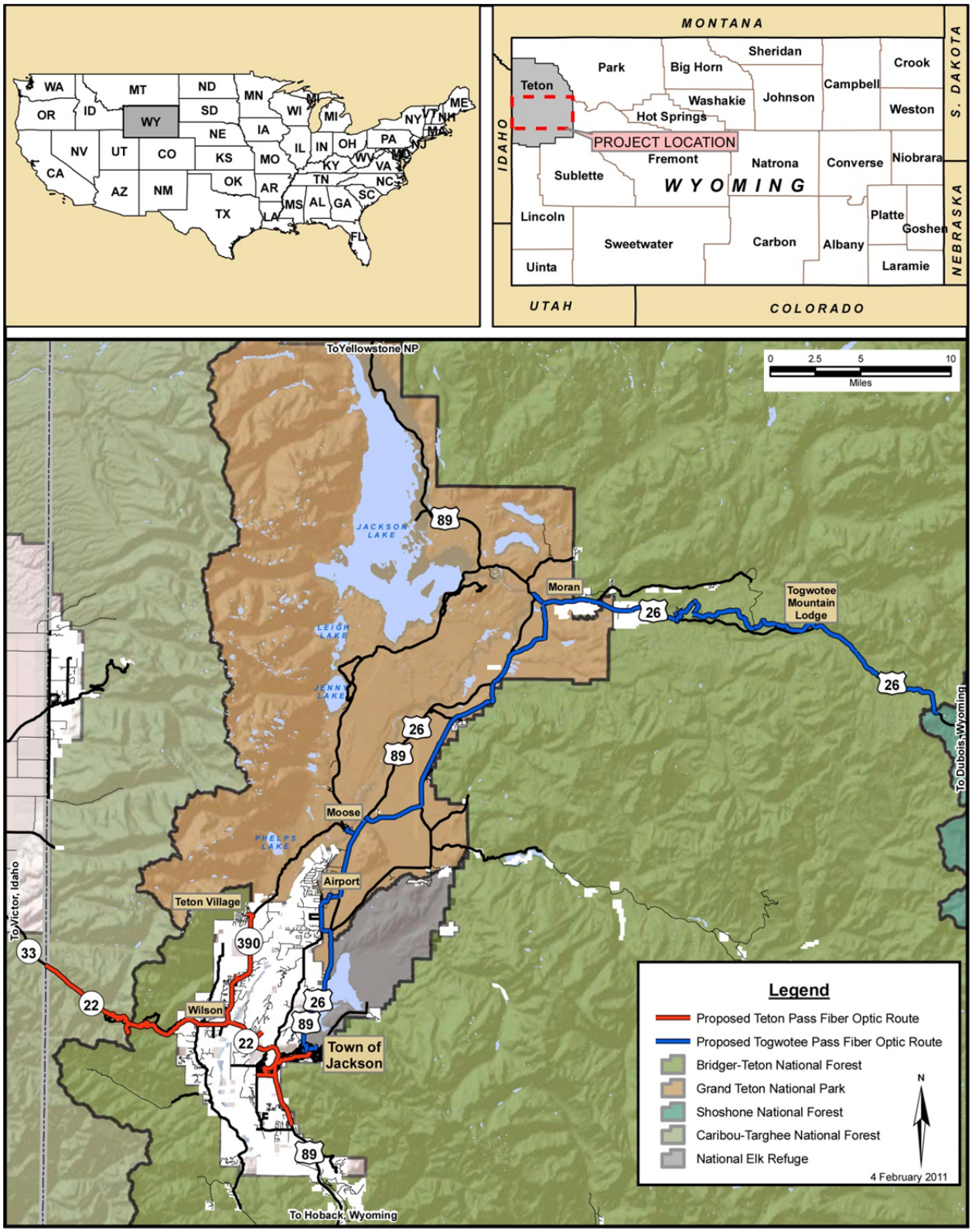


**Figure 2-1. Location of the Wyoming Loop Completion Project (WLCP), Teton County, Wyoming.**

## 2.2 NO ACTION ALTERNATIVE

Under the No Action Alternative, the proposed fiber optic cable would not be installed for either segment. Implementation of the No Action Alternative would maintain the status quo with no changes. Although the No Action Alternative would not meet the purpose and need for the proposed project it is useful to evaluate it as a comparison against other alternatives and its analysis is a requirement under provisions of the NEPA.

## 2.3 ALTERNATIVES

In contemplating a route or routes to follow in order to install the fiber optic cable, SST considered for detailed analysis only those options/alternatives that met the purpose and need of the proposed project as defined by the NTIA (particularly the BTOP), the technical requirements for fulfilling the purpose and need, and any criteria established by the permitting land management agencies specific to this type of project.

Once SST's submittals to NTIA were accepted, SST began an intensive effort to communicate and discuss alternative routes and options with the affected agencies and parties. As a result of these early discussions, many potential problems and concerns were eliminated. Consequently, SST's proposed alternative evolved following input from agencies such as the USFS, NPS, WYDOT, Town of Jackson, Teton County, various user groups, and private landowners. SST used the following assumptions or provisions as guidelines in their planning process in order to minimize problems and concerns and identify optimal routes: 1) follow and be compatible with existing highway and utility right-of-ways (ROWs) or easements wherever feasible and preferable; 2) take the least environmentally sensitive option wherever there was a choice to be made; 3) qualify for issuance under Nationwide Permit #12 for Utility Corridors under the Clean Water Act (1972, as amended); 4) have "No Effect" to plant or wildlife species under provisions of the Endangered Species Act (1973, as amended); 5) have full concurrence with the Wyoming State Historic Preservation Office that implementation would not adversely affect any cultural resources under Section 106 of the Antiquities Act (1906, as amended) 6) receive full concurrence from the NPS and USFS that implementation would not adversely affect the ORVs of any waterways protected under the Wild and Scenic Rivers Act (1968, as amended); 7) qualify for consideration for a SUP or equivalent by the USFS and NPS; 8) not have any apparent significant impacts as defined by the NEPA (1969, as amended); and 9) be able to complete permitting, analyses, and implementation within the schedule and timeframes of the overall project requirements under the ARRA and BTOP stipulations. The end results of the planning and internal scoping processes are the proposed actions described above for the Teton Pass and Togwotee Pass segments of the WLCP. Having the latitude to make minor changes in routing for either segment or vary the timing of actions at specific locations in order to avoid site-specific impacts are part of the Proposed Action which is the Preferred Alternative. Also, through both the agency scoping processes that SST engaged in and other agency scoping processes, the Preferred Alternative still provides opportunities to reduce impacts as those opportunities become known and are reviewed. Also both the NPS and USFS had opportunities to review the final plans and have input and suggestions for changes. These suggestions and inputs were then incorporated into the final EA and project plans.

The intense effort to propose a viable, workable, technically feasible, and acceptable project resulted in two alternatives being considered in detail for this EA. The Proposed Action as described in Section 2.1 above and the No Action Alternative described in Section 2.2. The reason

that no other alternative was evaluated was that there were no unacceptable impacts that would have required an additional alternative that would have met the Purpose and Need.

## 2.4 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM DETAILED DISCUSSION

One of the requirements for an alternative to be considered was that it would fulfill the Purpose and Need of the project as proposed by SST. This is important to understand because the SST project as it was presented to NTIA under the BTOP program had to compete with other projects for funding. Consequently, once it was accepted for consideration and funding it was defined as a viable, needed project. Other projects that did not qualify or that were withdrawn ceased to be considered. Under provisions of the NEPA, all of the alternatives considered including those considered but eliminated from further discussion constitute the "range of alternatives." Consequently, there were nearly 20 SST alternatives considered under the analyses of this EA.

Each of the specific alternatives considered but eliminated from further discussion is described below with the reason(s) for its dismissal for each segment. The reason that no alternatives other than the Preferred Alternative (Proposed Action) and the No Action Alternative were evaluated, was that following both informal (internal agency contacts and meetings) and formal scoping processes, it became apparent that there were no unacceptable impacts that would have required an additional alternative that would have also met the Purpose and Need of the project.

In addition to the alternatives noted below, two general alternatives were dismissed from further discussion. One (Alternative A) was installing aerial fiber optic cable (attaching it to poles, either existing or new ones) and another (Alternative B) was to rely on micro-wave towers to fulfill the role of fiber optic cable.

**Alternative A.** SST did not propose to fulfill the purpose or meet the need for this project using aerial cable because SST does not install or maintain aerial fiber optic facilities. The reliability and potential problems with aerial cable in high wind, heavy snow, and remote areas is well documented. In sections of the proposed route where there are existing power poles such as portions of the Togwotee Pass Segment, aerial installation was rejected because the purpose and need calls for an "extra" conduit suitable for potential, efficient future expansion that would not have additional impacts. Installing another aerial line later would often duplicate impacts of an initial aerial installation. Also, there were concerns regarding cumulative effects for visual resources, dependability, and the need for maintenance access in remote areas during harsh seasonal conditions. Much of the route that comprises the "gaps" does not have overhead lines or poles so if a portion of a segment were to have a mix of aerial and buried line it would necessitate constructing other ancillary facilities at the points where the line changed from buried to aerial. Visual impacts to the sensitive areas within the NPS and NFS land could have been significant with new aerial lines. Whether the fiber optic line were "plowed in" or suspended from existing poles, the area would still need to be accessed by various types of vehicles but with aerial installation revisiting the line would be more likely. Burying the line using the plowing technique appeared to be the least intrusive and most environmentally sensitive method over the long term. A host of other concerns with aerial cable were identified but the fact that no optic cable provider that installs, maintains, or services such cable made an acceptable bid under the BTOP is evidence of the lack of support for this alternative.

**Alternative B**. Installing micro-wave towers to fulfill the purpose and need for this project would require the construction and maintenance of several, perhaps dozens of towers. These facilities are

very visible and require annual or more frequent maintenance. The unreliability of micro-wave towers compared to buried state-of-the art fiber optic cable is well documented by the broadband industry. Micro-wave technology has its place among broadband distribution systems but it has many drawbacks and disadvantages as noted in Section 2.1. Also, micro-wave technology does not support the bandwidths required to fulfill the needs of the project, consequently it is not a direct replacement. This would also require lengthy revision processes of existing land use plans with no certainty of the desired outcomes.

### 2.4.1 *REJECTED OPTIONS FOR THE TETON PASS SEGMENT*

Table 2-3 presents route options considered for the Teton Pass Segment that were subsequently dismissed from detailed analysis, along with the reason for their dismissal.

**Table 2-3. Routes or portions of routes considered as options for the Teton Pass Segment but dismissed from detailed analysis or consideration of being part of the Proposed Action.**

| Route –Option Segment* | **Description and Location**<br>*Reason for Dismissal* |
|---|---|
| Option A: WYO 22 ROW from Trail Creek Road to Coal Creek | **A 7-mile section of WYO 22 starting west of Wilson at Trail Creek Road, going over Teton Pass and ending near the Coal Creek parking lot.**<br>*WYO 22 over Teton Pass is a very difficult location for construction activities. The rocky outcrops would require SST to install the cable by "rock sawing," a very time consuming and expensive operation, over a majority of the route. WYDOT has installed several road stabilizing features, cross-drains, a large rock-lined borrow ditch and other stabilization elements which would need to be carefully avoided. The installation of the cable would make avoiding these features very difficult if not impossible. Also, installing the cable on this section of WYO 22 would require blocking one lane of traffic thus causing delays for travelers over the pass whenever construction took place. This is even more problematic because there are few safe locations to stop traffic. WYDOT recommended moving to the Proposed Action Alternative route.* |
| OPTION B: BPA / LVE Power Line Easement | **This section stays within the existing Bonneville Power Authority (BPA) and Lower Valley Energy (LVE) overhead line easements as they cross over Teton Pass. Starting along the bike path about three-quarters of a mile west of the Trail Creek parking lot, the line would turn to the south and onto the LVE easement then follow this easement to the west where it would connect to a BPA easement. Continuing west along the BPA easement for just over 0.6 miles, the line would move upslope rejoining the WYO 22 ROW. The fiber optic line would continue in the WYO 22 ROW, to the west for approximately a quarter-mile, where it would be located uphill to the north to an existing unimproved dirt road which is used to access the BPA power line easement. It would then follow the BPA easement to the west where, just prior to the Idaho border, it would join back with the WYO 22 ROW and terminate at the Wyoming/Idaho border.** |

| Table 2-3. Routes or portions of routes considered as options for the Teton Pass Segment but dismissed from detailed analysis or consideration of being part of the Proposed Action. | |
|---|---|
| Route –Option Segment* | **Description and Location** |
| | *Reason for Dismissal* |
| | *Much of this alignment is located in areas that do not have access roads and are on steep slopes which make it difficult and dangerous to install the cable. West of Coal Creek it is not feasible to get the necessary equipment within the BPA easement in order to install the cable. To cross several drainages the cable would need to be bored from the BPA easement to the WYO 22 ROW, cross along WYO 22, and then be bored back to the BPA easement. Some of the plowing of the conduit would need to occur in forested areas that have not been disturbed on the surface, which would create new disturbances.* |
| OPTION C: Various Sides of US 89, WYO 22, WYO 390 and Other Roads | **Each side of the existing ROWs along the potential routes was evaluated for any issues that may adversely affect the existing conditions and/or installation procedures of the proposed cable.** |
| | *While all impacts could not be avoided along the proposed route, the ROW side with the least amount of environmental impacts was chosen. Some of the concerns or potential issues that drove the proposed line from one side of a road to the other included: wetland crossings, technical installation concerns, wildlife or plant habitat, lack of property easements, and safety considerations.* |
| OPTION D: Various End/Start Points for Segments & Connection Points | **The initial submittal from SST to NTIA for the Teton Pass and Togwotee Pass routes included portions of segments with duplicity (served by both routes). This redundancy was removed once both routes became defined. Several connection points between the Teton Pass and Togwotee Pass segments were evaluated, viz. US 89 and Meadowlark Lane, WYO 22 and Spring Gulch Road; near the WYO 22 and WYO 390 intersection, and near the C Bar V Ranch (near MP 3 on WYO 390).** |
| | *As the evaluation of the different potential routes for the Teton Pass and Togwotee Pass routes progressed and evolved, the necessary connection and end points changed. When a potential route became infeasible the connection point became unnecessary and was moved. Ultimately, the connection point on East Kelly Avenue in Jackson was selected.* |
| * See Appendix B, Figure B15 for approximate location | |

### 2.4.2 *REJECTED ALTERNATIVES FOR THE TOGWOTEE PASS SEGMENT*

Table 2-4 presents routes considered for the Togwotee Pass Segment that were subsequently dismissed from detailed analysis, along with the reason for their dismissal.

| Table 2-4. Routes or portions of routes considered as options for the Togwotee Pass Segment but dismissed from detailed analysis or consideration of being part of the Proposed Action. | |
|---|---|
| Route – Alternative Segment* | **Description and Location** |
| | *Reason for Dismissal* |
| OPTION E: Various End/Start Points for Segments & Connection Points | **The initial submittal from SST to NTIA for the Teton Pass and Togwotee Pass routes included portions of segments with duplicity (served by both routes). This redundancy was removed once both routes became defined. Several connection points between the Teton Pass and Togwotee Pass segments were evaluated, viz. US 89 and Meadowlark Lane, WYO 22 and Spring Gulch Road; near the WYO 22 and WYO 390 intersection, and near the C Bar V Ranch (near MP 3 on WYO 390).** |
| | *As the evaluation of the different potential routes for the Teton Pass and Togwotee Pass routes progressed and evolved, the necessary connection and end points changed. When a potential route became infeasible the connection point became unnecessary and was moved. Ultimately, the connection point on East Kelly Avenue in Jackson was selected.* |
| OPTION F: North Snake River Crossing | **Starting at Teton Village the line would proceed north within the WYO 390 ROW to the GTNP boundary then turn east adjacent to a private road and a LVE buried power line ROW to an existing LVE buried conduit under the Snake River. After exiting the conduit on the west side of the Snake River the line would cross private property, within existing and/or new utility easements then follow Zenith Drive ROWs/easements to the intersection with Spring Gulch Road.** |
| | *A portion of this section would follow within existing utility easements; however, the properties on both sides of the Snake River may have required new utility easements. Despite an intense effort by SST over several months, some landowners did not respond to communication efforts regarding inclusion of their property or chose to make excessive demands in order to include their lands. Consequently, this route had to be dismissed in order to meet the overall timeline of the project and avoid creating a new crossing of the Snake River.* |
| OPTION G: Spring Gulch Road | **Starting at the intersection of WYO 22 and Spring Gulch Road, near Jackson, the line would follow Spring Gulch Road, within existing or new ROWs, north to the intersection of Sagebrush Drive and Lower Gros Ventre Road. This section passes over the Gros Ventre River as a bridge attachment and through Jackson Hole Golf and Tennis Club adjacent to Spring Gulch Road.** |

| Table 2-4. Routes or portions of routes considered as options for the Togwotee Pass Segment but dismissed from detailed analysis or consideration of being part of the Proposed Action. | |
|---|---|
| Route – Alternative Segment* | **Description and Location**<br>*Reason for Dismissal* |
| | *A narrow road with poorly defined, sporadic utility easements made this route very complicated. In addition, existing utilities took up nearly all of the potential space, thereby necessitating the creation of new or newly defined easements. Easement agreements would need to be obtained prior to completion of this EA. Because of a limiting time factor these agreements would not have been in place prior to the EA submittal. Moving it into the roadway would cause long traffic delays and additional costs for road repair. Also, several portions of the proposed route were adjacent to wetlands which paralleled the road for extensive lengths making it very difficult to bore in order to avoid impacting the wetlands.* |
| OPTION H: US 89 from Gros Ventre Junction to Airport Road | **A section of about two miles within the US 89/26 ROW from Gros Ventre Junction north to Airport Road.** |
| | *This section would cross an existing wetland. With the North Snake River crossing not being a viable option SST preferred to locate the fiber optic cable within more developed areas. It would also provide multiple options to serve Jackson Hole Airport and communities west of the airport.* |
| OPTION I: Moose-Wilson Road | **Starting at Teton Village the route would follow WYO 390 (Moose-Wilson Road) past the GTNP entry gate and would follow in or adjacent to Moose-Wilson Road to the GTNP headquarters in Moose. The route crosses the Lake Creek canal, Kaufman Creek and Lake Creek.** |
| | *Moose-Wilson Road serves as a scenic back road between Moose and Teton Village. The roadway is narrow and bordered by forested habitats. Several environmental concerns would have to be addressed along this route such as wildlife, vegetation, wetlands, and recreational use (especially wildlife viewing). There are currently no utilities adjacent to the road with little or no service opportunities. The route would bypass the airport, which is one of the key facilities the BTOP program is intended to serve. Wetlands and wetland habitat directly adjacent to the road would have been a major concern because the wetlands paralleled the road for extensive distances.* |
| OPTION J: US 89/26 from Antelope Flats | **Starting at the intersection of US 89/26 and Antelope Flats Road the line would follow along US 89/26 for just over 11 miles to the intersection of Brush Creek Road and the parking lot for the Historic Cunningham Cabin.** |

| Table 2-4. Routes or portions of routes considered as options for the Togwotee Pass Segment but dismissed from detailed analysis or consideration of being part of the Proposed Action. | |
|---|---|
| Route – Alternative Segment* | **Description and Location**<br>*Reason for Dismissal* |
| Road to Cunningham Cabin Parking Lot | *This route does not have utilities along the highway making this route a new utility corridor. US 89/26 from Antelope Flats Road to Lost Creek Road (about 7 miles) is within undisturbed vegetation and provides potential habitat for wildlife, including sage grouse. To the north of Lost Creek Road are two heavily forested areas, totaling about 1.5 miles, where the trees come very close to the highway on steep slopes. This segment is an important wildlife movement/migration crossing. A corridor through this important forested habitat would need to be cleared in order to bury the cable. Construction efforts would be complex and would require traffic control as safety would be a major concern, especially on the hilly and steep areas.* |
| OPTION K: US 89/26 to FS 30340 to FS 30333 | **Starting at the intersection of US 89/26 and Antelope Flats Road, the line would be adjacent to US 89/26 for about 7 miles to the Lost Creek Road (aka FS road 30340). Following Lost Creek Road to the east for about 1½ miles to an intersection of an unnamed GTNP dirt road (aka FS road 30333).**<br>*This route does not have utilities along the highway making this route a new utility corridor. US 89/26 from Antelope Flats Road to Lost Creek Road (about 7 miles) is within undisturbed vegetation and provides potential habitat for wildlife, including sage grouse.* |
| OPTION L: US 89/26 from Wolff Ranch Road to Moran | **Starting at the intersection of US 89/26 and Wolff Ranch Road the line would follow adjacent to US 89/26 for about 4 miles to Moran in an area commonly known as "moose alley." It would cross a channel of the Buffalo Fork River (bored or attached to an existing culvert), wetland areas on both sides of the highway, dense forested habitat, and eventually crossing the Buffalo Fork River attached to an existing bridge crossing.**<br>*This section was dismissed from further consideration because of the potential impacts to the Buffalo Fork River and associated wetlands and wildlife habitat. It would have required traffic control and delays because of the narrow location. There was also concern about the stability of the river and banks at this location. Future road alignments and construction are being considered for this location because of the movement of the river. Existing buried utilities have been exposed and further exposure is anticipated.* |
| OPTION M: US 89/26 from Wolff Ranch Road to Elk | **Starting at the intersection of US 89/26 and Wolff Ranch Road, the line would follow adjacent to US 89/26 for about 2.8 miles, turn east onto Elk Ranch Road and continue for about 0.85 miles to the unimproved easement access road, running north, under the LVE power line.** |

| Table 2-4. Routes or portions of routes considered as options for the Togwotee Pass Segment but dismissed from detailed analysis or consideration of being part of the Proposed Action. | |
|---|---|
| Route – Alternative Segment* | **Description and Location**<br>*Reason for Dismissal* |
| Ranch Road to the LVE ROW | *Although this section crosses much of the same habitat types as the Proposed Action, there was concern that construction along this busy highway would diminish visual resources on a temporary basis. There are also traffic concerns regarding stopping or impeding traffic on this busy highway, creating a safety issue. This area is often frequented by small and large herds of free-roaming bison which could be disturbed during installation with few options to respond other than to cross the highway, another safety issue.* |
| OPTION N: US 26 from Blackrock Ranger Station to Turpin Meadow Road | **This section starts at the Buffalo Ranger District Office (Blackrock Ranger Station) on US 26 and continues east within the US 26 ROW for about 4.75 miles then would turn north onto FS road 30050 (aka Turpin Meadow Road) for about 0.25 miles where it would turn east onto FS road 30040.**<br>*This section of US 26 is currently being reconstructed. Installation within this section would likely contribute to traffic delays, impeding construction of the road and the fiber optic line, and bring about safety concerns along this narrow highway. Also, because road construction is already underway, it is likely that the fiber optic line could not have been installed within the required time frame for the fiber optic project. Additionally, a stub would still need to be installed to the FAA site on Rosie's Ridge, which would have required following FS road 30060 as addressed in the Proposed Action.* |
| OPTION O: Off US 26 to FS 30011 to FS 30010 to US 26 | **This section would begin by detouring to the southeast from US 26 at about mile 19.6 where it would follow an existing snowmobile trail, cross Blackrock Creek, and then travel up slope to join with the west end of FS road 30011. The line would follow this road to the east until it joins with FS road 30010 and follow FS road 30010 generally to the south and east connecting back to US 26.**<br>*This section was removed from analysis because the route included areas designated as Roadless and therefore did not comply with the BTNF and SNF forest plans. This route had no existing utility corridor so establishing a utility corridor would require changes in the respective forest plans. In addition, there were resource concerns for cultural resources, vegetation and soils. A unique soil type on the east end of the proposed route has developed unique flora which potentially could include some rare flowering plants.* |
| OPTION P: Various Sides of US 89/26, US | **Each side of the existing ROWs along the potential routes was evaluated for any issues that may adversely affect the existing conditions and/or installation procedures of the proposed cable.** |

| Table 2-4. Routes or portions of routes considered as options for the Togwotee Pass Segment but dismissed from detailed analysis or consideration of being part of the Proposed Action. | |
|---|---|
| Route – Alternative Segment* | **Description and Location**<br>*Reason for Dismissal* |
| 26, and Other Roads | *While all impacts could not be avoided along the proposed route, the ROW side with the least amount of environmental impacts was chosen. Some of the concerns or potential issues that drove the proposed line from one side of a road to the other included: wetland crossings, technical installation concerns, wildlife or plant habitat, lack of property easements, and safety considerations.* |
| * See Appendix B Figure B15 for approximate location | |

# 3.0 AFFECTED ENVIRONMENT

## 3.1 NOISE

***Elements Common to Both Segments.*** Sound is often measured as decibels (dB) but to make the measurement of that sound relevant to human receptors, a sound's pressure is measured in weighted decibels (dBA) which requires the sound to be filtered. In this section and Section 4.1, sounds are reported in decibels measured on the "A" scale (dBA). Projects that are sponsored by the Federal Highway Administration (FHWA) are subject to the provisions of Title 23 of the Code of Federal Regulation Part 772 (23 CFR 772) related to sensitive receptor areas. However, the WLCP are not FWA projects and do not fall under provisions of 23 CFR 772. The areas adjacent to the fiber optic cable alignment experience ambient noise mostly from traffic and city activities since the proposed routes are mostly along existing roads and ROWs in and outside of the Town of Jackson. According to a baseline model for traffic noise developed as part of a national parks study, the noise emitted by traffic is dependent upon speed and type of vehicle, with heavy trucks emitting the most noise, and cars the least (Roof et al., 2002). The speed limit for roads in the affected environment does not exceed 55 miles per hour (mph) and the road network largely consists of double-lane paved roads and a few single-lane dirt/gravel roads in the more remote sections. In the largely rural areas, where other noise sources are minimal, a passing truck may emit 85 decibels (dBA) at 55 mph and a car 74 dBA However, the total current ambient noise level on roads is dependent on traffic volume and other ambient sources. These ambient levels are highest during the peak tourist seasons (June-October). Sensitive receptors among the CAIs include hospitals, libraries, educational facilities, and those located within GTNP.

Outdoor noise levels usually decrease with increasing distance between the source and the receiver because of geometrical spreading of the noise energy over a bigger surface and absorption of the noise by the atmosphere and by the ground. Thus as the distance between source and receiver is increased, the magnitude of the noise decreases rapidly. As traffic approaches the installation sites the noise level will increase and as they pass and leave the site, the noise will decrease rapidly. This temporary and intermittent increase in noise levels is commonly associated with routine construction and maintenance of existing utility lines and community infrastructure.

The effect of noise on hearing varies from person to person. Some people are more sensitive to loud sounds, especially at certain frequencies. The frequency of a sound determines how low or high a tone is. But any sound that is loud enough and lasts long enough can damage hearing and lead to hearing loss. Normal conversation is about 60 dBA, a lawn mower is about 89 dBA, and a loud rock concert is about 125 dBA Table 3-1 shows the average dBA level of a variety of typical sounds. In general, sounds above 85 dBA may be harmful, depending on how long and how often a person is exposed to them and whether they wear hearing protection, such as earplugs or a headset.

