4.0 DESCRIPTION OF ALTERNATIVES

4.1 ALTERNATIVES CONSIDERED

The primary purpose of an alternatives analysis is to provide decision-makers and the public with a reasonable number of feasible project alternatives that could attain project objectives while avoiding or reducing any of the project's significant adverse environmental effects.

The following criteria were used to screen potential alternatives:

- Does the alternative meet the project objectives to:
    - improve the quality of rural broadband in south-central Oregon, northeast California, and northwest Nevada.
    - make affordable broadband internet services available to currently underserved communities in these areas.
    - remain within the existing roadway right-of-way and be buried underground.
- Would the alternative reduce or avoid potential impacts to environmental resources?

4.1.1 System Alternatives

The applicant is currently constructing a separate fiber-optic line from Umatilla, Oregon to Prineville, Oregon. As a result, Prineville was the logical starting point for the fiber-optic line, and thus became the starting point for all alternatives considered. Reno, Nevada was identified as an ideal endpoint for the line due to the existence of fiber optic hubs into which the new line could connect. In determining the alignment for the proposed project, the applicant considered a number of system alternatives that included establishing new corridors along private land, installing aboveground fiber optic cables on new or existing poles, or bypassing California entirely.

4.1.1.1 Prineville-to-Reno Fiber Optic Project (Proposed Project)

The project alternative running line would extend 194 miles across the northern edge of Modoc County (59.8 miles) and the City of Alturas (1.6 miles), through Lassen County (129.6 miles), and into the eastern edge of Sierra County (3.1 miles).

The majority of the project would follow US 395, but a portion of the line between the communities of Standish and Buntingville in Lassen County, California, would follow Standish Buntingville Road (Lassen County Road A3) for 7.35 miles, and Cummings Road for 1.15 miles before returning to the US 395 right-of-way. As further described in Section 4.1.2, Route Alternatives, the exact placement of the running line within the existing transportation corridor has changed over several years of agency coordination and in

response to environmental surveys. As a result, the proposed project has been designed to maximize avoidance of sensitive environmental resources, particularly cultural and biological resources, while still remaining feasible to build.

4.1.1.2 Oregon/Nevada Only Alternative

The applicant considered latency[1] to be a critical factor in identifying a running line route that would be feasible from an engineering perspective. Accordingly, the applicant sought the most direct route from Prineville to Reno to maximize overall system efficiency. In addition, the applicant considered regions that lacked high-speed broadband service but which also hosted population centers with existing businesses, hospitals, and schools that would benefit immediately from additional broadband coverage. For example, the applicant considered a route alternative that bypassed California, instead running from Prineville through Bend and south into rural Nevada to Reno. However, because of the sparse population along this route option, far fewer residents would have benefitted from the installation. Furthermore, because access to electrical power also influences fiber optic line routing, this option would have required the applicant to build electrical infrastructure or rely upon large batteries or solar arrays, all of which would have increased the environmental impact of the route option. As a result, an alternative that bypasses California was not feasible and would not have met the objectives to serve underserved communities in rural areas or reduce impacts to environmental resources.

4.1.1.3 Private Land Alternative

The applicant considered siting the fiber optic route on private land rather than an existing, public right-of-way. However, because each of the several thousand private easements between Prineville and Reno would have required a lengthy lease negotiation, this alternative was dismissed as cost- and schedule-prohibitive. In addition, a new utility corridor located on private land would have likely resulted in more environmental impacts than one located within a previously established and well-traveled public transportation corridor because it would involve a significant increase in disturbance of previously undisturbed land. As a result, an alternative that was located on private land was not feasible and would not have met the objectives to stay mostly within existing right-of-way to reduce potential environmental impacts.

4.1.1.4 Co-location/Above-ground Infrastructure Alternative

In determining a feasible fiber optic cable route, the applicant investigated the possibility of co-locating the line with other fiber optic providers in Northern California. The applicant identified two other providers who were proposing to install fiber optic cables within the US 395 right-of-way in this region. Initially, both companies planned to hang their cables on new or existing poles rather than undergrounding the cables within the road right-of-way. Because undergrounding the cable was an objective of the applicant's system design, this option was rejected as a system alternative. Underground lines are more reliable than

[1] Latency is a term used to describe the delay in transmission through a medium such as a fiber optic cable. The greater the distance, the larger the transmission delay.

aboveground lines because aboveground lines are more prone to outages due to snow, wind, ice, accidents, and vandalism. Furthermore, underground infrastructure would result in less fire risks in comparison to above-ground infrastructure. The applicant continues to cooperate with these two other providers to identify future co-location opportunities.

