Environmental Assessment

Incline Village General Improvement District Effluent Pipeline Phase 2 Replacement Project

September 2023

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Table of Contents

Figures

Tables

Appendices

Acronyms and Abbreviations

Abbreviation	Definition
ADT	Average Daily Traffic
APN	Assessor's Parcel Number
ARV	Air/vacuum Relief Valves
APE	Area of potential effects
BMPs	Best Management Practices
BWPC	Bureau of Water Pollution Control
CAA	Clean Air Act
CEQ	White House Council on Environmental Quality)
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
Code	TRPA Code of Ordinances
CWA	Clean Water Act
DM	Decision Memorandum
EA	Environmental Assessment
EIS	Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FONSI	Finding of No Significant Impact
FR	Federal Register
IEC	Initial Environmental Checklist
IVGID	Incline Village General Improvement District
MBTA	Migratory Bird Treaty Act
MOU	Memorandum of Understanding
NAA	Non-Attainment Area
NAAQS	National Ambient Air Quality Standard
NDEP	Nevada Division of Environmental Protection
NDOT	Nevada Department of Transportation
NDOW	Nevada Division of Wildlife
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NNHP	Nevada Natural Heritage Program
NRS	Nevada Revised Statutes
SHPO	State Historic Preservation Officer
SR	State Route
TRPA	Tahoe Regional Planning Agency
US-50	United States Highway 50
USACE	United States Army Corps of Engineers
USDA	U.S. Department of Agriculture
USEPA	U.S. Environmental Protection Agency
USFS	United States Forest Service
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VMT	Vehicle Miles Traveled
WRRF	Water Resource Reclamation Facility

1 Purpose and Need for Action

1.1 Proposed Action

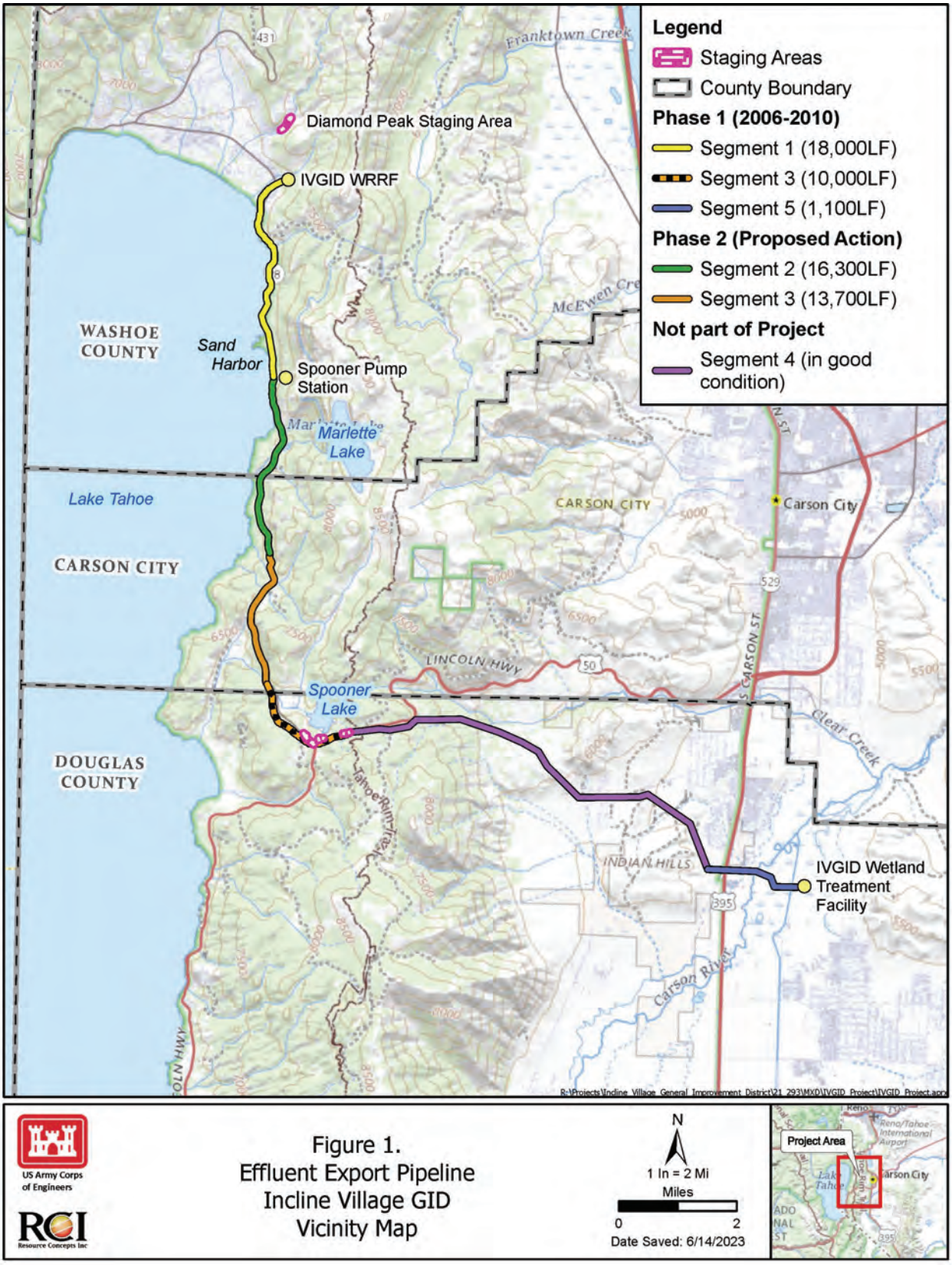
Pursuant to the National Environmental Policy Act (NEPA), as amended, this Environmental Assessment (EA) has been prepared to evaluate the environmental effects of replacing approximately 24,500 linear feet of effluent pipeline within the Incline Village General Improvement District (IVGID). The Proposed Action is Phase 2 of a larger pipeline replacement project that began in 2006 (Figure 1). Phase 1 of the IVGID Effluent Export Pipeline Project was completed in 2010. Phase 1 of the project included:

- Replacement of four miles of Segment 1 within State Route 28 (SR-28) from Incline Village to Sand Harbor,
- Relocation of approximately two miles of Segment 3 from the existing cross-country route through the Nevada State Park at Spooner Lake to a new alignment in the highway right-of-way around Spooner Summit,
- Replacement of approximately 500 feet of the export line approach to the Carson River crossing with a new parallel export line at a lower elevation,
- Replacement of the pumps and installation of new standby power at Spooner Pumping Station,
- Construction of a new diversion system to bypass flows around the wastewater treatment plant to preserve emergency wastewater storage capacity,
- Installation of a corrosion control system at IVGID's Burnt Cedar facility to protect piping that remains in place,
- Removal of existing wastewater treatment facilities at Sand Harbor and Memorial Point, and
- IVGID water main extension along SR-28 to replace the Rocky Point subdivision water system and provide fire protection.

This EA analyzes the effects of Phase 2 of IVGID's Effluent Pipeline Replacement Project, and tiers off the findings made in the USFS 2019 Final EA for the SR-28 Shared Use Path, Parking, Safety and Environmental Improvements Project (USFS 2019 Final EA). The USFS 2019 Final EA describes the environmental conditions of the project area and evaluates the environmental effects of relocation of the pipeline from SR-28 to the shared pathway. The USFS 2019 Final EA proposed to relocate the effluent pipeline into the SR-28 Shared Pathway located on State Park and National Forest Service lands.

Due to delays in funding and construction of the shared pathway that would subsequently create delays in replacement of IVGID's ageing pipeline and potential impacts to water quality, location for the pipeline has been changed. The pipeline will now be located within the SR-28 Nevada Department of Transportation (NDOT) right-of-way from the Spooner Pump Station to the north side of Spooner State Park. As Phase 2 Effluent Pipeline Replacement Project will include many of the same project activities and result in similar environmental effects, this EA evaluates the aspect of the project which has changed, location of the pipeline. The Proposed Action Alternative is the only environmental effect that differs from the USFS 2019 Final EA . This EA includes a comparison of effects to the No Action Alternative, and identifies measures to avoid or minimize environmental effects, where practicable.

Figure 1. Project Vicinity Map.



This EA was prepared by Resource Concepts, Inc., in coordination with the U.S. Army Corps of Engineers, Sacramento District (USACE), which is the lead federal agency under NEPA (42 USC §4321, et seq.). IVGID is the non-federal sponsor of this project. The proposed action is being considered for implementation under the authority of Section 595 of the Water Resources Development Act of 1999, Public Law 106-53, as amended.

1.2 Project Area

The project area includes the effluent pipeline and four staging areas. The effluent pipeline project corridor is located within the center of the SR-28 south bound travel lane south of Incline Village, Nevada above the east shore of Lake Tahoe. The Proposed Action proposes to replace approximately 24,500 linear feet of Segments 2 and 3 from Spooner Pump Station to just north of the entrance to Spooner Lake State Park through Washoe and Carson City Counties, Nevada. The Project Area also includes three main staging areas located at Spooner Summit in Douglas County, Nevada, and a secondary staging area located in the lower paved parking lot of Diamond Peak Ski Resort (Figures 2 and 3).

1.3 Authority

Authorization for the construction of the IVGID Effluent Pipeline Phase 2 Replacement Project is provided under Section 595 of the Water Resource Development Act of 1999, as amended, which allows USACE to provide design and construction assistance to non-federal, publicly owned entities in rural Montana, Idaho, and Nevada for water-related environmental and resources protection and development projects. Eligible projects include wastewater treatment and related facilities, and water supply and related facilities. Following project completion, the non-federal sponsor, IVGID, will assume full responsibility for operation and maintenance.

1.4 Project Purpose and Need for Action

The purpose of the Proposed Action is to replace approximately 24,500 linear feet of effluent pipeline within portions of Segments 2 and 3. Based on a condition assessment completed in 2018, this segment of pipeline has a deficient amount of structural pipe support remaining and needs replacement (HDR 2020). Several export line leaks have been detected since 2013. Given the location of the pipeline within the Lake Tahoe watershed, effluent leaks from the pipeline threaten the water quality within the lake. Replacing this section of pipeline effectively alleviates the risk of leaks or line failures, which could result in discharge of effluent into the environmentally sensitive Lake Tahoe.

Figure 2. Project Area.

Figure 3. Project Staging Areas.

1.5 Project Background

IVGID operates a wastewater collection, treatment, and effluent export system that serves the communities of Incline Village and Crystal Bay, and the Nevada State Parks (Sand Harbor, Spooner Lake, and Memorial Point) located within the Lake Tahoe Basin. An important component of this system is the 20.5-mile effluent pipeline that travels from the Water Resource Reclamation Facility (WRRF) in Incline Village to Carson Valley and terminates at a 900-acre constructed wetland treatment facility owned and operated by IVGID. The existing pipeline is generally located within the west (lakeside) shoulder of SR-28 right-of-way from Sand Harbor State Park to Spooner Summit, then continues east over Spooner Summit into Carson Valley (Figure 1). The portion of the pipeline within SR-28 and U.S. Highway 50 (US-50) is within the NDOT right-of-way.

The original pipeline was installed in 1970 and has experienced multiple leaks and failures due to on-going corrosion. Since 2003, IVGID has been pursuing replacement of the export line within the Tahoe Basin. Scoping for Phase 1 of the project investigated the entire 20.5 miles of export pipeline and prioritized the replacement schedule to maintain the critical infrastructure. During Phase 1 of the project, all four miles of Segment 1 within the NDOT right-of-way were replaced, and approximately two miles of Segment 3 were relocated into the NDOT right-of-way from its previous alignment through Spooner Lake State Park. In 2017 - 2018, a critical repair project replaced a total of approximately 1,200 linear feet over 13 separate repairs (HDR 2022). Segments of IVGID's effluent export pipeline are shown in Figure 1.

Within the Tahoe Basin, the pipeline is divided into three segments:

- Segment 1 – low pressure supply pipe from the WRRF to the pump station near Sand Harbor.
- Segment 2 – welded steel high pressure discharge pipe exiting Spooner Pump Station to Spooner State Park.
- Segment 3 – remaining lower pressure jointed steel transmission pipeline from north entrance of Spooner State Park to Spooner Summit.