**Table 3-1. Decibel levels of typical sounds.***

| Noise Source | Average decibels (dBA) |
|---|---|
| Winter calm conditions GTNP | 18** |
| Leaves rustling, soft music, whisper | 30 |
| Average home noise | 40 |

| Table 3-1. Decibel levels of typical sounds.* | |
|---|---|
| **Noise Source** | **Average decibels (dBA)** |
| Normal conversation, background music | 60 |
| Office noise, inside car at 60 mph | 70 |
| Vacuum cleaner, average radio | 75 |
| Heavy traffic, window air conditioner, noisy restaurant, power lawn mower | 80–89<br>(sounds above 85 dBA can be harmful over a sustained period) |
| School dance | 101–105 |
| Chainsaw, leaf blower, snowmobile | 106–115 |
| Sports crowd, rock concert, or loud symphony | 120–129 |
| Gunshot or siren at 100 feet | 140 |
| * Source http://www.revolutionhealth.com/articles/harmful-noise-levels/tf4173<br>** Source NPS Unpublished Data | |

As sound levels increase, the amount of time a person can hear the sound before damage occurs decreases. Hearing protectors reduce the loudness of sound reaching the ears, making it possible to listen to louder sounds for a longer time. Most cases of noise-induced hearing loss are caused by repeated exposure to moderate levels of noise over many years, not by a few cases of very loud noise.

The effects of noise on wildlife also vary depending on the nature of the sound and its duration. However, the effects of construction-related noise on non-humans are less understood than the effects on people. The effects are most likely related to disruptions to intended or adventitious communication, mating, nesting, migration, and feeding behavior. Loud sounds may create an acute response such as alert, startle or flight behavior in some wildlife species and sustained long-term sounds may elicit chronic responses (staying away from an area for extended periods of time). In most cases, animals habituate to sounds that remain constant over an extended period, unless accompanied by other factors, especially pedestrian activity or the threat of harm.

***Elements Specific to the Teton Pass Segment.*** The route through Jackson and over Teton Pass encounters all levels of noise from the urban-industrial areas of Jackson, past some residential areas, through the commercial district downtown, and out of town through the rural areas and the national forests. Noise generated by heavy spring, summer, and fall traffic by motorcycles, cars, large trucks, and recreational vehicles is common on all of these roads. Traffic and people are the primary sources of noise through this route. One exception is the portion of the proposed route that follows the BPA road. That area is farther from WYO 22 and hence has an ambient noise level lower than the rest of the route.

***Elements Specific to the Togwotee Pass Segment***. This route follows paved roads from Jackson to the Antelope Flats Road and from Moran to Togwotee Pass. The traffic on these sections is composed of all types of vehicles traveling at highway speeds. In addition, the route passes by the Jackson Hole Airport where commercial jets and private aircraft take off and land on a regular basis. The more remote portions of the area of interest include back roads (some paved but mostly gravel or dirt) that are much less frequently travelled and vehicle speed is often less than 25 mph.

However, at night time, the area traffic diminishes and the areas along and away from the highways are very quiet, with winter calm ambient sound dropping to 18 dBA.

## 3.2 AIR QUALITY

***Elements Common to Both Segments.*** The federal Clean Air Act, last amended in 1990, requires the U.S. Environmental Protection Agency (EPA) to establish National Ambient Air Quality Standards (NAAQS) for air pollutants that are harmful to public health and the environment. The EPA has established ambient air quality standards for six "criteria" pollutants: carbon monoxide, lead, nitrogen oxides, particulate matter, ozone and sulfur dioxide. Areas that do not meet the NAAQS for one or more pollutants are designated as nonattainment areas, for which the state must prepare a state implementation plan (SIP). Section 176(c) of the Clean Air Act requires federal agencies to ensure that their actions conform to applicable implementation plans (in most cases, the SIP) for achieving and maintaining the NAAQS for criteria pollutants. No portion of the project area has been classified as a nonattainment area.

**Table 3-2. Air Pollution levels in Teton County, Wyoming during 2005[1]**

| Pollutant | Level[2] | Comparative Level |
|---|---|---|
| Carbon Monoxide | 1 ppm<br>(standard limit: 9 ppm) | Below U.S. average |
| Ozone (1-hour) | 0.068 ppm<br>(standard limit: 0.12 ppm). | Below U.S. average |
| Ozone (8-hour) | 0.060 ppm<br>(standard limit: 0.08 ppm). | Below U.S. average |
| Particulate Matter ($PM_{10}$) | Annual: 19 µg/$m^3$. | Near U.S. average |
| Particulate Matter ($PM_{10}$) | 24-hour: 62 µg/$m^3$<br>(standard limit: 150 µg/$m^3$). | Near U.S. average |

1 - Source: http://www.city-data.com/county/Teton_County-WY.html
2 – ppm = parts per million; µg/$m^3$ = micrograms per cubic meter

Industrial activity and population levels are low in northwestern Wyoming, resulting in overall good regional air quality. Most of the industrial activity in Wyoming occurs in the eastern counties near the cities of Gillette and Casper, and in the southwestern counties around Rock Springs. Oil and gas processing, electric utility power plants and industrial fossil-fuel combustion in southwestern Wyoming and southeastern Idaho are the major sources of gaseous pollutants and deposition to Jackson. Under specific atmospheric conditions, long-range transport of pollutants from the Salt Lake City area is also possible. Annual emissions of gaseous sulfur dioxide, nitrogen oxides and volatile organic compounds in Wyoming are mainly from fossil fuel burning by industrial sources, and levels are moderate relative to other western states. Seasonally, localized increases in particulate matter from motor vehicle emissions and smoke are highest during June through September and during portions of the winter when many residents are using wood burning stoves. In addition, scree and crushed rock is used on some roads during the winter which can contribute to fugitive dust.

National Forest System (NFS) lands designated as Wilderness by Congress under the 1964 Wilderness Act and the 1984 Wyoming Wilderness Act are designated as Class I air quality areas. Class I areas also include national parks greater than 6,000 acres and Wilderness areas greater than 5,000 acres that were in existence or authorized as of August 7, 1977. They receive the highest degree of air quality protection under the Clean Air Act. For most visitors, scenic vistas are an important reason for their visit to the area. Degradation of visibility from particulates is the most important air quality concern in the Grand Teton National Park (GTNP) as are specific Class I air-sheds over Wilderness areas within the national forests. Class I airsheds are subject to anti-degradation practices in order to maintain their status.

Smoke from local and distant forest and grass fires also contribute to short-term decreases in ambient air quality in Teton County, particularly during July through October. Whether smoke from fires remains in Teton County or is carried away (usually east) is dependent on surface and upper air flows. In addition, the Park has a natural fire policy that may allow wildfires to burn in the backcountry through most of the summer. These fires can significantly reduce visibility in the area for extended periods. Forest fires and fugitive dust generated on unpaved roads are important sources of particulates during summer months.

During colder months, increases in carbon monoxide and particulate matter associated with wood burning stoves in Teton County are of concern. Exhaust from snowmobile use within NFS and NPS land is also a concern during the winter.

Future impacts to air quality in Teton County may continue to originate from the following sources: 1) increasing residential and business development in Jackson south of GTNP and Yellowstone National Park (YNP), including use of wood-burning stoves and fireplaces, automobiles, snowmobiles, and air traffic; 2) increasing use of natural wildfires and prescribed burning as management tools in and around Jackson; 3) proposed oil and gas development and associated activities south, east, and west of Jackson; 4) agricultural practices in Idaho where field burning is common in the fall; and 5) metropolitan and industrial development along the western slope of the Wasatch Mountains in the Salt Lake City, Utah, area nearly 200 miles away.

***Elements Specific to the Teton Pass Segment.*** The Teton Pass Segment comes closest to the Jedediah Smith Wilderness along the existing Bonneville Power Administration (BPA) easement. However, this Wilderness was created in 1984 and is not a Class 1 air-shed area. The only Class 1 area close to this installation segment is GTNP entrance on the Moose-Wilson Road, about 1.5 miles north of the terminus of this proposed route at Teton Village.

***Elements Specific to the Togwotee Pass Segment.*** Three qualifying Class 1 areas lie within the Bridger-Teton, Shoshone and Caribou-Targhee National Forests: the Teton, Bridger, and Washakie Wildernesses. In addition, GTNP is also a Class 1 area. The Togwotee Pass Segment passes through the park and just south of the Teton Wilderness along US 26 near the FAA VOR site on Rosie's Ridge.

## 3.3 GEOLOGY AND SOILS

### 3.3.1 *GEOLOGY*

The project area is located in the Middle Rocky Mountains physiographic region (USGS, 2003). Jackson Hole (so called) is a north-northeast to south-southwest trending valley that slopes to the south. It is surrounded by mountains, the Gros Ventre Range to the east and southeast, the Snake River Range to the south and southwest, the Teton Range to the west, the Yellowstone Plateau to

the north, the Absaroka Range to the northeast, and the Wind River Range to the east. The area is drained by the Snake River and its tributaries, which are part of the Columbia River Basin. The area has seen at least three major glacial advances over the last 250,000 years. Glacial movement carved the landscape into what is seen today (Love et al., 2007). Active tectonics also plays a role as seen by frequent earthquakes throughout the area. Mass movements and rock falls are also frequent in certain areas.

***Elements Common to Both Segments.*** The fiber optic cable would be buried in portions of the Teton Range, the Gros Ventre Range, the Snake River Range, the Absaroka Range, and Teton County. The Tetons and Jackson Hole are the result of plate tectonic movement along the Teton fault (Love et al., 2007). The Teton fault separates the Basin and Range Province in the west from the Rocky Mountain Province in the east. The Tetons are among the youngest in the Rocky Mountains. Most of their uplift has occurred in the last five million years and the range continues to rise. The west, north and south ends of the range are composed of sedimentary rock and the core is granite (Young, 1982). The Gros Ventre Range is more than 50 million years older than the Teton Range and is composed of folded sedimentary rocks. The Absaroka Range is composed of horizontally layered accumulations of volcanic rock and sedimentary rock that have been carved into mountains by erosion. This volcanic activity likely took place over 50 million years ago. The Snake River Range is composed of sedimentary rocks (Love et al., 2007).

***Elements Specific to the Teton Pass Segment.*** The proposed Teton Pass Segment would be buried in portions of the south end of Jackson and through the Snake River Range and Teton Range.

***Elements Specific to the Togwotee Pass Segment.*** The Togwotee Pass Segment would be buried through Jackson (south end of town traveling north to the Absaroka Range). The line would border portions of the Gros Ventre Range and pass through the Absaroka Range at Togwotee Pass.

### 3.3.2 *SOILS*

***Elements Common to Both Segments.*** Due to the harsh climate of Wyoming, soils tend to show a close relationship to the geologic parent materials on which they form. Therefore, soils in the project area are influenced by glacial outwash and volcanic materials. Major soils series in the area include (soil series information taken from the Natural Resource Conservation Service (NRCS) Web Soil Survey and Young, 1982):

- Bearmouth series: Very deep, well drained soils formed in gravelly alluvium and glacial deposits. These soils are on alluvial fans and terraces.

- Edgway series: Very deep, well drained soils formed in local alluvium or colluvium derived from mixed sources. These soils are on foothills and mountains.

- Fritz series: Deep or very deep and well drained soils formed in colluvium derived from limestone and loess. These soils are found on mountains.

- Gany series: Very deep, well drained, moderately permeable soils formed in slope alluvium or colluvium from limestone. These soils are found on mountains.

- Greyback series: Very deep, somewhat excessively drained soils formed in alluvium. These soils are on alluvial fans and high terraces.

- Hourglass series: Very deep, well drained soils that formed in slope alluvium derived dominantly from sandstone and limestone, but also from mixed sources. These soils are on mountain slopes.

- Huckridge series: Very deep, well drained soils formed in mixed loess and volcanic ash. These soils are on foothills and dissected tablelands.

- Katpa series: Very deep, well drained soils formed in local alluvium or colluvium derived from limestone and loess. These soils are found on mountain side slopes.

- Koffgo series: Very deep, well drained soils formed in slope alluvium, colluvium or residuum derived from mixed sources. These soils are on canyonsides, tablelands, plateaus, foothills and mountains.

- Owlcreek series: Very deep, well drained soils formed in slope alluvium and colluvium derived from andesite, rhyolite, breccia, or tuff. These soils are on mountain slopes and ridges.

- Povey series: Very deep to deep, well drained soils that formed in alluvium and colluvium from quartzitic sandstone, igneous, or quartzitic metamorphic rocks. These soils are on hills, canyon side slopes, and mountainsides.

- Presa series: Deep, well drained soils that formed in material weathered from sandstone and shale. These soils are on steep slopes of mountains and canyons.

- Quazar series: Very deep, well drained soils formed in alluvium, slope alluvium, colluvium, and till derived from andesite, rhyolite, breccia, or tuff. These soils are on alluvial fans and mountain slopes.

- Rhylow series: Very deep, well drained soils formed in local alluvium and colluvium derived from loess, volcanic ash and igneous or sedimentary rocks. These soils are found on tablelands, canyons, foothills and mountains.

- Roxal series: Shallow, well drained soils formed of residuum of interbedded sandstone and clay shale. These soils are on bedrock controlled upland slopes and buttes.

- Sebud series: Very deep, well drained soils that formed in stony till, slope alluvium and colluvium derived from igneous and metamorphic rock. These soils are on alluvial fans, terraces, till plains, moraines, hills, and mountains.

- Starley series: Well drained soils that are very shallow or shallow to hard bedrock formed in residuum and colluvial slopewash weathered primarily from limestone. These soils are on hillslopes, ridges, and mountain slopes.

- Tetonia series: Very deep, well drained soils formed in loess. These soils are on hills and buttes.

- Tetonville series: Very deep, somewhat poorly drained soils formed in alluvium. These soils are on bottom lands or terraces.

- Tineman series: Very deep, well drained and somewhat poorly drained soils formed in gravelly alluvium and glacial deposits. These soils are on alluvial fans and terraces.

- Turnerville series: Very deep, well drained soils formed in loess. These soils are on hills, buttes and mountain foot slopes.

- Uhl series: Consists of very deep, well drained soils formed in alluvium derived of glacial till and sedimentary bedrock. These soils are on alluvial fans and foot slopes.

- Wilsonville series: Very deep, somewhat poorly drained soils formed in alluvium. These soils are on bottomlands and terraces.

For the purposes of this EA, soil series can be combined into general soil complexes. These include:

Soils of the Foothills, Buttes, and Glacial Moraines

- Turnerville-Tetonia-Greyback: Nearly level to steep, very deep, somewhat excessively well drained and well drained soils; on foothills, mountain foot slopes, and alluvial fans.

- Uhl-Roxal: Sloping to steep, very deep and shallow, well drained soils; on foothills, buttes, and alluvial fans.

Soils of the Terraces and Alluvial Fans

- Tineman-Bearmouth-Greyback: Nearly level to steep, very deep, well drained and somewhat excessively well drained soils; on stream terraces and alluvial fans.

Soils of the Floodplains

- Tetonville-Wilsonville-Tineman: Nearly level, very deep, somewhat poorly drained soils; on floodplains and low terraces.

- Tetonville-Riverwash: Nearly level, very deep, somewhat poorly drained soils; and riverwash; on floodplains.

Soils of the Mountain Slopes and Ridges

- Gany-Katpa-Fritz: Deep to very deep, well drained soils; on mountain slopes.

- Hourglass-Quazar: Moderately well to well drained soils; on steeper mountain slopes and slide areas.

- Owlcreek-Presa-Quazar: Deep, well drained soils; on mountain slopes and slide areas.

Soils of Tablelands, Plateaus, Foothills, and Mountains

- Huckridge-Koffgo-Edgeway: Very deep, well drained soils; on tablelands, plateaus, foothills, and mountains.

- Koffgo-Rhylow-Povey: Very deep, well drained soils; on canyonsides, tablelands, plateaus, foothills, and mountains.

***Elements Specific to the Teton Pass Segment.*** The Turnerville-Tetonia-Greyback complex occurs in areas around Jackson, Wilson, and along WYO 22 leading to Teton Pass. Tetonville-Wilsonville-Tineman complex is found around Jackson, Wilson, along WYO 22 leading to Teton Pass, and along the Moose-Wilson Road. The Tineman-Bearmouth-Greyback complex is found along the Moose-Wilson Road. The Huckridge-Koffgo-Edgeway complex is found from Trail Creek to the Idaho border. The Gany-Katpa-Fritz complex is found along WYO 22 on the west side of Teton Pass, the BPA power line easement, and again on WYO 22 to the Idaho border. The Koffgo-Rhylow-Povey complex occurs at the top of Teton Pass, along WYO 22 on the west side of Teton Pass, the BPA power line easement, and again on WYO 22 to the Idaho border. The Starley and Sebud soils are found along WYO 22 from Trail Creek Road to Wilson. There are no soil data available for the OTPH route to Trail Creek Road. There are no prime or unique farmlands along the Teton Pass Segment.

***Elements Specific to the Togwotee Pass Segment.*** The Turnerville-Tetonia-Greyback complex occurs in areas around Jackson, along the eastern boundary of Grand Teton National Park, and at Blacktail Butte. The area west of US 26 near the Snake River is Tetonville-Riverwash. The Tetonville-Wilsonville-Tineman complex is found around Jackson, along the Moose-Wilson Road, Teton Village, and southeast of US 26 and Moran Junction. The Tineman-Bearmouth-Greyback complex is found along the Moose-Wilson Road, Teton Village, US 26, and Antelope Flats. The Owlcreek-Presa-Quazar and Hourglass-Quazar complexes are found on Togwotee Pass. There are no soil data available for the areas around FS roads 30040 and 30060. There are no prime or unique farmlands along the Togwotee Pass Segment.

## 3.4 WATER RESOURCES

### 3.4.1 *SURFACE WATER, PRECIPITATION, DISCHARGE RATES, AND THE LEVEE SYSTEM*

#### 3.4.1.1 Surface Water

***Elements Common to Both Segments.*** The WLCP encompasses part of the Snake River and its drainage basin including the Buffalo Fork River and its associated tributaries (Appendix B- Figure B1). Also within the area of interest are much smaller perennial and intermittent drainages and irrigation ditches. Wetlands crossed by the proposed route are often associated with riparian habitat associated with these drainages. Although the rivers, streams and creeks within the area of interest are typical of high elevation, mountainous terrain; Trail Creek and its tributaries (located on the east side of Teton Pass, Figure B4 of Appendix B) are particularly steep, high energy streams capable of carrying significant amounts of sediment during spring runoff. In the non-mountainous terrain within the area of interest, rivers, streams, and creeks are more typical of slower moving water courses. Some with braided flood plains and with stretches with more confined bed and banks.

Surface waters within the area of interest are of sufficient quality to support a number of uses including fish and wildlife habitat, agriculture, and recreation. All waters within GTNP are considered Class 1 ("Outstanding") waters under the terms of the Clean Water Act. Class 1 waters are those surface waters in which no further water quality degradation by point source discharges other than from dams is allowed. Other Class 1 waters in the project area include: main stem of the

Snake River through its entire length above the WYO 22 bridge (Wilson Bridge); all waters within the Fish Creek drainage (near Wilson, WY.); wetlands adjacent to all Class 1 waters.

Non-point sources of pollution must be controlled through implementation of appropriate best management practices. Pursuant to Section 7 of Wyoming Department of Environmental Quality's (WDEQ) Water Quality Rules and Regulations, the water quality and physical and biological integrity which existed on the water at the time of designation will be maintained and protected. In designating Class 1 waters, the Environmental Quality Council considered water quality, aesthetic, scenic, recreational, ecological, agricultural, botanical, zoological, municipal, industrial, historical, geological, cultural, archaeological, fish and wildlife, the presence of significant quantities of developable water and other values of present and future benefit to the people.

***Elements Specific to the Teton Pass Segment.*** Lists and depictions of this segment and its proximity to surface water resources are included as Appendix A-Table A1 and Appendix B-Figures B1-B4, respectively. Of interest is that the name Trail Creek actually applies to creeks flowing east into Fish Creek south of Wilson, Wyoming on the east side of Teton Pass and another distinct creek (also named Trail Creek) flowing west on the west side of Teton Pass into the Teton River in Idaho.

***Elements Specific to the Togwotee Pass Segment***. Lists and depictions of this segment and its proximity to surface water resources are included as Appendix A-Table A2 and Appendix B-Figures B5-B12, respectively. The Togwotee Pass Segment crosses waters within the National Wild and Scenic River System four times (Snake River, Buffalo Fork River twice, and Blackrock Creek). Wild and Scenic Rivers within the project area are discussed in more detail in Section 3.6.2.

### 3.4.1.2 Precipitation

***Elements Common to Both Segments.*** Most precipitation in the region falls as snow, with as little as 10 inches of precipitation (as water) per year at lower elevations, and as much as 45 inches per year at higher elevations with the maximum reaching 60 inches near the summit of the Teton Mountain Range. Precipitation is about 15-17 inches annually at the Town of Jackson and increases with elevation within the valley.

The average annual precipitation varies from about 10 inches northeast of Jackson to about 60 inches near the summit of the Teton Mountain Range. The modeled 6-hour maximum rainfall for the 100-year storm is in the range of 2.5 inches and the 24-hour maximum rainfall is in the range of 3 to 4 inches (*http://www.cocorahs.org/ ViewData/TotalPrecipSummary.aspx).* Precipitation is rather evenly distributed throughout the year in the valley, [http://wwwmountaincaster.com/precip.htm ] but more precipitation is concentrated in the winter months at higher elevations. Due to the cool temperatures of this high-elevation area, the precipitation accumulates mainly as snow from November through May, although snow can fall any month of the year. Average annual snowfall varies from about 80 inches at Jackson to over 300 inches at high mountain snow courses. Maximum depletion (melting) rates of snow normally occur during May and June, often resulting in peak flows on the Snake River and the other streams in the project area during these months and into early to mid-July. These high flows result in maximum sediment transport during these months (USGS, 1996). Occasional intense summer convective rains also raise flows and the amount of sediment in rivers and streams.

***Elements Specific to the Teton Pass Segment.*** Precipitation along the Teton Pass Segment corresponds to the range of elevation variation characteristic of the project area with minimums at

about 16 inches per year to Teton Pass with closer to 40 inches per year, mostly in the form of snow.

***Elements Specific to the Togwotee Pass Segment.*** The Togwotee Pass Segment passes through some of the driest portions of the upper Snake River drainage, especially between Jackson and the Buffalo Fork River. Precipitation in this area averages closer to 10 inches per year, increasing to about 30 inches per year closer to Togwotee Pass.

### 3.4.1.3 Water-Surface Profiles - Runoff and Peak Discharges

***Elements Common to Both Segments.*** The Snake River and its tributaries in the upper Snake River basin have regular patterns of natural seasonal flow with high flows during the months of May through July, receding flows in August and September, and low flows in the months of October through April. High flows in the late spring and early summer result from melting snowpack, sometimes augmented by rain storms. Winter flooding due to thawing conditions and rain-on-snow conditions can occur, but rarely results in damaging flows. For the period of record, maximum annual peak discharges have always coincided with the spring snowmelt season and sometimes persist for days or weeks. Total annual runoff for a given stream/river reach varies with the amounts of precipitation received during the snowpack accumulation and the snowmelt seasons. Summer thunderstorms are common in the mountains; however, runoff from these storms tends to be highly localized.

The annual pattern of discharge in the Snake River is substantially modified by the storage and release of water for irrigation from Jackson Lake Dam, which controls the level of Jackson Lake. Regulation of storage in the lake reduces the Snake River flow from October through early June. Corresponding to the peak irrigation season, high flows are released into the river from July to September. Sustained flows during the summer sometimes exceed 11,000 cubic feet per second (cfs), which approximates natural (pre-levee) bank-full discharge conditions for that same period. The primary source for stream flow records is the US Geological Survey (USGS). In addition, the USGS publishes discharge data at various gaging stations. Inflow and release data are also available from the US Bureau of Reclamation (BOR) for Jackson Dam. Between 1904 and 1988, flood discharges exceeding 10,000 cfs in the Snake River below Jackson Dam occurred 83 times, and discharges exceeding 20,000 cfs have occurred 15 times. During a 1997 flood, a peak flow of 32,027 cfs was observed at the USGS gaging station on the Snake River below Flat Creek.

***Elements Specific to the Teton Pass Segment.*** Generally, the steeper the terrain the more likely that problems with runoff from peak discharges will be of concern. The Teton Pass Segment is dominated by relatively flat terrain from Jackson to Teton Village and on to Wilson. Steeper terrain is common west of Wilson and again on the western side of Teton Pass as the route proceeds to the Idaho border. Teton Pass divides the drainages of Trail Creek, a tributary to Fish Creek on the eastern side and another tributary named Trail Creek which empties into the Teton River in Idaho on the west.

***Elements Specific to the Togwotee Pass Segment.*** Generally, the steeper the terrain the more likely that problems with runoff from peak discharges will be of concern. The Togwotee Pass Segment is fully within the upper Snake River drainage and its tributaries until it crosses Togwotee Pass. All of the stream channels are typical of the Snake River plain, broad flat channels with many meanders. The flow pattern in the Snake River drainage, including Fish Creek, Flat Creek, Spread Creek and the Buffalo Fork and Gros Ventre rivers are braided with year-to-year changes in channel beds. Gravel bars and accumulations of debris can cause local variations in channels and their

abilities to accommodate surface water flows. A small change in the tail-water resulting from new or shifting debris can have significant effects on the surface area covered by the water.

Once Jackson Lake is filled by the spring runoff, Jackson Dam reverts to a pass-through mode. Releases above the level of inflow commence when required by those holding irrigation storage rights. In general, elevated flows last all summer and taper off to minimum releases in September or early October. The irrigation season generally lasts from about May 1 to October 1. Numerous irrigation diversions exist along the Snake River and its tributaries. During low water years, the total flow of the Gros Ventre River can be diverted for irrigation during the summer and fall, leaving the lower 3 miles to its confluence with the Snake River nearly dry. Within a mile of Gros Ventre Junction along US 89, the WLCP traverses several channels, ditches, streams, and the Gros Ventre River (Table A3, Appendix A and Figure B6, Appendix B).

#### 3.4.1.4 Levee System

***Elements Common to Both Segments.*** A system of levees has been established in the lower reaches of the Snake and Gros Ventre rivers to minimize flooding, confine lateral channel migration, and prevent bank, channel, and floodplain erosion. The levees have reduced the historic flooding zone along the Snake and Gros Ventre rivers. The levees are typically earthen and gravel fill features. Extensive levee repairs are often required during and after flood events. Protection and maintenance of these levees is important to the residents and property owners that they protect.

***Elements Specific to the Teton Pass Segment.*** As specified above.

***Elements Specific to the Togwotee Pass Segment***. As specified above.

### 3.4.2 *WETLANDS*

***Elements Common to Both Segments.*** Because of the abundant surface waters and shallow ground water table, freshwater wetlands are abundant throughout the upper Snake River drainage. Wetland types include forested floodplains, emergent fresh water marshes, palustrine meadows, sub-irrigated wet meadows, and vernal pools. They are typically remnants of glacial recession and fed by groundwater, or are associated with surface waters. Some of the wetlands within the area of interest were created by runoff collected along roadsides such as in borrow ditches. In addition, there are numerous irrigation ditches that sometimes support wetlands or areas with some wetland characteristics.

Wetlands within the area of interest are often characterized by willows (*Salix* spp.) and have an understory dominated by sedges and grasses. Wet meadows characterized by sedges (*Carex* spp.) are also found within the proposed project route. A shallow water table supplemented with surface flows and irrigation runoff supports emergent vegetation types such as grasses, cattails, rushes and sedges.

***Elements Specific to the Teton Pass Segment.*** Based on the National Wetland Inventory and supplemented with onsite verifications, the proposed route would cross over 30 sites with wetland characteristics (water, hydrophytic vegetation, or hydric soils) and other regulated waters of the US including palustrine-emergent and scrub-shrub wetlands, ponds, rivers and streams. The wetland crossings associated with this segment are listed in Appendix A, Table A1 and are depicted in Appendix B, Figures B2-B4.