4.1.2 ROUTE ALTERNATIVES

To avoid and minimize all environmental impacts, the running line and permanent ancillary equipment have been located within or immediately adjacent to an existing transportation corridor (i.e., right-of-way). In addition, location selection for ILAs, staging areas, and material storage yards prioritized locations within the existing roadway right-of-way or on previously disturbed parcels.

The exact placement of the running line within the existing transportation corridor has changed over several years of agency coordination and in response to environmental surveys that were conducted in 2019 and 2020. In instances where the running line would have directly or indirectly impacted a sensitive resource, the applicant sought to move the line to avoid the resource laterally (around the resource) or vertically (via boring beneath). The history of the evolution of the Project Alternative and routing considerations are further described below and as depicted in Figure 4-1.

4.1.2.1 Prineville-to-Reno Fiber Optic Project (Proposed Project)

The project alternative running line would extend 194 miles across the northern edge of Modoc County (59.8 miles) and the City of Alturas (1.6 miles), through Lassen County (129.6 miles), and into the eastern edge of Sierra County (3.1 miles).

The majority of the project would follow US 395, but a portion of the line between the communities of Standish and Buntingville in Lassen County, California, would follow Standish Buntingville Road (Lassen County Road A3) for 7.35 miles, and Cummings Road for 1.15 miles before returning to the US 395 right-of-way.

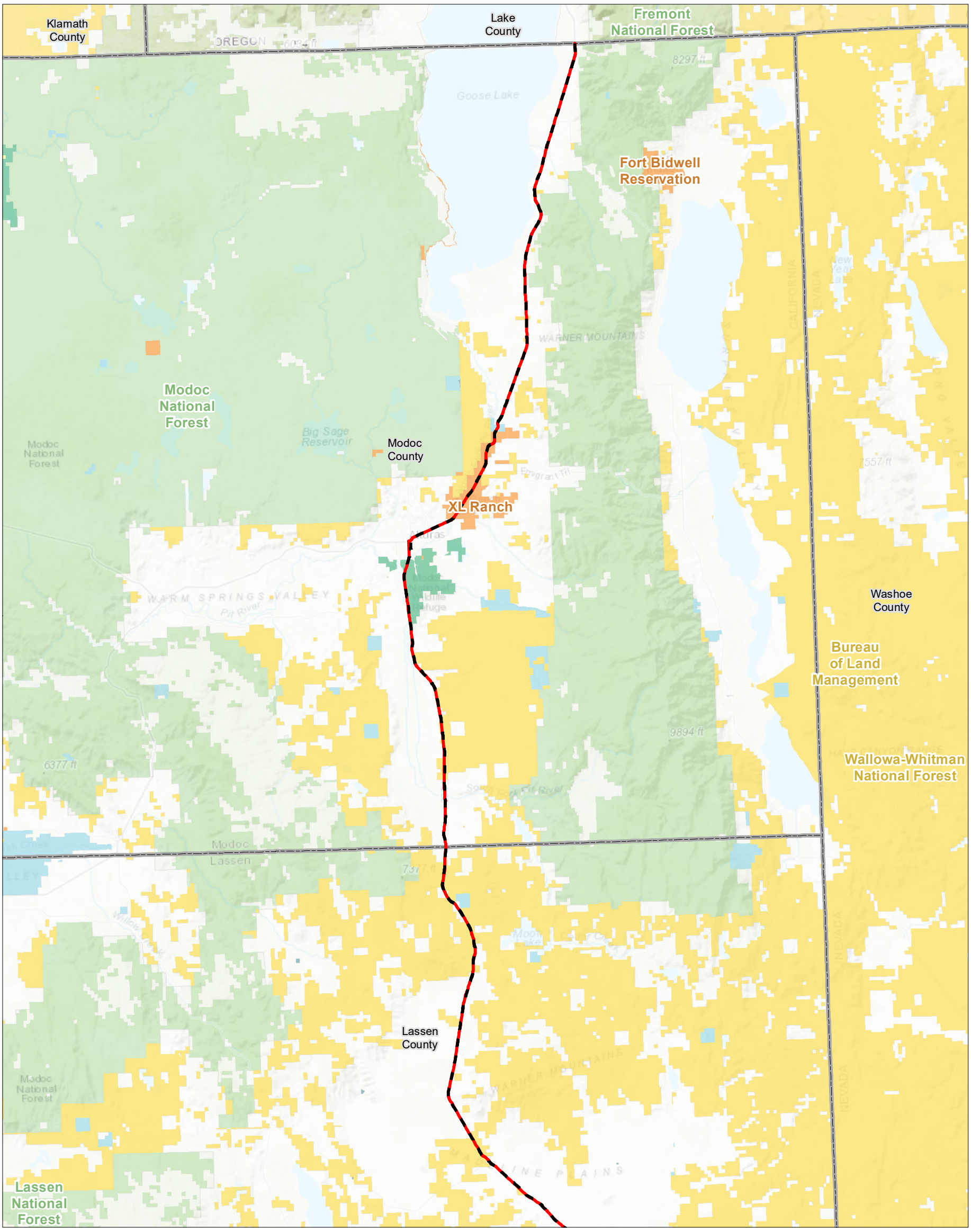
The applicant has made two sets of design refinements to the project alternative alignment, one in June 2019 and one in October 2019. The June 2019 running line had not yet considered the locations of sensitive environmental resources because the running line was created prior to onsite surveys. The June 2019 running line also did not identify locations of boring, trenching, and plowing construction methods.