Segments 4 and 5 are located outside of the Project Area and Tahoe Basin:

- Segment 4 extends from Spooner Summit through Clear Creek Canyon into Carson Valley remains in good condition.
- Segment 5 includes the final 1,100 feet of pipeline and was previously replaced as part of Phase 1.

As analyzed within this EA, the Proposed Action will replace all of Segment 2 (12,800 linear feet) located south of the Spooner Pump Station and the remaining portion of Segment 3 pipeline (11,700 linear feet) located within the NDOT right-of-way. Approximately 5,500 linear feet of Segment 2 are to be replaced as a separate, independent project in 2023 and is not included within the Proposed Action funded by USACE. These are the only remaining stretches of effluent pipeline along the east shore of Lake Tahoe that have not been replaced. Segment 3 experienced significant leaks in 2009 and 2014, and subsequent investigations confirmed progressive corrosion of the bell and spigot pipe with wholesale replacement required. A conditional assessment of Segment 2 determined that there is significant corrosion along this segment and full replacement is needed.

1.6 NEPA Approach

This EA builds upon the environmental analyses of potential impacts to sensitive resources that were disclosed in the USFS 2019 Final EA and the Decision Memorandum (DM)/Finding of No Significant Impacts (FONSI) (USFS 2020). These documents are incorporated by reference.

The USFS 2019 Final EA analyzed the overall effects from construction of an eight-mile shared-use path, highway improvements, and relocation of utilities, including IVGID's effluent pipeline, into the new shared-use pathway. The approximate 24,500 linear feet of IVGID's effluent pipeline proposed for replacement under the Proposed Action Alternative in this EA is located within the area previously analyzed in the USFS 2019 Final EA. The USFS 2019 Final EA disclosed the direct, indirect, and cumulative environmental effects that would result from the project. The USFS Lake Tahoe Basin Management Unit determined after review of the environmental effects described in the EA, that the proposed actions would not have a significant effect on the quality of the human environment and, therefore, a FONSI was signed in 2020.

The Proposed Action in this EA differs from the actions analyzed in the USFS 2019 Final EA with regards to the location of the new effluent pipeline. The USFS 2019 Final EA analyzed the effects of relocating the IVGID effluent line from the road shoulder into the shared pathway. The Proposed Action in this EA will relocate the effluent line from the shoulder of the road to the center of the southbound lane of travel within SR-28. These changes in the proposed relocation of the pipeline will require temporary lane closures during construction that will create effects to transportation that were not previously analyzed in the USFS 2019 Final EA. All other effects to the environment are anticipated to remain the same and have already been adequately addressed in the USFS 2019 Final EA. Effects to transportation from the Proposed Action are addressed in Chapter 3 of this EA. The EA was prepared in accordance with the NEPA Implementation Regulations, as amended in 2022 (40 CFR §1501.6 et seq., §1501.9 et seq., and §1506.3 et seq.).

1.7 Previous NEPA Documentation

The Proposed Action is located within the area of effects addressed in the USFS 2019 Final EA for the SR-28 Shared Use Path, Parking, Safety and Environmental Improvements Project (USFS 2019 Final EA). The USFS 2019 Final EA analyzed the impacts of construction of a shared-used pathway, highway pullouts, relocation of utilities (including the effluent pipeline), and stormwater mitigation features along SR-28 from Sand Harbor to Spooner Junction. The DM/FONSI for the project was published in November 2020. The USFS 2019 Final EA and DM/FONSI are incorporated by reference in this document. The following are the full descriptions of the documents referenced in this EA:

- USDA Forest Service, Lake Tahoe Basin Management Unit. 2019. SR-28 Shared Use Path, Parking, Safety and Environmental Improvements Project, Final Environmental Assessment. December 2019.
- USDA Forest Service, Lake Tahoe Basin Management Unit. 2020. SR-28 Shared Use Path, Parking, Safety and Environmental Improvements Project Decision Notice/Finding of No Significant Impact.

The Final EA and DM/FONSI can be found here: USFS SR-28 Corridor Plan.

1.8 Decision Needed

The USACE Sacramento District Commander must decide whether the Proposed Action qualifies for a FONSI under NEPA, or whether an Environmental Impact Statement (EIS) must be prepared. If the EA determines that the impacts are less than significant, then the agency can prepare a FONSI and proceed with the Proposed Action.

2 Alternatives

2.1 No Action

Under the No Action Alternative, the existing sections of Segment 2 and Segment 3 will not be replaced, allowing the existing effluent export pipeline to continue to degrade, and increasing the potential for failure, effluent leakage, and potential discharge of wastewater into the surrounding environment, including Lake Tahoe and its tributaries.

2.2 Proposed Action – Effluent Pipeline Replacement

The Proposed Action Alternative will replace approximately 24,500 linear feet of the effluent export pipeline located within the SR-28 NDOT right-of-way from the Spooner Pump Station to the north side of Spooner State Park. The Proposed Action is the second phase of IVGID's Effluent Pipeline Replacement Project. Phase 1 of the project was completed between 2006-2010.

One alternative to the Proposed Action was considered as part of the USFS 2019 Final EA, which proposed to construct approximately eight miles of a shared-use path from Sand Harbor to Spooner Junction. A component of this project included relocation of IVGID's effluent pipeline into the shared pathway. However, due to delayed funding and construction of the pathway, and critical need for the effluent pipeline replacement, IVGID has chosen to proceed with the effluent pipeline replacement within SR-28 as proposed under the Proposed Action Alternative in this document.

2.2.1 Pipeline Alignment and Staging Areas

The existing IVGID effluent pipeline is located within the NDOT right-of-way along the lakeside of SR-28. This section of pipeline extends from IVGID's Spooner Pump Station approximately 30,000 feet south, approximately one mile north of Nevada US-50 (Figure 2).

The primary staging areas are located within the NDOT right-of-way near the intersection of SR-28 and US-50 in Douglas County within existing disturbance areas (Figure 3). A fourth staging area for staging pipe is located in the paved lower parking lot of Diamond Peak Ski Resort (Figure 2).

2.2.2 Pipeline Replacement

The existing effluent pipeline consists of a 16-inch diameter welded steel pipe with cement mortar lining and spiral wrapped asphalt coating. Several current industry-available rehabilitation technologies were analyzed in the Export Pipeline Preliminary Design Report, prepared by HDR, July 27th, 2022, to determine those appropriate for the project. Specific rehabilitation methods are appropriate only for specific pipe materials, diameters, and installation lengths. Based on these parameters and the high-

pressure rating required for the line, IVGID selected to use an open-cut methodology that relocates the pipeline toward the center of the southbound travel lane. With few exceptions, the existing pipeline will be abandoned in place.

2.2.3 Project Components

Effluent Pipeline

The new segments of pipeline will consist of approximately 5,000 linear feet of 16-inch steel pipe with welded joints and 25,000 linear feet of 16-inch ductile iron pipe. With few areas of exception, the existing pipe will be abandoned in place. Approximately 720 linear feet of pipeline will be removed in two separate locations to avoid conflict with NDOT infrastructure. IVGID retains continued responsibility for the remaining pipeline within the NDOT right-of-way should its removal or maintenance be required.

Air Relief and Blowoff Valves

To provide for the release and introduction of air necessary for proper operation of the system, air/vacuum relief valves (ARVs) will be installed at 11 high points along the pipeline. The ARVs will be installed in the road shoulder in vaults no more than 20 feet from the pipeline and in the same location or adjacent to existing ARVs. The approximate six-foot diameter air/vacuum assembly cover and concrete collar will be flush with the ground and will not cross the edge of the lane stripe. A four-inch diameter steel air release pipe will provide venting and extend approximately six feet above the ground.

Blowoff manholes will be installed along the pipeline at five low points to allow draining of the pipe. The blowoff manholes will be located on roadway shoulders and flush with the ground.

Utility Markers

Utility markers will be installed at intervals no more than 1,000 feet apart, at every angle point along the alignment, and if nonconcentric with highway at least every 300 feet. Markers will be made of pressure treated timber (4x4) and extend approximately two and a half feet above the ground.

2.2.4 Project Construction

Project construction consists of the following components:

Installation of Best Management Practices (BMP)

All construction activities will adhere to applicable local, state, and federal regulations for erosion and sediment control. Site specific BMPs will be implemented pursuant to:

- USFS 2019 Final EA – Appendix A Design Features,
- Requirements of the Tahoe Regional Planning Agency (TRPA) Standard Conditions of Approval, and
- Nevada's General Discharge Permit for Construction Activities.

All erosion and sediment control measures will be consistent with The Handbook of Best Management Practices (TRPA 2021) and NDOT's Construction Site BMPs Manual (NDOT 2006). BMPs will be installed along the active work area and removed as work within each section is completed and stabilized.

A Stormwater Pollution Prevention Plan (SWPPP) will be prepared by the contractor for the project site, including the four staging areas. The plan will provide erosion and sediment controls, including stabilization of soils at the end of each workday. Temporary erosion and sediment control measures may include, but are not limited to, using berms, swales and ditches, silt fencing, weed free gravel or crushed stone, mulching and soil stabilization, slope drains, and other methods. Stockpiles will be hauled to staging areas or used immediately to reduce the need for stockpiles within the roadway closures. Temporary erosion and sediment controls will be maintained in working condition until soil cover has been permanently stabilized. A dewatering plan will be prepared as part of the SWPPP and be reviewed and approved by TRPA and NDOT prior to use.

Pipeline Installation

The effluent pipeline trench will be constructed using open-cut trenching technique as shown in Figure 4. The new trench will parallel the existing alignment and will be located within the center of SR-28 southbound travel lane. Existing paving will be saw cut. The trench will be excavated to a minimum depth of 57 inches to comply with NDOT's required 30-inch depth of coverage, with a 16-inch pipe, minimum four-inches of bedding and seven-inch temporary asphalt patch, but total depth will vary based on topography. Once the new pipe has been installed and tested and then backfilled with native material and compacted. A seven-inch-thick temporary asphalt patch will cover the trench until full lane paving is completed at the end of each construction season.

The existing pipeline will remain in service during construction and abandoned in place, with a few areas of exception, once construction is complete.

The preliminary trench section assumes:

- 54-inch-wide trench,
- Seven-inch-thick asphalt replacement with full lane width two-inch mill and overlay, 12-inch-thick aggregate base under asphalt, and
- Intermediate backfill (below the aggregate base), and four-inch minimum pipe bedding below the pipe.

The proposed pipeline will cross several existing NDOT owned drainage culverts crossing under the highway. The proposed pipeline will be installed in an open trench excavation for overcrossings and for under crossings where the NDOT pipe is 48 inches or less in diameter. Trenchless technology (e.g., pipe ramming, jack and bore) is proposed where existing undercrossing is greater than 48 inches in diameter. A minimum of 12 inches of clearance will be maintained at all crossing locations.

Figure 4. Example of open trench excavation and pipeline installation adjacent to highway in Lake Tahoe Basin.

Traffic Control

The pipeline will be installed within the center of the southbound SR-28 travel lane and will require single lane closures to complete. Traffic delays due to construction will be limited to a maximum of 30 minutes with no more than 20 minutes of stopped traffic pursuant to NDOT permit requirements. The live traffic lane will be separated from the open trench areas with concrete barrier rails, when required. A pilot car will be used to direct one-way traffic around the work zone. All work will conform to the Nevada Department of Transportation Standard Specifications and Manual of Uniform Traffic Control Devices. Construction will be coordinated with all property owners to maintain driveway and private road access.

Full highway closures may occur from May 1 to Memorial Day or after Labor Day pending approval from NDOT. The closure will be in place from Sunday night at 7:00 pm through 12:00 pm on Friday. The highway will be re-opened for weekend traffic. Notification of full highway closures will be published a minimum of 30 days in advance of any closure on IVGID, NDOT and other appropriate websites, and local newspapers. Information signs will be posted on connecting highways to advise travelers of an alternate route.

