

Joint Environmental Assessment

US Highway 50 Round Hill Pines Access Project

Lake Tahoe Basin Management Unit
NV FLAP US 50(1)
Zephyr Cove, Nevada



Prepared By:



U.S. Department of Transportation
Federal Highway Administration
Central Federal Lands Highway Division
Lakewood, Colorado

May 28, 2021

Round Hill Pines Access Project

NV FLAP US 50(1)
Zephyr Cove, Nevada

JOINT ENVIRONMENTAL ASSESSMENT

Submitted Pursuant to:

42 U.S.C. 4332(2)(c) and 49 U.S.C. 303

U.S. Department of Transportation
Federal Highway Administration
Central Federal Lands Highway Division

In Cooperation with:

United States Forest Service, Lake Tahoe Basin Management Unit
Nevada Department of Transportation
Tahoe Regional Planning Agency

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05/18/2021
Date

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WHAT'S IN THIS DOCUMENT

The Federal Highway Administration (FHWA) Central Federal Lands Highway Division (CFLHD), in cooperation with the United States Department of Agriculture (USDA) Forest Service Lake Tahoe Basin Management Unit (LTBMU), the Nevada Department of Transportation (NDOT), and the Tahoe Regional Planning Agency (TRPA), has prepared the Round Hill Pines Access Project Joint Environmental Assessment (EA), which examines the potential environmental impacts of the alternatives being considered for the proposed project located within the LTBMU near Zephyr Cove, Nevada in Douglas County. This document describes why the project is being proposed, alternatives considered for the project, the existing environment that could be affected by the project, and the proposed avoidance, minimization and/or mitigation measures.

What You Should Do

- In accordance with 23 CFR 771.119 this EA will be available for public review and comment for 30-days.
- Please read this document. The document and related technical studies are available for review at the FHWA website at <https://flh.fhwa.dot.gov/projects/nv/round-hill-pines/>
- We welcome your comments. If you have any comments about the Proposed Project, please send your written comments to:

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Before including a personal address, phone number, e-mail address, or other personal identifying information in written comments, anyone providing written comment should be aware their entire comment – including their personal identifying information – may be made publicly available at any time. While anyone wishing to comment may ask FHWA in their comment to withhold their personal identifying information from public review, FHWA cannot guarantee it will be able to do so.

Send comments by the deadline: June 27, 2021.

For individuals with sensory disabilities, this document can be made available in Braille, large print, on audiocassette, or on computer disk. To obtain a copy in one of these alternate formats, please contact Ryan Mathis using the contact information above.

What Happens Next

After comments are received from the public and reviewing agencies, CFLHD, in cooperation with LTBMU, NDOT, and TRPA, will respond to comments, prepare the final environmental decision document and may: (1) give environmental approval to the proposed project, (2) conduct additional environmental studies, or (3) abandon the project. If the project is given environmental approval, part, or all, of the project can be designed and constructed after all of the required permits or agreements are obtained.

Following public and agency review of the EA, CFLHD in coordination with LTBMU, NDOT, and TRPA will update the environmental analysis, if necessary, in response to comments received during the 30-day public review of the EA. Mitigation measures may be replaced with equal or more effective measures prior to project approval. If the impacts of the proposed project remain less than significant, then CFLHD will conclude the National Environmental Policy Act (NEPA) process with a Finding of No Significant Impact (FONSI). Because the environmental analyses and impact calculations contained in the EA are based on conceptual design, the impacts represent a worst-case scenario. Refinements undertaken through the design process are anticipated to lessen both the extent and severity of impacts presented in this EA.

A Federal agency may publish a notice in the Federal Register, pursuant to Title 23 United States Code (U.S.C.), Sec. 139(l), indicating that one or more Federal agencies have taken final action on permits, licenses, or approvals for a transportation project. If such notice is published, claims seeking judicial review of those Federal agency actions will be barred unless such claims are filed within 150 days after the date of publication of the notice, or within such shorter time period as is specified in the Federal laws pursuant to which judicial review of the Federal agency action is allowed. If no notice is published, then the periods of time that otherwise are provided by the Federal laws governing such claims will apply.