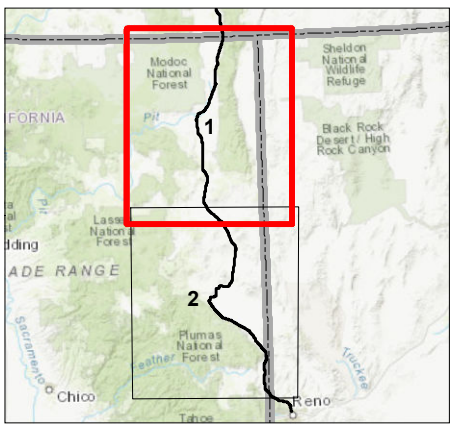
Following onsite field surveys, it was determined that the June 2019 running line had the potential to directly or indirectly impact sensitive environmental resources, including 52 wetlands, 57 special status plant populations, and 168 cultural sites potentially eligible for protection under the NRHP. The applicant made a number of lateral adjustments to the running line to avoid as many resources as possible, and resulted in the October 2019 running line. Figure 4-2 illustrates an example of such lateral adjustments.

The October 2019 running line covers the same geography and consists of the same components and consists of the same biological and cultural settings as the June 2019 running line. The main difference in is that the October 2019 running line would avoid more sensitive resources than its predecessor.

This page intentionally left blank.

U:\2272020011\03_data\gis_cad\gis\mxds\VPEA\Fig4_1_Zayo_Alt_Analysis.mxd Revised: 2021-02-10 By: jconstock





- US 395 Only Project Alternative
- Project Alternative

Land Ownership

- Bureau of Indian Affairs (BIA)
- Bureau of Land Management (BLM)
- US Fish and Wildlife (USFW)
- US Forest Service (USFS)
- Bureau of Reclamation (BOR)
- State
- Local
- Private or Unknown

0 5 10 Miles

1:450,000 (At Original document size of 11x17)