2.2.5 Schedule

Construction of the effluent pipeline under the Proposed Action started in May 2023 and will be completed by October 15, 2026. Active construction will occur from May 1 to October 15 during each construction season, unless otherwise authorized by the TRPA. Figure 5 and Table 2-1 below illustrates the schedule of replacement for Segments 2 and 3 included within the Proposed Action. Construction will occur continuously from 7:00 pm on Sunday evening through 12:00 pm on Fridays. No work will occur during weekends or holidays.

Figure 5. Schedule of pipeline construction locations by year and segment.

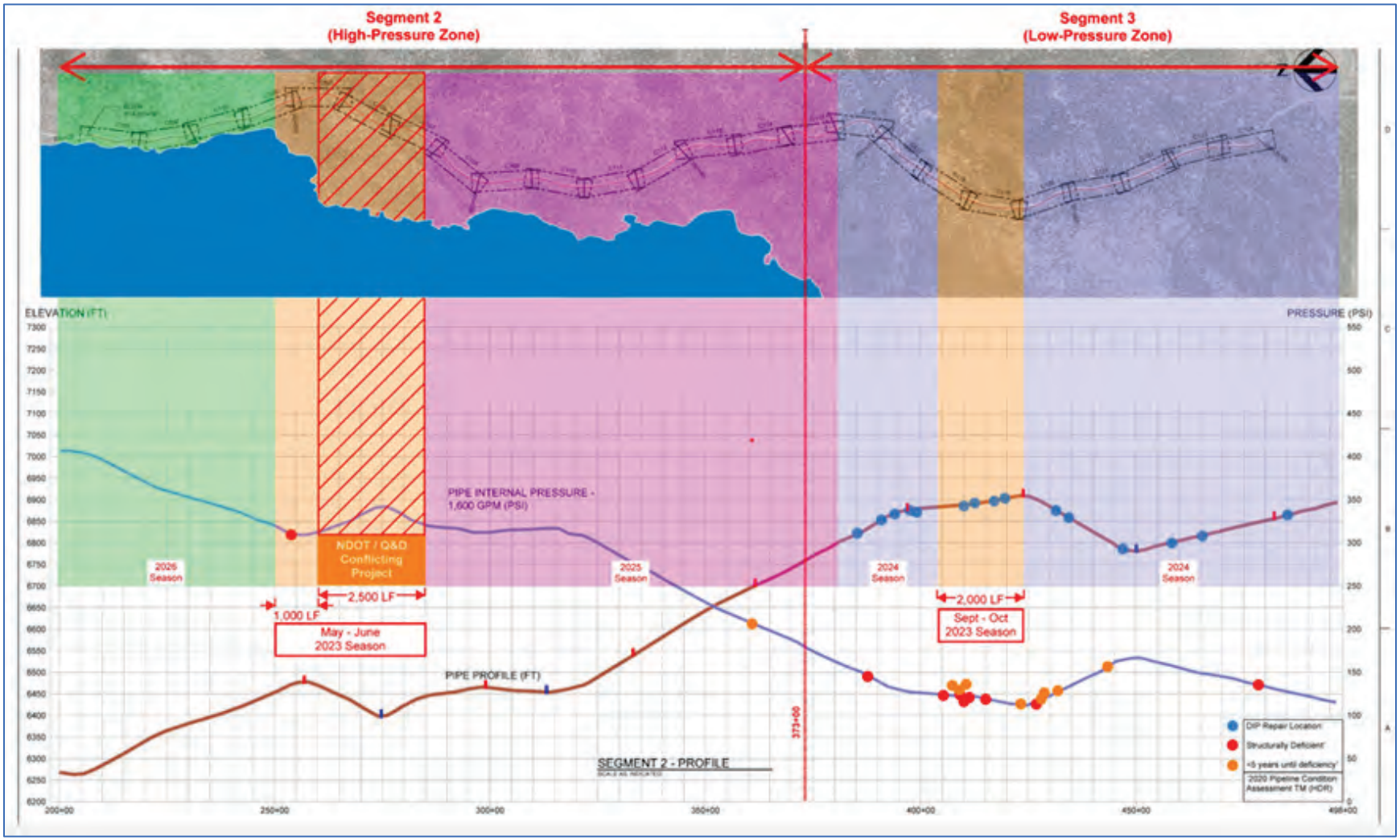


Table 2-1. Schedule of Pipeline Replacement.

Month & Year	Approximate Length	Segment
2023 May – June – Phase 2A	3,500 linear feet	2f
2023 September – October – Phase 2B	2,000 linear feet	3
2024 May – October 2024	10,000 linear feet	3
2025 May – October 2025	9,000 linear feet	2
2025 May – October 2025	500 linear feet	3
2026 May – October 2026	5,000 linear feet	2

2.2.6 Site Stabilization

All temporarily disturbed, unpaved areas will be revegetated with native species consistent with TRPA BMPs each fall following the construction season.

All construction will be winterized by October 15 to reduce water quality impacts associated with winter weather as follows:

1) Temporary erosion controls will be installed,
2) Temporary vegetation protection fencing shall be installed,
3) Disturbed areas shall be stabilized,
4) Onsite construction slash and debris shall be cleaned up and removed,
5) Where feasible, mechanical stabilization and drainage improvements will be installed, and
6) Spoil piles will be removed from site.

3 Affected Environment and Environmental Consequences

3.1 Approach to Analysis

The NEPA Implementing Guidelines published in May 2022 (40 CFR §§ 1500- 1508) provides guidance to federal agencies on the preparation of environmental assessments. The Guidelines state that when the actions proposed have been covered by a previously approved environmental assessment, an agency may adopt the findings of the previous EA.

§ 1506.3 (c) states:

Environmental assessments. If the actions covered by the original environmental assessment and the proposed action are substantially the same, the adopting agency may adopt the environmental assessment in the findings of no significant impact and provide notice consistent with § 1501.6 of this chapter.

§ 1501.4. Combining documents.

Agencies should combine, to the fullest extent practicable, any environmental document with any other agency document to reduce duplication and paperwork.

The Proposed Action, Alternative 2, of this EA is the replacement of approximately 24,500 linear feet of Segments 2 and 3 of the IVGID effluent export pipeline. The environmental effects of the No Action Alternative and Proposed Action Alternative are fully analyzed and discussed in Chapter 3 of the USFS 2019 Final EA. The potentially affected environment for this Proposed Action includes those features with the possibility of being impacted by the replacement of the effluent pipeline, including installation of blow valves and air relief valves, and the temporary use of four staging areas for equipment and materials for the duration of active project construction. Construction equipment and materials will be stored at the contractor's storage facility located in Lockwood, Nevada when not in use.

3.1.1 Project Design Features – Avoidance and Minimization Measures

The SR-28 Shared Pathway, Safety and Environmental Improvements Project included resource-protection design features to avoid and minimize impacts to sensitive resources from the project. The USFS 2019 Final EA analyzed project impacts assuming implementation of the Design Features. These Design Features are incorporated by reference, and implementation of these Design Features are applicable to both the No Action Alternative and Proposed Action of this EA.

3.2 Resources Not Discussed in Detail

The following table of resources were omitted from further analysis in this EA since the Proposed Action will not create additional impacts beyond what was previously analyzed in the USFS 2019 Final EA. Previous analysis of the resources not discussed in this EA are shown in Table 3-1. A table summarizing the environmental consequences to resources can be referenced in Section 3.13 Summary of Environmental Consequences in the USFS 2019 Final EA. With the implantation of project specific Design Features, no significant environmental impacts were identified in the USFS 2019 Final EA.

Table 3-1. Resources not discussed in detail in this EA and locations within USFS 2019 Final EA where they were analyzed.

Resource	Section of USFS 2019 Final EA
Land Use	3.2
Recreation Resources	3.3
Aquatic Wildlife Resources	3.5
Botanical Resources and Invasive Plants	3.6
Scenic Resources	3.7
Terrestrial Wildlife	3.8
Vegetation	3.9
Hydrology and Water Quality	3.10
Cultural	3.11
Utilities and Wildland Fire	3.12

3.3 Traffic

This analysis focuses on an evaluation of project impacts on traffic flows during project construction. Once construction is completed, long-term operation of the effluent line will not generate additional traffic or impact roadways. The pipeline alignment is located within the right-of-way of SR-28 from the Spooner Pump Station (just south of Sand Harbor) to a point approximately one mile north of US-50. Specifically, the new pipeline will be located within the center of the southbound travel lane of SR-28. Of the total 24,500 linear feet of pipeline to be replaced in Phase 2; however, approximately 5,500 linear feet of pipeline replacement will occur in 2023 under a separate funding mechanism unrelated to the USACE Section 595 program and is outside the scope of this analysis. This analysis focuses only on replacement of the remaining 24,500 linear feet of the pipeline that will be replaced between 2024 and 2026. Under this EA Phase 2 of the effluent export line replacement project proposes to replace approximately 11,700 linear feet within Segment 3 of the effluent pipeline and the remaining 12,800 linear feet within Segment 2.

The proposed construction schedule, the maximum delays that can be expected, the variation in delays by day of week and month, and the maximum traffic queue lengths are discussed below.

3.3.1 Affected Environment

The existing roadways within the project study area and existing traffic volumes are summarized below. The description of the affected environment and analysis of impacts to traffic were provided by LSC Transportation Consultants.

Existing Roadways

SR-28 is a two-lane facility linking Incline Village and the North Lake Tahoe communities to the east shore of Lake Tahoe to a terminus at US-50. For the purposes of this study, SR-28 is assumed to run north-south through the project area with a speed limit of 45 miles per hour between Incline Village and US-50. Traffic volumes on SR-28 vary substantially by season and by time of day. While there is some commuter traffic on the roadway, the greater traffic activity is generated by recreational motorists, particularly in the summer season. According to the NDOT Annual Traffic Reports for 2021, the estimated Annual Average Daily Traffic volume on SR-28 at a point 0.25 miles north of US-50 was approximately 8,250 vehicles.

Design Volumes

Construction is proposed to occur from 2023 through 2026. For the purpose of traffic volume forecasts and analysis of wait times during construction, year 2025 traffic conditions were used and assumed to be representative of each construction year. In order to evaluate the traffic delays associated with one-way traffic control during pipeline construction, it is necessary to develop design traffic volumes for the roadway segments that will be affected by construction delays. In the Lake Tahoe area, opportunities for roadway construction are typically limited to May 1 through October 15 due to adverse weather conditions and environmental restrictions.

Year 2025 design traffic volumes were developed for every hour of the day from May 1 through October 15 in both directions along SR-28 in order to form the basis of a full evaluation of potential conditions on all potential days of the construction season and hours of the days.

The SR-28 design volumes were estimated based on available NDOT hourly traffic counts and an estimated annual growth factor. In addition, factors that potentially would reduce the traffic volume were considered, specifically drivers who will use a different travel mode or divert to an alternate route, re-schedule, or cancel their trip due to the proposed construction project.

NDOT Traffic Counts

As the basis for design volumes, available NDOT hourly traffic counts were first obtained. NDOT provided hourly traffic counts on SR-28 in each direction at a point 0.25 miles north of US-50 Monday, September 12, 2022, through Sunday, September 18, 2022, and Wednesday, August 14, 2019, through Tuesday, August 20, 2019.

The September 2022 set of counts were used as the basis for the off-season months of May, September, and October, whereas the August 2019 set of counts were used as the basis for the summer months of June, July, and August. During the September count, the Tahoe Basin was affected by smoke from the nearby Mosquito Fire. Smoke from this fire entered the Tahoe Basin on September 8, 2022, and remained in the basin until rainstorms helped clear the smoke on September 18, 2022. As a result, the traffic captured during this time is lower than typical. The volumes for this week were grown by 20 percent to account for the decreased traffic due to smoke, based upon a review of the relative traffic volume by month in other years. Additionally, based on 2022 estimations, the August counts were higher than typical. These counts were adjusted down by an annual adjustment factor of 3.5 percent to account for the high traffic recorded during this week.

Data regarding variation in monthly average daily traffic (ADT) volume on SR-28 0.2 miles north of US-50 was obtained from NDOT. Additionally, ADT from every day during the construction season was obtained from NDOT on SR-28 just west of Incline Village to estimate weekly variation in traffic volumes. Daily traffic volumes were then estimated for each day of the construction season. Next, using the hourly variation information, hourly directional volumes were estimated for each hour of each day.