ACRONYM LIST

AASHTO	American Association of State Highway and Transportation Officials
APE	Area of Potential Effect
ASTM	American Society for Testing and Materials
BA	biological assessment
BMP	best management practices
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFLHD	Central Federal Lands Highway Division
CFR	Code of Federal Regulations
CMP	corrugated metal pipe
CO	carbon monoxide
CWA	Clean Water Act
dba	A-weighted decibels
DPS	distinct population segment
EA	environmental assessment
EPA	Environmental Protection Agency
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Map
FLAP	Federal Lands Access Program
FMMP	Farmland Mapping and Monitoring Program
FPPA	Farmland Protection Policy Act
GIS	Geographic Informational Systems
GPS	Global Positioning System
LTBMU	Lake Tahoe Basin Management Unit
MBTA	Migratory Bird Treaty Act
mph	miles per hour
NAAQS	National Ambient Air Quality Standards
NDOT	Nevada Department of Transportation
NEPA	National Environmental Policy Act
NO ₂	nitrogen dioxide
NOAA	National Oceanic and Atmospheric Administration
NO _x	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
NRCS	National Resources Conservation Service
NRHP	National Register of Historic Places
Pb	lead
PM	project mile
PM ₁₀	particulate matter less than 10 micrometers in diameter
PM _{2.5}	particulate matter less than 2.5 micrometers in diameter
RCEM	Roadway Construction Emission Model
RCRA	Resource Conservation and Recovery Act
ROW	right-of-way
SHPO	State Historic Preservation Office

SO ₂	sulfur dioxide
SQIP	Scenic Quality Improvement Program
SWPPP	stormwater pollution prevention plan
TTD	Tahoe Transportation District
TRPA	Tahoe Regional Planning Agency
USACE	United States Army Corps of Engineers
USDOT	United States Department of Transportation
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Society

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Appendix A: Technical Studies

- Round Hill Pines Access - Traffic Signal Warrant Study
- Round Hill Pines Access – Intersection Design
- Biological Assessment/Biological Evaluation for the NV FLAP US 50(1) Round Hill Pines Access Project
- Traffic Noise Study for the NV FLAP US 50(1) Round Hill Pines Access Project
- Visual Impact Assessment for the NV FLAP US 50(1) Round Hill Pines Access Project

Appendix B: Public Involvement Materials

April 2019 Public Information Meeting

- Newsletter
- Public Notice
- Comments

September 2019 Public Information Meeting

- Newsletter
- Public Notice
- Comments

CHAPTER 1: PURPOSE AND NEED

1.1 Introduction

The Federal Highway Administration Central Federal Lands Highway Division (FHWA-CFLHD), in cooperation with the United States Department of Agriculture (USDA) Forest Service Lake Tahoe Basin Management Unit (LTBMU), the Nevada Department of Transportation (NDOT), and the Tahoe Regional Planning Agency (TRPA), is proposing to improve safety for visitors entering and exiting the Round Hill Pines Resort (Resort) from U.S. Highway 50 (US 50). The Resort is located within the boundary of the Lake Tahoe Basin Management Unit National Forest and is operated by a third party business under a special use permit. The project begins south of the existing entrance into the Resort and extends north along US 50 for approximately 0.35-mile. The project is located in Douglas County near Zephyr Cove, Nevada (see Figure 1.1-1).

This Environmental Assessment (EA) has been developed to meet CFLHD's obligations as the lead agency under the National Environmental Policy Act (NEPA) of 1969, as amended. The analysis in this document concentrates on aspects of the project that could have a significant effect on the environment, and identifies feasible measures to mitigate (i.e., avoid, minimize or compensate) these impacts.

1.2 Lead Agencies

This EA has been prepared in accordance with both NEPA and TRPA environmental review requirements. For NEPA, the EA is written to comply with the statute, Council on Environmental Quality Regulations Implementing NEPA (Title 40, Section 1500 and subsequent sections of the Code of Federal Regulations (23 CFR 771) and related procedures. For TRPA requirements, the EA complies with Chapter 3 of the TRPA Code of Ordinances (Code) and Article VI of the TRPA Rules of Procedure. The lead agency for the NEPA aspect of the EA is FHWA, Central Federal Lands Highway Division. TRPA is the lead agency and primary permitting agency under the Tahoe Regional Planning Compact (Public Law 96-551).