***Elements Specific to the Togwotee Pass Segment.*** Based on the National Wetland Inventory and supplemented with onsite verifications, the proposed route would cross about 60 sites with wetland characteristics (water, hydrophytic vegetation, or hydric soils) and other regulated waters of the US including palustrine-emergent and scrub-shrub wetlands, ponds, rivers and streams. The wetland crossings associated with this segment are listed in Appendix A, Table A3 and are depicted in Appendix B, Figures B5-B12.

### 3.4.3 *GROUNDWATER*

***Elements Common to Both Segments***. In addition to surface water, considerable amounts of groundwater drain into the Snake River and surrounding tributaries in Teton County. The porous and unconsolidated alluvial and glacial deposits are the major aquifers in Teton County. Much of the floodplain is close to the level of the rivers and is characterized by many abandoned or relief channels. Due to the ready exchange of water between the rivers and the aquifer, channels that have been abandoned or cut off by levees often still contain flowing or standing water. Along the Snake River and its major tributaries, the aquifer can supply very large amounts of water. Water tables are often less than 5 feet below the ground surface for a significant portion of the year. Groundwater levels, reflecting the surface runoff patterns, are highest in the spring and early summer and lowest later in the fall and early winter. Local authorities and Walla Walla District USACE construction personnel report that spring-fed water courses will rise in tandem with the snowmelt runoff in the main streams, but the increase in flow (in the spring-fed water courses) is of a much lesser magnitude and does not seem to approach damaging levels (USACE, 2000).

***Elements Specific to the Teton Pass Segment***. The western part of this installation would encounter little groundwater as it proceeds up the steeper slopes along the Old Pass Road (except in the vicinity of Crater Lake) and over Teton Pass. The surface water features discussed above are often fed by shallow groundwater sources uphill from the installation or from Fish Creek and Lake Creek diversions farther up the valley.

***Elements Specific to the Togwotee Pass Segment***. The Togwotee Pass route lies mainly in the valley and basins of Teton County. These areas have very high water tables in very deep glacial outwash (rock and gravel), which can place the groundwater at depths of 0 to 10 feet below the surface of the ground. As this route proceeds up the Buffalo Valley, the proximity of groundwater to the surface increases in areas adjacent to the Buffalo Fork River and its tributaries farther up Togwotee Pass. The water table adjacent to US 26 reflects this trend with the exception that fill added for construction of US 26 places distance between the ground surface and the highway surface.

### 3.4.4 *FLOODPLAINS*

***Elements Common to Both Segments.*** The Federal Emergency Management Agency (FEMA) identifies areas that have a 1 percent chance of being flooded in a given year as 100-year floodplain or base floodplain. The existing routes cross areas that have been identified as 100-year floodplains on Flood Insurance Rate Maps (FIRM). Flood characteristics of the Snake River and its main tributaries are typical of highly braided streams that are snowmelt-dominated systems. Due to the high transport of bedload, the channel-bed complex is constantly changing. During high flows, avulsion of the main channel into side channels is common. When the flow erodes a gravel bar or the main channel becomes clogged with debris, the flow can shift direction suddenly and unpredictably. Flow velocities in both the main channels and the back channels tend to be high due to the general steepness of the valley. Ordinary flood damages include water damage from inundation, loss of land due to bank erosion, and damage to levees due to erosion or undercutting.

Before the levees were constructed above and below Jackson, flood damages to man-made facilities in reaches without levees began at flows of 5,000 cfs and became significant as flows increased to the 8,000 cfs to 10,000 cfs range. With the current levee system in place, significant damage to man-made facilities now begins in the non-federal reaches with flows in the range of 11,000 cfs. However, bank materials are often so low in resistance that bank erosion can continue, to some extent, even during low flows.

***Elements Specific to the Teton Pass Segment.*** The 100-year floodplains crossed by the proposed Teton Pass Segment would include Trail Creek, Fish Creek, Flat Creek, Snake River, and Lake Creek.

***Elements Specific to the Togwotee Pass Segment.*** The 100-year floodplains crossed by the proposed Togwotee Pass Segment would include Flat Creek, Snake River, Gros Ventre, Ditch Creek, Spread Creek, Buffalo Fork River, and Blackrock Creek.

## 3.5 BIOLOGICAL RESOURCES

### 3.5.1 *WILDLIFE RESOURCES*

***Elements Common to Both Segments.*** A diversity of forested, non-forested, sagebrush plains, and other cover types within the areas of interest for the WLCP provides habitat for a broad spectrum of wildlife species groups including large, medium and small mammals; reptiles and amphibians; avian fauna from several families; and fishes. Jackson Hole, GTNP, and Teton County as a whole are famous worldwide for the abundant opportunities to view wildlife in their native habitats. The area also provides many opportunities to hunt large and small game species. Both the viewing and hunting of wildlife are very important contributors to local economies. The WLCP are located in Ecoregion 17, Middle Rockies (Omemik, 1987).

During various times of the year, the areas of interest for the WLCP provide rearing, wintering, movement, migration, and foraging habitats for mule deer (*Odocoileus hemionus*), elk (*Cervus elaphus*), moose (*Alces alces*), antelope (*Antilocapra americana*), and one of very few free-ranging herds of bison (*Bison bison*) in North America. Small and mid-sized mammals observed or reported within the WLCP area include bobcat (*Lynx rufus*), badger (*Taxidea taxus*), beaver (*Castor canadensis*), red fox (*Vulpes vulpes*), pine marten (*Martes americana*), porcupine (*Erethizon dorsatum*), river otter (*Lontra canadensis*), long-tail weasel (*Mustela frenata*), snowshoe hare *(Lepus americanus*), red squirrel, (*Tamiasciurus hudsonicus*), deer mice (*Peromyscus maniculatus*), voles (*Microtus pennsylvanicus*), chipmunks (*Eutamias umbrinus*), Uinta ground squirrels (*Spermophilus armatus*), and pocket gophers (*Thomomys talpoides*). Besides the predators listed above, the WLCP area has an abundance of coyotes *(Canis latrans*) and a well-established population of mountain lion (*Puma concolor).* In addition, grizzly bear *(Ursus arctos horribilis*), wolf (*Canis lupus*) are found within or near portions of the project area and black bears (*Ursus americanus*) are also common within much of the WLCP area.

Habitat that supports reproduction, foraging, migration and overwintering for avian fauna is found within the project area. Avian fauna associated with the habitats impacted by the project include migratory birds and year-round resident populations. Neotropical migratory birds that occur in the project area include raptors, passerines, and shorebirds that breed in North America but migrate to Mexico and Central and South America for the winter. In Wyoming, 162 bird species are considered neotropical migrants (Cerovski et al. 2000). In addition to the neotropical migrants in the project area, the WGFD and USFWS maintain a sensitive bird species lists. Appendix A, Table A6 includes a list of sensitive Wyoming avian species.

The riparian habitats near and adjacent to streams, rivers, and wetlands provide particularly diverse habitats for avian fauna, ungulates, and animals moving within their home ranges, dispersing or migrating. There is considerable "edge habitat" (habitat that is a hybrid among several adjoining habitat types) within the water course corridors and those areas with abrupt changes in elevation, aspect, or that transition among land use types. Habitat types or wildlife species more specific to one or the other proposed segments are noted below.

A sensitive species listing by the USFS includes those species identified by the Regional Forester where population viability is a concern. This concern is evidenced by significant current or predicted downward trends in population numbers or density; and significant current or predicted downward trends in habitat capability that would reduce a species' existing distribution. Unless these species are also listed as Threatened or Endangered, they are only protected on USFS lands. The State of Wyoming also maintains an extensive list of wildlife species that are considered sensitive or otherwise important for biodiversity for one or more reasons. That list is extensive and is included by reference. The list can be viewed at http://www.uwodmnweb.uwyo.edu/wyndd/ .

The proposed project route does not generally include habitats that are normally considered of high value for Forest Sensitive Species or Management Indicator Species. For instance, many of the habitats involved in this project include road sides, roads themselves, and established ROWs and easements that are subject to repeated disturbance for utilities or other infrastructure with the possible exception of a short (about 200 yards) section south of the proposed Buffalo Fork boring. That section is mostly open meadow and would not be altered from its pre-project condition. Consequently, given the habitats involved, the very temporary nature of disturbances associated with the project, and that no permanent change to the soils or vegetated habitats would occur; no surveys for these species were done. A list of the Forest Sensitive species and their preferred habitats is found in Appendix A, Table A6. Also, a nesting survey ahead of the construction and temporal avoidance measures are part of the project description. These measures further reduced the need for site-specific surveys.

***Elements Specific to the Teton Pass Segment.*** Much of the proposed Teton Pass Segment is in urban, open ranchland or semi-urban environments along highways or roads within existing ROWs, particularly east of Wilson. The wildlife species most likely to be found along this segment include a number of avian species (particularly passerines, corvids, raptors and birds nesting in tall grasses), the medium and small predator complex, mule deer, elk and moose.

From the base of Teton Pass on WYO 22, the proposed route is within or near mostly forested habitats that are less developed but also proximate to existing roads such as WYO 22, the Old Pass Road, and the BPA access road. The wildlife species most likely to be found along this portion of the route include a wide variety of avian species that nest in forested, grassland, scrub-shrub, and understory habitats. There is an osprey nest at the junction of WYO 22 and WYO 390 that has been occupied and active for years despite large traffic volumes and other pedestrian activities. Some of these species may be tolerant of humans, motor traffic, and noise others may not be. Typical large mammals likely to be found in these more mountainous habitat types include elk, mule deer, moose, mountain lion, and bears, both grizzly and black, especially in the spring. In addition, pika, which is a state listed sensitive species, may be encountered along existing road cuts that contain rock. The disturbed habitats found along this portion of the proposed Teton Pass Segment provide food, cover, water, and concealment mostly during April through October but some species are resident year round. However, given the elevation, prevailing aspects (generally eastern), and

heavy accumulations of snow; the western portion of this route is ill-suited to wintering habitat for many species as a whole.

***Elements Specific to the Togwotee Pass Segment.*** Although portions of the proposed Togwotee Pass Segment in and near Jackson are located in urban, open or semi-urban environments, most of this proposed route traverses sagebrush plains, roadside grass, or graveled road environments. Although adjacent to existing roads, excellent wildlife habitat is available in the project area. The wildlife species characteristics of this segment include large ungulates such as bison, antelope, elk, mule deer, and moose; particularly in the sagebrush habitats and habitats adjacent to aspen stands, riparian areas, and edge habitats. Black bears and grizzly bears can be found using the habitats traversed by the proposed route. Avian species characteristic of habitats found within or near this proposed segment include passerines that nest in short grass and sagebrush habitats and several species of eagles, hawks, owls, and other avian predators. Of particular interest within the sagebrush plains habitat is the greater sage grouse which is discussed below. There is an osprey nest located on a power pole near A(600 feet north of the southern bore hole and about 300 feet southeast of the junction of the bore across the Buffalo Fork River and US 26 (Figure B9, Appendix B). This nest was active in 2010. There is a great blue heron colony of about 10+ herons located about 3 miles west of the southern terminus of that same proposed bore. The WYGFD classifies the great blue heron as a Species of Special Concern with a Native Species Status of 4 because its habitat is restricted and vulnerable.

### 3.5.2 *THREATENED AND ENDANGERED SPECIES (FAUNA)*

***Elements Common to Both Segments.*** Species listed under provisions of the Endangered Species Act (1973, as amended) with a potential to be found within the WLCP areas and their designation by the USFWS under provisions of the ESA (1973, as amended) as Threatened, Endangered, or Nonessential Experimental Population include:

- Canada lynx (*Lynx Canadensis*), listed as Threatened in Wyoming;
- Gray wolf (*Canis lupus*), listed as Nonessential Experimental Population in Wyoming but treated as a Threatened species within National Parks and National Wildlife Refuges including GTNP; and
- Grizzly bear (*Ursus arctos horribilis*), listed as Threatened in Wyoming.

Canada lynx are closely associated with forested habitats and their primary prey species, snowshoe hare. They are rarely seen, especially at lower elevations and tend to avoid human contact.

Gray wolves have been reported within the general proposed WLCP area but also tend to shy away from humans. Their crepuscular and nocturnal behavior patterns associated with being active when their prey is also active and their tendency to avoid human contact under most situations tends to separate them from frequent encounters with humans. However, the proposed route will pass within one mile of a known den site for the Antelope Pack and within two miles of the Buffalo Pack den site. In the Wolff Ridge and Elk Ranch areas the project diverges considerably from the main road and includes areas regularly frequented by both wolves and grizzly bears.

Other species listed by the USFWS as either Proposed (P) or as Candidate (C) include the mountain plover (*Charadrius montanus*) (P), greater sage grouse (*Centrocerus urophasiaus*) (C), the yellow-

billed cuckoo (*Coccyzus americanus*) (C) and the wolverine (*Gulo gulo luscus*) [(C) "Warranted but Precluded from Listing"].

Mountain Plover (*Charadrius montanus*) P

Proposed for listing on June 23, 2010, the mountain plover is native to short-grass and mixed-grass prairies and prefers to nest in large, flat grassland expanses dominated by blue grama and buffalo grass interspersed with shrub-steppe including cacti, saltbush, and herbaceous forbs. According to the predicted distribution maps of the Wyoming Natural Diversity Database (WYNDD) and known occurrences from the WGFD distribution maps, the mountain plover does not occur in Teton County (Estes 2010).

Greater Sage Grouse (*Centrocerus urophasiaus*) C

Greater sage grouse occur in every county of Wyoming (Connelly et. al 2004). They are the largest grouse in North America. Their preferred habitat is generally a mosaic of semi-barren sagebrush steppe mixed with perennial grasses and broadleaf herbaceous forbs for forage. In August 2010, the Office of the Wyoming Governor released an Executive Order regarding greater sage grouse core area protection as identified by the WGFD. The order dictates protection, management and development of the identified core areas in Wyoming. In Jackson Hole, most of the greater sage grouse suitable habitat is within GTNP and the National Elk Refuge. The project is within and adjacent to grouse nesting, brood rearing and winter habitat. Besides an important source of forage, sagebrush is utilized as hiding places from predators, but in openings, the males have annual breeding display sites known as leks. There are two known leks within the general vicinity of the proposed route; the Moulton lek, which is the largest in Jackson Hole is a half mile from Antelope Flats road and a satellite lek or alternate lek a half mile from the route along US 89/ 26 located at the gun range across from the airport. Greater sage grouse winter habitat is likely a limiting factor for the Jackson Hole population. Although the project will not disturb wintering birds it is located within and adjacent to their winter habitat, specifically sagebrush habitats south of the airport around Gros Ventre Junction both north and south of the river, the area around Kelly in GTNP and the Gros Ventre Hills in the National Elk Refuge. Also Elk Ranch/Spread Creek in GTNP, south of the Lost Creek Ranch access road on Antelope Flats and the bench along the Snake River in the Potholes portion of GTNP (Holloran and Anderson 2004). According to an August 31, 2010 press release, WGFD announced "conservative hunting seasons do not have a detrimental impact on most populations in Wyoming," (Tom Christiansen, Game and Fish Sage Grouse Program coordinator). He also noted that in March 2010 in its listing decision, the USFWS stated that greater sage grouse is not threatened by "overutilization" but hunting should continue to be carefully managed. Avoiding habitat destruction is the main concern for this species.

Yellow-billed Cuckoo (*Coccyzus americanus*) C

An uncommon summer resident in Wyoming, the yellow-billed cuckoo, nests primarily in large stands of cottonwood-riparian habitat below 7,000 feet with dense shrubs and diverse heights in other vegetation. The only areas that currently support the large cottonwood-riparian stands required by this species occur in isolated stands along the Bighorn, Powder, and North Platte rivers (Leukering et. al 2003). For this Proposed Action, no cottonwoods will be cut down or damaged in any way, and there will be no significant disturbance to surrounding vegetation. Directional boring or bridge attachment will be utilized to avoid disturbance to many riparian areas. However, it should be mentioned that a yellow-billed cuckoo was documented in GTNP in 2000 near Ditch Creek (USFWS and NPS 2007) and observed at the Teton Science School, Kelly Campus in 2001 (NPS wildlife observation database).

Wolverine (*Gulo gulo luscus*) C
In North America, wolverines occur within a wide variety of alpine, boreal, and arctic habitats, including boreal forests, tundra, and western mountains throughout Alaska and Canada. The southern portion of the species' range extends into the contiguous United States, including high-elevation alpine portions of Washington, Idaho, Montana, Wyoming, California, and Colorado. Given the proposed location of the fiber optic line, the likelihood of encounters with wolverine is limited to a rare transitory encounter.

***Elements Specific to the Teton Pass Segment***. The most likely Threatened or Endangered species to be encountered along the Teton Pass Segment would be grizzly bears and Canada lynx, both associated with the Teton Pass area and the forested/montane habitats of this portion of the southern Teton Mountain Range. The presence of both of these species has become more common in this area, especially above Wilson during the spring.

***Elements Specific to the Togwotee Pass Segment.*** The most likely species to be encountered along the Togwotee Pass Segment listed under provisions of the ESA would be the grizzly bear (Threatened) and possibly members of the wolf pack (Nonessential Experimental Population) located southeast of Moran Junction. Grizzly bears have been sighted and reported throughout the project area including Antelope Flats Road, Mormon Row, and Lost Creek. Adherence to the rules, regulations, and best management practices designed to protect bears and minimize bear-human interactions will be required. The Canada lynx (Threatened) has also used this area more frequently in recent years at remote, high elevations where snowshoe hare are common.

### 3.5.3 *VEGETATION*

Native vegetation plant communities in the project area were identified by field observations and are described in Field Memorandums prepared for this project (CDR, INC. 2010a, b, and c). These Field Memorandums are specifically included by reference in this EA. Water crossing and wetland areas were also identified and are discussed above in Section 3.4. The proposed routes predominantly occur along existing ROWs and easements that have been previously disturbed by various types of construction. Of the small amount of native vegetation incurred along the proposed routes, vegetative land cover types were identified as general classifications and distinguished by tree, shrub, or herbaceous plants (See Table D1 of Appendix D). The entire WLCP is located in EPA Region 8, Ecoregion 17, Middle Rockies (Omemik, 1987).

***Elements Common to Both Segments.*** In a mountainous region, species composition can often be continuous between each category. The incurred land cover types include: semi-barren sagebrush, recently-disturbed barren roadside, established highway seed mix, willow thickets, riparian narrowleaf-cottonwood bottomland, mixed-coniferous forest, aspen woodland and associated shrubs, seepy bogs and wet meadows, dry mountain meadows, and tall forb community as well as dirt, graveled, and paved surfaces devoid of vegetation. Various understory shrubs and herbaceous vascular plants associated with each category are listed in Appendix D, Table D1. Invasive and noxious weeds are assigned an individual designation (See Appendix D, Table D1).

A sensitive species listing by the USFS includes those species identified by the Regional Forester where population viability is a concern. A list of the Forest Sensitive wildlife species (Table A5), plant species (Table A6a) and their preferred habitats for USFS Region 4 and a combined list of sensitive species for Region 2 (Table A6b) are included in Appendix A. This concern is evidenced by significant current or predicted downward trends in population numbers or density; and significant current or predicted downward trends in habitat capability that would reduce a species' existing

distribution. Unless these species are also listed as Threatened or Endangered, they are only protected on USFS lands. The State of Wyoming also maintains an extensive list of plant species that are considered sensitive or otherwise important for biodiversity for one or more reasons. That list is extensive and is included by reference. The list can be viewed at http://www.uwodmnweb.uwyo.edu/wyndd/ .

In general, the proposed WLCP routes do not include habitats or soil types that are normally considered of high value for forest sensitive plant species. The habitats involved in this project include gravel road sides, roads themselves, and previously disturbed or designated ROWs and easements that have been or are subject to repeated disturbance for utilities or other infrastructure. It should be noted however that some of these designated ROWs or easements have not been disturbed for several years and that there are 'pockets' of habitat along the alignments that could not be avoided. Some of these pockets of habitat may be suitable for species listed in Tables A6a and A6b. The few known situations where potential habitat for a species listed under the ESA was found are noted in Section 3.5.4. Given that the vast majority of the habitats involved are previously disturbed or even developed (paved or graveled) and are designation as an assigned ROW or easement, no surveys for sensitive plants were conducted. Contributing to this decision was the very temporary nature of disturbances associated with the project and that no permanent change to the soils or vegetated habitats would occur.

***Elements Specific to the Teton Pass Segment.*** Aside from the water features, wetland areas, and the general cover types noted above or in Section 3.4; there are no elements of the vegetation communities that are specific or unique to the proposed Teton Pass Segment with one exception. This exception involves potential habitat for Ute ladies'-tresses (*Spiranthes diluvialis*) and is described in Section 3.5.4 below.

***Elements Specific to the Togwotee Pass Segment.*** Vegetation categories along this segment are similar to the Teton Pass Segment and are further described in CDR INC (2010a, b, and c). In addition, an area of rolling, exposed darker gray clay/sandy semi-barren hills is located on the border of Bridger-Teton and Shoshone National Forests at the east end of FS road 30010 near Togwotee Pass, on the south side of US 26 (T44N R110W NE ¼ Sect. 29). This landscape cover is not common in the Togwotee Pass area and provides an environment for several locally endemic plant species. Voucher specimens (unidentifiable in the field) were collected, determined, and deposited at the Rocky Mountain Herbarium, University of Wyoming, and the Monte L. Bean Herbarium, Brigham Young University, by CRD INC personnel. An ephemeral meadow, possibly a seasonal calcareous meadow, is located adjacent to the west side of Buffalo Fork. It was seasonally dry at the time and dominated by possibly blue *Elymus*. Positive identification could not be made at the time of the survey because inflorescence was not present. Only vegetative leaf blades were persistent. A species of blue *Elymus (Elymus multicaulis)* is an indicator of sensitive calcareous bogs in Yellowstone National Park. This small meadow should be avoided until an early spring survey can be conducted to verify which *Elymus* is present and whether locally endemic, rare spring meadow forbs occur at this site (CDR INC 2010c).

No Threatened or Endangered plants were located, nor were there any Forest Service sensitive species at this site. It is important to note that the proposed Togwotee Pass Segment uses exposed edges of existing roads or the roads themselves along much of its route. Consequently, it is very unlikely that species requiring stable conditions or native soils would be found within the proposed construction zone.

### 3.5.4 *THREATENED AND ENDANGERED SPECIES (FLORA)*

In accordance with section 7 of the Endangered Species Act, as amended, a list of Threatened and Endangered plants for Teton County was obtained from the U.S. Fish and Wildlife Service official website (*http://www.fws.gov/endangered/species/us-species.html).* It is restricted to one species: Ute ladies'-tresses, listed as Threatened in Region 6. Habitat varies for Ute ladies'-tresses, but usually is associated with moist environments including alkaline wetlands, moist meadows, floodplains, flooded river terraces, sub-irrigated or spring-fed abandoned stream channels and valleys, lakeshores, irrigation canals, berms, levees, irrigated meadows, excavated gravel pits, roadside barrow pits, reservoirs, and other human-modified wetlands. Elevation ranges from 720-1830 feet (220-558 meters) in Washington to 7000 feet (2134 meters) in northern Utah (Fertig et al., 2005). Historically, no populations have occurred or been documented in Teton County; however, a field survey of the project area was conducted on July 24-29, August 5-8, and September 9-16, 2010 (CDR, INC 2010a, b, and c) because these areas had not been surveyed before. No plants were located but the most favorable potential habitats for Ute ladies'-tresses were identified.

## 3.6 HISTORIC AND CULTURAL RESOURCES

This section focuses on the archaeological, architectural, and native resources in the project area that are recognized nationally and locally.

### 3.6.1 *ARCHEOLOGICAL RESOURCES*

Human occupation in Jackson Hole likely extends back 11,000 years, although evidence for Late Pleistocene occupations is limited to surface finds on Jackson Lake (Connor, 1997) and probable stratigraphic deposits at the Crescent H Ranch site (Cannon et al., 2001). The Game Creek site, currently undergoing investigation, may shed further evidence on these early occupations (Eakin and Eckerle, 2004).

Precontact Native Americans lived a hunter-gatherer lifestyle in the region, living in small groups and exploiting seasonally available resources. A model of this seasonal round was developed by Wright and Bender (1980), and more recently tested and revised (Cannon et al., 2004). Archaeological sites tend to be associated with permanent water sources, but special use sites, such as lithic procurement areas, cairns and wickiup sites, occur in upland settings removed from permanent water. Native Americans were forced from the region in 1878 to reservations in Idaho and Wyoming (Haines, 1977).

The first Euro-American visitor to Jackson Hole is believed to be John Colter in 1807, although there is some controversy on this topic (Smith et al., 2004). During the 1820s to 1840s trappers and explorers frequented the area, including David E. Jackson for whom Jackson Hole is named. Contemporaries of Jackson include his partner William Sublette, Jim Bridger, Joe Meek, and Tom Fitzpatrick. With the collapse of the fur trade in 1840, Euro-Americans were largely absent from the region.

Rediscovery of the area began in the 1860s following the Homestead Act of 1862, the completion of the transcontinental railroad, the discovery of gold and other minerals, and the restriction of Native Americans to reservation lands. Government survey parties also entered the area in the 1870s, including the Hayden expedition and Doane party (Haines, 1977). The first permanent settlers of Jackson Hole were John Holland and John Carnes in 1884. They settled in the area now occupied by the National Elk Refuge north of Miller Butte.

The early part of the twentieth century saw increased settlement, with the most productive and easily farmed and irrigated lands initially settled. Since this time ranching and tourism have become the economic staples of the valley.

According to the Wyoming State Historic Preservation Office (SHPO), there are nearly 1,000 precontact Native American sites recorded in Teton County. The majority of these sites are habitation or workshop sites, although a range of site types exist. These include habitation, lithic procurement sites, stone circle sites, cairns, and wickiups.

Wyoming's SHPO is tasked with identifying, evaluating, and protecting Wyoming's significant cultural resources, per the National Historic Preservation Act of 1966. The Department of Commerce initiated consultation with the Wyoming SHPO for this project via a letter dated 15 September 2010 (Appendix E). An investigation of archaeological resources was undertaken in October and November 2010 in consultation with the NPS and the USFS (Cannon and Varnum, 2010). A large portion of the proposed alignment has already been surveyed for cultural resources (Cannon and Varnum, 2010: Table 1). A total of 49.8 miles of previously unsurveyed portions of the alignment were surveyed for this project. During this survey four historic Euro-American sites were documented.

***Elements Common to Both Segments***. A 100-meter corridor centered over the alignment of both segments was constructed for the Wyoming SHPO file search of previously recorded cultural resources. The results of the file search are presented in Appendix D, Table D2 for the Teton Pass Segment and Table D3 for the Togwotee Pass Segment.

***Elements Specific to the Teton Pass Segment***. According to the SHPO records there are two eligible prehistoric sites along the Teton Pass Segment. These include sites 48TE1367 and 48TE1369. Both of these sites are prehistoric habitation sites and do not fall within the installation alignment. No prehistoric sites were documented during the 2010 survey.

One historic site was documented during the 2010 survey. This is the Old Teton Pass Road (48TE1453), which was the initial road constructed by the USFS between 1913 and 1917. The largely unchanged road was used until 1961 when the current road alignment was constructed. Today the alignment is used as a hiker/biker path on the east side and as a utility line access road on the west side. More detail regarding architectural resources for this segment is found in the survey for this EA (Cannon and Varnum 2010).

***Elements Specific to the Togwotee Pass Segment***. According to the SHPO records there are four prehistoric sites located along the Togwotee Pass Segment of the project. These include sites 48TE1408, 48TE1414, 48TE1418, and 48TE1664, which are prehistoric habitation sites with associated features but they do not fall within the alignment of the proposed project. No prehistoric sites were documented during the 2010 survey.