Annual Growth in Traffic Volumes

For analysis purposes, 2025 design year volumes were estimated as follows. According to NDOT historical traffic data from 2011 to 2021, the average annual growth rate in annual ADT on SR-28 at a point 0.25 miles north of US-50 is approximately 4.7 percent. Year 2025 traffic volumes were estimated by applying this growth rate to the 2022 volumes discussed above.

Reduction in Traffic Volumes Due to Proposed Lane Closures

The last step in estimating the design volumes is to consider the drivers who will use a different travel mode or divert, re-schedule, or cancel their trip due to the proposed construction project. Experience with construction projects that require roadway lane closures in other areas (for more than a short-term project) indicates that traffic activity can be expected to be reduced, particularly if a well-organized public information program is implemented. This effect was considered in the elements discussed below.

Reductions Associated with Change in Travel Mode

As no public transit service is offered between Incline Village and Carson City, or between Incline Village and South Lake Tahoe, no vehicle trips are assumed to shift to transit. Please note that the private

Flume Trail Shuttle and Tahoe Meadows Rim Trail Shuttle are assumed to operate in the study area as usual. No vehicle trips are assumed to shift to bicycle trips, moreover, as the proposed road restrictions will also result in time delays for cyclists, as trips in the corridor are longer than most persons making non-recreational trips are willing to make by bike, and the construction project will reduce the short-term attractiveness of SR-28 as a cycling route. In summary, no vehicle travel is assumed to shift to other travel modes during the period of the lane restrictions.

Reductions Associated with Trips Cancelled

While persons commuting to work typically cannot choose to simply not travel, persons traveling for more discretionary reasons (such as recreational and shopping trips) often choose to simply not make a trip impacted by construction delays, or replace a trip impacted by the delays with another trip destination (such as replacing a shopping trip from Incline Village to Carson City with a shopping trip to Reno instead). Because the majority of the trips in the project area are recreational in nature, ten percent of drivers are expected to cancel their trips.

Reductions Associated with Change in Hour or Day of Travel

No vehicle trips are assumed to be re-scheduled to a different hour or a different day, as relatively long-term lane restrictions are expected to occur.

Reductions Associated with Change in Travel Route

Some drivers are expected to divert to other travel routes. While alternate routes are limited, viable travel routes do exist, particularly for those traveling through the corridor as part of longer trips (such as trips from I-80 in Truckee to South Lake Tahoe). Table 3-2 shows the estimated lengths and travel times for vehicles traveling along SR-28 to/from Incline Village, Kings Beach/SR-267, Tahoe City, South Lake Tahoe, and Carson City. The estimated travel times assume no construction delay between Kings Beach and South Lake Tahoe or for trips between Tahoe City and Carson City, the alternate routes provide a travel time that is up to ten minutes over the SR-28 travel time. However, for travel between Truckee and points in Carson City, I-580 to I-80 will provide a route that is 20 minutes faster than SR-28 with the project. This analysis is based on general reference points; in reality, the difference in individual travel times will vary, as some drivers will start/finish at locations closer and farther away from the reference points, with differing travel distances and times on SR-28 versus alternate routes.

Table 3-2. Reduction in Traffic Associated with Alternate Routes.

Table 3-2. Reduction in Traffic Associated With Alternate Routes

Between: / And:	Incline Village / Carson City	Incline Village / South Lake Tahoe	Kings Beach/SR 267 / Carson City	Kings Beach/SR 267 / South Lake Tahoe	Tahoe City / Carson City	Truckee / Carson City
Alternate Route:	SR 431/US 395	West Shore(SR 89)	SR 431/US 395	West Shore(SR 89)	SR 431 or US 50/SR 89	I-80/I-580
Travel Length (miles)						
Via SR 28	26	27	30	31	38	42
Via Alternate Route	42	44	46	40	60	68
Difference	*16*	*17*	*16*	*9*	*22*	*26*
Travel Time (minutes)						
Via SR 28 - No Construction	35	40	45	50	60	65
Via SR 28 - With 20 Min Delay for Project	55	60	65	70	80	85
Via Alternate Route	60	80	70	80	90	65
Difference - No Construction	*25*	*40*	*25*	*30*	*30*	*0*
Difference - With SR 28 Project Construction	5	20	5	10	10	-20
Percent of Drivers Aware of Traffic Control	90%	90%	90%	90%	90%	90%
Percent of Knowledgeable Drivers Diverting to Alternate Route	30%	10%	30%	40%	30%	80%
Percent of All Traffic By Origin / Destination Pair	40%	5%	25%	5%	5%	20%
TOTAL PERCENT DIVERTING	**11%** +	**0%** +	**7%** +	**2%** +	**1%** +	**14%** = ***35%***

Source: LSC Transportation Consultants, Inc.

As shown in Table 3-2, travel using alternate routes adds between 9 additional miles and 26 additional miles of travel length. In addition, using the alternate routes results in an increase in travel time between 25 additional minutes and 40 additional minutes (this excludes the alternate route between Truckee and Carson City using I-80 and I-580 which results in 0 minutes of additional travel time). However, since this route results in an increase of 26 miles of travel length, this route is typically not chosen by drivers. Travel between Tahoe City or Truckee and South Lake Tahoe was not evaluated, as the time using the West Shore (SR-89) is less than taking the East Shore (SR-28/US-50).

Table 3-2 also shows the difference in travel times assuming construction delays associated with the Effluent Export Project will last up to 20 minutes. As indicated, for travel between Incline Village or Kings Beach and Carson City, SR-431 and US-395 provide a travel route that adds only five minutes travel time over SR-28. For travel between Incline Village and South Lake Tahoe, the closest alternative route (SR-89 on the West Shore) will add approximately 20 minutes to the total travel time. For trips between Kings Beach and South Lake Tahoe or for trips between Tahoe City and Carson City, the alternate routes provide a travel time that is up to 10 minutes over the SR-28 travel time. However, for travel between Truckee and points in Carson City, I-580 to I-80 will provide a route that is 20 minutes faster than SR-28 with the project. This analysis is based on general reference points; in reality, the difference in individual travel times will vary, as some drivers will start/finish at locations closer and farther away from the reference points, with differing travel distances and times on SR-28 versus alternate routes.

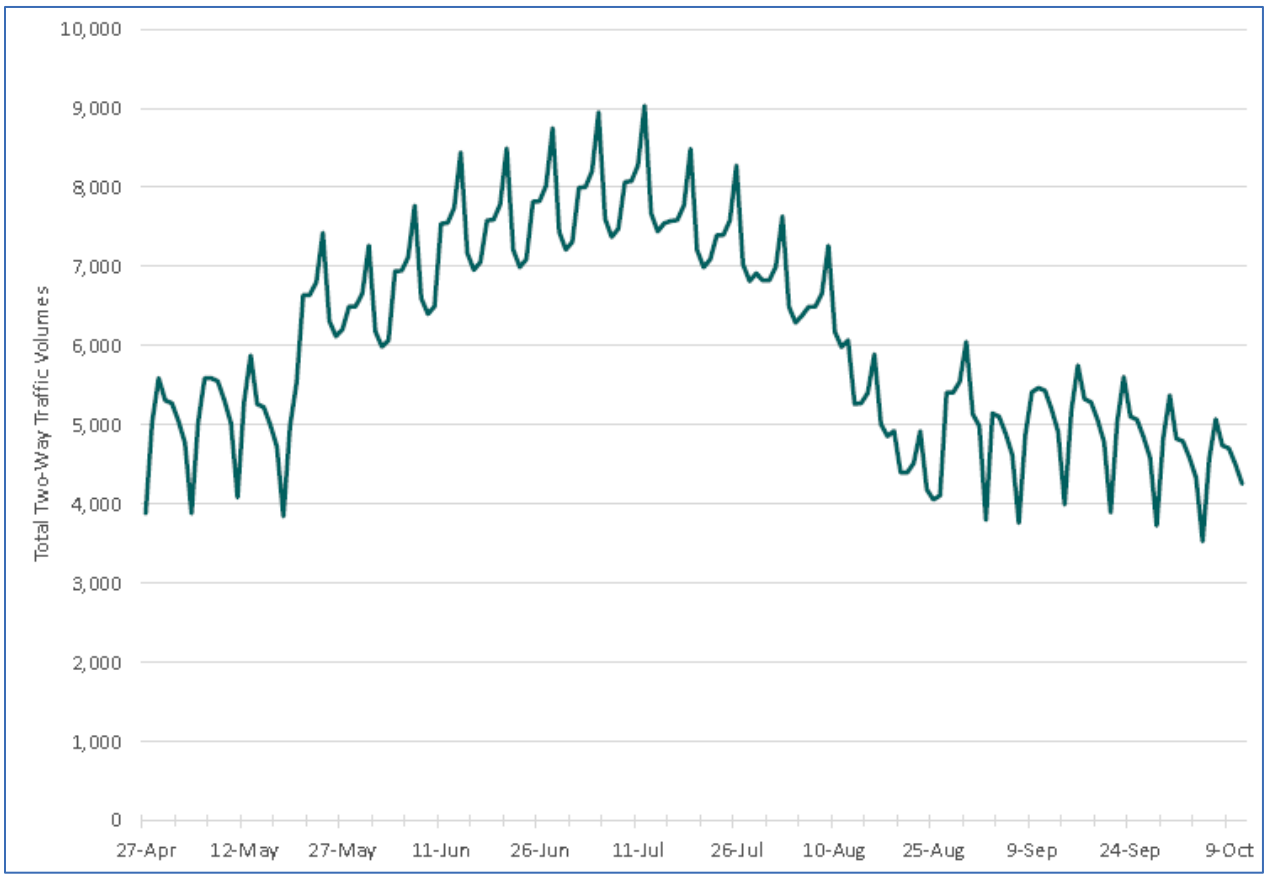
With a strong public information program, changeable message signs, and the multitude of real-time driving apps, most drivers will be aware of the travel delays. LSC estimates conservatively that 90 percent of all drivers are aware of the traffic delays. Of the drivers aware of the traffic control (the "knowledgeable" drivers), the portion expected to divert to each alternate route is presented in Table 3-2. As shown, approximately 30 percent of trips between Incline Village or Kings Beach and Carson City are expected to divert to SR-431 and US-395. These drivers are assumed to prefer five additional minutes of travel time to avoid a 20-minute delay. However, only 10 percent of trips between Incline Village and South Lake Tahoe are expected to divert to SR-89 on the West Shore, as most people would prefer a 20-minute delay over an additional 20 minutes of travel time plus an additional 17 miles of travel length. Similar reasonings were used to determine the remaining percentages of knowledgeable drivers diverting to alternate routes. The percent of all traffic by origin/destination pair is also presented in Table 3-2. As shown, 90 percent of the traffic currently using SR-28 is expected to have an origin/destination of Carson City whereas only 10 percent of the total traffic is expected to have an origin/destination of South Lake Tahoe.

Finally, it is necessary to factor these reductions by the proportion of all travel through the SR-28 East Shore corridor traveling between the various origin/destination pairs. These proportions were estimated based upon existing traffic turning movement counts at both the northern and southern ends of the study corridor. The resulting proportion of drivers expected to divert to other routes is calculated by multiplying the percent of drivers aware of traffic control (90 percent) by the percent of knowledgeable drivers diverting to the alternate route, multiplied by the percent of all traffic by origin/destination pair. The results are shown at the bottom of Table 3-2. As indicated, the total percent of traffic diverting to alternate routes is estimated to be about 35 percent.

Total Reduction in Traffic Volumes

In total, traffic through the study corridor is expected to be reduced by 45 percent. Thirty-five percent of trips are estimated to be diverted (Table 3-2) and 10 percent of trips are expected to be canceled as persons traveling for discretionary reasons (such as recreational trips) often choose to simply not make a trip impacted by construction delays (Hertel, 2004). These reductions were applied to the design volumes, in order to obtain "with project" design volumes. Figure 6 illustrates the estimated "with project" ADT volumes during the construction season.

Figure 6. 2025 Average Daily Traffic (ADT) Volumes on SR-28 with Project.