1.3 Federal Lands Access Program

The proposed improvements are administered under the Federal Lands Access Program (FLAP), which provides funds for projects on "access transportation facilities." An access transportation facility is a public highway, road, bridge, trail, or transit system that is located on, is adjacent to, or provides access to federal lands for which title or maintenance responsibility is vested in a state, county, town, township, tribal, municipal, or local government. The FLAP supplements state and local resources for public roads, transit systems, and other transportation facilities, with an emphasis on high-use recreation sites and economic generators.

The proposed project was placed in the FLAP in 2017 with local funds from the LTBMU concessionaire at the Resort, NDOT, and TRPA. The estimated cost of construction is approximately \$6.9 million (FY 2020 dollars).

Figure 1.1-1: Project Location



1.4 Proposed Project

The Project proposes the Round Hill Pines Access Project to improve safety for visitors entering and exiting the Round Hill Pines Resort from US 50. The Project will improve access to federal lands in Douglas County, Nevada including the Lake Tahoe Basin Management Unit of the Tahoe Basin National Forest and recreational opportunities located at the Round Hill Pines Resort.

The Round Hill Pines Access Project (Project) would propose a new access road to Round Hill Pines Resort for vehicles, bicyclists and pedestrians. The new access road would be located approximately 0.2-mile north from the existing access road. The existing access road would remain in place; however, it would be closed to the public. The Project would also improve access to Round Hill Pines Resort for visitors traveling along US 50 with a median left turn and acceleration lane along northbound US 50. The Project would also include pavement resurfacing, lane striping and drainage improvements.

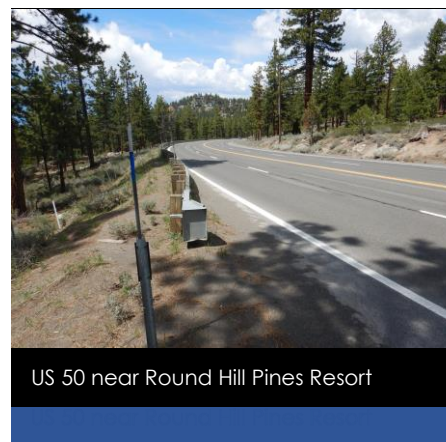
1.5 Project Location

The Project would be located along a 0.35-mile segment of US 50, near Zephyr Cove, Nevada in Douglas County. The Project would be constructed on NDOT right of way easements for work located along US 50 and on LTBMU land for the Round Hill Pines Resort access road.

US 50 is a major transcontinental highway that stretches over 3,000 miles, originating in Ocean City, Maryland and ending in Sacramento, California. US 50 was created in 1926 as part of the original United States Highway system. In Nevada, US 50 was built along the route of the Lincoln Highway which was the first transcontinental highway in the United States. The Lincoln Highway was one of many transportation corridors across Nevada in the nineteenth and early twentieth centuries to carry wagons, trains, and automobiles passing through small and large communities (Mead & Hunt, 2018).

In the vicinity of the Project, US 50 has a mountain corridor environment and traverses through forested, steep, and winding terrain with multiple access points to residential communities, commercial businesses, or public lands. The average daily traffic (ADT) along US 50 within the project corridor is 20,000 vehicles, with projected 2036 traffic volumes of 25,641 vehicles (NDOT, 2013). The average roadway width is 56 feet with two lanes of travel in each direction and variable width shoulders with a paved ditch. Posted speeds along US 50 within the Project is 45 miles per hour.

Round Hill Pines Resort Beach and Marina is located within the boundary of the Lake Tahoe Basin Management Unit National Forest and is operated by a third party business under a special use permit. The Round Hill Pines Resort contains day use areas such as a marina, beach, restaurant, and provides access to the Stateline to Stateline Bike Trail. Improvements to the facilities at the Round Hill Pines Resort have been completed recently. Additional planned improvements will consist of a proposed project to improve the traffic circulation and consolidate parking. (2017 Nevada FLAP application)



US 50 near Round Hill Pines Resort

1.6 Purpose and Need for Proposed Project

The purpose of the project is to increase safety and improve accessibility for visitors entering and exiting the Round Hill Pines Resort from US 50 in Douglas County near Zephyr Cove, Nevada.