During the 2010 survey, three historic Euro-American sites were recorded. These include sites 48TE1846, 48TE1847, and 48TE1848. Site 48TE1846 is a river/water gauge station located on the east bank of the Buffalo Fork River constructed during the 1950s or 1960s. Site 48TE1847 is the Enterprise Ditch, a historic irrigation ditch that originates in the Gros Ventre River. Another irrigation ditch, the Uhl Ditch (48TE1848), is a lateral ditch off the Wolff Ditch system and likely dates to the 1940s.

### 3.6.2 *ARCHITECTURAL RESOURCES*

***Elements Common to Both Segments***. A summary of the SHPO records for buildings and sites associated with the region's history in the project area that are currently listed in the National Register of Historic Places are listed in Tables D2 and D3 (Appendix D). These places are associated with the Euro-American settlement of the area and address such diverse themes as education, cattle ranching, transportation, and the tourist industry. Tables D2 and D3 (Appendix D) also include sites that are eligible for listing on the NRHP, sites not eligible for listing on the NRHP, and sites with unknown eligibility status.

***Elements Specific to the Teton Pass Segment.*** Table D2 (Appendix D) lists the previously recorded sites along this segment based on Wyoming SHPO records. No National Register-listed or eligible properties are located within the Teton Pass Segment of the project area.

***Elements Specific to the Togwotee Pass Segment.*** Table D3 (Appendix D) lists the previously recorded sites along this segment based on Wyoming SHPO records. Twenty-nine historic structures or historic districts are present along the Togwotee Pass Segment of the project (Appendix D, Table D3). These include: St. John's Episcopal Church (48TE912), the Rosencrans Cabin District (48TE971), the Cowboy Bar (48TE1210), the Jackson Drug Store (48TE1211), the Teton Theater (48TE1212), the American Legion Post 43 (48TE1213), Jackson Town Square (48TE1214), the Wort Hotel (48TE1216), the Kudar Log Cabin Lodge (48TE1220), the Blackrock Ranger Station (48TE1221), Archie Teater Studio (48TE1222), Van Vleck House and Barn (48TE1373), Heninger Barn (48TE1444), Wolff Ranch (48TE1539), D&W Motel (48TE1691), Flame Hotel (48TE1694), Huff House (48TE1697), Huff's Motel (48TE1698), Miller House (48TE1705), Wagon Wheel Lodge (48TE1717), Elias Wilson Barn (48TE1719), Elk Refuge Bunkhouse (48TE1797), Clubhouse/Dance Hall (48TE1798), Deloney Building/Spicer Garage/Diamond Lil Theatre/Pink Garter Theater (48TE1799), Jackson Hole Museum (48TE1800), 1OOF Building (48TE1801), Karns Cabin/Tack Shop (48TE1802), and the USDA Administration Building (48TE1806). Two historic districts are also present in this portion of the project area. These include Mormon Row (48TE1444) and the Wolff Ranch (48TE1539). Each of these districts includes standing structures associated with the early settlement, development, tourism, and ranching of Jackson Hole. The structures and sites that are not eligible or are unknown for the Togwotee Pass Segment are also listed in Table D3 (Appendix D).

### 3.6.3 *NATIVE RESOURCES*

***Elements Common to Both Segments.*** The Wyoming SHPO is tasked with maintaining records on Native Resources and Traditional Cultural Properties. Based upon the record search with the SHPO there are three previously recorded Native Resources or Traditional Cultural Properties in the project area (all within the Togwotee Pass Segment).

***Elements Specific to the Teton Pass Segment.*** Based upon the record search with the Wyoming SHPO there were no previously recorded Native Resources or Traditional Cultural Properties on the Teton Pass Segment of the project.

***Elements Specific to the Togwotee Pass Segment***. Based upon the record search with the Wyoming SHPO there are three previously recorded Native Resources or Traditional Cultural Properties in the Togwotee Pass Segment of the project. These Native Resources include three prehistoric sites (48TE1408, 48TE1414, 48TE1418) and open meadow areas near Togwotee Pass

Lodge. These resources were recognized during the consultation for the reconstruction of the Togwotee Pass Road and will be avoided by this project.

## 3.7 AESTHETIC AND VISUAL RESOURCES

The objective of the visual resources investigation is to identify and describe important visual resources that could be affected by the construction of the proposed project. Important visual resources are defined for this study as visually sensitive use areas where the maintenance of the surrounding visual environment is important to people's enjoyment of using an area and unique or unusual landscapes having natural scenic value. The project area is defined to include landscapes in which viewers may travel, recreate, or reside where existing views may potentially be affected by the Proposed Action (BLM, 2009).

The aesthetic and visual resources in Teton County, Wyoming—part of the Greater Yellowstone Area (GYA) (Figure 3-1)—are important components of the state's tourism industry and of the quality of life enjoyed by many of the area residents. These resources in the GYA include a broad range of natural and developed (cultural/historic) landscapes and water bodies that support wildlife in their natural habitats as well as unique vegetation communities. These areas range from small towns of less than 500 people to the most populated town of Jackson, Wyoming, with approximately 14,000 people. In several instances, aesthetic and visual resources are identified as scenic byways or wild and scenic rivers. In other cases, resources within the project area are identified as part of state or federal lands, including the Bridger-Teton, Caribou-Targhee, and Shoshone National Forests; Grand Teton National Park; the Jedediah and Teton Wilderness areas; and the National Elk Refuge.

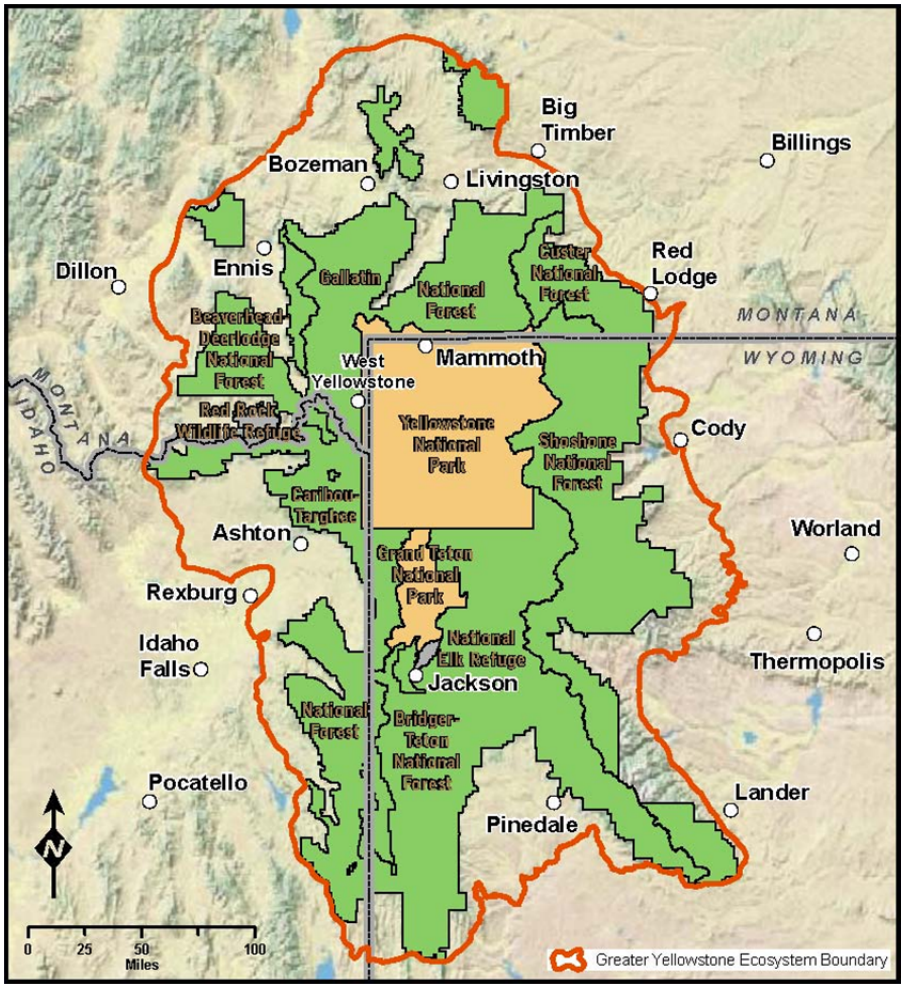


**Figure 3-1 Greater Yellowstone Ecosystem.**

## 3.7.1 *STATE AND NATIONAL SCENIC BYWAYS*

***Elements Common to Both Segments.*** US Highway 191/89/26 is the Wyoming Centennial Scenic Byway (WCSB) that runs from Dubois to Pinedale (Figure 3-2) and was designated a scenic byway by the Wyoming Division of Tourism. Designation of scenic byways is based on natural, recreational, historical, cultural, archaeological and scenic qualities of less-traveled roads (NSBP 2010). The purpose of the Wyoming Scenic Byways and Backways program is "to promote and enhance tourism and the understanding and appreciation of the state's heritage in concert with the preservation, protection and enhancement of the state's scenic, historic and cultural resources" (WYDOT, 2010).


**Figure 3-2. Wyoming Centennial Scenic Byway: Dubois to Pinedale.**

US 191/26/89 is one of the only accessible year-round transportation routes that connect western Wyoming to central Wyoming and eastern Idaho. The fiber optic cable would be buried within existing ROWs or easements within this scenic byway.

***Elements Specific to the Teton Pass Segment.*** Areas of the WCSB that would be traversed by this segment of the project are depicted on Figures B1 and B2 of Appendix B and would include the southern portion of the Teton Pass Segment from the SST hut at 4000 S. US 89 to the junction of US 191/26/89 and WYO 22 (4.1 miles). The scenic qualities of this route consist of some agricultural portions of Teton County and views of the mountains to the west, including the southern end of the Teton Range and the northern reaches of the Snake River Range. Local herds of cattle and horses also add to the scenery. The views are mainly middle-ground and background or are town and city foreground in both Jackson and Wilson. Once the viewer goes north on WYO 390 the views are mostly background views of the Teton Range and middle ground views of the slopes between Teton Pass and Teton Village.

***Elements Specific to the Togwotee Pass Segment.*** The areas of the WCSB that would be traversed by this segment of the project are depicted on Figures B1 and B5-B12 of Appendix B and would include portions of US 191/26/89, from the north boundary of the Town of Jackson to the junction with the DTE facility located in the communications complex on the south side of US 26, about a half-mile east of the Bridger-Teton/Shoshone National Forest boundary. The traversed portion of the WCSB would total about 30 miles. The views along this portion are dominated by foreground and middle grounds of sagebrush flats with wildflowers in the spring, the meandering Snake River and its tributaries, high mountain meadows, coniferous and aspen forests, and expansive views of the Teton and surrounding mountain ranges. The background of the Teton Range is the dominant visual with generally unobstructed views. Opportunities abound for views of wildlife such as bison, elk, pronghorn, coyote, moose, various raptors and songbirds in the foreground and middle ground flats, as well as the historic Cunningham Cabin and local herds of cattle and horses. The areas of the WCSB that would be traversed by this segment of the project include; the north boundary of the

Town of Jackson to Gros Ventre Junction; Airport road to Antelope Flats Road turnoff north of Moose; from Cunningham Cabin parking lot to Wolff Creek Road; from Moran to the Blackrock Ranger Station; and Togwotee Mountain Lodge to the connection with the DTE facilities on Togwotee Pass.

### 3.7.2 *WILD AND SCENIC RIVERS*

***Elements Common to Both Segments.*** The National Wild and Scenic Rivers System (NWSRS) was created by Congress under provisions of the Wild and Scenic Rivers Act (WSRA)(1968, as amended) to preserve certain rivers or river reaches in a free-flowing condition that have outstanding natural, cultural, and recreational values. Congress designated a portion of the Snake River headwaters as protected under the WSRA under the short title "Craig Thomas Snake Headwaters Legacy Act of 2008" (CTSHLA) which was part of the Omnibus Public Land Management Act of 2009 and was signed on March 30, 2009. A full description of the water's designated for the CTSHLA is found in 123 STAT. 994 PL 111-11, TITLE V (Subtitle A) SEC. 5002 or http://www.fs.fed.us/r4/btnf/wild_scenic/Snake_headwaters_Legacy_Act_2009.pdf. It is noted that waters designated under the NWSRS have the same anti-degradation requirements in terms of water quality and flow as all other Class 1 waters.

***Elements Specific to the Teton Pass Segment.*** The Teton Pass route is outside of the designated CTSHLA area and has no river crossing within the NWSRS.

***Elements Specific to the Togwotee Pass Segment.*** The Togwotee Pass route crosses four areas of the NWSRS, all within the CTSHLA area. At Moose, the fiber optic cable would cross the Snake River as an attachment under the north side of the existing bridge; the Buffalo Fork River twice, first by boring under it just southeast of Moran to US 26 and again a few miles farther east attached to the existing bridge; and a boring under Blackrock Creek immediately north of the Blackrock Ranger Station. These water crossings are listed in Table A3 of Appendix A and depicted on Figures B6, B7, B9, and B10 of Appendix B. WSRA Outstanding Remarkable Values (ORV) identified for the Snake River Headwaters area included in Table 3-3 below.

**Table 3-3. WSRA Outstanding Remarkable Values identified for the Snake River Headwaters**

| River Segment | ORV Category* | | | | | |
|---|---|---|---|---|---|---|
| | Scenic | Recreational | Cultural | Ecological /Wildlife | Fish | Geologic |
| Snake River at Moose | X | X | X | X | X | X |
| Buffalo Fork southeast of Moran | X | X | X | X | X | X |
| Buffalo Fork east of Moran US26 | X | X | X | X | X | X |
| Blackrock Creek | X | X | X | X | X | X |
| *Source and definitions: http://www.fs.fed.us/r4/btnf/wild_scenic/SRiverHpublicORV.pdf | | | | | | |

### 3.7.3 *NATIONAL PARKS, NATIONAL FORESTS, WILDERNESS AREAS, AND WILDLIFE REFUGES*

***Elements Common to Both Segments.*** The Greater Yellowstone Area is home to two federally designated wildlife refuges and five Wilderness areas, as well as two national parks and six national forests. These lands are generally open to the public, provide outdoor recreation opportunities, and contribute to the various scenic vistas for which the area is known. These areas are also subject to periodic wildfires during the summer and early fall. Although wildfire suppression policies vary from agency to agency, there are a number of areas where wildfires may be managed as natural events and permitted to burn for indefinite periods. These fires have the potential to create large amounts of smoke that can settle in the basin and obscure views for months at a time.

***Elements Specific to the Teton Pass Segment.*** The proposed route for the Teton Pass Segment is depicted in Figures B1 and B2-B4 of Appendix B. The lengths of various land jurisdiction/ management agencies for the Teton Pass Segment are listed in Table 2-1. NFS land on both the BTNF and CTNF would be traversed. The proposed route would not traverse any Wilderness areas but would come within less than 0.5 mile of the border of the Jedediah Smith Wilderness Area on the CTNF.

***Elements Specific to the Togwotee Pass Segment.*** The proposed route for the Togwotee Pass Segment is depicted in Figures B1 and B5-B12 of Appendix B. The lengths of various land jurisdiction/management agencies for the Togwotee Pass Segment are listed in Table 2-2. The proposed route would not traverse any designated Wilderness areas. NFS land on both the BTNF and SNF would be traversed. The segment would also traverse portions of the GTNP and the National Elk Refuge on an established ROWs on US 89/26.

### 3.7.4 *STATE LANDS*

***Elements Common to Both Segments.*** No lands owned by the State of Wyoming as state School Trust Lands or other special designation would be crossed by either segment, but ROWs controlled or managed by the WYDOT would be traversed on both proposed segments.

***Elements Specific to the Teton Pass Segment.*** As specified above.

***Elements Specific to the Togwotee Pass Segment.*** As specified above.

### 3.7.5 *MUNICIPAL AND COUNTY LANDS*

***Elements Common to Both Segments.*** Municipalities and county governments are also property owners within their respective political boundaries. Within Teton County, the majority of the proposed routes will be within the rural zoning district but would also cross into the auto-urban commercial, business park, affordable housing planned unit development, and single-family zoning districts. The municipal and county lands are in both urban and rural settings, each with their own aesthetic and scenic attributes, and similar to those of the state lands.

***Elements Specific to the Teton Pass Segment.*** The proposed route for the Teton Pass Segment includes a number of spurs using existing ROWs off of US 89, WYO 390 and WYO 22 to provide potential service to key facilities in Jackson and along the route to Wilson and Teton Village. Lands

traversed by the proposed segment are depicted on Figures B1-B4 of Appendix B. The general lengths of the jurisdictions traversed are noted in Table 2-1.

***Elements Specific to the Togwotee Pass Segment.*** Lands traversed by the proposed segment are depicted on Figures B1 and B5-B12 of Appendix B. The general lengths of the jurisdictions traversed are noted in Table 2-2. The proposed route for the Togwotee Pass Segment traverses municipal and county lands within existing ROWs in order to provide service access to education facilities, medical facilities, government buildings, and other anchor institutions.

## 3.8 LAND USE AND RECREATION

***Elements Common to Both Segments.*** Teton County is comprised of both public and private land, however only three percent of the land area in Teton County is privately owned with the remaining 97 percent being public lands. The project area is predominantly within previously disturbed utility, road corridors and existing developed areas. Surrounding land use in the vicinity of the corridor is dictated by the jurisdiction in which it falls. The WLCP passes through three national forests, GTNP, Teton County, Wyoming, and the Town of Jackson, Wyoming, and runs within the National Elk Refuge (within a WYDOT ROW) for about 1.7 miles (See Appendix B, Figures B1-B12, http://www.jacksontetonplan.com/plan/maps/ Existing Land Use) and Tables 2-1 and 2-2. Federal land in the project area is used primarily for recreation, wilderness, wildlife management, and forestry. Land use in Teton County is primarily rural and agricultural with low to mid-density residential. Land use in the Town of Jackson is predominantly a mix of residential and commercial lands. Private lands are concentrated on the valley floor of Teton County, Wyoming, south of GTNP. Outside of the Town of Jackson, most of the private lands have not been intensively developed.

BTNF, SNF, CTNF, GTNP, and the National Elk Refuge (NER) provide diverse bases of recreational opportunity for millions of users on a year round basis and are recognized as nationally significant, heavily used recreational resources. Both residents and tourists' rely on the NFS lands, GTNP, and the NER as sources of a broad spectrum of recreational opportunities. For many residents and visitors the Jackson Hole area is synonymous with recreation in the forms of hiking, skiing, fishing, biking, various motorized activities such as snowmobiling, boating, camping, sight-seeing, and numerous other forms of recreation that include mechanized, motorized, equestrian, and pedestrian participants. In particular the USFS and GTNP have adopted specific guidelines for accommodating recreational opportunities.

***Elements Specific to the Teton Pass Segment.*** The Teton Pass Segment is approximately 36 miles long. About 75% of this segment crosses Teton County, Town of Jackson, BTNF, and CTNF property within existing ROWs and easements with the remaining crossings outside of existing ROWs or easements (Table 2-1).

One of the more important recreational opportunities along this segment is the OTPH.. The OTPH in now a popular hiking and biking trail from a trailhead west of Wilson to Teton Pass and is used year round. Approximately 45 users per day travel on Old Pass Road during the snow-free season. However, the Forest Service has recorded 50 users in just a 2-hour period, so there are times when use is much higher and there are times when there are very few users on the road. The OTPH has considerable use in the winter for skiing, sledding, and snow shoeing. The vast majority of use on Old Pass Road occurs between the Trail Creek trailhead and Crater Lake. The biggest user group is walkers/hikers, often with dogs. Bicyclists are the next largest user group. Some use of the Old Pass Road by bicyclists can be considered commuter traffic particularly when WYO 22 is being repaired

or maintained which is a common occurrence. During those times, the OTPH offers an alternative to long delays. However, during normal times the majority of bike traffic is recreational traffic.

Another important and highly valued recreational resource found along the proposed Teton Pass Segment are the bike and hiking paths leading from the BTNF to Wilson and beyond. This network of pathways provides year round use to residents and visitors to bicycle, walk, jog, and at times ski. The portions of the pathways between Wilson (two routes one paved on the south and one unpaved on the north of WYO 22 (so-called dirt trail)) and the BTNF and from the Junction of WYO 390 and WYO 22 to Teton Village and beyond are particularly heavily used.

***Elements Specific to the Togwotee Pass Segment.*** The Togwotee Pass Segment is almost 66 miles long. Most of this segment (56 miles) traverses GTNP and BTNF land with 11 of those miles falling within existing WYDOT ROWs and easements on the BTNF (Table 2-2). About a 0.5 mile portion of the WLCP is within the SNF on either a WYDOT ROW or easement or within an existing communication complex special use area.

The Togwotee Pass Segment also provides very diverse, heavily used, and nationally significant recreation opportunities similar to the Teton Pass Segment. Important recreational elements unique to the Togwotee Pass Segment include a new (2010/2011) multi-use path from the Town of Jackson to Moose Headquarters within GTNP. This multi-use pathway is currently under construction but is partially completed and will provide opportunities for thousands of users to bike, walk, ski (within a limited season of closure), and generally enjoy the area between Jackson and GTNP. Besides the new multi-user pathway, existing trails, pathways, unpaved back roads, highways, and waterways traversed by the Togwotee Pass Segment provide numerous opportunities for recreation on a year round basis. Construction of the multi-use pathway from Jackson to Moose including two overpasses are scheduled for continued construction during 2011.

## 3.9 INFRASTRUCTURE

The majority of Teton County, Wyoming, is rural, with a population center located within a 12-mile radius of the Town of Jackson. Located within this radius are all general infrastructure features. Infrastructure is the necessary facilities that help support a society and its economy. Typical infrastructure involves a range of services, including:

- Communications (cellular, land lines, internet services, and cable);
- Underground and overhead utilities (water, sanitary sewer, natural gas, power grids, etc.); and
- Airports and road networks

Outside of the radius, these features become less available or absent thereby necessitating travel. Electrical and telecommunication lines traverse much of the county, providing services to most homes.

### 3.9.1 *COMMUNICATIONS & UTILITIES*

***Elements Common to Both Segments.*** A majority of the communications and utility infrastructure is centered around the Town of Jackson and the communities of Wilson, Teton Village, Moose, Rafter J, Melody Ranch, Hoback Junction and the developments north of Jackson around Jackson

Golf and Tennis Club, the airport, and Moran. Within this developed radius, communication, water, sewer, natural gas, power, and cable services are generally available. Services diminish north past the Jackson Hole Airport, west from Wilson, and south from Hoback Junction. The areas outside the radius may only offer communication, fully serviced roads, and power service. Most of the WLCP are covered by cellular communications although a single cellular provider may not cover the entire area. Water is provided to consumers from either municipal, water district, or privately owned groundwater wells. Sanitary sewer is limited to the developed areas near Jackson with residences outside its range utilizing septic systems.

Buried and/or overhead telecommunication land lines (copper service) extend throughout the Town of Jackson and surrounding areas, including Wilson and Teton Village. All copper services connect to an existing fiber optic line owned and operated by Qwest, which generally follows US 89 north to Moran, Wyoming, and exits Teton County to the south. Connecting fiber optic service to copper can readily be done but requires specialized equipment and facilities and can be quite expensive. When fiber optic is connected to copper facilities, all of the downsides associated with copper become inherent in that portion of a line. Infrastructure serviced by copper has less speed, lower capacity, less utility and is subject to influences such as temperature and electrical conductivity whereas fiber optic is not.

***Elements Specific to the Teton Pass Segment.*** Communication services are offered to and within the developed base area of Teton Pass but do not currently cross over the pass to connect with services in Idaho (Appendix B, Figure B13).

***Elements Specific to the Togwotee Pass Segment.*** Communication service is provided throughout the Town of Jackson and surrounding areas. Telecommunication lines both buried and overhead, provide service to customers throughout this area of the county. Qwest-owned and -operated buried lines (copper service and one fiber optic service) extend north from the Town of Jackson along US 89/26, servicing the developments near Jackson Golf and Tennis Club, Jackson Hole Airport, and Moose areas. These lines service much, but not all, of the area north of Gros Ventre Junction within Teton County.

Continuing north from Moose Junction, the Qwest lines turn at Antelope Flats Road and follow it to the east where they turn north at the East Boundary Road and follow under existing power lines to the north where they meet back with US 89/26 near the Historic Cunningham Cabin parking lot. At this junction the lines continue north adjacent to US 89/26 to Moran. The fiber optic cable continues north along US 89 (Appendix B, Figure B14) and the copper service continues to the east adjacent to US 26.

The copper service, continuing east, follows adjacent to US 26 to the Blackrock Ranger Station then turns north and follows under an existing power line. The copper service turns to the east from the FAA VOR station and follows FS road 30060 and FS road 30040 ending near Togwotee Mountain Lodge leaving a buried communication service gap between the lodge and the DTE fiber optic line, which terminates near the summit of Togwotee Pass.

### 3.9.2 *EXISTING ROAD NETWORK*

***Elements Common to Both Segments.*** The existing road network in the Teton Valley has developed over the last 100 years to primarily service agricultural and recreation interests. In order to keep the highways in good condition, repaving on a regular basis is common. Because of the high elevation, heavy snowfall and geographical setting, the area in general has a relatively

short construction season, often restricted to late June through early October. This is particularly true for road segments over both Teton and Togwotee passes.

***Elements Specific to the Teton Pass Segment***

***Moose-Wilson Road (WYO 390).*** WYO 390 was originally a road constructed by ranchers. In 1954 and 1955, the entire road was graded and a base was laid down to the southern boundary of GTNP at mile 7.71. By 1971, it was paved to this same point. Guardrails were installed just south of the Lake Creek Bridge in 1982. In 1994, a turn lane was added to the Nethercott Road intersection, the intersection with WYO 22 was modified, and shoulder work was done on just under 0.2 miles of roadway north of Teton Village. In 2002, a ROW fence was installed from the Lake Creek Bridge to just north of Teton Village and work began to rebuild the bridge across Lake Creek. Efforts to rebuild this road continue, although the timing of reconstruction remains unknown.

***Teton Pass to Jackson (WYO 22).*** In 1918, the Bureau of Public Roads completed a new road over Teton Pass and the Forest Service allocated $12,000 to surface the road in 1925. The Bureau of Public Roads initiated a major upgrade in 1932, widening the road from 8 to 18 feet, surfacing it, and reducing the grades 3 to 4 percent in some places. The 1932 improvements were done on what is known today as the Old Teton Pass road. From 1960 to 1970, the entire road was graded and surfaced from the Idaho border to just above Wilson, Wyoming. In the 1970s, WYO 22 from its junction with US 89 was graded and surfaced and Teton Pass was overhauled to include the current major realignments to improve safety and reduce avalanche impacts. A surfacing and widening project occurred on a 0.1-mile stretch of WYO 22 between the Wilson Bridge and the intersection of WYO 390 in 1975. Fences were installed along WYO 22 from the intersection with WYO 390 to Wilson in 1989. A traffic light was installed at the intersection of WYO 22 and 390 in 1991, and that intersection was modified to accommodate a turning lane in 1994. WYO 22 was widened at the sharp bend in the road near the Walton Ranch (miles 3.0-3.2) and the most recent project on WYO 22 was the installation of a traffic light where it intersects Spring Gulch Road in 2001. WYO 22 has been scheduled for major reconstruction to accommodate large increases in traffic. Frequent repair and maintenance to the road infrastructure on WYO 22 over Teton Pass is common and brings with it traffic delays and service interruptions while these activities occur.