3.3.2 Environmental Consequences

Impact Evaluation Criteria

The evaluation criteria used for the technical analysis is described in this section. The jurisdictions with regulatory authority over transportation conditions in the study area are the TRPA, NDOT, Washoe County, Carson City County, and Douglas County.

TRPA Parameters

The TRPA Code of Ordinances states excavation, filling, and clearing of vegetation or other disturbance of the soil shall not occur between October 15 and May 1 of each year, unless approval has been granted by TRPA. TRPA may approve grading after October 15 if TRPA finds either that an emergency exists and the grading is necessary for the protection of public health or safety, or that the grading is for erosion control purposes or protection of water quality (TRPA 2018).

NDOT Parameters

According to NDOT standards, public traffic should not be stopped more than a 20-minute duration for a total delay of no more than 30 minutes. This threshold applies to the Effluent Export Project, regardless of delays resulting from other projects (such as NDOT construction projects) along the same roadway. Full closure of SR-28 for long periods of time is not allowed. At least one lane of public traffic shall always be open, and all lanes shall be open to traffic during non-working hours. The maximum distance wherever one-way traffic is in effect is 6,000 feet.

Typically, NDOT also places the following limitations on the days and hours during which roadway construction is allowed:

- NDOT does not allow roadway construction to occur on weekends. All lanes are to be open by Friday at noon and work may resume at 7:00 PM Sunday night.
- No work is to occur on holidays, the day before a holiday, and the day after a holiday.

Construction Staging/Worker Parking Area

All construction staging areas and worker parking areas must provide adequate vehicle maneuvering space and parking supply and should not create a safety hazard or impact traffic flow on adjacent roadways. Adequate stopping sight distance (the distance required by the driver of a vehicle to bring his vehicle to a stop after an object on the road becomes visible) should be provided at all times and in all locations.

No Action – Alternative 1

Under the No Action Alternative, USACE would not fund Phase 2 of the effluent pipeline replacement project and there would be no impacts to traffic from construction related lane closures. Continued deterioration of the existing pipeline would occur, which would create the potential for emergency repairs and temporary, unplanned lane closures causing impacts to transportation. There would be no planned public information program in advance of the emergency closures.

Proposed Action – Alternative 2

Traffic-related impacts for Proposed Action are divided into a series of separate topics that are discussed below.

Construction Delay Standards Analysis

In order to evaluate the traffic delays associated with the Proposed Action and required one-way traffic control during export line construction, it is necessary to develop design traffic volumes and a delay analysis for each of the roadway segments that are affected by construction delays.

A spreadsheet-based model of traffic delays and traffic queue lengths was developed. This model uses typical construction-zone travel speeds, queue spacing, and pilot car operating parameters to evaluate the maximum travel delay and maximum traffic queue length (in both directions), given the design traffic volumes and length of one-way operation. As confirmed by the traffic model, the stopped delay standard governs over the total delay standard. That is, if the stopped delay does not exceed 20 minutes per vehicle, then the total delay will not exceed 30 minutes per vehicle. Therefore, this analysis focuses on the stopped delays only. Stopped delays were analyzed for three potential lengths of one-lane traffic control: 1,500 feet, 3,000 feet, and 5,000 feet. The construction delay analysis for the proposed project is summarized below.

1,500 Foot Construction Closure

The summary of delays associated with a one-lane closure length of 1,500 feet is shown in Table 3-3. As indicated, the stopped delay per vehicle is acceptable (i.e., does not exceed NDOT standards) for every hour of every day from May 1 through October 15. Note this reflects no construction between Friday at noon and Sunday at 7:00 PM as well as the day before, day of, and day after a weekday holiday.

Table 3-3. Construction Traffic Delay – SR-28 Segment 2.

Table 3-3: Construction Traffic Delay - SR 28 Segment 2

Length of 1- Lane Traffic Control: 1,500 Feet

		When 20-Minute Delay Exceeded, Construction is Not Recommended. [1]								
Day	**Date[2]**	12 AM-10AM	11 AM	12 PM	1 PM	2 PM	3 PM	4 PM	5 PM	6PM-11 PM
Sun-Sat	May 1-Oct 15	–	–	–	–	–	–	–	–	–

–	= Construction Allowed
X	= 20-Minute delay exceeded, construction is not recommended

Note 1 : Construction work is not performed between Friday at noon and Sunday at 7:00 PM.
Note 2: Any dates not shown in the table indicate work can be performed without exceeding the 20-minute maximum stopped delay at any hour with the exception of Holiday's, and the hours between Friday noon and Sunday at 7:00 PM.

Source: LSC Transportation Consultants, Inc.

3,000 Foot Construction Closure

The delay exceedance associated with a one-lane closure length of 3,000 feet is summarized in Table 3-4. Similar to the 1,500-foot scenario, the stopped delay per vehicle is acceptable for every hour of every day from May 1 through October 15 except for the following exceedances:

- Tuesday, July 8 (3:00 PM to 4:00 PM)
- Thursday July 10 (4:00 PM to 5:00 PM)
- Tuesday July 15 (4:00 PM to 6:00 PM)

Note this includes no construction between Friday at noon and Sunday at 7:00 PM, as well as the day before, day of, and day after a weekday holiday.

Table 3-4. Construction Traffic Delay – SR-28 Segment 2.

Table 3-4: Construction Traffic Delay - SR 28 Segment 2

Length of 1- Lane Traffic Control: 3,000 Feet

		When 20-Minute Delay Exceeded, Construction is Not Recommended. [1]								
Day	**Date[2]**	12 AM-10AM	11 AM	12 PM	1 PM	2 PM	3 PM	4 PM	5 PM	6PM-11 PM
Tues	July 8	–	–	–	–	–	–	**X**	–	–
Thurs	July 10	–	–	–	–	–	–	–	**X**	–
Tues	July 15	–	–	–	–	–	–	**X**	**X**	–

–	= Construction Allowed
X	= 20-Minute delay exceeded, construction is not recommended

Note 1 : Construction work is not performed between Friday at noon and Sunday at 7:00 PM.

Note 2: Any dates not shown in the table indicate work can be performed without exceeding the 20-minute maximum stopped delay at any hour with the exception of Holiday's, and the hours between Friday noon and Sunday at 7:00 PM.

Source: LSC Transportation Consultants, Inc.

5,000 Foot Construction Closure

The maximum planned distance for one-way traffic is 5,000 feet. Therefore, the delay associated with a 5,000-foot closure was evaluated and the results are presented in Table 3-5. As indicated, the stopped delays are acceptable for every hour of every day from May 1 through October 15, except for several weekday afternoon hours usually between 3:00 PM and 6:00 PM in June and July. Note this includes no construction between Friday at noon and Sunday at 7:00 PM, as well as the day before, day of, and day after a weekday holiday.

Table 3-5. Construction Traffic Delay – SR-28 Segment 2.

Table 3-5: Construction Traffic Delay - SR 28 Segment 2

Length of 1- Lane Traffic Control: 5,000 Feet

		When 20-Minute Delay Exceeded, Construction is Not Recommended. [1]								
Day	**Date[2]**	12 AM-11AM	11 AM	12 PM	1 PM	2 PM	3 PM	4 PM	5 PM	6PM-11 PM
Wed	June 11	–	–	–	–	–	X	X	X	–
Thurs	June 12	–	–	–	–	–	–	–	X	–
Mon,Tues	June 16,17	–	–	–	–	–	–	X	X	–
Wed,Thurs	June 18,19	–	–	–	–	–	X	X	X	–
Mon,Tues	June 23,24	–	–	–	–	–	–	X	X	–
Wed,Thurs	June 25,26	–	–	–	–	–	X	X	X	
Mon-Wed	June 30-July 2	–	–	–	–	–	X	X	X	–
Mon-Thurs	July 7-10	–	–	–	–	–	X	X	X	–
Mon-Thurs	July 14-17	–	–	–	–	–	X	X	X	–
Mon-Thurs	July 21-24	–	–	–	–	–	X	X	X	–
Tues	July 29	–	–	–	–	–	–	X	X	–

–	= Construction Allowed
X	= 20-Minute delay exceeded, construction is not recommended

Note 1 : Construction work is not performed between Friday at noon and Sunday at 7:00 PM.

Note 2: Any dates not shown in the table indicate work can be performed without exceeding the 20-minute maximum stopped delay at any hour with the exception of Holiday's, and the hours between Friday noon and Sunday at 7:00 PM.

Source: LSC Transportation Consultants, Inc.

Impact Description

Construction related traffic delays have the potential to exceed regulatory construction delay standards during certain times of the construction season based on the length of lane closures and traffic volumes. Mitigation measures have been developed which restrict construction during specific high volume traffic days (i.e., weekends and holidays) and provide recommended lane closure lengths will reduce the delay lengths. With implementation of the project mitigation measures identified below, exceedance of the delay standards are reduced and potential impacts to traffic **will be less than significant**.

Construction Staging/ Worker Parking Location

The proposed staging areas consist of the following:

- Three areas within the NDOT right-of-way near the intersection of SR-28 / US-50, including the Spooner Summit Brake Check Area, Spooner Lake Gravel Pull-Out, and the Old Highway/Mussel Inspection Area as shown in Figure 3, and
- The paved lower parking lot of Diamond Peak Ski Resort (mostly for pipe staging) (Figure 1).

Analysis

The *NDOT Design Manual* provides minimum stopping sight distance requirements (the distance required by the driver of a vehicle on a major roadway to bring his vehicle to a stop after an object on the road becomes visible). Based on a design speed of 50 miles per hour, the minimum stopping sight distance required along SR-28 is 430 feet. Along US-50, with a design speed of 60 miles per hour, the minimum stopping sight distance will be 580 feet.

Sight distances at the lower Diamond Peak Ski Area parking lot staging area were not able to be measured due to the high snowbanks present at the time of report preparation. Since the Diamond Peak Ski Area staging location is accessed by existing intersections, it is assumed that these existing intersections were designed to have adequate sight distance and reviewed and approved by Washoe County.

Impact Description

The stopping sight distances provided at the proposed staging/worker parking locations could potentially be inadequate. Implementation of the recommended mitigation measures will reduce the risk of inadequate sight distances and, therefore, the potential impact on traffic will be **less than significant**.

3.3.3 Mitigation Measures

Implementation of the proposed mitigation measures will reduce the potential impacts from construction delays and staging/working parking locations on traffic to less than significant.

Mitigation Measures to Avoid and Minimize Traffic Impacts

The following recommended construction timing will not exceed maximum construction delays:

- No construction will occur between Friday at noon and Sunday at 7:00 PM.
- There is potential for one weekday holiday during construction season (Independence Day on July 4), all other holidays occur on Saturdays when no construction is proposed. When July 4th occurs on a weekday, no construction will occur the day before, the day of, and the day after the holiday.
- 1,500 foot one-lane closures can occur anytime between May 1 and October 15.
- 3,000 foot one-lane closures can occur anytime between May 1 and October 15 except between 4:00 PM and 6:00 PM on Tuesdays and Thursdays during the first two weeks in July.
- 5,000 foot one-lane closures between May 1 and October 15 except between 3:00 PM and 6:00 PM on Monday through Thursdays between the middle of June and the end of July.
- Contractor will coordinate with landowners prior to construction.
- Place proper signage to warn and direct traffic, including signalmen, if necessary.
- Provide temporary passage to recreation during construction.
- Implement a Traffic Control Plan to be developed by the contractor and approved by the USACE and NDOT prior to the initiation of construction. The plan will include appropriate placement of signs, flaggers, barricades, and traffic delineation to minimize disruption and ensure public safety.

Mitigation Measures for Construction Staging/Work Parking Locations

- All staging area access points should provide a minimum of 430 feet of stopping sight distance along SR-28, and 580 feet along US-50.

4 Cumulative Effects

NEPA requires the consideration of cumulative effects of the Proposed Action combined with the effects of other projects. NEPA defines a cumulative effect as the effect on the environment which results from incremental effect of an action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (federal or non-federal) or person undertakes such actions (40 C.F.R. Part 1508.7). The extent of the geographic area that may be affected varies depending on the resource under consideration. Each of the projects considered below are limited to those that have similar potential effects and could interact with impacts generated by the Proposed Action.