N

Stantec

Project Location
Prineville, OR to Reno, NV

2272020011
Prepared by JC on 2021-02-09
Technical Review by CS on 2021-02-09
Independent Review by CB on 2021-02-09

Client/Project
Zayo
Fiber Optic Line--Prineville to Reno
June 2020

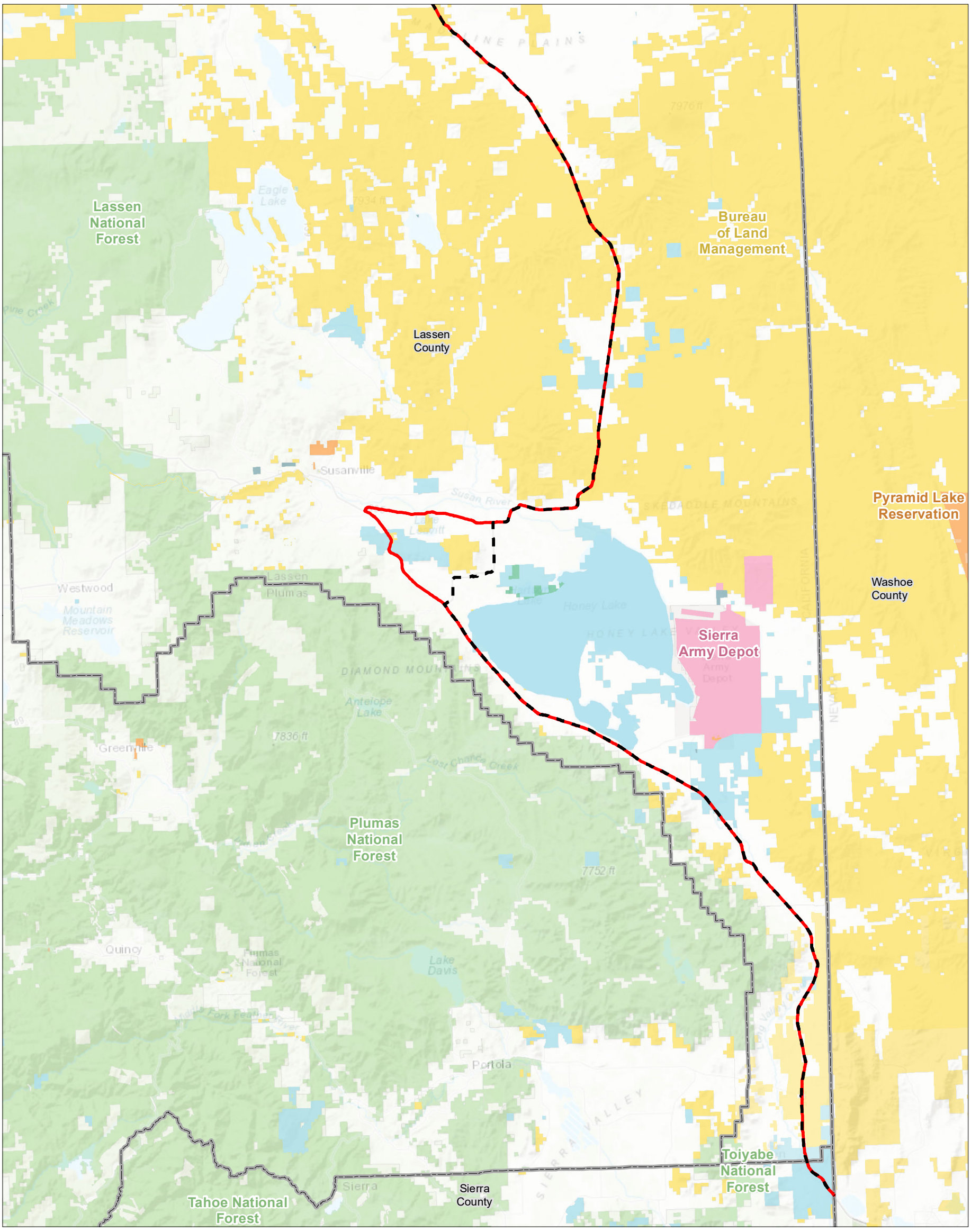
Figure No.
4-1

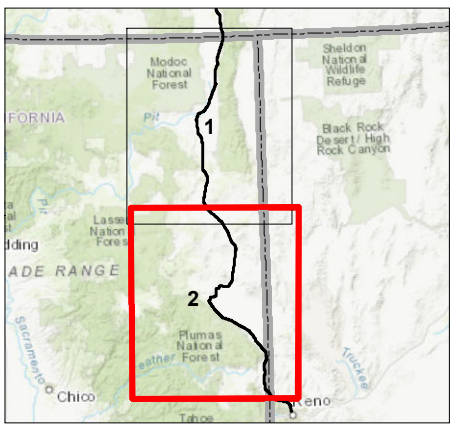
Title
Project Alternatives
Proposed Prineville to Reno
Fiber Optic Line