**Elements Specific to the Togwotee Pass Segment**

***Jackson to Moran Junction (U.S. 26/89/191/287).*** A steel-truss bridge was built across the Gros Ventre River in the 1920s. In 1948, a proposal was presented to construct a new highway from the south boundary of the Jackson Hole National Monument (now part of GTNP) to the Buffalo Fork River. The National Park Service had concerns about the existing alignment of the road and its impacts on wildlife habitat and favored a highway diverting west from the existing road, which was located southeast of Blacktail Butte, running north across Antelope Flats to Deadman's Bar, then crossing Spread Creek and the Buffalo Fork to join the Yellowstone-Dubois-Lander Highway. The Public Roads Administration constructed the current highway between 1955 and 1957 to National Park Service specifications.

***Togwotee Pass (U.S. 26/287).*** Togwotee Pass was moved to its present location, reconstructed, and paved from 1967- 1971. The remainder of recent WYDOT projects on that stretch of road involved sealing, resurfacing, fencing and guardrail installation. The entire section of highway between Moran and Dubois was scheduled for reconstruction in 2007 and that work is nearly completed. The final section of US 26 to be completed is between Togwotee Lodge and the bridge spanning the Buffalo Fork River east of Moran.

## 3.10 SOCIOECONOMIC RESOURCES

The WLCP traverse Teton County, Wyoming; the Town of Jackson, Wyoming; the Caribou-Targhee, Bridger-Teton, and Shoshone National Forests; and Grand Teton National Park. The communities of Jackson, Moose, Moran, and Wilson, Wyoming, are also located along the WLCP route.

### 3.10.1 *DEMOGRAPHICS AND POPULATION*

Wyoming's estimated population in 2009 was 544,270. The state has a land area of 97,814 square miles. Wyoming is the ninth-largest state in area, but the least-populated state of the nation. The entire state has an average of 5.7 people per square mile. Teton County, where the project is proposed, had a 2009 estimated population of 20,710 and a land area of 4,008 square miles and 4.6 persons per square mile (http://quickfacts.census.gov/qfd/states/56/56039.html). It is important to note that 97 percent of the land area in Teton County is public land; therefore, most of the population is concentrated into the remaining 3 percent of land area or 127 square miles. By and large the population is composed predominantly of residents classified as white (~83 percent). The remaining population, approximately 17 percent, is comprised of a combination of Hispanic, Black, Asian, and American Indian residents. Nineteen percent of the population is under the age of eighteen and almost nine percent of the residents are over 65 years old (US Census, 2010).

### 3.10.2 *EMPLOYMENT AND INCOME*

In 2008, the national median annual income was $52,029, and for the State of Wyoming it was $54,735. Teton County's median annual income was considerably higher at $74,150 (US Census, 2010). The national below-poverty level in 2008 was 13.2 percent, for the State of Wyoming it was 9.5 percent, and for Teton County it was 4.4 percent (US Census, 2010). Unemployment in the U.S. as of September 2010 was 9.6 percent, in Wyoming it was 6.8 percent, and in Teton County it was 8.10 percent (US Department of Labor, 2010). Employment by industry in Teton County is presented in Table 3-4.

**Table 3-4. Number of Teton County residents employed by industry.**

| Industry | Number Employed |
|---|---|
| Management | 880 |
| Business and Financial Operations | 630 |
| Computer and Mathematical | 130 |
| Architecture and Engineering | 310 |
| Life, Physical, and Social Science | 350 |
| Community and Social Services | 60 |
| Legal | 60 |
| Education, Training, and Library | 680 |
| Arts, Design, Entertainment, Sports, and Media | 440 |
| Healthcare Practitioners and Technical Occupations | 480 |

| Table 3-4. Number of Teton County residents employed by industry. | |
|---|---|
| **Industry** | **Number Employed** |
| Protective Service | 260 |
| Food Preparation and Serving-Related | 2,990 |
| Building and Grounds Cleaning and Maintenance | 1,570 |
| Personal Care and Service | 700 |
| Sales and Related Occupations | 1,710 |
| Office and Administrative Support | 1,950 |
| Farming, Fishing, Forestry | 20 |
| Construction and Extraction | 1,550 |
| Installation, Maintenance, and Repair | 630 |
| Transportation and Material Moving | 770 |
| Source: Wyoming Department of Employment, 2010 | |

## 3.11 HEALTH AND SAFETY

This section includes a description of existing conditions in the project area that could affect the health and safety of the general public and workers assigned to the project. Because the project will take place along existing highways, through towns and in urban areas, in roadway ditches and utility corridors, traffic safety and road conditions are major concerns. In addition, the analysis includes the results of database searches for contaminated sites in the project alignment. Superfund sites are designated on the National Priorities List (NPL) through the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), which requires the cleanup and remediation of sites contaminated by hazardous waste. CERCLA and other federal regulations provide broad federal authority to clean up releases or threatened releases of hazardous substances that may endanger public health or the environment. There are only two superfund sites listed for Wyoming, neither of which is in Teton County according to the EPA website: http://www.epa.gov/ superfund/sites/query/queryhtm/nplfin.htm#MT.

### 3.11.1 *TRAFFIC*

***Elements Common to Both Segments.*** In contemplating a route or routes to follow in order to install the fiber optic cable, several alternative configurations became apparent. SST has elected to follow existing ROWs or easements wherever feasible and preferable. By choosing existing utility and transportation ROWs or easements, generally along existing roads or highways, new impacts to the existing environment and disruptions to private property owners are avoided. Whenever possible, the least environmentally sensitive routes (route having the least impact) would be chosen. SST has consulted with the Forest Service, National Park Service, US Army Corps of Engineers, Teton County, the Town of Jackson, WYDOT and others to solicit ideas on routing and methods to be employed. Safety along busy highways was an important element identified with each of the above-noted agencies, especially WYDOT.

Average annual daily traffic (AADT) on Teton County's highways has increased an average of 60 percent from 1990 to 2001 and 92 percent on portions of WYO 22. According to WYDOT data for US 89, WYO 22 and WYO 390 (year 2009), peak traffic counts occur during the months of July and August between 5 and 6 p.m. **(**http://www.dot.state.wy.us/ wydot/planning_projects/ Traffic_Data). Traffic is higher on weekdays than weekends with Friday generally having the highest counts. The months with the lowest traffic counts during 2009 in Teton County were November through April.

***Elements Specific to the Teton Pass Segment.*** The Teton Pass route passes along town streets in Jackson, and WYO 22, US 89, and WYO 390, as well as the current paved bicycle path from the Trail Creek parking lot west of Wilson to Teton Pass (OTPH). The peak mean average weekday traffic (MAWDT) in August on WYO 390 to Teton Village is about 15,000, dropping to about 12,000 on weekends. This is about 5,000 less than the MAWDT on WYO 22 east of the proposed Snake River crossing. The difference in traffic volume is attributable to disbursements to the business or residential areas in Wilson or traffic continuing over Teton Pass to Victor. Average daily traffic in Victor is about 4,000, but this traffic can originate from several locations (http://www.itd.idaho.gov/planning/roadwaydata/counters/102/index.html). Traffic on the bicycle/hiking path varies by season but averages around 45 users per day.

There are very few flat stretches of road on WYO 22 between Wilson and Teton Pass or between Teton Pass to Coal Creek Campground suitable to safely stop and hold traffic. Consequently, traffic delays and management during most types of roadway construction are major concerns when operating along and within the narrow WYO 22 ROW approaching Teton Pass from either side.

***Elements Specific to the Togwotee Pass Segment.*** The Togwotee Pass Segment would pass along streets in Jackson, and US 89/26, as well as the several dirt roads from the Antelope Flats Road to the Buffalo Fork River and US 26 east of Moran. The peak mean average weekday traffic (MAWDT) in August on US 89 between Jackson and Moran is about 6,000, dropping to about 5,400 on weekends. This is about 6,500 less than the MAWDT on US 89 south of Jackson during the same time period. MAWDT for August east of Moran toward Togwotee Pass is about 2,000 (http://www.dot.state.wy.us/wydot/planning_projects/ Traffic_Data).

### 3.11.2 *CONTAMINATED SITES AND OTHER ADVERSE HEALTH EFFECTS*

***Elements Common to Both Segments.*** Brownfields are real property where expansion, redevelopment, or reuse is complicated by the presence of a hazardous substance, pollutant, or contaminant (EPA, 2010). There are no known active brownfield sites within or adjacent to the proposed alignment of the Proposed Action. Also, as noted above, there are no Superfund sites within the area of interest.

***Elements Specific to the Teton Pass Segment.*** As specified above.

***Elements Specific to the Togwotee Pass Segment.*** As specified above.

# 4.0 ENVIRONMENTAL CONSEQUENCES

## 4.1 NOISE

### 4.1.1 *NO ACTION ALTERNATIVE*

Under implementation of the No Action Alternative, ambient noise levels would remain as described in Section 3.1.

### 4.1.2 *PROPOSED ACTION ALTERNATIVE*

***Potential Impacts Common to Both Segments.*** Since this project is not a Federal Highway Administration (FHWA) construction project, it is not subject to the provisions of Title 23 of the Code of Federal Regulation Part 772 (23 CFR 772) related to sensitive receptor areas. Although the installation will take place near residential areas, businesses, schools and medical facilities (sensitive receptors), the level of noise produced would be of relatively short duration and not a significant impact on the residents. This is also true in the Class A areas between Jackson and Togwotee Pass, where quiet punctuated by recreation traffic and highway traffic constitute the ambient sounds. In addition, the whole of Grand Teton National Park (GTNP) is a noise-sensitive area. None of the installation activities would result in any permanent change to ambient noise levels. Except for the construction of the two huts and two cabinets, impacts at specific locations could be measured in minutes or at most hours.

There would be isolated increases in noise during the actual installation of the broadband cable resulting from operation of the trencher and backhoe, the delivery and loading and unloading of the cable and conduit, and the people and trucks delivering and installing these materials. These noises would be localized and will move and disappear as installation progresses along the route. As a result, ambient noise levels would temporarily increase. Probably the slowest rate of progress will be within urban settings such as the Town of Jackson because of the need to protect and/or remove, relocate, or repair city infrastructure like roads, sidewalks, and underground utilities. Key sensitive noise receptors including many of the community anchor institutions (CAIs) are located either within the Town of Jackson or other urban setting. Ambient noise levels in such locations are generally higher than in more rural settings consequently noise from the proposed construction activities would be less noticeable and less apt to cause an impact to sensitive receptors such as residences, schools, and medical facilities.

Aside from the Wolff Ridge and Elk Ranch areas, which have significant wildlife use in the summer, the effect of the added construction noise on wildlife would be minimal. Most of the route is along existing roadway where wildlife often become habituated to this type of noise disturbance and any additional noise from the proposed construction effort would be temporary and short term. More regarding noise and wildlife is found in Section 4.5.

Since the buried fiber optic cables transmit photons and not electrical current, there is no potential for humming, crackling, or other noise associated with breakdown and ionization of air, which occurs from arcing across power line installations. The above-ground facilities, including cabinets, would not generate noise under normal operation; however, the proposed huts at Moose and Togwotee Pass would include an emergency diesel or propane generator, heating and air conditioning units that will generate intermittent noise at 65 dBA at 10 feet. The generator would be activated only in the event of a power failure (Appendix F) and operate until power is restored.

The heating, ventilating, and air conditioning unit will operate as needed to maintain the climate within the building. Examples of regulations and BMPs that may be required during the construction and installation of the WLCP are noted in Appendix F.

***Potential Impacts Specific to the Teton Pass Segment.*** Within the Town of Jackson, noise levels would be similar to ordinary street maintenance involving heavy equipment used in highway construction and repair. Once the installation leaves town and proceeds west on WYO 22, the noise would contrast with the ambient noise. Passing motorists may not notice any change whereas passing pedestrians and bicyclists may, especially within 500 to 1000 feet. Sound created by installation equipment after those distances would likely dissipate to the levels of ambient conditions. Any impacts regarding noise associated with the implementation of the Preferred Alternative including the installation of the proposed equipment cabinets or CAI connections would be minor in the short term and none in the long term.

***Potential Impacts Specific to the Togwotee Pass Segment.*** North of Jackson, the Togwotee Pass Segment remains along the main recreation travel highway (US 89) to past the airport, Moose, and Antelope Flats Road. This portion of the route has very few sensitive sound receptors, although all of GTNP is considered a noise sensitive area. At the junction of US 89/26 and Antelope Flats Road, less traffic is encountered so ambient noise is reduced, but as a consequence, there are fewer people to hear any noise generated by installation equipment. Eventually the Antelope Flats Road gives way to what the National Park Service (NPS) calls the East Boundary Road. Where the route is being constructed either under the Lower Valley Energy (LVE) power line or on the East Boundary Road, very little traffic or very few people are encountered. Although these dirt roads do receive some recreation traffic, it is minimal and the installation noise is not likely to disturb anyone for very long distances since the terrain is flat and the installation is likely to proceed at a more rapid pace.

Bison herds are commonly found along the Antelope Flats Road, the East Boundary Road, Wolff Ranch Road and north to the Moran portion of this project. The temporary increase in noise level during installation may cause bison and other ungulates to move away from the immediate construction area. However, it appears that many bison, elk, antelope and deer found along this portion of the route have accepted traffic, noise and even pedestrian traffic and are frequently seen feeding along and on well-traveled roads. However, these large ungulates have not been exposed to this specific type of activity on a regular basis and may respond differently to it. The above-ground facilities at Moose and Togwotee Pass would not generate noise under normal operation; however, the proposed huts at Moose and Togwotee Pass would include an emergency diesel or propane generator, as well as heating and air conditioning units that when combined would generate intermittent noise at 65 dBA at 10 feet. The generator would be activated only in the event of a power failure and then only until power is restored. The heating, ventilating, and air conditioning (HVC) unit will operate as needed to maintain the climate within the building.

The remaining portions of the Togwotee Pass Segment encounter both busy highways and more remote Forest Service roads. Avian species, such as Neotropical migrants, sage grouse, herons and osprey use the project area for breeding, nesting, and brood rearing. They too may not necessarily become habituated to the proposed disturbance. However, the disturbance would be short term, temporary and measures will be taken to avoid nest and other sensitive areas either spatially or temporally if they are within the direct influence of the construction alignment. Any impacts regarding noise associated with the implementation of the Preferred Alternative including the installation of the proposed equipment cabinets, telecommunication huts or CAI connections would be minor in the short term and negligible in the long term.

## 4.2 AIR QUALITY

### 4.2.1 *NO ACTION ALTERNATIVE*

Under implementation of the No Action Alternative, the ambient conditions and trends described in Section 3.2 would persist.

### 4.2.2 *PROPOSED ACTION ALTERNATIVE*

***Potential Impacts Common to Both Segments.*** The proposed cable routes are along existing highways or right of ways (ROWs) or located in towns or urban areas. These areas experience air pollution from automobiles and other modes of transportation and agricultural activities on a regular basis. Neither the placement of the buried fiber optic cable nor the operation of the cable to provide data transmission would create any additional permanent sources of emissions into the air. In the long term, the project may help reduce air pollution by making it possible for more people to work, shop, and go to school online, reducing the need for travel. Potential emissions generated by the proposed project would be temporary and short term, resulting from construction activities used to install the fiber optic cable and any future maintenance activity.

The proposed installation project could add an estimated 50,000 lbs. of carbon dioxide (22.7 metric tons) to the environment during each of the two construction seasons. Generation of this greenhouse gas (GHG) would originate from the operation of vehicles and construction equipment. Generally, only one piece of equipment (the installation tractor) will operate on a continuous basis throughout the day. In addition, the tractor will be followed by a backhoe that would compact the soil above the buried line, and a truck pulling a trailer with extra conduit, cable, and other supplies. Assuming that all of the vehicles working on the actual installation will burn a combined total of about 100 gallons of diesel per day for a total of about 50 days (106 miles at 2 miles per day): the total estimated carbon dioxide produced ($CO_{2)}$ would be about 100,000 pounds (45.4 metric tons) for the total installation, assuming 20 lbs. of $CO_2$ produced per gallon of diesel burnt. Once installation is complete, this $CO_2$ production from the WLCP would effectively cease since the functioning fiber optic cable does not generate $CO_2$ (http://www.epa.gov/otaq/climate/420f05003.htm). Emissions would occur over at least two, seven-month periods, and would be distributed along the length of the project. The estimated quantity of emissions for the proposed combined project (45.4 metric tons) is significantly lower than the presumptive effects threshold of 25,000 metric tons of $CO_2$ established by the Council on Environmental Quality as a threshold for significant contribution. Even if the estimates for emissions for the WLCP were enlarged by a magnitude (10 times) it would still be significantly less than the threshold for significance.

Minor fugitive dust emissions would result from the operation of construction equipment along unpaved or poorly vegetated ROWs and staging areas. Dust emissions would vary from day to day, depending on the level of activity and soil and meteorological conditions. All construction vehicle movements would be limited to the ROW, pre-designated staging areas, or public roads.

Maintenance vehicles would occasionally be required on the ROW to perform routine maintenance on equipment. No significant air quality impacts are expected from ongoing operation and maintenance.

Given the temporary nature of installation and the limited impacts during operation, no significant effects to air quality would be associated with the project, and it would not be subject to new source review (NSR) permitting under the Clean Air Act.

The project would use BMPs (Appendix F) for construction activities, and would train work crews in those measures before beginning work. At a minimum, the BMPs will include reestablishing ground cover, maintaining truck and equipment engines in good running condition and limiting speeds of project related vehicles to 15-20 miles per hour on unpaved roads in order to reduce fugitive dust generation.

***Potential Impacts Specific to the Teton Pass Segment.*** The valley portion of this segment will be installed along paved roads with well-vegetated ROWs resulting in minor amounts of construction dust. More dust could be generated on the portion of the route that follows the Bonneville Power Administration (BPA) ROW because there is less native vegetation on some of the south-facing slopes underneath the transmission lines. This location is adjacent to the Jedediah Smith Wilderness but not near any public access areas and should not result in long-term visibility impacts. Limited construction dust may be generated along the Old Pass Road, which would likely be a temporarily annoyance to any user of the path at the time of construction. Any impacts regarding air quality associated with the implementation of the Preferred Alternative including the installation of the proposed equipment cabinets or CAI connections would be minor in the short term and negligible in the long term.

***Potential Impacts Specific to the Togwotee Pass Segment.*** This segment traverses or comes close to several Class 1 air quality areas, including GTNP and the Teton Wilderness. However, these locations are well vegetated and little dust would be generated or transported beyond the installation site. Consequently, no impacts to air quality are anticipated during or following installation.

The amounts of emissions from vehicles, operation of equipment, and creation of fugitive dust resulting from construction, operation and maintenance of the WLCP will not affect the air quality attainment status for the affected area. The entire area would remain in attainment as described in Section 3.2. With implementation of the mitigation measures, installation and operation of the proposed fiber optic cable project would not conflict with or obstruct implementation of any applicable air quality goals nor violate any air quality standards. Any impacts regarding air resources associated with the implementation of the Preferred Alternative including the installation of the proposed equipment cabinets, telecommunication huts or CAI connections would be minor in the short term and negligible in the long term.

## 4.3 GEOLOGY AND SOILS

### 4.3.1 *NO ACTION ALTERNATIVE*

The No Action Alternative would not impact geologic or soil resources in the project area. Existing conditions would continue as described in Chapter 3.3.

### 4.3.2 *PROPOSED ACTION ALTERNATIVE*

#### 4.3.2.1 Geology

*Potential Impacts Common to Both Segments.* Given that the cable would be buried to a depth of only 36 to 48 inches and that SST is mainly following existing ROWs so most construction would

occur in areas that have already been disturbed, the placement of buried fiber optic cable would not alter geologic resources along either of the proposed segments. Rock sawing would be necessary to install the cable in some areas; however, any rock sawing would occur within previously disturbed areas or paved surfaces.

*Potential Impacts Specific to the Teton Pass Segment*. See above. Any impacts regarding geological resources associated with the implementation of the Preferred Alternative including the installation of the proposed equipment cabinets or CAI connections would be minor in the short term and negligible in the long term.

*Potential Impacts Specific to the Togwotee Pass Segment*. See above. Any impacts regarding geological resources associated with the implementation of the Preferred Alternative including the installation of the proposed equipment cabinets, telecommunication huts or CAI connections would be minor in the short term and negligible in the long term.

#### 4.3.2.2 Soils

***Potential Impacts Common to Both Segments***. Because SST is mainly following existing ROWs and most construction would occur in areas that have already been disturbed, such as existing roads, the placement of buried fiber optic cable would not alter soil content. Generally the cable would be buried in a narrow plowed trench, thus creating little to no erosion potential along either of the proposed routes. In addition, adherence to the BMPs (examples in Appendix F) and direction from agencies regarding reclamation/revegetation/noxious weed control measures from appropriate federal, state, and county agencies will be mandatory. Taking into account the overall length of the WLCP; that the average soil disturbance would be about 12-inches wide; the number of bore holes and their size, the areas not disturbed because they would be bored: the total amount of soil disturbance for the WLCP would be about 12.2 acres.

***Potential Impacts Specific to the Teton Pass Segment***. There are no potential impacts to soils specific to the proposed Teton Pass Segment, the general impacts noted above would apply. It is anticipated that strict adherence to the BMPs and guidelines (examples in Appendix F) would minimize any potential impact on a site-specific basis. The total soil disturbance would be 4.3 acres for the Teton Pass Segment. Any impacts regarding soil resources associated with the implementation of the Preferred Alternative including the installation of the proposed equipment cabinets or CAI connections would be minor in the short term and negligible in the long term, assuming implementation of BMPs similar to those noted in Appendix F. The soil disturbance related to the plow blade is limited to a width of about one foot or less in good soils that are free of large rocks. Although vegetation may be damaged by equipment being driven over other portions of the construction ROW, this will recover over several years to where the installation is not visible except for the hand hole covers, markers, and huts.

***Potential Impacts Specific to the Togwotee Pass Segment***. Although the area proposed for insertion of fiber optic cable/conduit by plowing under the existing LVE power lines west and east of East Boundary Road and the area immediately south of the proposed crossing of the Buffalo Fork River have not been recently disturbed, there is little potential for soil erosion given the flat terrain. It is anticipated that strict adherence to the BMPs and guidelines (examples in Appendix F) would minimize any potential impact on a site-specific basis. Disturbance would be minimal in areas that have not seen recent disturbance (under the power line on Antelope Flat and around the Buffalo Fork River) and where boring is necessary (under the Buffalo Fork River). There is little to no erosion potential along the route. . The total soil disturbance would be 7.9 acres for the Togwotee

Pass Segment. Any impacts regarding soil resources associated with the implementation of the Preferred Alternative including the installation of the proposed equipment cabinets, telecommunication huts, or CAI connections would be minor in the short term and none in the long term, assuming implementation of BMPs similar to those noted in Appendix F

## 4.4 WATER RESOURCES

### 4.4.1 *NO ACTION ALTERNATIVE*

The No Action Alternative would have no effect on surface water, wetlands, groundwater or floodplains in the project area.

### 4.4.2 *PROPOSED ACTION ALTERNATIVE*

#### 4.4.2.1 Surface Water

***Potential Impacts Common to Both Segments.*** The proposed routes cross several surface water features such as rivers, streams, creeks, and wetlands. Since the installations across water features will be bored below the channel beds of rivers, streams and creeks with surface water or suspended on existing bridges; installation and operation would have no effect on surface waters. There would be no impact to channels or other dynamic elements of surface waters within the areas of interest. No impact to the fluvial geomorphic characteristics of the Snake River system is anticipated. If a situation is encountered where an adverse impact might occur, the installation process is flexible and can easily be adjusted to the site conditions at the time of installation. If conditions are too wet or flooded at the time of installation, the length of the necessary bore under the water feature could be lengthened or shortened as necessary or the timing of the activity would be rescheduled. It is also important to note that when surface water features are to be crossed using directional boring, the drilling pits will be installed outside of the bank and floodplain areas. BMPs would be implemented when installing cable in existing gravel roads or trails that have limited vegetation or are otherwise vulnerable to flooding or erosion.

The specific BMPs used would be dictated by site-specific conditions and by the land management agency. These may involve the use of erosion control tools such as silt fencing, wattles, blankets or other methods to detain flows and stop erosion. It is anticipated that strict adherence to the BMP guidelines (examples provided in Appendix F) would minimize any potential impact on a site-specific basis Although Nationwide Permit (NWP) #12 as discussed in Section 4.4.2.2 and as noted in Appendix E, specifically applies to wetlands, adhering to the terms and conditions stipulated by that process plus the additional terms and conditions required by the WDEQ will serve to protect and avoid impacts to surface waters as well. SST has agreed to adhere to those terms and conditions.

***Potential Impacts Specific to the Teton Pass Segment.*** The major surface waters that would be traversed by the proposed Teton Pass Segment and the avoidance measures prescribed are as follows:

- Flat Creek(3 crossings) - No impact, crossed by suspending the conduit on the existing bridges (Sites T-1, T-2, and T-33);
- Spring Creek - No impact, bored under the channel (Site T-5);
- Snake River - No impact, crossed by suspending the conduit on an existing bridge (Site T-9);

- Fish Creek - No impact, crossed by suspending the conduit on an existing bridge (Site T-11);
- North Fork of Trail Creek - No impact , bored under the channel (Site T-16);
- Coal Creek - No impact, bored under the channel (Site T-21);
- Talbot Canyon Creek - No impact, bored under the channel (Site T-22); and
- Lake Creek - No impact, bored under the channel (Site T-25).

A complete list of the proposed crossings of other creeks, minor drainages (including ditches), and wetlands along with the impact avoidance measures proposed to be used at these surface waters for the Teton Pass Segment are listed in Appendix A, Table A1 and depicted on Figures B2-B4 of Appendix B.

The Teton Pass Segment through Jackson would have no impact on surface waters beyond that common to ordinary buried utility line installation. In order to further reduce potential impacts and to expedite installation, SST is proposing to use "micro ducting" as a means to install cable in urban settings within the Town of Jackson. Construction on Teton Pass alongside the existing OTPH and on the existing BPA power line road would take place in either well vegetated strips that provide protection from erosion and runoff or in an existing gravel road or in vegetation immediately adjacent to WYO 22. In all cases, the narrow area disturbed by plowing would be immediately reclosed and re-compacted with no lingering exposure of disturbed soil where surface waters could initiate erosion. If more soil is disturbed such as if the plow were to dislodge a large rock or boulder, the site would also be immediately restored and actions taken on a site-specific basis to prevent surface waters from creating soil erosion or contributing to sedimentation of adjacent waters. Implementation of a Storm Water Management Plan, prepared for this project and approved by the permitting agencies prior to construction, would provide protection to water resources that might result from runoff of surface water following storm events during construction.

***Potential Impacts Specific to the Togwotee Pass Segment.*** The major surface waters traversed by the Togwotee Pass route and the avoidance measures prescribed are as follows:

- Flat Creek - No impact, crossed by suspending the conduit on an existing bridge (Site G-1);
- Gros Ventre River - No impact, crossed by suspending the conduit on an existing bridge (Site G-3);
- Enterprise Ditch - No impact, bored under the channel (Site G-7);
- Snake River - No impact, crossed by suspending the conduit on an existing bridge (Site G-8);
- Ditch Creek - No impact , bored under the channel (Site G-9);
- Spread Creek - No impact, bored under the channel (Site G-17);
- Buffalo Fork River(1st crossing) - No impact, bored under the channel (Site G-28);

- Lava Creek - No impact, bored under the channel (Site G-29);

- Buffalo Fork River (2nd crossing) - No impact, crossed by suspending the conduit on an existing bridge (Site G-30); and

- Black Rock Creek - No impact, bored under the channel (Site G-39).

A complete list of all surface water crossings including creeks, minor drainages (including ditches), and wetlands along with the impact avoidance measures proposed to be used at these surface waters are included as Appendix A, Table A3 and depicted on Figures B5-B12 of Appendix B.