NDOT construction or maintenance projects on SR-28 or on the alternate routes could potentially affect the number of drivers diverting to other routes, thereby impacting the traffic volumes on SR-28. These include:

- The NDOT overlay project on SR-28 between Crystal Bay and SR-431, which is anticipated to occur in 2023. This could potentially impact traffic volumes along the east shore. But since it is a short section of roadway and a onetime project lasting a couple of weeks, it is assumed not to have a measurable impact on the traffic volumes.
- Per correspondence with NDOT, completion of water quality improvement projects around the SR-28 crossing over Marlette Creek could potentially conflict with the replacement of the Effluent Export Pipeline Phase 2 Replacement Project. To avoid potential overlap in construction schedules and cumulative effects to traffic, IVIGD has adjusted their construction schedule to avoid concurrent lane closures on SR-28 while NDOT completes their project. IVGID will coordinate with NDOT and halt construction while NDOT finishes their project to minimize impacts to traffic.
- The NDOT overlay project along SR-28 between Incline Village and US-50 is scheduled to occur after the IVGID pipeline project. This project is therefore not expected to impact traffic volumes during the IVGID pipeline project.

5 Compliance with Federal Laws and Regulations

Certain Federal laws and regulations require issuance of permits before project implementation; other laws and regulations require agency consultation but may not require issuance of any authorization or entitlements before project implementation. All actions proposed in this document will be consistent with all applicable Federal law and regulations.

5.1 Clean Air Act, as amended 42 USC §7401, et seq.

Full compliance. The Federal Clean Air Act (CAA) requires the U.S. Environmental Protection Agency (USEPA) to establish National Ambient Air Quality Standards (NAAQS). The USEPA has established primary and secondary NAAQS for the following criteria air pollutants: ozone, PM_{10}, $PM_{2.5}$, CO, NO_2, SO_2, and lead. The NAAQS primary standards protect public health, and the secondary standards protect public welfare. The CAA also requires each state to prepare an air quality control plan, referred to as a State Implementation Plan.

The Proposed Action will not violate any Federal or State air quality standards, exceed the US EPA's general conformity *de minimis* threshold, or hinder the attainment of air quality objectives in the local air basin. Air quality within Washoe County is monitored by Washoe County Health District and is designated as being in attainment with NAAQS. Air quality in Carson City County and Douglas County is monitored by Nevada Department of Environmental Protection (NDEP) Bureau of Air Quality Planning, which designates both counties as being in attainment of the NAAQS. The General Conformity review does not apply to attainment areas. Temporary emissions from heavy construction equipment during construction are not anticipated to exceed any federal threshold for air quality.

5.2 Endangered Species Act, as amended, 16 USC § 1531, et seq.

Full compliance. In accordance with Section 7(c) of the Endangered Species Act, the USFWS list of endangered and threatened species that may be affected by projects in the Lake Tahoe Basin Management Area was reviewed (September 26, 2018, and January 12, 2023).

The effects on those species are analyzed in the biological evaluation that was prepared for the USFS 2019 Final EA and is included in the project record. Formal or informal consultation with the USFWS is not required for this project since there is no effect to Threatened, Endangered, or Candidate Species.

5.3 Federal Clean Water Act, as amended, 33 USC §1251, et seq.

Full compliance. All Federal agencies must comply with the provisions of the Clean Water Act, which regulates all project activities within and adjacent to Federal waters. The Design Features and BMPs (Appendix A) associated with the Proposed Action ensure that the terms of the Clean Water Act (CWA) are met, primarily prevention of pollution caused by erosion and sedimentation. Appropriate permits be obtained from the USACE if needed for work within regulated waterways.

Pursuant to Section 402 of the CWA, IVGID will obtain a Construction Stormwater General Permit (General Permit) administered by the NDEP Bureau of Water Pollution Control. The General Permit requires development of a SWPPP that will specify implementation of BMPs for erosion and sediment control during construction for the protection of water quality.

5.4 Executive Order 11988, Floodplain Management

Full compliance. Executive Order 11988 was signed into law on May 24, 1977, requiring that Federal agencies provide leadership and take action to restore and preserve the natural and beneficial values served by floodplains. Before proposing, conducting, supporting, or allowing an action in the floodplain, each Federal agency must determine if planned activities would affect the floodplain and evaluate the potential effects of the intended action on the floodplain's functions. To comply with this Executive Order, the policy of USACE is to formulate projects which, to the extent possible, avoid or minimize adverse effects associated with use of the without-project flood plain, and avoid inducing development in the existing flood plain unless there is no practicable alternative. The Proposed Action is not located within a 100-year Flood Zone and will have no effect to floodplain function.

5.5 Executive Order 11990, Protection of Wetlands

Full compliance. This order directs Federal agencies to avoid adverse impacts to wetlands from both destruction or modification, and to avoid support of new construction within wetlands. The Proposed Action does not propose new construction in wetlands nor the destruction of wetlands.

5.6 Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations

Full compliance. This order directs all Federal agencies to identify adverse effects of the proposed actions on minority and low-income populations and to develop a strategy for implementing environmental justice. The 2019 USFS Final EA reviewed the location, scope, and nature of the proposed activity. The USFS determined that there is no evidence to suggest that any minority or low-income neighborhood would be affected disproportionately. Conversely, there is no evidence that any individual, group, or portion of the community will benefit unequally from the Proposed Action.

5.7 Migratory Bird Treaty Act, 16 USC §703 et. seq

Full compliance. Migratory birds are protected and managed under the Migratory Bird Treaty Act of 1918, as amended (16 U.S.C. §703 et. seq.). Specific provisions in the statute include the establishment of a federal prohibition, unless permitted by regulation, to "pursue, hunt, take, capture, kill, attempt to take, capture or kill, possess, offer for sale, sell, offer to purchase, purchase, deliver for shipment, ship, cause to be shipped, deliver for transportation, transport, cause to be transported, carry, or cause to be carried by any means whatever, receive for shipment, transportation or carriage, or export, at any time, or in any manner, any migratory bird, included in the terms of this Convention...for the protection of migratory birds or any part, nest, or egg of any such bird."

The Proposed Action will occur within the existing NDOT right-of-way, and all staging areas are located within areas of existing disturbance or on paved parking areas. No removal of vegetation is anticipated. If vegetation removal does occur during the nesting season, a survey will be completed a week prior to any construction to determine the presence of migratory birds within the action area. If nesting birds are detected, USACE will coordinate with the USFWS to develop appropriate avoidance and minimization measures. With the completion of these surveys and implementation of any required measures, the project is in full compliance with this Act.

5.8 Bald and Golden Eagle Protection Act, 16 USC §668-668d

Full compliance The Bald and Golden Eagle Protection Act prohibits any form of possession or taking of either bald eagles or golden eagles. In 1962, the act was amended to create a specific exemption for possession of an eagle or eagle parts (e.g., feathers) for religious purposes of Indian tribes. Rule changes made in September 2009 finalized permit regulations to authorize limited take of these species associated with otherwise lawful activities. These new regulations establish permit provisions for intentional take of eagle nests under particular limited circumstances (USFWS, 2009). There is no suitable nesting habitat for gold or bald eagles within the Project Area.

5.9 Fish and Wildlife Coordination Act, as amended, 16 USC §661-666(e)

Full compliance. The Fish and Wildlife Coordination Act requires federal agencies to take into consideration the effect that water-related projects would have on fish and wildlife resources and provide for the development and improvement of these resources. The Act provides the basic authority to the USFWS for involvement in evaluating impacts to fish and wildlife from the proposed project. Federal agencies that construct, license, or permit water resource development projects must consult with USFWS and state agencies regarding anticipated impacts. There are no federally endangered, threatened or candidate species with potential to occur within the Project Area. Coordination with the Nevada Department of Wildlife (NDOW) was initiated in December 2022 and will be on-going throughout the project on state protected and TRPA Special Status Species.

5.10 National Environmental Policy Act, as amended, 42 USC §4321, et seq.

Full compliance. This EA is in compliance with this act, the effects during construction will either be less than significant or mitigated to less than significance using avoidance and minimization measures as indicated in the topical sections. Therefore, an EIS is not necessary and the FONSI can be signed by the Commander.

5.11 National Historic Preservation Act, as amended, 54 USC §300101, et seq.

Full compliance. Section 106 of the National Historic Preservation Act requires Federal agencies to take into account the effect of a project on any district, site, building, structure, or object that is included in, or eligible for inclusion in, the National Register of Historic Places. The National Historic Preservation Act (54 USC §300101, et seq.) also requires Federal agencies to afford the State Historic Preservation Officer (SHPO) a reasonable opportunity to comment. This project will follow the implementing regulations under 36 CFR Part 800 for the Section 106 process.

The area of potential effects (APE) is defined under 36 CFR § 800.16(d) as the geographic areas or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist. Additionally, the APE is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking.

USACE defined the APE based on the excavated width and depth of the effluent pipeline replacement work. The horizontal extent of the APE for the effluent pipeline replacement is an approximately 4.5 feet wide corridor extending approximately 5.87 miles within the paved SR-28 corridor roughly between Sand Harbor and Spooner Lake State Park. The APE covers 3.56 acres for effluent pipeline replacement work, including 3.41 acres for any staging areas. The vertical extent of the APE is 6ft below the ground surface to account for the trench depth and removal of asphalt to access the existing effluent pipeline. All construction will be contained within the SR-28 roadway and staging will occur in existing developed and disturbed areas adjacent to SR-28 and US-50 at Spooner Summit.

In order to identify historic properties within the APE, a cultural resources inventory was completed by IVGID's contractors on November 21, 2022, and reviewed by USACE. This includes an archival review of records obtained from the Nevada Cultural Resource Information System. The entirety of the APE has been thoroughly inventoried for cultural resources and no cultural resources were located within the

APE. Construction fencing will be placed during construction to avoid potential adverse effects to any adjacent resources.

USACE invited tribes affiliated to the project area to consult by letter mailed on June 29, 2023. Consultation with tribes did not yield any archaeological sites, traditional cultural properties, sacred sites, or areas of traditional cultural value or concern within the APE.

USACE consulted with the SHPO on August 15th, 2023, requesting their comment of the undertaking's APE, to review USACE's identification and evaluation efforts for historic properties within the APE, and to agree to a finding of No Historic Properties Affected (36 CFR § 800.4(d)(1)) for the undertaking. USACE will receive SHPO concurrence for the documentation of this finding in September 2023 concluding full compliance with Section 106.

6 Coordination and Review of the Environmental Assessment

USACE coordinated with all the appropriate federal, state, and local government agencies, including the USFWS and SHPO:

NEPA Lead Agency – U.S. Army Corps of Engineers, Sacramento District
Project Proponent – Incline Village General Improvement District

In coordination with:

Pyramid Lake Paiute Tribe
Nevada State Historic Preservation Office
Nevada Department of Wildlife
Reno-Sparks Indian Colony
Washoe Tribe of Nevada and California

7 Findings

This EA adopts the environmental effects as evaluated within the USFS 2019 Final EA for the SR-28 Shared Use Path, Parking, Safety and Environmental Improvements Project for the Proposed Action. The USFS 2019 Final EA analyzed these resources in detail: Land Use, Recreation Resources, Aquatic Wildlife Resources, Botanical Resources and Invasive Plants, Scenic Resources, Terrestrial Wildlife, Vegetation, Hydrology and Water Quality, Cultural, and Utility and Wildland Fire.

Due to changes in location of the effluent pipeline to within the southbound lane of SR-28, this EA analyzes the potential adverse effects to Traffic and Transportation within the document. The analysis present in this EA, as well as the findings of the USFS 2019 Final EA, indicate that the Proposed Action will have no significant adverse effects on the environmental resources.

Based on this evaluation, the Proposed Action meets the definition of a FONSI described in 40 C.F.R. § 1508.13. A FONSI may be prepared when an action does not pose a significant effect on the human environment and for which an EIS would not be prepared.