Notes

1. Coordinate System: NAD 1983 UTM Zone 10N
2. Data source: Esri 2020; USGS 2020; BLM 2020
3. Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

U:\2272020011\03_data\gis_cad\gis\mxds\PEA\Fig4_1_Zayo_Alt_Analysis.mxd Revised: 2021-02-10 By: jcornstock





- US 395 Only Project Alternative
- Project Alternative

Land Ownership
- Bureau of Indian Affairs (BIA)
- Bureau of Land Management (BLM)
- Department Of Defense (DOD)
- US Fish and Wildlife (USFW)
- US Forest Service (USFS)
- Other Federal
- State
- Local
- Private or Unknown

0 5 10 Miles
1:450,000 (At Original document size of 11x17)

N

Stantec

Project Location
Prineville, OR to Reno, NV

2272020011
Prepared by JC on 2021-02-09
Technical Review by CS on 2021-02-09
Independent Review by CB on 2021-02-09

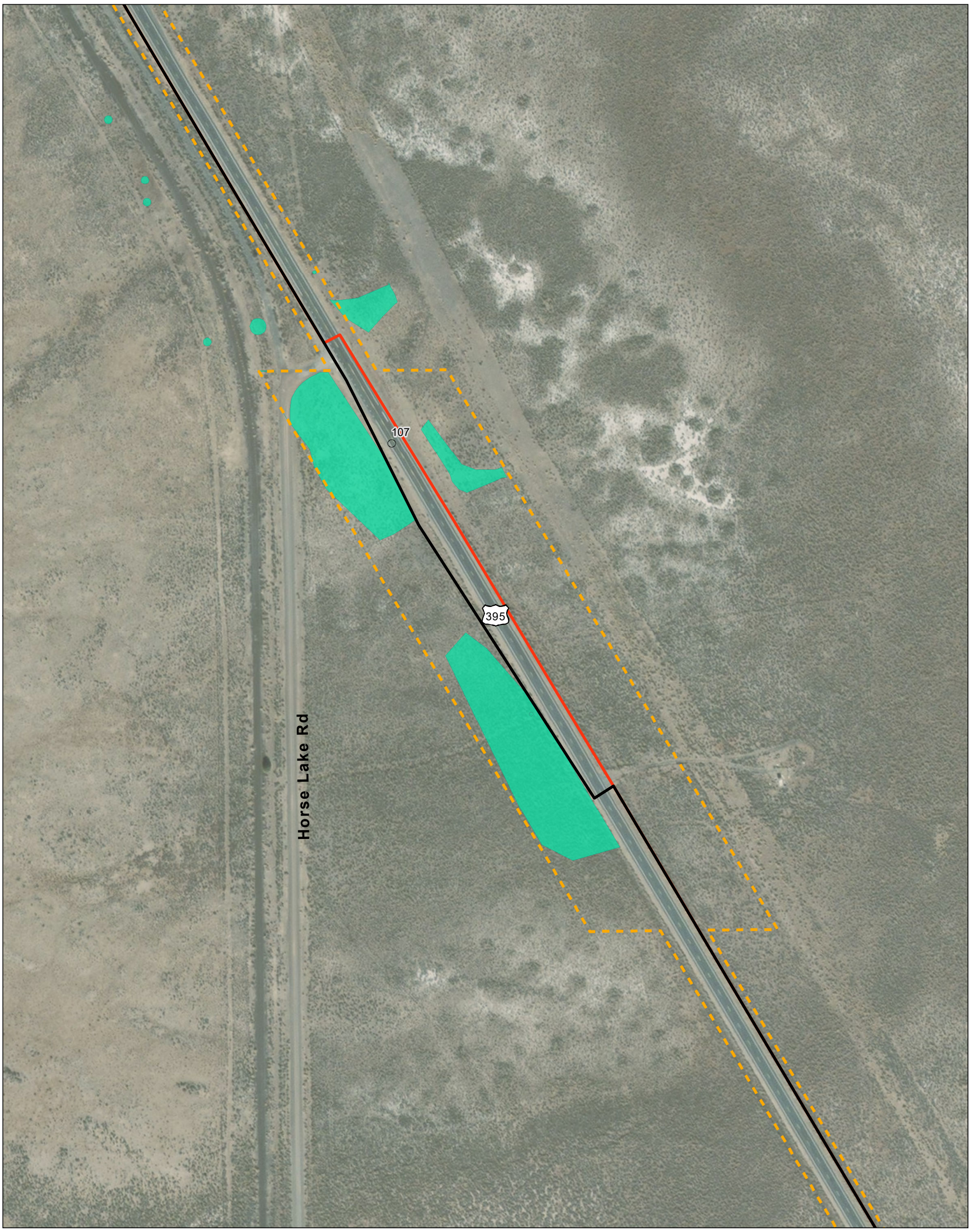
Client/Project
Zayo
Fiber Optic Line--Prineville to Reno
June 2020