Through urban settings, the Togwotee Pass Segment would have no impact on surface waters beyond that common to ordinary installation of buried utility lines. In order to further reduce potential impacts and to expedite installation, SST is proposing to use "micro ducting" as a means to install cable in urban settings within the Town of Jackson. Implementation of a Storm Water Management Plan, prepared for this project and approved by the permitting agencies prior to construction, will provide protection to water resources that might result from runoff of surface water following storm events during construction. Insertion of the conduit within existing ROWs and utility corridors would take place in well vegetated strips that provide protection from erosion and runoff, in existing gravel roads, or in vegetation immediately adjacent to existing roads. In all cases, the narrow area disturbed by plowing methods would be immediately reclosed and re-compacted with no lingering exposure of disturbed soil where surface waters could initiate erosion or create sedimentation of adjacent waters. If more soil is disturbed such as if the plow-tooth were to dislodge a large rock or boulder, the site would also be immediately restored and actions taken on a site-specific basis to prevent surface waters from creating soil erosion or contributing to sedimentation of adjacent waters.

No levees along the Snake River or Gros Ventre River would be crossed by plowing or boring. All crossings near levees would be done by suspending a conduit containing the cable on an existing bridge. Hence, no effect to these structures would occur.

#### 4.4.2.2 Wetlands

***Potential Impacts Common to Both Segments*.** Installation of the fiber optic conduit/cable would take place under provisions of the general and specific terms of a NWP #12. A letter from the Cheyenne Regulatory Office of the US Army Corps of Engineers (USACE) (Appendix E, December 30, 2010) verified that the WLCP as described in pre-construction notifications (project descriptions as found in Chapter 2.0 and Appendices A and B of this EA) are authorized by NWP #12 as define in Part II of the Federal Register published on March 12, 2007 (Vol. 72, No. 47). A letter from the WDEQ (Appendix E, WDEQ,) on December 21, 2010 granted certification under provisions of Section 401 of the Clean Water Act for activities requiring a 404 permit. Both letters stressed that the terms and conditions for NWP #12 and other specific conditions and procedures must be followed. The specific terms and conditions for NWP #12 can be found at http://www.nwo.usace.army.mil/ html/od-r/nwp-newtext.html#nwp12. It is the full intention of SST to totally avoid dredging, filling or dewatering wetlands throughout the proposed project. The only time that these activities might occur is when an unforeseen condition arises such as a bore bit needing to be retrieved or if an unseen obstacle makes boring or plowing impossible or more detrimental than another method. Although NWP #12 allows for some excavation of wetlands, SST proposes to traverse many of the wetlands by boring in order to avoid potential impacts. Locations where crossing of wetlands would be done by inserting the cable by plowing are noted in Tables A1

and A3 of Appendix A and the locations are depicted on Figures B2-B12 of Appendix B. Those locations have been examined by a qualified wetland scientist and the recommendation to plow rather than bore were made in those situations where wetlands are either expected to be dry during the period of proposed crossing, such as after late August or where boring would be more invasive than plowing. It is important to note that boring requires holes (3 feet wide by 6 feet long by 3 to 4 feet deep) on both sides of the bore to be dug, refilled, and reclaimed where plowing does not. The wetlands along both proposed routes would be fully protected and no permanent loss of wetlands would occur.

***Potential Impacts Specific to the Teton Pass Segment.*** The wetlands to be crossed under the Preferred Alternative along with the prescribed method of crossing are included in Appendix A, Table A1 and depicted in Appendix B, Figures B2-B4.

***Potential Impacts Specific to the Togwotee Pass Segment.*** The wetlands to be crossed under the Preferred Alternative along with the prescribed method of crossing are included in Appendix A, Table A3 and depicted in Appendix B, Figures B5-B12.

#### 4.4.2.3 Groundwater

***Potential Impacts Common to Both Segments.*** The fiber optic cable would be buried within shallow groundwater tables at some locations along the route. However, the materials that make up the conduit, cable and hand holes are not water soluble or permeable by water. The conduit would not present a pollution hazard to groundwater or any municipal water supply. Nothing water soluble or harmful would be buried in slits or borings as the conduit is inserted in to the ground. The slits and boring would not use or drain groundwater and because the openings would be immediately restored, the openings would not provide open access to shallow groundwater. Groundwater deeper than 36 to 48 inches would be unaffected.

***Potential Impacts Specific to the Teton Pass Segment.*** Same as noted above.

***Potential Impacts Specific to the Togwotee Pass Segment.*** Same as noted above.

#### 4.4.2.4 Floodplains

***Potential Impacts Common to Both Segments.*** The installation of these segments would not alter the behavior of the existing floodplains. In all cases, the lines will be either buried under the floodplains or suspended over them on existing bridges. Once installed and operational, the advanced communications service provided may be helpful in providing services during flood and other emergencies in the future or by providing potential points for instant communications for gauging stations, webcams or other devices.

***Potential Impacts Specific to the Teton Pass Segment.*** As specified above.

***Potential Impacts Specific to the Togwotee Pass Segment.*** In order to make certain that there would be no potential impact to the floodplain on either side of the first crossing of the Buffalo Fork River where boring is planned (about 0.5 miles east of Moran), the location of the entrance and exit holes for the boring were moved an extra distance from the bank on the south and as far from the north bank as US 26 and terrain would allow. This was done because the river at this general location is particularly active and being farther away than normal made sense in order to ensure that no effect to this Class 1 waterway or the resources protected under the Wild and Scenic River Act (WSRA) would occur.

In regards to the WSRA, reviews of the proposed crossings of the Snake River east of Moose (suspended on existing bridge, NPS), Buffalo Fork River about 0.5 miles east of US 89/26 Junction (bored under river channel, NPS), Buffalo Fork River about 3.6 miles east of the US 89/26 Junction (suspended on existing bridge, NPS) and Blackrock Creek north side of US 26 across from the Buffalo District Ranger Office (bored under creek channel, BTNF) were made by GTNP and BTNF, respectively. Those reviews, as required under Section 7 of the WSRA (1968, as amended), were then provided to the respective offices of those agencies for comment and concurrence. Both the NPS and USFS concurred that implementation of the proposed project as described would comply with the provisions of the WSRA and have no effect on the outstanding, remarkable values (ORVs) of those respective waterways (Appendix E).

Any impacts regarding water resources including surface water, ground water, wetlands, and flood plains associated with the implementation of the Preferred Alternative including installation of the proposed equipment cabinets, telecommunication huts or CAI connections would be minor to negligible in the short term and none in the long term.

## 4.5 BIOLOGICAL RESOURCES

### 4.5.1 *NO ACTION ALTERNATIVE*

There would be no impact to biological resources under implementation of the No Action Alternative. Conditions would continue as described in Section 3.5 of this EA.

### 4.5.2 *PROPOSED ACTION ALTERNATIVE*

#### 4.5.2.1 Wildlife Resources

***Potential Impacts Common to Both Segments***. Loss of habitat and the diminishment of its value are always concerns whenever construction activities take place within cover types used by wildlife. Although some short-term impacts to vegetation, such as crushing it when the tracked or wheeled vehicles install the conduit, would occur on the narrow (<12") area disturbed by the toothed plow; no long-term impacts or changes in land use on areas currently used by wildlife are anticipated as a result of implementing the WLCP. Given that nearly all of the proposed fiber optic line would be installed by plowing, as defined for the WLCP, within existing ROWs and easements with no blading of habitat or wide-spread soil disturbance; there would be very little change to the existing habitats. This approach coupled with installing the cable directly adjacent to or within existing roads would further reduce the potential of disturbing wildlife and wildlife habitat. The short duration (0.5-2 miles/day) of construction activities within a given area will provide for a situation where movement of individuals, migration or the general use of habitat would not be impaired. Boring under wetlands and several of the water courses or installing the cable by suspending it on existing bridges will avoid creating impacts to these very productive, sensitive habitats used by a large number of species groups, including fishes. The routes that were selected after careful consideration of a variety of impacts, including those potentially affecting wildlife, meet the Purpose and Need for the projects but offer the least damaging alternative to wildlife.

Besides direct loss or imperilment of habitat, construction activities can be disruptive to wildlife, especially during critical periods of their life cycles such as breeding, calving, brood-rearing or migration. Construction can even pose direct threats by running over nests or the animals themselves. Construction activities would take place at various locations for the WLCP during mid-April through mid-November as dictated by weather, site conditions, and regulations. The very

limited and short construction seasons available to implement the WLCP include the nesting season for many of the avian species found within the areas of interest. Disruption of breeding and nesting activities is prohibited under provisions of the Migratory Bird Treaty Act (1918, as amended) and is contrary to the rules and regulations of land management agencies such as the USFS, NPS, WGFD, and Teton County.

In order to avoid this type of potential impact and to adhere to the stipulation by the USFWS (Appendix E) to either; 1) avoid construction (vegetation removal) in areas with nesting habitat when nesting by migratory birds could occur (May 1 through July 31) or 2) survey the route within a week (7 days) of construction in order to make certain that no "take" as defined by the Migratory Bird Treaty Act (1918, as amended) would occur. Such surveys would serve to identify nests and provide direction to SST in order to avoid impacts to migratory birds. SST has agreed to do a combination of avoiding construction during the nesting season and surveying ahead of construction in order to avoid impacts to nesting birds. If a nest is found during surveys or construction, it will be avoided temporally or, if possible, spatially. Nest surveys will be provided by the applicable agency or their assignees and agency protocol regarding nesting birds will be adhered to.

Sometimes the mere presence of construction equipment and personnel, particularly those on the ground, can adversely affect the use of habitat by wildlife. In order to reduce those impacts SST would use a compact, short-duration approach to installing the conduit. On average, over flat terrain approximately 2 miles of conduit can be plowed per day. Rougher terrain and other site-specific conditions would reduce that rate to one-half to three-quarter miles per day. Consequently, there should be no impact to animal movement, even within migration routes. The length of construction plow-train equipment will not exceed about 200 yards; will not leave an open trench; and will be restored shortly after the conduit has been installed. In those areas where additional reclamation efforts are needed such as reseeding (holes for boring or next to installed hand holes), reclamation will take place as soon as practical, realizing that reseeding may need to occur when it is biologically appropriate. Guidelines in Appendix F and BMPs issued by the appropriate land management agency will guide contractors selected to do the installation work and they will be supervised by SST or their agent. Implementation of this guidance will avoid converting productive wildlife habitat to non-native vegetation.

In addition to protecting habitat, the provisions and suggested BMPs noted in Appendix F may be made mandatory by appropriate agencies for all contractors working on the installation, maintenance, and operation of the proposed WLCP. This includes not making any food available to bears or other wildlife; adhering to the regulations set forth by the USFS, NPS, and Teton County directed at reducing human-wildlife interactions; and being responsive to site-specific situations that have the potential to adversely affect wildlife. In order to avoid attracting wildlife to the installation sites, NPS and USFS food storage regulations will be followed by all installation employees working onsite. Given the above descriptions and provisions; no adverse, long-term impacts to wildlife resources are anticipated if the WLCP were implemented as described in Chapter 2.

***Potential Impacts Specific to the Teton Pass Segment.*** No impacts other than those noted above in Section 4.5.2. Any impacts to wildlife resources associated with implementation of the Preferred Alternative including installation of the proposed equipment cabinets or CAI connections would be minor in the short term and none in the long term.

***Potential Impacts Specific to the Togwotee Pass Segment.*** The ospreys using the nest located on a power pole about 600 feet from the north end of the bore site for crossing the Buffalo River (Figure B9, Appendix B) may or may not habituate to the disturbances associated with boring under the river at this site. The southern bore hole site for the Buffalo Fork River crossing is well hidden from the nest by trees and is over 600 feet away. The northern bore hole is about 200 feet from the nest. In order to minimize the potential to disturb this nesting pair, boring at this site will be scheduled to begin no earlier than September 1, During the 2-4 days when this boring is active special care will be taken to minimize disturbances, particularly noise and pedestrian activity at this location. If it appears that the pair is actively nesting and are disturbed by the boring activities, SST or their agent will consult with the biologist for GTNP to determine what can be done to further minimize this potential impact. Similarly, herons are very sensitive to disturbance by humans and by foraging eagles. There will be no disturbance closer than about 3 miles to the heron colony located to the west of the proposed construction activities so no adverse impact to this species is anticipated. Some avian species in the project area such as Brewer's sparrow, sage-thrashers, and other passerines that nest and brood/rear within the sagebrush habitat**s** along the Togwotee Pass Segment route may or may not be habituated to this type of disturbance. However, measures such as pre-construction surveys will be taken to avoid active nests. Specific efforts will be made to not provide wildlife, particularly bears, any opportunity to associate available food with the humans and activities of installing the WLCP. Any impacts to wildlife resources associated with implementation of the Preferred Alternative including installation of the proposed equipment cabinets, telecommunication huts or CAI connections would be minor in the short term and none in the long term.

#### 4.5.2.2 Threatened and Endangered Species (Fauna)

***Potential Impacts Common to Both Segments***. The types of potential impacts to grizzly bears, Canada lynx and gray wolf as well as those species that are being considered for listing are the same as those noted for general wildlife. Implementing measures to avoid and minimize potential impacts to this group of species are the preferred options. Avoidance and minimizing efforts are detailed below.

The provisions and descriptions to implement the Proposed Action include several state-of-the-art techniques to avoid and minimize potential impacts to species listed as Threatened, Endangered or under consideration for listing. These provisions included careful selection of the Proposed Action. SST with the help of several state, federal, and municipal agencies evaluated over 18 alternative routing options, some of which would have had more potential to adversely affect listed species, before settling on the Proposed Action. The methods of installation proposed for the WLCP included plowing, boring or suspending the conduit on bridges in order to avoid trenching. SST also proposed, again with important input from the USFS, NPS, WYDOT and Teton County, to use existing ROWs, easements, bridges, so-called back roads (unpaved gravel dirt roads when the conduit could be installed either in the road and directly adjacent to it), and other disturbed areas as much as possible in order to avoid creating new disturbances or incur impacts in sensitive habitats including forests, wetlands, and waterways.

By either avoiding areas that potentially provided habitat for nesting birds until after July 31 or by surveying ahead of the construction crew in order to alert them to avoid nests; the provisions of the Migratory Bird Treaty Act (1918, as amended) would be obeyed. If a nest is found during surveys or construction within the distances prescribed for avoidance, it will be avoided temporally or, if possible, spatially. Nest surveys will be provided by the applicable agency and agency protocol regarding nesting birds will be followed. It will be mandatory for contractors working on the WLCP

to adhere to the regulations and BMPs designed to keep human food from bears and to follow the other stipulations noted in regulations issued by the NPS and USFS. One of the most important considerations in dealing with grizzly bears is to not afford them the opportunity to obtain or be attracted to human foods. A special program known as "Bear Aware" and other directives from the USFS, NPS and Wyoming Game and Fish Department (WGFD) are specifically aimed at eliminating the human-bear interactions that more often than not lead to the destruction of bears. Adhering to the strict guidelines found in the various state and federal programs has proven effective in saving bears from having to be destroyed or trans-located.

Lastly, the proposed project requires that a variety of guidelines or BMPs be followed (Appendix F). Among them is reclamation practices to restore any unavoidable impacts while inserting the conduit, follow explicit rules to clean equipment and not spread noxious weeds within or between the two routes, and reseed or replant as directed at those sites where digging may have occurred (hand holes, boring sites or hut sites). Implementing the proposed WLCP using these approaches provides both spatial and temporal avoidance and minimization measures. Land management agencies such as the USFS, NPS and Teton County have already prepared the protocols and general management plans for minimizing and reclaiming impacts to habitats for projects similar to the WLCP. Those protocols will be followed and in many cases overseen by those agencies or their agents for this project.

A detailed description of the proposed project, including methods of installation, timing, locations, and its applicant (SST) was provided to the Cheyenne Office of the USFWS as informal consultation (Pioneer, 2010). The response to that letter by the USFWS is included in Appendix E. The letter concurs that implementation of the proposed projects would have "no effect" on the Canada lynx, gray wolf, grizzly bear, mountain plover, greater sage grouse, and yellow-billed cuckoo. The letter notes, "Should a need to remove vegetation be later identified, vegetation removal will occur outside of the nesting season of migratory birds or that nest searches will be conducted concurrent with operations to protect migratory birds." It also notes that because the projects would occur within an area that may be occupied by grizzly bears, that BMPs for waste disposal and food storage be used to minimize human-bear conflicts. Since there is the possibility of bear encounters, employees will be required to carry bear spray and be trained in its use. SST agrees to implement the above noted conditions. Since receipt of the USFWS letter, the wolverine has been designated a Candidate species. Implementation of the Preferred Alternative would have "No Effect" on that species for the same reasons that were noted in the earlier correspondence (Pioneer 2010 and USFWS 2010). It should also be noted that the USFWS does not consult on Candidate species.

***Potential Impacts Specific to the Teton Pass Segment.*** None other than those noted above in Section 4.5.2, Appendix D, Synopsis D1 and Appendix E. Any impacts regarding wildlife species listed as Threatened, Endangered or Candidate under provisions of the ESA (1973, as amended) associated with the implementation of the Preferred Alternative including installation of the proposed equipment cabinets or CAI connections would be negligible in the short term and none in the long term.

***Potential Impacts Specific to the Togwotee Pass Segment.*** Those noted above in Section 4.5.2, Appendix E and that short term displacement of some species could occur in some areas such as Wolff Ridge, Elk Ranch, Buffalo Fork, and Antelope Flats and in close proximity to Lost Creek and Triangle X Ranch. Such short term impacts would be negligible and would not persist in the long term. Any impacts regarding wildlife species listed as Threatened, Endangered or Candidate under provisions of the ESA (1973, as amended) associated with the implementation of the Preferred

Alternative including installation of the proposed equipment cabinets, telecommunication huts or CAI connections would be negligible in the short term and none in the long term.

#### 4.5.2.3 Vegetation

***Potential Impacts Common to Both Segments.*** No long-term deleterious impacts to surface vegetation would occur along either route. Although the vehicle tracks and plow would crush or break vegetation on the surface, the roots would only be disturbed in a narrow slot. This disturbance, combined with immediate closing of the slot should result in the vegetation sprouting and regenerating at a rapid rate over the year following installation. As discussed in Section 4.4, wetlands and water crossings where specialized vegetation occurs have been identified along both segments. These crossings will generally be by directional boring in order to avoid impacts to delineated wetlands and other endemic plants native to permanent or sporadic water-dependent environments. Also, work on both segments will be done under provisions of the terms and conditions of Nationwide Permit #12 as specified by the USACE. The main technique for inserting the cable into the ground will be by use of a vibrating tooth or plow, which avoids most of the potential permanent impacts to vegetation. Another vehicle, most likely a wheeled vehicle, will follow the vehicle inserting the conduit to reform or restore the area disturbed by the toothed plow, usually by simply driving over the disturbed area. Neither of the segments will be bladed, thereby keeping soil disturbances to a minimum. Other general avoidance measures to vegetation involve installing the cable either within the road itself or adjacent to the road, both of which are either devoid of vegetation or have vegetation common to roadside projects which can easily be replaced.

Short-term impacts to vegetation on both segments would involve crushing of roadside vegetation or vegetation within the ROW or easement by the tracked or wheeled vehicle that inserts the cable or brings supplies to those vehicles. This could result in a temporary impact to vegetation until the affected plants recover. Impacts to vegetation would also occur at those sites where hand holes need to be installed within a vegetated area or where a short trench or hole needs to be dug in order to avoid individual trees or to bore under a water feature or wetland. In those cases, areas where vegetation is destroyed or the soils disturbed will be reseeded with species mixes appropriate to the disturbed sites thereby making those types of impacts temporary. General guidelines and approaches to management for reclamation/revegetation and noxious weed control are at the direction of the appropriate federal, state, and county agencies. The actual monitoring and implementation of reclamation efforts will be overseen by the appropriate land management agencies. Adherence to this approach will be mandatory for the contractors selected to do the installation work and will also be supervised by SST or their agent.

Another potential impact to vegetation is the introduction or spread of noxious weeds in areas where the soil is disturbed or where vehicles have the potential to bring in seeds of undesirable species. In order to eliminate or minimize these types of impacts, construction vehicles will be required to be cleaned and washed after having worked in areas known to contain noxious weeds and prior to continuing on to areas that are not infested with such species. This will require adherence to the noxious weed control guidelines (example in Appendix F). Adherence to this guidance will be mandatory for the contractors selected to do the work and will be supervised by SST or their agent. Examples of BMPs for the reclamation/revegetation/noxious weed control and avoidance measures are provided in Appendix F.

***Potential Impacts Specific to the Teton Pass Segment.*** Potential impacts to general vegetation on the Teton Pass Segment of the proposed project, including temporary impacts (short term) or those resulting from the possible spread of noxious weeds, are the same as those described above. Any

impacts regarding plant species including those listed as Threatened, Endangered or Candidate under provisions of the ESA (1973, as amended) associated with the implementation of the Preferred Alternative including installation of the proposed equipment cabinets or CAI connections would be minor to negligible in the short term and none in the long term.

***Potential Impacts Specific to the Togwotee Pass Segment.*** Potential impacts to general vegetation on the Togwotee Pass Segment of the proposed project, including those in the short term or those resulting from the possible spread of noxious weeds, are the same as those described above. Several changes in the proposed route to Togwotee Pass were driven by potential impacts to vegetation. The most important change involved the role of special vegetation and soils found on the ridge at the east end of FS road 30010 on the BTNF and SNF. In that case, an alternate proposed route was chosen in order to avoid the endemic area of darker semi-barren rolling clay hills on Togwotee Pass. As a result, no impact will occur to this area. The potential site for blue *Elymus (Elymus multicaulis)* in a small meadow will be avoided until an early spring survey can be conducted to verify which *Elymus* is present and whether locally endemic, rare spring meadow forbs occur at this site. Any impacts regarding plant species including those listed as Threatened, Endangered or Candidate under provisions of the ESA (1973, as amended) associated with the implementation of the Preferred Alternative including installation of the proposed equipment cabinets, telecommunication huts or CAI connections would be minor to negligible in the short term and none in the long term.

#### 4.5.2.4 Threatened and Endangered Species (Flora)

***Potential Impacts Common to Both Segments.*** There would be no effect to Threatened or Endangered plant species under provisions of the Endangered Species Act (1973, as amended) if the proposed project were implemented as described and proposed. In their letter of November 5, 2010 (USFWS, 2010) the Cheyenne Office of the USFWS concurred with this "no effect" statement based on information provided to the USFWS by Pioneer (2010). Although no Ute ladies-tresses (*Spiranthes diluvialis)*, listed as Threatened under provisions of the ESA (1973, as amended),were found during three surveys conducted in summer 2010, the most favorable precaution is to avoid identified potential Ute ladies'-tresses habitats.

***Potential Impacts Specific to the Teton Pass Segment***. The concurrence of "no effect" on Threatened or Endangered plant species noted above applies to the Teton Pass Segment. However, potential habitat for Ute ladies'-tresses was identified at one location, west of Teton Pass within the ROW for WYO 22 on the CTNF. The potential habitat was delineated and marked by flagging. The site will be re-flagged and avoided during construction on this portion of the Teton Pass Segment.

***Potential Impacts Specific to the Togwotee Pass Segment.*** The concurrence of "no effect" on Threatened or Endangered plant species noted above applies to the entirety of the Togwotee Pass Segment. Although no Ute ladies-tresses were found during three surveys conducted in summer 2010, the most favorable precaution is to avoid identified potential Ute ladies'-tresses habitats.

## 4.6 HISTORIC AND CULTURAL RESOURCES

### 4.6.1 *NO ACTION ALTERNATIVE*

The No Action Alternative would not impact any of the historic or cultural resources in the project area.

## 4.6.2 *PROPOSED ACTION ALTERNATIVE*

### 4.6.2.1 Archeological Resources

***Potential Impacts Common to Both Segments***. Neither of the two segments will have an adverse effect to any known or surveyed sites. In their letter of January 28, 2011 (Appendix E), SHPO concurred for the benefit of the USFS and GTNP that no historic properties would be affected by implementing the proposed project (SHPO File #1210lkn003) and that after review of the report prepared for this project (USU Archeological Services, Inc. 2010) found that it met the Secretary of the Interior's Standards for Archaeology and Historic Preservation (48 FR 44716-42). Concurrence of that same finding was confirmed by SHPO on February 24, 2011 to the Department of Commerce (lead federal agency for the WLCP) that specifically references the two BTOP awards for the WLCP. Copies of the pertinent letters of correspondence regarding cultural resources that note agency concurrence, eligibility recommendations, conclusion of "No Adverse Effect on Historic Properties", and inadvertent discovery stipulation are found in Appendix E.

Since the proposed routes do not impact any known or surveyed sites, there is no need for site-specific mitigation. Since no new communication towers are planned for the proposed project the Tower Construction Notification System (TCNS) will not apply. However, for all ground disturbing activities that occur during project implementation in the vicinity of known archaeological sites or suspected or known burials, the SST must ensure that an archaeologist who meets the Secretary of the Interior's Professional Qualification Standards monitors ground disturbance. If earth disturbing activities during project construction uncover cultural materials (i.e., structural remains, historic artifacts, or prehistoric artifacts), all work shall cease in that area and interested Tribes, the State Historic Preservation Office (SHPO), and NTIA shall be notified immediately. Such construction activities may then only continue with the written approval of affected agencies and NTIA. If earth disturbing activities during any area of the project uncover human remains, all work (in that area) shall cease immediately in accordance with the Native American Graves Protection and Repatriation Act of 1990 (NAGPRA) and relevant state statutes. The area around the discovery shall be secured and the relevant law enforcement personnel (e.g., local police or County Coroner) and NTIA shall be notified immediately. Such construction activities may then only continue with the written approval of affected agencies and NTIA.

***Potential Impacts Specific to the Teton Pass Segment.*** According to Wyoming SHPO records, there are two eligible prehistoric sites along the Teton Pass Segment. These include sites 48TE1367 and 48TE1369. Neither of the sites is within the 20-foot width of the proposed segment alignment; therefore, construction would cause no adverse effect to either site (Cannon and Varnum 2010). One historic site was documented during the 2010 survey. This is the Old Teton Pass Road (48TE1453), which was the initial road constructed by the USFS between 1913 and 1917. The Proposed Action would place the fiber optic line within the corridor of the Old Teton Pass Road. However, the construction of the fiber optic line would have no adverse effect on the historic integrity of this historic resource (Cannon and Varnum 2010).

***Potential Impacts Specific to the Togwotee Pass Segment.*** According to SHPO records, there are four prehistoric sites located along the Togwotee Pass Segment. These include sites 48TE1408, 48TE1414, 48TE1418, and 48TE1664. All are prehistoric habitation sites with associated features. Implementation of the Preferred Alternative would cause no adverse effect on these sites. However it should be noted that the Blackrock Compound is proposed as a CAI but is also listed as an eligible

site (#48TE1664) in the NRHP (Table A8, Appendix A). This site is a prehistoric habitation site with lithic artifacts and features. There are also modern FS structures within the general site. No impact to any of the structures or grounds is anticipated. The fiber optic line would be buried following current utility/road alignments. Attachment to structure(s) would be done in an unobtrusive manner at the same location used for existing telephone and power services. Also, the connection to a building can be removed at any time without permanent damage. Consequently, no long term impact to that resource is anticipated as a result of providing fiber optic communication services under implementation of the WLCP. With this exception, none of the other three sites are within the 20-foot width of the proposed segment alignment; therefore, construction would have no adverse effect (Cannon and Varnum 2010).