According to Engineer Regulation 200-2-2, paragraph 11, since the proposed action is not a feasibility, continuing authority, special planning report, nor is it an operation and maintenance activity involving discharge of dredged or fill material, a draft EA is not required to be circulated for public comment. Rather a notice of availability of the EA and FONSI will be sent to concerned agencies, organizations, and the interested public and will be posted on USACE website located at USACOE Sacramento District Website

8 List of Preparers

This EA was prepared by Resource Concepts, Inc. in collaboration with the USACE, Sacramento District. The following individuals assisted in the creation of the report:

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Appendix A

Design Features

5 Design Features

The proposed action would be implemented by the Forest Service and other partners. All construction activities would adhere to applicable local, state, and federal regulations and the project design features including the TRPA Standard Conditions of Approval (Appendix C – 1).

All on-site work and access to the construction footprint would follow project design features and be coordinated with and approved by the Forest Service if implemented by a partner. The following project design features apply to the proposed action:

5.1 Multiple Resources (Aquatics, Botany, Heritage, Wildlife)

1. In cases where resource conflicts occur as identified in the following design features, an interdisciplinary team composed of the affected resource specialists would determine the appropriate course of action.
2. If previously unidentified resources are discovered before or during implementation activities, the affected specialist(s) would develop appropriate measures (e.g., flagand avoid, limited operating period, buffer zones) to protect such resources:
    a. Federal (Endangered Species Act) and State (California Endangered Species Act) Threatened, Endangered, Candidate, and Proposed species, Forest Service Sensitive species, TRPA special interest and sensitive species, other botanical resources (e.g., peat-dominated soils), migratory bird nests, and CDFW/CNPS listed species.
    b. Cultural resources: Any sighting of previously undiscovered cultural or historical resources will result in a stoppage of project work in the vicinity of the discovery and will be reported immediately to the appropriate specialist.
3. In addition to the known infestation of invasive species, new infestations discovered prior to or during project implementation would be assessed for possible treatment as described in the below project design features.
4. Occurrences would be designated as ‘botanical treatment areas’ where all ground disturbing activities would be excluded. Referenced ‘botanical treatment areas’ for *Orthotrichum* sp. and rock outcrops (i.e., potential habitat) to be avoided, are displayed on maps from Wood Rogers and are included in the project record.
5. Implement conservation measures as consistent with Tahoe yellow cress Conservation Strategy (Stanton et al. 2015), including protective enclosures and signs to protect population and provide education to public visiting beach at suitable habitat for TYC.
6. If additional occurrences of LTBMU TEPCS botanical species are discovered prior to or during project implementation, they would be they would be flagged and avoided
7. If TEPCS plants occur outside the project area but are within visibility of bikeway/pedestrian way, consult with Forest Botanist whether to install educational signs to protect and provide education on FSS.
8. If a special aquatic feature, such as a fen, seep, spring, etc., is discovered prior to or during project implementation, apply a 25 ft. buffer from ground disturbing activities, around special aquatic feature.

5.2 Hydrology, Soil, and Water Resources

Project design features comply with federal, state, and local requirements and serve as the foundation upon which applicable, site-specific Best Management Practices (BMPs) prescriptions would be developed during the final planning and design phase, and before implementation. The following documents would be used to develop specifications to protect soil and water resources:

- Requirements of the TRPA Standard Conditions of Approval (Appendix C – 1).
- http://www.trpa.org/wp-content/uploads/Attachment_Q_Standard_Conditions_Grading.pdf
- Guidance provided in USDA Forest Service National Best Management Practices for Water Quality Management on National Forest Lands, Volume 1: National Core BMP Technical Guide, FS-990a (USDA April 2012) (Appendix C – 2, Table 1).
- http://www.fs.fed.us/biology/resources/pubs/watershed/FS_National_Core_BMPs_April2012.pdf
- Guidance provided in USDA Forest Service Region 5, Water Quality Management Handbook. R5 FSH 2509.22, Chapter 10, Amendment 2509.22-2011-01 (USDA December 2011) (Appendix C – 3, Table 1).
- http://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5399662.pdf

The National and Regional guidance documents (USDA 2011, 2012) describe recommended methods (i.e., practices and implementation) to achieve each BMP objective. Although the methods presented in the guidance documents are general and nonprescriptive, they are the basis upon which detailed specifications for on the ground soil and water protection measures would be developed. Table 1 identifies the 15 National and Regional BMPs that apply to the proposed project.

A BMP guidance checklist would be completed during the final stages of project planning that would be used to identify where additional project specifications are needed in design plans, contracts, and permit documents to carry out the methods presented in the National and Regional BMP guidance document. The checklist would be based on the National and Regional BMP guidance and the TRPA Standard Conditions of Approval. The checklist is included in Appendix C – 4. Since there is some redundancy between the TRPA Standard Conditions of Approval and the USDA BMP guidance documents, the most protective language is identified in Appendix C – 4.

Table 19. The 15 Forest Service National and Regional Best Management Practices (BMPs) titles and objectives applicable to the proposed project. See Appendices C – 2 and C – 3 for methods guidance for each BMP.

National (N) or regional (R) BMP guidance document[1]	BMP Title and Objective
(N) Plan-2	**Project Planning and Analysis:** Use the project planning, environmental analysis, and decision making processes to incorporate water quality management BMPS into project design and implementation
(N) Plan-3	**Aquatic Management Zone Planning:** To maintain and improve or restore the condition of land around and adjacent to waterbodies in the context of the environment in which they are located, recognizing their unique value and importance to water quality while implementing land and resource management activities.
(N) AqEco-1	Aquatic Ecosystem Improvement and Restoration Planning: Reestablish and retain ecological resilience of aquatic ecosystems and associated resources to achieve sustainability and provide a broad range of ecosystem services.
(N) AqEco-2	Operations in Aquatic Ecosystems: Avoid, minimize, or mitigate adverse impacts to water quality when working in aquatic ecosystems.

National (N) or regional (R) BMP guidance document[1]	BMP Title and Objective
(N) AqEco-4	Stream Channels and Shorelines: Design and implement stream channel and lake shoreline projects in a manner that increases the potential for success in meeting project objectives and avoids, minimizes, or mitigates adverse effects to soil, water quality, and riparian resources.
(N) Fac-2	Facility Construction and Stormwater Control: Avoid minimize, or mitigate adverse effects to soil, water quality, and riparian resources by controlling erosion and managing stormwater discharge originating from ground disturbance during construction of developed sites.
(N)Fac-7	Vehicle and Equipment Wash Water: Avoid or minimize contamination of surface water and groundwater by vehicle or equipment wash water that may contain oil, grease, phosphates, soaps, road salts, and other chemicals, suspended solids and invasive species.
(N)Rec-2	Developed Recreation Sites/Avoid, minimize, or mitigate adverse effects to soil, water quality, and riparian resources at developed recreation sites by maintaining desired levels of ground cover, limiting soil compaction, and minimizing pollutants entering waterbodies.
(N)Rec-4	Motorized and Nonmotorized Trails: Avoid, minimize, or mitigate adverse effects to soil, water quality, and riparian resources by controlling soil erosion, erosion of trail surface materials, and water quality problems originating from construction, maintenance, and use of motorized and non-motorized trails.
(N)Road-5	Temporary Roads: Avoid, minimize, or mitigate adverse effects to soil, water quality, and riparian resources from the construction and used of temporary roads.
(R)BMP 2.8	Stream Crossings: Minimize water, aquatic, and riparian resource disturbances and related sediment production when constructing, reconstructing, or maintaining temporary and permanent water crossings.
(R) BMP 2.10	Parking and Staging Areas: Construct, install, and maintain an appropriate level of drainage and runoff treatment for parking and staging areas to protect water, aquatic, and riparian resources.
(N) Road-10	Equipment Refueling and Servicing: Avoid, minimize, or mitigate adverse effects to soil, water quality, and riparian resources from fuels, lubricants, cleaners, and other harmful materials discharging into nearby surface waters or infiltrating through soils to contaminate groundwater resource during equipment refueling and servicing activities.
(N)WatUses-4 and (R) BMP 2.5	Water Diversions and Conveyances: Avoid, minimize, or mitigate adverse effects to soil, water quality, and riparian resources from construction, operation, and maintenance of water diversion and conveyance structures. (R) BMP 2.5 – Water Source Development and Utilization/To supply water for road construction, maintenance, dust abatement, fire protection and other management activities, while protecting and maintain water quality.

[1] (N): Guidance provided in USDA Forest Service National Best Management Practices for Water Quality Management on National Forest Lands, Volume 1: National Core BMP Technical Guide, FS-990a (April 2012).

: Guidance provided in USDA Forest Service Region 5, Water Quality Management Handbook. R5 FSH 2509.22, Chapter 10, Amendment 2509.22-2011-01 (December 2011).

There is significant redundancy between the USDA BMP guidance documents, and the TRPA Standard Conditions of Approval. The most specific and protective language will be incorporated in project designs and specifications, and stormwater pollution and prevention plans.

Additional project-specific soil and water protection measures beyond the methods identified in the National and Regional BMPs, TRPA Standard Conditions of Approval, include a corresponding USDA BMP identified in parenthesis:

1. Staging areas and other disturbed bare ground will be restored by recompacting and recontouring to surrounding grade, and mulching/seeding per recommendations of the appropriate staff (e.g., botanist) – (Fac-2 and BMP 2.10).
2. Displacement of silt loams and peat soils would be avoided wherever possible by strategic placement of temporary construction access paths and strict construction area limits. In cases where silt loams and peat soils cannot be avoided, additional BMPs (e.g., encapsulated roads or steel plates to distribute the force of the machinery) would be used to reduce compaction – (AqEco 2 and Road 5).
3. Any actions requiring a 401 permit, Basin Plan Prohibition exemption, or a Lake Tahoe National Pollutant Discharge Elimination System construction permit would require the completion of a daily BMP implementation checklist and turbidity monitoring, when conducting work in waterbodies – (AqEco -2, BMP 2.10).
4. Review on the ground BMPs prior to a forecasted rain event (using NOAA weather forecast website). Watershed or transportation specialists would review on the ground project BMPs prior to a large forecasted storm event (1 inch in 24 hours rain event, or prolonged periods or rain over a 48 hour period exceeding a total of 2.5 inches) that may exceed BMP capacity and would notify appropriate staff (e.g., contract administrator) if additional BMPs are recommended to disconnect runoff from surface water features – (All).
5. To minimize potential turbidity impacts related to work within waterbodies, turbidity monitoring would occur before water is released from the work area. Water would not be reintroduced downstream until permit requirements for turbidity are met – (AqEco 2, BMP 2.10).
6. Temporary roads would be used only if other tools for access are not feasible due to site conditions; however, methods to minimize ground disturbance would be deployed – (Road -2).
7. Onsite dust abatement procedures would be implemented on disturbed soil areas and stockpiled soil materials to ensure fine sediments are not transported off site as airborne particles. Abatement procedures could include both watering and physically covering bare soils – (AqEco-2 and Fac-2).

5.3 Aquatics

1. Leave existing downed trees and large woody debris that are in perennial or intermittent stream channels in place unless removal would enhance or maintain channel stability.