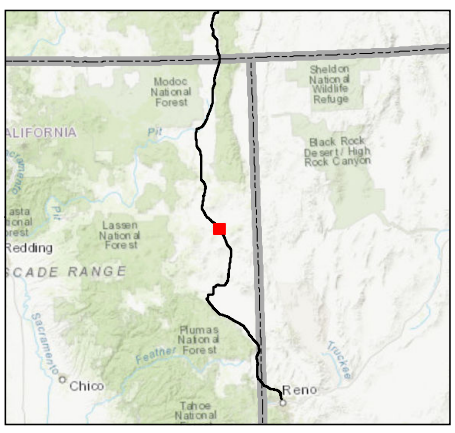
Figure No.
4-1

Title
Project Alternatives
Proposed Prineville to Reno
Fiber Optic Line

Notes
1. Coordinate System: NAD 1983 UTM Zone 10N
2. Data source: Esri 2020; USGS 2020; BLM 2020
3. Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

U:\2272020011\03_data\gis_cad\gis\mxd\cultural\CulResInvPrelimEvalRep_CA\Fig4_1_Zayo_Reroute.mxd Revised: 2021-01-26 By: jcornstock





- Milepost
- Alignment (June 2019)
- Reroute (October 2019)
- Right-of-Way
- Rare Plant

0 0.035 0.07 Miles

1:3,000 (At Original document size of 11x17)

N

Stantec

Notes

1. Coordinate System: NAD 1983 UTM Zone 10N
2. Data source: Esri 2020; USFWS 2020
3. Service Layer Credits: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c)

Project Location
Prineville, OR to Reno, NV

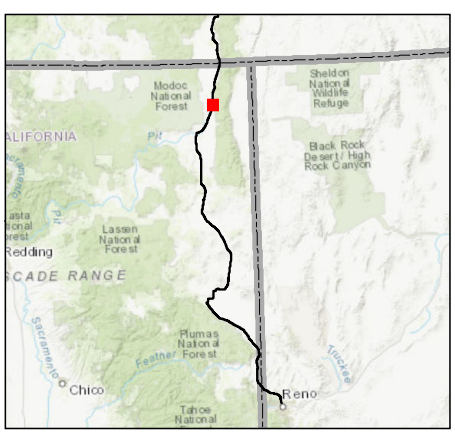
2272020011
Prepared by JC on 2021-01-27
Technical Review by CS on 2021-01-27
Independent Review by CB on 2021-01-27

Client/Project
Zayo
Fiber Optic Line--Prineville to Reno
January 2021

Figure No.
4-2

Title
Running Line Alternative Reroute
Proposed Prineville to Reno
Fiber Optic Line

U:\2272020011\03_data\gis_cad\gis\mxd\Cultural\CultResInvPrelimEvalRep_CA\Fig4_1_Zayo_Reroute.mxd Revised: 2021-01-26 By: jcomstock



Alignment (June 2019)
Reroute (October 2019)
Right-of-Way
Wetland
Rare Plant

0 0.035 0.07 Miles
1:3,000 (At Original document size of 11x17)