During the 2010 survey, three historic Euro-American sites were recorded. However, only two sites, the Enterprise Ditch (48TE1847) and the Uhl Ditch (48TE1848) are eligible for inclusion in the National Register of Historic Places. The Proposed Action would cause no adverse effect on these sites. A portion of the Enterprise Ditch intersects the proposed alignment on the southeast side of the Jackson Hole Airport. The cable would be bored under the ditch and therefore would not have an impact on the historic integrity of the property.

The Uhl Ditch parallels Wolff Creek Road. The Proposed Action places the fiber optic line within the road away from the ditch. No adverse effect would be incurred.

#### 4.6.2.2 Architectural Resources

***Potential Impacts Common to Both Segments***. Neither of the two segments will have an adverse effect to any known or surveyed sites. According to SHPO records, there are over 70 buildings and sites associated with the region's history in the project area that are currently listed in the National Register of Historic Places (Tables D2 and D3, Appendix D). These places are associated with the Euro-American settlement of the area and address such diverse themes as education, cattle ranching, transportation, and the tourist industry. National Historic register sites within the project area are listed in Appendix D, Tables D2 and D3. Since the proposed routes would have no adverse effect to any known or surveyed sites, there is no need for site-specific mitigation. However, if any cultural materials are discovered during construction, work in that area shall halt immediately, the federal agency must be contacted, and the materials evaluated by an archaeologist or historian meeting the Secretary of the Interior's Professional Qualification Standards (48 FR 22716, Sept. 1983).

***Potential Impacts Specific to the Teton Pass Segment.*** No National Register-listed or eligible historic properties are located within the Teton Pass Segment of the project area.

***Potential Impacts Specific to the Togwotee Pass Segment.*** Twenty-nine historic properties exist along the Togwotee Pass Segment of the project (Appendix D, Table D3).

These include: St. John's Episcopal Church (48TE912), the Rosencrans Cabin District (48TE971), the Cowboy Bar (48TE1210), the Jackson Drug Store (48TE1211), the Teton Theater (48TE1212), the American Legion Post 43 (48TE1213), Jackson Town Square (48TE1214), the Wort Hotel (48TE1216), the Kudar Log Cabin Lodge (48TE1220), the Blackrock Ranger Station (48TE1221), Archie Teater Studio (48TE1222), Van Vleck House and Barn (48TE1373), Heninger Barn (48TE1444), Wolff Ranch (48TE1539), D&W Motel (48TE1691), Flame Hotel (48TE1694), Huff House (48TE1697), Huff's Motel (48TE1698), Miller House (48TE1705), Wagon Wheel Lodge (48TE1717), Elias Wilson Barn (48TE1719), Elk Refuge Bunkhouse (48TE1797), Clubhouse/Dance

Hall (48TE1798), Deloney Building/Spicer Garage/Diamond Lil Theatre/Pink Garter Theater (48TE1799), Jackson Hole Museum (48TE1800), 1OOF Building (48TE1801), Karns Cabin/Tack Shop (48TE1802), and the USDA Administration Building (48TE1806). Two historic districts are also present in this portion of the project area. These include Mormon Row (48TE1444) and the Wolff Ranch (48TE1539). Each of these districts includes standing structures associated with the early settlement and ranching of Jackson Hole.

It should be noted, with the following exception, none of these sites is within the 20-foot width of the proposed segment alignment; therefore, construction would have no adverse effect (Cannon and Varnum 2010). The Blackrock Ranger Station is proposed as a CAI but is also listed as an eligible site (#48TE1221) in the NRHP (Table A8, Appendix A). It is a small historic district that includes an historic cabin. No impact to any of the structures or grounds is anticipated. The fiber optic line would be buried following current utility/road alignments. Attachment to structure(s) would be done in an unobtrusive manner at the same location used for existing telephone and power services. Also, the connection to a building can be removed at any time without permanent damage. Consequently, no long term impact to that resource is anticipated as a result of providing fiber optic communication services under implementation of the WLCP.

It should also be noted that the route would re-enter the US 89/26 ROW on the south side of US 89/26 near Brush Creek in order to avoid the parking lot for the Cunningham Cabin Historic Site which is located about 2,000 feet north of the parking lot. This routing was done specifically to reduce impacts to the Cunningham Cabin area and those who visit it.

#### 4.6.2.3 Native Resources and Traditional Cultural Properties

***Potential Impacts Common to Both Segments***. Neither proposed route would have an adverse effect to any known or surveyed sites, thus, there is no need for site-specific mitigation. Once completed, a copy of the EA will be sent to the affiliated tribes asking for comment and any adverse impacts mitigated.

***Potential Impacts Specific to the Teton Pass Segment.*** Based upon the record search with the Wyoming SHPO there are no previously recorded Native Resources or Traditional Cultural Properties along the Teton Pass Segment of the project. Based on the cultural resource survey completed for this project, it is likely that any impacts regarding cultural resources including those noted as archeological, architectural or native resources associated with the implementation of the Preferred Alternative including installation of the proposed equipment cabinets or CAI connections would be negligible in the short term and none in the long term.

***Potential Impacts Specific to the Togwotee Pass Segment.*** Based upon the record search with the Wyoming SHPO, there are previously recorded Native Resources or Traditional Cultural Properties along the Togwotee Pass Segment of the project. Native Resources in this section include three prehistoric sites (48TE1408, 48TE1414, 48TE1418) and open meadow areas near Togwotee Pass Lodge. These resources were recognized during the consultation for the reconstruction of the Togwotee Pass Road and are not within the WLCP's 20-foot construction corridor. Native Resources and traditional Cultural Properties will incur no adverse effect from this project. Based on the cultural resource survey completed for this project, it is likely that any impacts regarding cultural resources including those noted as archeological, architectural or native resources associated with the implementation of the Preferred Alternative including installation of the proposed equipment cabinets, telecommunication huts or CAI connections would be negligible in the short term and none in the long term.

## 4.7 AESTHETIC AND VISUAL RESOURCES

### 4.7.1 *NO ACTION ALTERNATIVE*

There would be no impact to aesthetic or visual resources of the project area under implementation of the No Action Alternative. Existing conditions would remain as described in Section 3.7 for state and national scenic byways; wild and scenic rivers; national parks; national forests; Wilderness areas; wildlife refuges and state, county and municipal lands.

### 4.7.2 *PROPOSED ACTION ALTERNATIVE*

#### 4.7.2.1 State and National Scenic Byways

***Potential Impacts Common to Both Segments.*** The Proposed Action would result in short-term aesthetic and visual impacts to the immediate foreground along roadways during the construction and vegetation regrowth phases. Speed limits on most of these routes are between 35 and 50 mph which limit the visual exposure of the site disturbance for those traveling past the ongoing installation activities in motor vehicles or on motorcycles. Bicyclists, however, will have more exposure because they usually travel at slower speeds. Although the vehicle tracks and plow would crush or break vegetation on the surface, the roots would only be disturbed in a narrow slot (average about 12-inches). This disturbance, combined with immediate restoration and re-compacting, should result in the vegetation sprouting and regenerating at a rapid rate over the next year following installation. All reclamation activities would be done under implementation of the BMPs (or similar as directed by the land management agency) noted in Appendix F. SST would follow existing utility and transportation ROWs or easements wherever feasible and preferable. Using previously impacted surfaces allows SST to avoid undisturbed areas and creating new impacts on the existing aesthetic and visual resources. Certain sections of the routes are away from highways, on rural roads or recreational pathways, which would decrease the temporary impacts to aesthetic and visual resources for those traveling via the highways. During construction, crews would be working along the routes with equipment such as cable plows, small backhoes, boring equipment, and trucks hauling conduit and cable, and rock sawing equipment. The aesthetic and visual impacts would be temporary and virtually eliminated upon completion and regrowth.

Four small structures would be built along the two routes to facilitate data transfer. These are depicted on the maps in Appendix B and are further described with photos and drawings in Appendix C. The four structures would include two huts (GTNP headquarters in Moose and at the communications compound near Togwotee Pass) and two cabinets (one near Wilson School and another on West Lake Creek Drive). The largest hut, proposed at Moose would be 12 feet x 24 feet, the DTE hut at Togwotee Pass would be 10 feet x 16 feet. All four of these structures would be located in areas that already have structures. The presence of these structures would not be a new source of visual or aesthetic impact but they would add cumulatively to the existing conditions. Although the hut proposed at GTNP headquarters in Moose is sited among similar structures (See Appendix C), it would be an additional structure in the viewshed of visitors on the River Access Road on the future trails connecting the Craig Thomas Discovery Visitor Center to Menor's Ferry and from the Snake River within the NWSRS.

There would also be small, buried hand hole boxes that project 4 to 6 inches above grade with treated posts to mark their location and fiber cable markers as required. These hand holes would be installed at 10,000- to 15,000-foot intervals or as needed to join cable sections and provide opportunities for services. None of the buried boxes would be in traffic (vehicle, pedestrian, or

bicycle) areas or environmentally sensitive sites. As the vegetation recovers, these box covers would not be visible from most travel routes.

***Potential Impacts Specific to the Teton Pass Segment.*** None other than those noted above.

***Potential Impacts Specific to the Togwotee Pass Segment.*** None other than those noted above.

#### 4.7.2.2 Wild and Scenic Rivers

***Potential Impacts Common to Both Segments.*** **Implementation of the Preferred Alternative** action would result in no crossings of wild and scenic rivers for the Teton Pass Segment and four crossings for the Togwotee Pass Segment.

***Potential Impacts Specific to the Teton Pass Segment.*** There are no portions of the Craig Thomas Snake Headwaters Legacy Act (CTSHLA) or other waters subject to provisions of the National Wild and Scenic Rivers Act (NWSRA) within this segment.

***Potential Impacts Specific to the Togwotee Pass Segment.*** Implementation of this segment of the Proposed Action would result in short-term aesthetic and visual impacts to the immediate foreground of the involved sections of the CTSHLA area during the construction phases. These sections include:

- Moose, where the fiber optic cable would cross the Snake River as an attachment to the existing bridge;
- The Buffalo Fork of the Snake River, which would be "crossed" by boring under it just southeast of Moran to US 26.
- The Buffalo Fork of the Snake River a few miles east of the first crossing, near Buffalo Valley Road, as an attachment to the existing bridge; and
- Blackrock Creek immediately north of the Blackrock Ranger Station, which would be crossed by boring under the creek.

Both the Forest Service and NPS have determined that under Section 7 (WSRA) the construction and operation of the Togwotee Pass Segment of the WLCP will not have a "direct and adverse effect" to the values (free-flow, water quality, or outstandingly remarkable values (ORVs)) for which the river system was added to the NWSRS (Appendix E)**.** The USFS and NPS based their "No Effect" determination for these four crossings that: 1) there would be no alteration of surface contours or drainage patterns; 2) installation of hand holes would be as flush to the ground as possible in the vicinity of the CTSHLA; 3) only one telecommunications hut would be constructed within a quarter-mile of the CTSHLA; 4) vegetation would not be disturbed within 50 feet of the river banks within the CTSHLA; and 5) construction would have a very limited duration in the vicinity of the CTSHLA. Also, at those areas where vegetation is disturbed farther than 50 feet from the river bank (specifically holes needed for boring and hand holes) , would be restored shortly after the conduit has been installed and the areas revegetated as soon as practical, realizing that reseeding may need to occur when it is biologically appropriate. Consequently, this EA represents that the ORVs associated with the CTSHLA under provisions of the NWSRA would only be impacted on a short term basis and would quickly return to normal. During construction, crews would be working in these areas with equipment such as cable plows, small backhoes, boring equipment, and trucks

hauling conduit and cable, and rock sawing equipment. The aesthetic and visual impacts would be temporary and virtually eliminated upon construction being completed and completion of reclamation and regrowth.

#### 4.7.2.3 National Parks, National Forests and Wilderness Areas, and Wildlife Refuges

***Potential Impacts Common to Both Segments***. The location of the proposed fiber optic installation was reviewed in terms of key view points and view-sheds relative to the impact such a facility would have from the perspective of the "visitor's experience." Also considered was the length of time the visitor would be exposed to the view of the installation equipment and resulting disturbance following installation. The Proposed Action would result in short-term aesthetic and visual impacts to the immediate foreground of the involved agency lands during the construction and regrowth phases. Although the vehicle tracks and plow would crush or break vegetation on the surface, the roots would only be disturbed in a narrow slot. This disturbance, combined with immediate closing of the slot should result in the vegetation sprouting and regenerating at a rapid rate over the year following installation. SST would follow existing utility and transportation ROWs or easements, wherever feasible and preferable. Using previously impacted surfaces allows SST to avoid undisturbed areas or create new impacts on the existing aesthetic and visual resources. Certain sections of the routes are away from highways, on rural roads or recreational pathways, which would decrease the temporary impacts to aesthetic and visual resources for those traveling via the highways. During construction, crews would be working along the routes with equipment such as cable plows, small backhoes, boring equipment, and trucks hauling conduit and cable, and rock sawing equipment. The aesthetic and visual impacts would be temporary and virtually eliminated upon completion and regrowth except for a few remaining marker posts and small marker signs.

The USFS and the NPS will require that SUPs (USFS) or similar agreement (NPS) be issued to SST prior to the construction and operation of the fiber optic line and telecommunications huts within the boundaries of the lands under their administration. These permits are very specific as to when, how, and under what conditions the construction and operations are to take place. The SUPs are the primary means by which impacts to the National Forest System Land and NPS land are minimized and those public lands protected. These permits mandate that SST adhere to very specific guidance provided by both of these agencies and other agencies such as the USACE, WDEQ, SHPO, and the USFWS. The SUPs or similar agreement is issued following the signing of a Finding of No Significant Impact (FONSI) by the authorized officer of each agency. Those findings are based on the information provided in this EA either directly or by reference.

***Potential Impacts Specific to the Teton Pass Segment.*** The proposed route for the Teton Pass Segment traverses NFS land on both the BTNF and CTNF. The proposed route does not traverse any designated Wilderness areas, but would come within less than 0.5 mile of the border of the Jedediah Smith Wilderness on the CTNF. No long-term visual impact to that Wilderness Area is anticipated.

***Potential Impacts Specific to the Togwotee Pass Segment***. The proposed route for the Togwotee Pass Segment traverses NFS land on both the BTNF and SNF. The route also traverses portions of the GTNP and is within the National Elk Refuge on an established ROW on US 89/26. The proposed route does not traverse any designated Wilderness areas and will create only temporary short-term impacts within the foreground viewing areas along roadways.

### 4.7.2.4 State Lands

***Elements Common to Both Segments.*** No lands owned by the State of Wyoming as state School Trust Lands or other special designation would be crossed by either segment, but ROWs controlled or managed by the WYDOT would be traversed on both proposed segments. These areas would experience short-term aesthetic and visual impacts to the immediate foreground of the existing WYDOT ROW's during the construction and regrowth phases. Although the vehicle tracks and plow would crush or break vegetation on the surface, the roots would only be disturbed in a narrow slot. This disturbance, combined with immediate restoration, should result in the vegetation sprouting and regenerating at a rapid rate over the next year following installation. Using previously impacted surfaces allows SST to avoid undisturbed areas and creating new impacts on the existing aesthetic and visual resources. Certain sections of the routes are away from highways, on rural roads or recreational pathways, which would decrease the temporary impacts to aesthetic and visual resources for those traveling via the highways. During construction, crews would be working along the routes with equipment such as cable plows, small backhoes, boring equipment, and trucks hauling conduit and cable, and rock sawing equipment. The aesthetic and visual impacts would be temporary and virtually eliminated upon completion and regrowth.

***Potential Impacts Specific to the Teton Pass Segment.*** None other than those noted above.

***Potential Impacts Specific to the Togwotee Pass Segment***. None other than those noted above.

### 4.7.2.5 Municipal and County Lands

***Elements Common to Both Segments.*** The proposed routes traverse municipal and county lands within existing ROWs in order to provide service access to businesses, government buildings, and other anchor institutions. These areas would experience short-term aesthetic and visual impacts to the immediate foreground of the existing WYDOT ROW's during the construction phases. Pavement would be cut in order to place the fiber optic cable. This disturbance, combined with immediate restoration of sidewalks and/or roadways, should result in minimal disturbance to users. During construction, crews would be working along the routes with equipment such as cable plows, small backhoes, boring equipment, trucks hauling conduit and cable, and pavement/rock sawing equipment. The aesthetic and visual impacts would be temporary and virtually eliminated upon reconstruction of sidewalks and/or roadways. Cabinet installations in Wilson would be within existing development settings and would be consistent with surrounding facilities. Consequently, the only impacts to viewing areas would be during construction and these impacts would be short term only.

***Potential Impacts Specific to the Teton Pass Segment.*** The proposed route would include a spur from WYO 22 north on Coyote Canyon Road leading to the Teton Science School. This spur is of particular interest because it represents the only portion of this segment that potentially requires that a separate Environmental Analysis (Teton County EA) be prepared under provisions of Teton County's environmental evaluation and permitting process. Teton County does not require this process if the proposed utility line is to be installed in an area with an existing ROW, is on federally managed lands, or qualifies for an exemption. SST has determined that the WLCP would quality for an exemption to construct a spur to the Teton Science School but SST will be required to obtain other routine permits such as a grading permit. This would not pose any special concern for creating a visual impact as the duration of installation would be short term and reclamation would be initiated immediately after the conduit is inserted into the ground.

***Potential Impacts Specific to the Togwotee Pass Segment***. No impacts to visual resources aside from those discussed above are specifically inherent to this proposed segment.

Any impacts regarding aesthetic and visual resources including those noted for scenic byways, wild and scenic rivers, national parks, national forests or Wilderness areas; associated with the implementation of the Preferred Alternative including installation of the proposed equipment cabinets, telecommunication huts or CAI connections would be minor in the short term and none in the long term.

## 4.8 LAND USE AND RECREATION

### 4.8.1 *NO ACTION ALTERNATIVE*

The No Action Alternative would not result in any changes to land use.

### 4.8.2 *PROPOSED ACTION ALTERNATIVE*

The Proposed Action Alternative would result in approximately 102 miles of primarily roadside and utility corridor construction during installation of the fiber optic line. In addition to the huts (discussed below), buried hand holes will project above grade approximately 4 to 6 inches and will be placed at a maximum of every 10,000 to 15,000 feet, depending on the terrain, and where service is either required or anticipated. None of the buried boxes would be in traffic (vehicle, pedestrian, or bicycle) areas or environmentally sensitive sites. Any disturbance resulting from installation of the fiber will be reclaimed to meet any local, state or federal requirements.

Although implementation of the Proposed Action Alternative would not result in any long-term changes to existing land use there would be some short term impacts affecting recreational use of some of the trails and pathways where the fiber optic cable is being buried. Recreational users would encounter equipment, construction personnel and materials at those locations where the actual work is being done. However, once the conduit has been buried and the personnel and equipment have moved along the route, there will not be a long-term effect for a given location. Mitigation in this case will be to install the conduit in the least intrusive location and manner, move through a recreational site as rapidly as possible in order to minimize the impact, and implement BMPs that assure that the pathway or trail is restored to pre-construction status or better as soon as practicable.

***Potential Impacts Specific to the Teton Pass Segment.*** In addition to the buried cable and the hand holes noted above, two communication cabinets at the locations noted in Section 3.8 will be constructed. Both will be in the vicinity of existing development and at locations that will not conflict with other infrastructure.

As noted in Section 3.8, the OTPH is a heavily used pathway for recreation and at times as an alternative travel route on a year round basis. SST has elected to bury the conduit for the cable to the immediate side of the paved surface wherever possible along the route. SST also intends to not have any hand holes or other above surface features within or near the OTPH or the dirt trail north of WYO 22 between the Trail Creek Road and Wilson for the safety of pedestrians, skiers, bikers, and other users. SST recognizes that the dirt trail (noted above) is a particularly valued feature and does not intend to change the contour or reconfigure the trail. Installation of the line will or the majority along of this portion of the segment (Wilson to Trail Creek Road) will be directly adjacent

to WYO 22. Mitigation for avoiding impacts to the dirt trail will be avoidance and those noted above.

In addition, temporary closures to segments of the OTPH would be necessary however these closures would be of short duration and use would be diverted to alternate trails during these times. Mitigation efforts would be implemented to repair damaged sections of the OTPH which would leave the trail in the same or an improved condition.

***Potential Impacts Specific to the Togwotee Pass Segment***. In addition to the buried cable and hand holes noted above, two prefabricated equipment huts would be erected one at Moose, Wyoming, at the GTNP headquarters site (specified by GTNP) or at a location in Moran and another at the end of the Togwotee Pass Segment on the SNF at an existing communications complex. Both huts will be located in the vicinity of existing development.

Any impacts regarding land use associated with the implementation of the Preferred Alternative including installation of the proposed equipment cabinets, telecommunication huts or CAI connections would be negligible in the short term and none in the long term.

## 4.9 INFRASTRUCTURE

### 4.9.1 *NO ACTION ALTERNATIVE*

Implementation of the No Action Alternative may result in adverse impacts to the communities encompassed by the WLCP because new and/or improved broadband capacity and access would not be provided. Lack of a robust, redundant high-speed network fiber optic line in Teton County and the associated state-wide network is a disadvantage for emergency services; small businesses; government facilities; healthcare providers; libraries; federal, state and local governments; students and education providers in Teton County and the State of Wyoming. Wyoming would not have the benefits of redundant broadband services and would therefore be subject to the outages and potentially serious problems endured under the status quo. The gaps in infrastructure, limited broadband capacity, redundancy of services and other limitations of the existing conditions regarding communication utilities would continue until this or a similar proposal is implemented. The existing infrastructure for roads, utilities, water, sewer, and airports would not be diminished if the No Action Alternative is implemented. However, the benefits of improving infrastructure as proposed by the WLCP would not be available; therefore, the communications infrastructure could prevent critical infrastructure elements such as the airport, public safety services, airport security, and medical services from keeping pace with advancements in technology.

### 4.9.2 *PROPOSED ACTION ALTERNATIVE*

#### 4.9.2.1 Communications

***Elements Common to Both Segments.*** Implementation of the proposed WLCP is expected to result in a number of beneficial impacts by providing the infrastructure for a robust reliable state-wide network that will be self-healing to avoid the disruptions to communications and emergency services throughout much of the State of Wyoming and introducing and enhancing high-speed broadband access to residences, businesses, government, medical, emergency services and educational institutions in Teton County. The proposed WLCP, through interconnection with other providers and carriers, would result in benefits to nearly the entire State of Wyoming and much of

the eastern half of the State of Idaho. Implementation of the proposed project would provide a robust and redundant communication path that would secure continuous telecommunications; support anticipated population growth; and would provide an improved and more reliable high-speed data access and internet service to current and future infrastructure; particularly those elements involving government, emergency services, security, medical providers, educational facilities and residential and business customers. The installation of the telecommunication huts and cabinets are essential facilities for the fiber optic network. These facilities are placed in strategic location which allow for CAI connections and link the WLCP to the existing state-wide fiber optic networks.

The WLCP meets the BTOP goal to enhance broadband capacity to unserved and underserved areas (BTOP, 2010). The WLCP will provide service and help to integrate services among institutions such as hospitals, schools, public safety, and libraries.

***Elements Specific to the Teton Pass Segment.*** The Teton Pass Segment provides an additional path out of Teton County and completes a loop which provides services through Teton, Bonneville, Bingham, and Caribou counties in Idaho along with Teton and Lincoln counties in Wyoming. This segment could be utilized to prevent communication isolation of these counties due to a failure or cut of the existing fiber cable or a planned outage. The project could directly benefit almost every institution in Teton County, north Lincoln County and eastern Idaho including schools, fire stations, emergency management offices (including the 911 system), education, government and medical facilities by providing high capacity, redundant broadband services. This could be considered a moderate long term beneficial impact.

***Elements Specific to the Togwotee Pass Segment.*** The Togwotee Pass Segment closes the gap in an existing 960-mile state-wide fiber network enabling robust, redundant broadband network opportunities for 11 counties and 26 communities in Wyoming including Cheyenne, Laramie, Medicine Bow, Hanna, Rawlins, Wamsutter, Rock Springs, Green River Lyman, Mountain View, Evanston, Cokeville, Afton, Freedom, Jackson, Dubois, the Wind River Reservation, Riverton, Shoshoni, Casper, Douglas and Wheatland. Closing this gap would provide substantial benefits for nearly all of the infrastructural elements in Teton County and throughout nearly all of Wyoming. This could be considered a moderate long term beneficial impact.

#### 4.9.2.2 Existing Road Network

The construction activities proposed for this project would have no to minimal impact on the existing road network.

Any negative impacts regarding infrastructure, including communication and transportation facilities, associated with the implementation of the Preferred Alternative including installation of the proposed equipment cabinets, telecommunication huts or CAI connections would be minor in the short term and none in the long term. Positive impacts to infrastructure that would result from implementation of the Preferred Alternative would be considered moderate to major (depending on specific locations) on a long term basis.

## 4.10 SOCIOECONOMIC RESOURCES

### 4.10.1 *NO ACTION ALTERNATIVE*

Implementation of the No Action Alternative would result in adverse impacts to the communities encompassed by the WLCP because new and/or improved broadband access would not be provided. Lack of a robust, redundant high-speed network fiber optic line in Teton County is a disadvantage for emergency services, small businesses, government facilities, healthcare providers, students and education providers in Teton County and the State of Wyoming. The State of Wyoming and Teton County would not have the benefits of redundant broadband services and would therefore be subject to the outages and potentially serious problems endured under the status quo. The jobs and economic benefits associated with constructing, maintaining and operating either of the proposed routes would not occur resulting in an economic loss to Teton County and adjacent communities.

If the No Action Alternative were implemented there is a potential that minorities and low income segments of the population may be disproportionately affected. Despite admirable efforts to provide low income housing and services, the relatively high rental and house ownership costs often associated with the urban centers of Teton County, pressure low income and minority elements to either live outside of the county or in the more remote and isolated communities within the county. Currently the un-served and underserved neighborhoods in regards to having the opportunity to use high speed, fiber optic telecommunication services are often located outside of the Town of Jackson and other urban centers within Teton County, Wyoming. Since the Proposed Action Alternative is specifically designed to provide the opportunities and advantages of having high speed, dependable fiber optic telecommunication services to un-served or underserved communities; its absence would contribute to the opposite agenda. If the proposed facilities are not built, as would be the case under the No Action Alternative, then the outlying neighborhoods and isolated communities where low income and minority populations are often located would be disproportionately affected and put at a distinct disadvantage. It should be noted that individuals in these outlying communities would still have access to the internet via dialup service. Dialup service would likely suffice for personal use but would be a disadvantage if one were trying to run a business from an unserved or underserved location.

### 4.10.2 *PROPOSED ACTION ALTERNATIVE*

***Potential Impacts Common to Both Segments.*** Implementation of the proposed WLCP is expected to result in a number of beneficial impacts by introducing and enhancing high-speed broadband access to residences, businesses, government, medical, emergency services and educational organizations in Teton County. Implementation of the proposed project would provide a robust and redundant communication path that would secure continuous telecommunications; support anticipated population growth; and would provide an improved and more reliable high-speed data access and internet service to current and future government, emergency services, medical providers, law enforcement, educational facilities and residential and business customers throughout the State of Wyoming and between other states.

The WLCP meets the BTOP goal to enhance broadband capacity to unserved and underserved areas (BTOP, 2010). The WLCP will provide service and help to integrate institutions such as hospitals, schools, and libraries. Other activities, such as small businesses that require a large bandwidth, would spur job creation and stimulate long-term economic growth and opportunity in Teton County.

Jobs in the construction, services, and other economies would be created. Monies paid and spent would accrue benefits to Jackson, Teton County, and neighboring communities directly and with associated multiplier effects. The overall benefits would far exceed the amount spent on the project. In addition, once the projects are fully implemented there would be even greater economic benefits to the community because the disadvantages and limitations of the existing communication services would be minimized.