2. Avoid removing or altering bank stabilizing vegetation, live or dead trees within 5 feet of the bank edge of perennial or intermittent streams and lakes or ponds, unless the action is needed to meet project objectives.
3. If water drafting or pumping diversions are needed for project implementation activities, water levels at drafting locations would be maintained to support the needs of aquatic dependent species and associated habitat. Such activities would use guidance described in BMP 2.5 (Regional BMP guidance, USDA 2011) to protect water quality and aquatic species.
4. Salvage/recovery of fish would be conducted within anticipated construction dewatering or diversion zones operations by electro-shocking or other suitable means as developed through consultation with the Nevada Department of Wildlife and Lake Tahoe Basin Management Unit fisheries staff. Fish would be moved approximately 500 -700 feet upstream or downstream of project activities. Block nets would be installed to ensure fish do not move back into the project area. Nets would be cleaned as needed to ensure the nets are functioning.
5. Any contractor would be solely responsible for ensuring that all equipment, boats, and other aquatic equipment meet the Lake Tahoe Aquatic Invasive Species Watercraft Inspection Program. Further information is found at www.tahoeboatinspection.com.
6. Field gear (waders, float tubes, etc.) would be cleaned, decontaminated, and/or fully dried prior to entering or moving between aquatic habitats.
7. Electrofishing in Lahontan Cutthroat Trout-occupied or potential streams would follow Guidelines for Electrofishing in Waters Containing Salmonids Listed under the Endangered Species Act (Appendix D) during stream salvage activities.
8. Suitable habitat for Sierra Nevada yellow-legged frog within the project area will have three surveys to determine occupancy. As stated in the Programmatic Biological Opinion (FF08ESMF00-2014-F-0557) the three surveys will be within the last 10 years, can be staggered during one season from 14 calendar days after the date snowmelt begins through September 15 (early, mid, late season) or conducted three seasons during separate consecutive years. At least one of the surveys will be conducted during a calendar year where snowpack is 80 percent or greater than normal (USDI 2014).
9. Stream form and substrate within stream crossings should conform to the reference channel cross-section, provide a thalweg for low flow conditions, and avoid continuous stream flow along the structure wall. The natural stream gradient and substrate material should be simulated through the structure and should be restored whenever possible. Consider the need for terrestrial organism passage in the design of materials placed in and around structures (FSH 7709.56b).
10. Any stream crossings that are constructed, reconstructed, or permanently removed, provide aquatic organism passage (LMP SG49).

5.4 Terrestrial Invasive Species

1. Staging areas: Avoid staging equipment, materials, or crews in invasive plant-infested areas.

2. Control (avoidance) areas: Equipment traffic and soil-disturbing project activities would be excluded from invasive plant infestations, where feasible. These areas will be identified on project maps and delineated in the field with flagging.
3. Implementation: All equipment and vehicles (Forest Service and contracted) used for project implementation must be free of invasive plant material before moving into the project area. Equipment would be considered clean when visual inspection does not reveal soil, seeds, plant material or other such debris. Cleaning would occur at a vehicle washing station or steam-cleaning facility before the equipment and vehicles enter the project area. Equipment used during emergency work is exempt from the cleaning requirement. When working in known invasive plant infestations, equipment would be cleaned before moving to other National Forest System lands. These areas would be identified on project maps and delineated in the field with flagging.
4. Post-project monitoring: In areas with proposed ground disturbance activities, survey for new or spreading invasive plant infestations at least once during each of the following two growing seasons. New infestations will be treated according to project design features.
5. Gravel, fill, and other materials--All gravel, fill, or other materials are required to be weed-free. Use onsite sand, gravel, rock, or organic matter when possible. Otherwise, obtain weed-free materials from sources that have been certified as weed-free.
6. Mulch and topsoil--Use weed-free mulches and topsoil. Salvage topsoil from project area for use in onsite revegetation, unless contaminated with invasive species. Do not use material (or soil) from areas contaminated by cheat grass.
7. Revegetation—
    a. Seed and plant mixes must be approved by Forest botanist. Seed lots would be tested for weed seed.
    b. Persistent non-natives, such as timothy (*Phleum pretense*), orchard grass (*Dactylis glomerata*), ryegrass (*Lolium* spp.), or crested wheatgrass (*Agropyron cristatum*) will not be used in revegetation.
    c. Seed and plant material would be from native, high-elevation sources as much as possible. Plant and seed material should be collected from as close to the project area as possible, from within the same watershed, and at a similar elevation whenever possible.
8. Treatment—the following infestations intersect with the proposed activity area and would be treated prior to implementation (within 30 days if possible). If additional infestations are identified prior to implementation, these would be evaluated for treatment. All treatments must comply with the management direction established in the 2010 Terrestrial Invasive Plant Species Treatment Project (USFS 2010).
    a. Bull thistle (*Cirsium vulgare*): There are 50+ bull thistle infestations. Chemical treatment not authorized.
    b. Canada thistle (*Cirsium arvense*): There are three infestations (736B, 781, 861). Chemical treatment is preferred.

c. St Johnswort (*Hypericum perforatum*): There are two known infestations (308A, 529). Chemical treatment is preferred.

d. Scotch thistle (*Onopordum acanthium*): There are two infestations (467A, 900). Manual treatment is preferred.

5.5 Heritage

1. Flag and avoid known Washoe heritage sites.
2. Provide advanced notice to Washoe Tribal site monitors to observe ground disturbing activities, including trenching and tree stump removal at specified locations.
3. Historic properties located within 82 feet of ground disturbing activities will be flagged for avoidance and monitored before and after the ground disturbing activities take place.

5.6 Recreation

1. Prepare a traffic safety and control plan prior to commencing project implementation. The plan would provide for public safety on Forest Service controlled roads and trails open to public travel.
2. Only consider a temporary forest closure during the project activity period when public safety concerns exist. Closure would be as limited as possible to reduce restrictions to public access.
3. Provide advanced notice to the public and area permittees to ensure that they are aware of proposed project activity, including tree removal and site closures. Post signs in project areas near public access points to highlight the proposed action and impacts to public access.
4. Maintain recreational facilities in a usable condition to the extent possible unless there is a concern for human health and safety and/or project implementation is impeded.

5.7 Scenery & Built Environment

1. Retaining walls should utilize materials and colors that complement surrounding natural features. Common wall types include soil-reinforced, gabions, crib, metal bins, stone masonry, interlocking masonry, and reinforced concrete. Surface treatments, such as oxidized metal or stone, simulated rock, colored concrete, or masonry veneers can complement the characteristics of the landscape. Vegetation can also be utilized as a screening device. Material selections should be reviewed by the Forest Service.
2. Cut slopes and fill slopes should be designed to mimic the surrounding landscape character. Some factors that help achieve this are use of irregular forms, variation in design, irregular benching, planting pockets, rounding the top of the slope, rock staining, and seeding with native plants. The top of cut slopes should be rounded off and the sides laid back to help blend the cut into the existing hillside. This rounding will also prevent overhanging vegetation that is likely to come loose and slide down the slope. Depending on the stability of the slope, additional slope protection measures may be necessary, such as rock bolting, soil nailing, and applying

shotcrete. Additional measures may also be necessary to keep rock off paved surfaces, such as fencing or barriers.

3. Parking lot design should preserve as many trees as possible. Expanses should be broken up with vegetated islands and blend with the topography of the site as much as possible. Where possible, use curved edges around the parking lot to better respond to the topography. Grade entrances to blend with surrounding topography, and to the extent feasible, locate parking out of view of the byway.
4. The design of overlooks should be fully accessible and complement the scenic byway's thematic design guidelines and preserve as many trees as possible.
5. The pedestrian path and associated elements should complement the views from the road and reflect the same design theme.
6. Any system trails used for construction access would be returned to pre-project condition or better.
7. All facilities shall be constructed in compliance with the Built Environment Image Guide, with materials and colors that complement the surrounding landscape and approved by the Forest Service. These facilities shall be sited to blend with the surrounding landscape.
8. Stormwater capture and infiltration facilities shall be graded to blend with the surrounding landscape and topography to the greatest extent possible.
9. All light fixtures will be Dark Sky Compliant.
10. All signs and their supports should be designed to meet breakaway safety criteria using aesthetically pleasing materials that reflect the design theme of the byway and pedestrian pathway. Measures can be taken to blend the back of signs into the landscape, such as painting the back of signs dark brown or green.
11. Design all facilities in keeping with the identity of the scenic byway. Logos, colors, materials, signs, architectural character, and graphic style are all elements of a byway's identity. Repeating elements of the byway's image gives everything a more unified and organized appearance, lets visitors focus on the information being presented, and creates a more memorable experience.

5.8 Wildlife

1. To protect migratory birds, any project activity that requires removal of trees and shrubs should be conducted outside the avian nesting season (April 1 through August 15) unless a qualified biologist determines that no nesting is occurring. To determine nesting, conduct a focused survey for active nest sites of birds within a $^{1}/_{16}$ mile (100 meters) radius of removal location prior to the onset of construction activities during the nesting season (i.e. within 15 days). If active nests are located during the preconstruction surveys a buffer would be placed around the nest. The buffer would be implemented untilthe juveniles fledge or the adults abandon the site if the nest fails. The size of the buffer would depend on various factors such as vegetation and topographic screening and the type of project activities in the nest's vicinity.

2. Concurrent with the avian nest surveys, large snags and large trees with substantial defects should be surveyed for bat roosts. If surveys indicate a roost within the survey area, a no-disturbance buffer should be established around the roost site to avoid disturbance or destruction of the roost. However, this can be adjusted based on the level of noise or construction disturbance, line of site between the roost and the disturbance, ambient noise levels and other disturbances, and other topographical or artificial barriers.
3. Any sightings of threatened, endangered, candidate, proposed, or sensitive species should be reported to the project biologist and construction should be stopped immediately if the species is found within any disturbance footprint (flying over the project area would not count as cause for stopping activities). If construction is stopped, the project biologist will be consulted within 24 hours. Based upon this consultation, the Responsible Official may adapt construction timelines or facility locations as determined necessary to provide adequate protection.
4. Maintain Limited Operating Periods for federal, state, and TRPA listed species if/when it is determined that permitted activities would occur within a protected activity center, or disturbance or buffer zone. If LOPs are updated prior to implementation and/or if Threatened, Endangered, Candidate, or Proposed species, or other protected species are added to the list of protected wildlife, the project would maintain the most current LOPs and maintain the most current list of protected species. LOPs may be waived or added. A complete list of LOPs is in the project record. No LOPs are currently required.
5. Retain nest trees for Forest Service Sensitive, and TRPA Special Interest Species.
6. All trash created during construction should be properly contained (wildlife- resistant containers) or removed at the end of every day.
7. Install specifically designed wildlife-resistant garbage containers in the parking areas and vista points.
8. Include language in signage to discourage littering and encourage “leave- no-trace” practices.
9. Lighting at facilities should be kept to a minimum and when necessary, should be wildlife friendly. Lighting should meet the below requirements in order to be wildlife friendly (http://myfwc.com/conservation/you-conserve/lighting/):
    a. Mount the fixture as low as possible to minimize light trespass and use the lowest amount of light needed in order to accomplish the need.
    b. Fully shield the light so bulbs and/or glowing lenses are not visible to minimize light trespass.
    c. Use long wavelength light sources (ambers and reds) wherever possible while still meeting the need. When long wavelength light sources are used be sure to use in the appropriate lighting fixtures.

5.9 Vegetation

1. Remove existing down woody material during construction, leaving less than 10 tons/acre. If possible, to achieve less than 10 tons/acre fuel loading, rearrangement of existing down woody debris adjacent to the project area may be allowed. If it is not possible to achieve less than 10 tons/acre fuel loading when re-arranging fuels,

excess material must be removed or chipped. If chipping is used, resulting broadcast chipped material must be less than 6 inches depth. If chip depths are greater than 6 inches in depth, excess chip must be removed. No broadcast chipping is allowed in Stream Environment Zones (SEZ).

2. Remove project generated slash and log material from National Forest System Lands, following Forest Service policy regarding disposal of timber and biomass material.
3. Removal of trees from the project area would require a Forest Service Forest Product Removal Permit or a Timber Sale Contract.
4. Lake Tahoe Basin Management Unit staff would mark all trees prior to removal. This includes trees within the project footprint, hazard trees, and trees damaged during construction.
5. Remove hazard trees, construction damaged trees, and related slash/biomass material from project area.
6. Hazard Trees that are within striking distance of the completed project should be removed during construction. Lake Tahoe Basin Management Unit Vegetation Management staff would mark hazard trees prior to removal.
7. Protect residual trees from damage during construction. Lake Tahoe Basin Management Unit vegetation management staff would be notified of any trees damaged during construction to assess damage. Trees that are damaged may be designated for removal.
8. Trees over 30 inches DBH should be retained, unless in the project footprint or if they pose a hazard to construction or the completed project.
9. Remove, from National Forest System lands, any stumps that are removed from the ground.
10. Apply an EPA registered borax compound to stumps greater than 14" stump diameter that are not removed from the ground to prevent Annosus Root Disease (*Heterobasidion Annosum*).
11. The proposed bike path shares the same alignment of Forest Road 1566, from the proposed Secret Harbor parking area. Retain access to Forest Service Road 1566 for commercial log hauling purposes after the project is complete.