N

Stantec

Project Location
Prineville, OR to Reno, NV

2272020011
Prepared by JC on 2021-01-27
Technical Review by CS on 2021-01-27
Independent Review by CB on 2021-01-27

Client/Project
Zayo
Fiber Optic Line--Prineville to Reno
January 2021

Figure No.
4-2

Title
Running Line Alternative Reroute
Proposed Prineville to Reno
Fiber Optic Line

Notes
1. Coordinate System: NAD 1983 UTM Zone 10N
2. Data source: Esri 2020; USFWS 2020
3. Service Layer Credits: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c)

Specifically, the October 2019 running line would avoid six rare plant populations, one cultural resource site, and all wetlands and water bodies (via boring). For the October 2019 running line, the applicant also identified locations for each construction method (boring, trenching, and plowing), and implemented several small reroutes and changes in construction methods to accommodate input received during coordination with federal, state, and tribal entities.

Cultural site testing was ongoing at the time of the writing of this document, and the running line will therefore undergo further refinements to avoid cultural resources as practicable once the boundaries and depths of cultural sites are known. Avoidance of these sites may be achieved via boring or lateral reroutes.

4.1.2.2 US-395-Only Alternative (within California)

Under the US-935-Only Alternative, the project would continue to connect between Prineville and Reno; however, the entirety of the running line would follow US 395. The project would be approximately 9 miles longer than the proposed project and would remain in Caltrans roadway right-of-way. The US-395-Only Alternative running line would extend 203 miles across the northern edge of Modoc County (60.4 miles) and the City of Alturas (0.5 mile), through Lassen County (139 miles), and into the eastern edge of Sierra County (3.1 miles). As a result, the US-395-Only Alternative would have a larger area of disturbance than the proposed project. Ancillary features and work areas identified as part of the proposed project alternative within Standish and Alturas would be relocated as part of the US-395-Alternative. While the location of these facilities were not determined, they would be similar in size to the proposed project, adjacent to the running line, and located within previously disturbed areas.

As described above, the applicant's goal in siting the proposed running line within an existing transportation corridor (i.e., right-of-way) was to minimize impacts to sensitive environmental resources. In addition, latency was also an important factor in identifying a route. While the US-395-Only Alternative would avoid the need to impact local roadway rights-of-way by remaining on US 395, this alternative would potentially result in increased environmental impacts. Furthermore, the US-395-Only Alternative would be less direct, and therefore less efficient, than other route options (see Project Alternative).

4.2 NO PROJECT ALTERNATIVE

Under the No Project Alternative, the fiber optic line would not be granted authorization by CPUC to provide broadband capacity to rural communities. The project would not provide connectivity between the network hub in Prineville and the communities of Bend and La Pine in Oregon; Alturas, Lakeview, and Susanville in California; and the greater Reno/Sparks metropolitan area in Nevada. These communities would not experience improved reliability of current telecom services.

4.3 REJECTED ALTERNATIVES

In designing the project alternative, the applicant considered the screening criteria listed in Section 4.1, Alternatives Considered. Proposed alignments that did not meet the screening criteria were rejected.

As such, the applicant rejected or dismissed design alternatives that would conflict with any of the above screening criteria and rerouted the alignment, chose an alternative construction method, or placed the running line in a more sensitive area.

The Oregon/Nevada Only Alternative was rejected from further consideration because of the sparse population along this route option and the lack of electrical infrastructure would have led to increased environmental impacts. As a result, objectives to provide broadband internet services to rural, underserved communities and to reduce impacts to environmental resources would not have been met.

The Private Land Alternative was rejected from further consideration because each of the several thousand private easements between Prineville and Reno would have required a lengthy lease negotiation, this alternative was dismissed as cost- and schedule-prohibitive. In addition, a new utility corridor located on private land would have likely resulted in more environmental impacts than one located within a previously established and well-traveled public transportation corridor and would have resulted in more impacts to previously undisturbed lands. As a result, objectives to remain within an existing roadway right-of-way and to reduce impacts to environmental resources would not have been met.

The Co-location/Above-ground Infrastructure Alternative was rejected from further consideration because underground lines are more reliable than aboveground lines as aboveground lines are much more prone to outages due to snow, wind, ice, accidents, fire, and vandalism. As a result, objectives to remain within an existing roadway right-of-way and be buried underground would not have been met.

~~**This page intentionally left blank.**~~