***Potential Impacts Specific to the Teton Pass Segment.*** The Teton Pass Segment provides an additional path out of Teton County and completes a loop which provides services through Teton, Bonneville, Bingham, and Caribou Counties in Idaho along with Teton and Lincoln counties in Wyoming. This segment could be utilized to prevent communication isolation of these counties due to a failure or cut of the existing fiber cable or a planned outage. The project could directly benefit almost every institution in Teton County including schools, fire stations, emergency management offices (including the 911 system), and medical facilities.

***Potential Impacts Specific to the Togwotee Pass Segment.*** The Togwotee Pass Segment closes the gap in an existing 960-mile state-wide fiber network enabling robust, redundant broadband network opportunities for 11 counties and 26 communities in Wyoming including Cheyenne, Laramie, Medicine Bow, Hanna, Rawlins, Wamsutter, Rock Springs, Green River Lyman, Mountain View, Evanston, Cokeville, Afton, Freedom, Jackson, Dubois, the Wind River Reservation, Riverton, Shoshoni, Casper, Douglas and Wheatland.

Any negative impacts regarding socioeconomic resources associated with the implementation of the Preferred Alternative including installation of the proposed equipment cabinets, telecommunication huts or CAI connections would be none in both the short and long term. Positive impacts to socioeconomic resources that would result from implementation of the Preferred Alternative would be considered moderate in the short term and potentially major on a long term basis.

## 4.11 HEALTH AND SAFETY

### 4.11.1 *NO ACTION ALTERNATIVE*

If the No Action Alternative were implemented, the status quo for Health and Safety for the affected environment would remain unchanged unless another broadband provider provided a similar project or projects that completed the existing gaps over Teton and Togwotee passes. There would still be a gaps in broadband services among Jackson and other communities in Wyoming, the potential and real problems described in Chapter 1 regarding the lack of redundancy and dependable services would remain, the potential for outages for health and safety facilities servicing Jackson and many other parts of Wyoming and Idaho would persist, and in addition those adverse situations would be exacerbated as telecommunication volumes continue to increase.

### 4.11.2 *PROPOSED ACTION ALTERNATIVE*

#### 4.11.2.1 Health and Safety Issues

***Potential Impacts Common to Both Segments***. There is no known health issues associated with a distribution system for fiber optic cable. It does not emit any electromagnetic field and collocated fiber optic lines do not interfere with each other. Fiber optic cable does not interfere with other utility transmission lines, such as telephone, cable, and electric distribution. It is expected that all

workers installing the cable would adhere to construction safety procedures and the appropriate traffic and roadside safety practices would be implemented. Safety standards and procedures mandated by the Occupational Safety and Health Administration (OSHA) and the WYDOT would be applied to this work.

The proposed network would offer higher bandwidth connectivity to rural healthcare facilities in the State of Wyoming and eastern Idaho providing for improved health and safety. Through this enhanced connectivity, rural healthcare facilities and their patients would have access to more advanced and specialized services from larger medical institutions without having to travel outside local communities. Additionally, it would greatly improve the speed at which medical images can be transferred and reviewed. These improved capabilities would have a positive impact on health and safety in the rural areas the project serves and attract additional health and safety facilities. Over time, law enforcement and search and rescue activities would also be benefited.

In order to avoid creating any impacts associated with traffic impairment or impeded access near sensitive areas such as health facilities (particularly St. Johns Medical Center), fire stations, schools or key intersections; SST will coordinate their activities with law enforcement and municipal officials so that safe passage is maintained to these facilities. If required by the affected municipality or facility, SST will develop a Health and Safety Plan with input from those potentially affected. If a formal plan is not required then SST will contact the appropriate manager/officer for the potentially affected facility to make certain that SST's installation activities do not pose a threat to safe passage.

***Potential Impacts Specific to the Teton Pass Segment.*** Health and safety facilities in the communities of Jackson (western side) Wilson, Teton Village, and the Teton Science School would specifically benefit from implementation of the Teton Pass Segment.

***Potential Impacts Specific to the Togwotee Pass Segment.*** Health and safety facilities in the communities of Jackson, Moose, Moran, and the Jackson Hole Airport would specifically benefit from implementation of the Togwotee Pass Segment.

Any negative impacts regarding health and safety elements within the affected area of the project that would be associated with the implementation of the Preferred Alternative including installation of the proposed equipment cabinets, telecommunication huts or CAI connections would be none in both the short and long term. Positive impacts to health and safety interests that would result from implementation of the Preferred Alternative would be considered moderate in the short term and potentially major on a long term basis.

### 4.11.2.2 Traffic

***Potential Impacts Common to Both Segments.*** The construction activities proposed for this project would have no to minimal impact on these transportation facilities. Due to the construction activities taking place on road shoulders, adjacent ditches and utility corridors along highways and sometimes within gravel/dirt roads, SST and its contractors would not generally be located directly in the path of traffic except when delivering, unloading, or picking up equipment and supplies. At these times appropriate traffic management would be used to warn and manage traffic in a safe manner to avoid accidents or injuries. SST and its contractors will comply with FHWA requirements and the Manual on Uniform Traffic Control Devices to promote highway safety and efficiency by providing warning and guidance to all elements of traffic. However, there will

periodically be some slowdowns or traffic backup as equipment and supplies are moved or delivered.

SST and its contractors who are exposed either to traffic (vehicles using the highway for purposes of travel) or to construction equipment within the work area shall wear high-visibility safety apparel meeting the Performance Class 2 or 3 requirements of the ANSI/ISEA 107-2004 publication entitled "American National Standard for High-Visibility Safety Apparel and Headwear." This applies to all projects subject to the provisions of the WYDOT Standard Specifications and all other work performed along federal-aid highways. SST and it contractors will comply with OSHA Regulation 29 CFR 1926, which requires the contractor to have in place an accident prevention program that provides regular inspections of job sites, materials and equipment by competent persons.

***Potential Impacts Specific to the Teton Pass Segment.*** None other than those noted above.

***Potential Impacts Specific to the Togwotee Pass Segment***. None other than those noted above.

Negative impacts regarding traffic associated with the implementation of the Preferred Alternative including installation of the proposed equipment cabinets, telecommunication huts or CAI connections would be minor in the short term and none in the long term. Positive impacts to traffic that would result from implementation of the Preferred Alternative would be considered minor in the short term and potentially moderate on a long term basis as better telecommunication could translate to less need for physical travel.

#### 4.11.2.3 Contaminated Sites and Other Adverse Health Effects

Potential Impacts Common to Both Segments. Based on a search of Wyoming EPA databases and EPA sites, there are no known contaminated sites, dumps, abandoned underground storage tanks, or CERCLA sites (http://www.epa.gov/region8/) within the alignment of the proposed fiber optic installations. There are no known active brownfield sites located within the proposed route of this project (http://deq.state.wy.us/volremedi/ county-detail.asp?county=Teton). Consequently, the Proposed Action would not affect or create such sites as a direct or indirect effect of the installation. There is no known health issues associated with a distribution system for fiber optic cable. It does not emit any electromagnetic field and collocated fiber optic lines do not interfere with each other. Fiber optic cable does not interfere with other utility transmission lines, such as telephone, cable, and electric distribution. None of the conduit, cable or associated material is water soluble or constitutes a hazard after being buried.

It is expected that all workers installing the cable would adhere to construction safety procedures and the appropriate traffic and roadside safety practices would be implemented. Safety standards and procedures mandated by the Occupational Safety and Health Administration (OSHA) and WYDOT would be applied to this work.

Potential Impacts Specific to the Teton Pass Segment. None other than those noted above.

Potential Impacts Specific to the Togwotee Pass Segment. None other than those noted above.

Implementation of the Preferred Alternative including installation of the proposed equipment cabinets, telecommunication huts or CAI connections would have a negligible contribution in the short term and none in the long term towards creating contaminated sites or adverse health effects.

## 4.12 CUMULATIVE EFFECTS

The effects of implementing the proposed WLCP would add cumulatively to other ongoing projects within the affected areas. These cumulative effects are noted below by resource or interest category. The scenario for cumulative effects analysis was fairly simple. If a given resource was being adversely affected simultaneously and in the same general area by two independent types of actions, then a subjective discussion of how the resource may be affected and the role of the WLCP were discussed. Nearly all of the potential impacts that would occur if the WLCP were implemented would be short term with very little or no long term effects (mostly because it's a buried line with a minimally intrusive method of being buried). Consequently, most of the following discussions regarding cumulative effects involve potential impacts by simultaneous users of infrastructure such as roads, pathways, highways and other facilities or the additive effect of repeated disturbances.

The specific projects that were considered part of the cumulative effects analysis included completion of the road work on US 26 east from the Buffalo Fork River bridge to Togwotee Lodge, completion of segments of the multi-use pathway and related ancillary facilities that overlap with the installation of the WLCP, planned routine road/street maintenance along both segments of the WLCP, and normal recreational/travel activities along the more remote portions of both segments. The discipline and resource categories not included in the cumulative effects discussions and the main reason for their exclusion is as follows: water resources because no impacts to these resources would occur (spatially or temporally avoided); geology and soils because of minimal impacts due to burying the line; historical and cultural resources because all of the sites were avoided; aesthetic and visual resources because the line would be buried and impacts would be short term or within existing developed areas; and land use because no changes would occur due to using existing ROWs and easements.

### 4.12.1 *TRAFFIC, MULTI-USE PATHWAY, AND ROAD INFRASTRUCTURE*

#### 4.12.1.1 Traffic

The Jackson, Wyoming, area has undergone a substantial amount of road construction both within Jackson and in outlying areas to the south and north. Most relevant to the proposed WLCP are the various construction activities on US 26 from Blackrock Creek Ranger Station east and over Togwotee Pass. Much of the construction for the Togwotee Pass Segment of the WLCP is proposed to be located away from US 26 on gravel or dirt roads within NFS and NPS lands. However, installation of a portion of the fiber optic line between Moran and Blackrock Ranger Station would be adjacent to US 26. Simultaneous work on the fiber optic line and the highway may jointly affect traffic for short periods. However, it is not certain that this would occur, as construction schedules for the two projects are not yet confirmed. This would be a short-term impact and would be reduced by implementing BMPs and time and space avoidance measures.

#### 4.12.1.2 Multi-use Pathway Construction

Construction activities associated with GTNP's multi-use pathway from the south boundary of GTNP to Antelope Flats Road along US 89 / 26, particularly the overpasses to Moose and the National Wildlife Art Museum could coincide with the construction activities associated with the WLCP. Although both activities are not located within the vehicular travel lanes and are in proximity of each other at very limited locations, there is a possibility that the two activities could affect traffic resources simultaneously for short durations until the two types of activity became separated by either space or time. This would be a short-term impact because the fiber optic line

can be installed in a very short time frame and would be reduced by implementing BMPs or even boring the site in order to avoid impacts either in time or space.

#### 4.12.1.3 General Construction and Road Maintenance Activities

The various construction activities within Teton County, especially those involving road maintenance and repair could potentially coincide with construction activities associated with the WLCP. If these activities were to be done at the same place and time, traffic could be impacted for short durations until the two types of activity became separated by either space or time. However, the WLCP have elected to be off most of the major highways and no major type of other construction within the areas of interest are known at this time. This would be a short-term impact and would be reduced by implementing BMPs and time and space avoidance measures.

### 4.12.2 *SOILS, VEGETATION AND WILDLIFE*

#### 4.12.2.1 Repeated Disturbance of ROWs and Utility Easements

Soils and a narrow band of vegetation will be disturbed as the machines place the conduit in the ground. Most of this work would take place in existing ROWs and utility easement corridors. This will mean that these areas would again be affected and need time to recover. This would add cumulatively to the effects on the natural resources that these areas repeatedly endure. However, the areas were designated as utility ROWs or easements so that such disturbances would not be widespread or take place in undisturbed areas. Using them as utility corridors limits overall disturbance even though existing ROWs and easements may experience repeated disturbances. These impacts would be short term and would be reduced by implementing time and space avoidance for wildlife concerns and reclamation of the sites for soil and vegetation concerns.

It is of primary interest and vital that SST coordinate with WYDOT in the reclamation efforts for both projects (WLCP and the WYDOT work on US 26) to insure that the reclamation work done by one party is not adversely affected or needing to be done twice. In order to avoid this potential cumulative impact to soils and vegetation, SST and WYDOT will inform the USFS as to how the two projects will coordinate to avoid conflicting reclamation and restoration efforts.

#### 4.12.2.2 Human Activity in Remote Areas

The crews installing the conduit would temporarily increase activity in remote or lightly travelled areas. This activity would be additive to the recreationists using the gravel and dirt roads mostly associated with the Togwotee Pass Segment but also on the BPA access road and the Old Teton Pass highway (bike path) on the Teton Pass Segment. This cumulative effect would be short term and would not be repeated.

#### 4.12.2.3 Aesthetic and Visual Resources and Land Use

A small, prefabricated building or "hut" is proposed at Moose Headquarters in GTNP. The hut was sited with similar structures as to avoid any new source of visual impacts, and its footprint would be small (12 feet x 20 feet or smaller). However, the new building would be an additional structure installed at a time when NPS is trying to reduce or eliminate footprint/impermeable surfaces in the Moose administrative area. Cumulatively, combined with other present and future actions in the Moose area, it reduces the amount of permeable surface in Moose and adds another building in the viewshed of visitors on the River Access Road, a future trail to Menor's Ferry, and from the Snake River which is part of the NWSRS at this location. Another prefabricated hut (10 feet x 16 feet) would be built at the existing communications complex near Togwotee Pass. This hut would add to

the number of buildings found within this existing complex but would not occur at a site that is normally frequented by recreationists or other users and does not pose an impact to the aesthetic or visual resources or a change in land use for this location.

## 4.12.3 *SOCIOECONOMIC AND INFRASTRUCTURE DEVELOPMENT*

### 4.12.3.1 Socioeconomic Benefits

Jobs would be created and/or made more efficient both statewide and in Teton County. Workers would receive wages and benefits that would be spent in local and regional economies. This would be a positive cumulative effect that would result in multiplying of economic benefits within the affected economies. Both short-term and long-term benefits would accrue as a result of implementation, which would add cumulatively to the existing socioeconomic conditions but for various periods of time.

### 4.12.3.2 Infrastructure Development

Addition of the fiber optic capabilities of the WLCP would enhance many aspects of the existing communication system. The WLCP would add cumulatively to the redundancy, dependability, speed, capacity and extent of the cable and general communication systems for Wyoming, Idaho and particularly Teton County. This beneficial impact would be realized immediately after installation and would be permanent.

Any contribution regarding cumulative impacts including those associated with traffic, infrastructure, soils, vegetation and wildlife resources, and socioeconomic resources associated with the implementation of the Preferred Alternative including installation of the proposed equipment cabinets, telecommunication huts or CAI connections would be minor in both the short and long term.

# 5.0 APPLICABLE ENVIRONMENTAL PERMITS AND REGULATORY REQUIREMENTS

## 5.1 NATIONAL POLLUTION DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT FOR STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITIES

Once the decisions have been issued and the project has been given the go ahead by National Telecommunications and Information Administration (NTIA), Silver Star Telephone Company, Inc. (SST) will prepare and submit an application to the Wyoming Department of Environmental Quality (WDEQ) for a Storm Water Permit to construct the Wyoming Loop Completion Projects (WLCP) as permitted under the descriptions found in the final documents.

## 5.2 U.S. ARMY CORPS OF ENGINEERS, WYOMING REGULATORY OFFICE AND WYOMING DEPARTMENT OF ENVIRONMENTAL QUALITY

It is anticipated that the WLCP project will have no impact to wetlands or waters of the U.S. as defined and determined under the Clean Water Act. However, SST has elected to abide by the terms and conditions under Nationwide Permit #12 (Appendix E). SST could do this in two ways: 1) It could implement the project as defined in Chapter 2, which avoids any filling, dredging, or other impact to wetlands or waters of the U.S. without verification by the USACE and simply notify the Corps that the project will have no effect on wetlands or 2) SST could obtain verification that this project as described abides by the terms and conditions of Nationwide Permit #12 which allows for limited unexpected, unanticipated situations where minor filling, dredging or other impacts to wetlands could be allowed without stopping the project. SST elected to follow the second option and submit a pre-construction description of the project to the USACE (Cheyenne Regulatory Office, Cheyenne, WY Office). SST received verification that implementation of the project would qualify under the terms and conditions of Nationwide Permit #12 (Appendix E). The responses from the USACE to SST's communication dated December 30, 2010 and certification from the WDEQ (December 21, 2010) regarding provisions of Section 401 of the Clean Water Act are both included in Appendix E. Both letters refer to or contain required terms and conditions applicable to these verifications and certification.

## 5.3 U.S. FISH AND WILDLIFE SERVICE, ECOLOGICAL SERVICES OFFICE

All federal agencies that implement a project requiring a federal decision, including the release of funding, are required to enter into formal or informal consultation with the USFWS to determine whether or how implementation of the proposed project will affect species listed under provisions of the Endangered Species Act (1973, as amended). As lead federal agency for the BTOP, NTIA authorized Pioneer Environmental Services, Inc. (Pioneer) to contact the appropriate USFWS agency office (Cheyenne, WY) to determine how to proceed. It was agreed that Pioneer would prepare a letter that described the project, the species potentially affected, and make recommendations on a species by species basis as to whether or not there would be an adverse effect. A letter dated October 26, 2010 that described the project and its potential effect on listed species was sent to the USFWS Ecological Services Office (Cheyenne). The USFWS responded with their letter of concurrence on November 5, 2010 (Appendix E). They concluded that implementation of the WLCP as described would have "no effect" to any of the wildlife or plant

species potentially found within the WLCP areas of interest . The USFWS made two recommendations, the first regarding protection of avian species under provisions of the Migratory Bird Treaty Act (1918, as amended), and the second regarding special considerations for avoiding human interactions with grizzly bears, both of which were accepted by SST and have been incorporated into the project proposal. It should be noted that the wolverine became officially listed as a Candidate species during the process of writing this EA. Because of the inherent avoidance and minimization measures for the WLCP, this EA maintains that there would be "no effect" to this species as well. The USFWS does not consult on Candidate species so no mention of it is included in the November 5, 2010 letter from the USFWS.

## 5.4 WYOMING DEPARTMENT OF TRANSPORTATION

Much of the proposed WLCP fiber optic line would be buried within existing ROWs and easements shared with WYDOT. WYDOT has ROWs and easements on NPS and USFS lands, as well as on several conservation easements and other lands proposed for use by implementing the WLCP. SST has had several meetings with WYDOT in three offices: Rock Springs, Basin, and Jackson, Wyoming: and in the field for the Togwotee Pass Segment. The USFS and/or NPS were either kept informed of those meetings or in some cases participated. Details and ideas for the proposed routing were discussed, problems were identified, solutions discussed and eventually changes to both proposed routes were made as a result of those useful and constructive conversations. WYDOT and SST have now entered into further discussions and license application processes that would allow SST to use portions of the WYDOT ROWs on US 89/26, US 26, WYO 22, and WYO 390. The discussions and negotiations for use of those ROWs will be completed prior to construction within those ROWs and easements.

## 5.5 WYOMING STATE HISTORIC PRESERVATION OFFICE, CHEYENNE OFFICE

Under provisions of the National Historic Preservation Act (1966, as amended) the federal government must consider the effects of its actions on historic and cultural resources under Section 106. Consultation with SHPO was initiated by the NTIA for the WLCP on September 17, 2010. The resource consultant for the project followed up with contacts with the SHPO office and counterparts within the NPS and USFS to design and implement an inventory and survey of the proposed segments for the WLCP. The report, *Cultural Resource Investigations For The Investment In Expanding Broadband Communication Opportunities In The Greater Yellowstone Area, Teton County, Wyoming* (Cannon and Varnum 2010), was submitted to the NPS and USFS offices for their review as land management agencies in Moose and Jackson, Wyoming, respectively on November 24, 2010. Comments on the report in letter form were received from both agencies as of December 9, 2010. In their letter of January 28, 2011 (Appendix E), SHPO concurred for the benefit of the USFS and GTNP that no historic properties would be affected by implementing the proposed project (SHPO File #1210lkn003) and that after review of the report prepared for this project (USU Archeological Services, Inc. 2010) found that it met the Secretary of the Interior's Standards for Archaeology and Historic Preservation (48 FR 44716-42). Concurrence of that same finding was confirmed by SHPO on February 24, 2011 to the Department of Commerce (lead federal agency for the WLCP) that specifically references the two BTOP awards for the WLCP. Copies of the pertinent letters of correspondence regarding cultural resources that note agency concurrence, eligibility recommendations, conclusion of "No Adverse Effect on Historic Properties", and inadvertent discovery stipulation are found in Appendix E.

## 5.6 U.S. FOREST SERVICE, BRIDGER-TETON NATION FOREST OFFICE

SST met with representatives from the three national forests affected by the proposed projects, BTNF, Caribou-Targhee National Forest (CTNF), and Shoshone National Forest (SNF) very early in the award application process and again in August and September 2010 after SST had been awarded the two grants. It was agreed that BTNF would be the lead contact for the USFS during the process of preparing, reviewing, and issuing the special use permit (SUP) based on a Finding of No Significant Impact (FONSI) and coordinating release of the scoping notices to the newspapers of record for the purposes of their NEPA process. The BTNF also agreed to coordinate the review of NEPA documents among the three National Forests involved with the WLCP.

The proposed action has been reviewed by each of the three affected national forests, GTNP, and WYDOT. SST has submitted an application (SF299: Application for Transportation and Utility System and Facilities on Federal Lands) for a SUP that would authorize the proposed action to take place on National Forest System lands at the locations described in this EA. One SUP would be issued by the BTNF which will cover both the BTNF and the SNF but the CTNF would issue an amendment to a previously existing SUP that they have with SST. However, each national forest must independently consider the Proposed Action in light of management direction and standards established in their plans. The units will review their forest plans and determine if the Proposed Action is consistent with their plans, and if not what mitigation measures are necessary to be consistent. According to the BTNF, it is anticipated that the SUP would be ready for a signature in the spring of 2011 prior to beginning construction. The USFS will use the information in this EA to support a decision as to whether and under what circumstances it will issue SUPs to SST to implement the proposed project on NFS lands. Therefore, as part of the process for this EA, all federal, state and private land or ROW holders along the proposed alignments were contacted for suggestions on routing, permission, and ideas on other relevant issues for the land that they owned, managed, or controlled. In addition, the USFS distributed a scoping document on November 27, 2010 to the *Post Register* (Idaho Falls, ID) for the CTNF and the *Casper Star Tribune* (Casper, WY) for the BTNF and SNF. Members of the public were offered 30 days to comment on the proposal. The USFS will not issue a decision any sooner than 30 days from the date when scoping was initiated. In addition, the USFS cannot issue a decision until the EA is finalized and accepted by the USFS. In this case the earliest that a USFS FONSI] could be signed (which includes the SUPs) would be during February 2011. No public comments from scoping were received by the USFS at the conclusion of the 30-day period of notice (December 27, 2010).

## 5.7 NATIONAL PARK SERVICE

GTNP must grant a Utilities ROW to SST in order for them to install the proposed fiber optic cable within the national park. The ROW will be issued if the NPS is satisfied there are no significant impacts from the project. This will be based on the information found in this EA and will be formalized in the decision document (FONSI) prepared by GTNP. The permit for the ROW will contain the terms, stipulations and conditions associated with the installation and maintenance of the Togwotee Pass Segment. GTNP anticipates that it will take approximately 30 days to grant the ROW. This timeline is an estimate and is based on having a final EA by mid February 2011.

## 5.8 ENVIRONMENTAL JUSTICE

Environmental justice must be addressed by all federal agencies due to the type of project; there will be no environmental justice issues of a disproportionately high level or adverse human health

or environmental effects on minority and/or low income populations. Environmental justice has been broadly defined as, "the pursuit of equal justice and equal protection under the law for all environmental statutes and regulations without discrimination based on race, ethnicity, and /or socioeconomic status," including environmental equity, environmental racism, and environmental classism.

Title VI of the Civil Rights Act of 1964 prohibits intentional discrimination and the Supreme Court ruled that Title VI authorizes federal agencies to adopt implementing regulations that prohibit discriminatory effects as well as intentional discrimination. In February of 1994, President William Clinton signed an executive order that requires all federal agencies to develop strategies for incorporating environmental justice concerns into their regulatory, policy-making and enforcement strategies. Frequently, discrimination results from policies and practices that on their face are neutral but have discriminating effects.

Installation of the fiber optic cable is race and gender neutral and would not result in any discriminatory actions or violate the concept of environmental justice. However, the system would benefit all residents by improving business opportunities, educational services, public security, and emergency services for a major portion of Wyoming and eastern Idaho.

## 5.9 THE WILD AND SCENIC RIVERS ACT THROUGH NFSL AND NPSL

The WLCP crosses waters that are protected under the WSRA (1968, as amended) at four locations: Snake River at Moose (NPSL), Buffalo Fork River (twice east of Moran, NPSL), and Blackrock Creek (north of Blackrock Ranger Station, NFSL). The crossing of these rivers and creek requires that descriptions of the proposed crossings and a worksheet under provisions of Section 7 of the WSRA be submitted for review. These descriptions and worksheets were submitted to the NPS (GTNP Headquarters, Moose, WY and USFS (BTNF Office, Jackson, WY) on December 6, and December 7, 2010, respectively. The NPS responded with a signed letter of concurrence of "No Effect" on December 8, 2010. The USFS has decided that a Section 7determination is not necessary for the crossing of Blackrock Creek via boring under the bed and banks. Copies of both letters are found in Appendix E.

## 5.10 TETON COUNTY PLANNING COMMISSION

SST and Pioneer met with the Teton County Planning Commission in September 2010 to discuss what permitting might be required by Teton County to implement the WLCP within Teton County. Several meetings and contacts took place over a three-month period. The end result is that given the minimal amount of activity planned on private lands within Teton County, the Planning Commission for Teton County, on December 7, 2010, verbally agreed that SST qualified for an exemption from preparing an Environmental Analysis (Teton County planning process) for the WLCP project. SST is awaiting official confirmation of this exemption from Teton County. SST will still be responsible for obtaining routine permits such as grading and storm water management permits on lands regulated by the County.

## 5.11 TOWN OF JACKSON

The Town of Jackson and SST are into the negotiation stage of entering into a Franchise Agreement that will allow SST to construct, operate, and maintain the fiber optic facilities for SST within

Jackson's corporate limits. The provisions and stipulations of that agreement are being determined and the signing of the agreement is expected well prior to actual construction.

# 6.0 LIST OF AGENCIES AND PERSONS CONSULTED

## Federal Agencies

Bonneville Power Administration
Department of Commerce
Federal Aviation Administration
Federal Communication Commission
Federal Highway Administration
Western Federal Lands Highway Division
National Park Service
Grand Teton National Park
US Army Corps of Engineers
US Department of Agriculture
US Fish and Wildlife Service
US Forest Service
Shoshone National Forest
Bridger-Teton National Forest
Caribou-Targhee National Forest

## State Agencies, Wyoming

Wyoming Environmental Protection Agency-Water Quality
Wyoming Game and Fish Department
Wyoming State Historic Preservation Office
Wyoming Department of Transportation
District 3 (Jackson & Rock Springs)
District 5 (Basin & Dubois)

## Public Officials, Wyoming

Governor of Wyoming: Dave Freudenthal

## Local Governments

Town of Jackson
Teton County

## Utilities

Lower Valley Power & Light, Inc.
Dubois Telephone Exchange
Qwest

## Interest Groups

Friends of Pathways
Jackson Hole Land Trust

# 7.0 REFERENCES


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