The project is needed because the current US 50 entrance configuration into the Resort has safety concerns due to limited sight distance for vehicles traveling in both directions along US 50 and unprotected turning movements across US 50 for vehicles accessing the resort. In addition to the current configuration, the Resort access road contains a narrow roadway width, steep grades, and sharp curves. This configuration limits the flow for two-way traffic containing transit and recreational vehicles. The specific needs driving the project are discussed in further detail below.

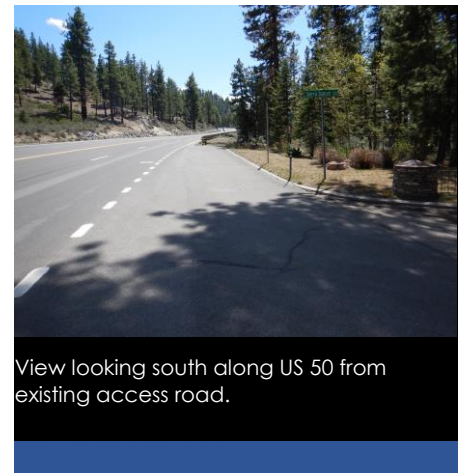
- The existing Resort access road is located at the crest of a vertical curve along US 50, which results in limited sight distance for both travel directions. Sight distance for passenger vehicles south of the existing Resort access road is below the recommended AASHTO sight distance values. This substandard sight distance measurement presents a safety hazard for vehicles exiting the Resort and turning north onto eastbound US 50, as well as eastbound US 50 traffic.
- During the peak season, eastbound US 50 experiences vehicle queuing and congestion in the inside lane. This is caused by Resort visitors making unprotected turning movements across westbound US 50 onto the access road.
- The existing access road is narrow with sharp turns and a steep grade, which limits two-way traffic and access for larger vehicles such as recreation vehicles, transit, and trailers.

Objectives for the project includes the following:

- Align the Round Hill Pines Beach and Resort functions with the LTBMU's long term vision for the area.
- Improve alternate transportation options into Round Hill Pines Resort such as bike, pedestrians, and transit.
- Minimize environmental and scenic quality impacts.
- Construct permanent water quality improvements to reduce sedimentation and runoff into the Lake Tahoe basin.

1.6.1 Safety

US 50 is a traditional mountain corridor that contains horizontal and vertical curvature with multiple access points to public land, private residences, and commercial/retail areas. The Resort area is a popular attraction that provides public beach access for local Lake Tahoe area residents, as well as tourists. The LTBMU estimates the annual visitation of the Resort to be approximately 155,000 people, with a higher monthly visitation period during the summer months. NDOT estimates the 2020 ADT along US 50 at 20,812 vehicles per day with 3% truck traffic. NDOT provided crash data along a segment of US 50 within a quarter mile of the Resort access road point. From July 2009 to July 2017, nine crashes were reported, six of them were rear-end collisions and three angle-type crash. Four of the nine crashes resulted in injuries, with the remainder causing property damage only. None of the reported crashes involved bicyclists or pedestrians. The overall crash rate for this segment of US 50 is higher than the statewide average (LSC Transportation Consultants, Inc., 2017).



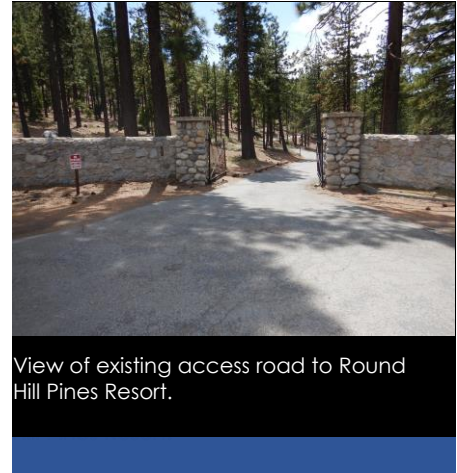
View looking south along US 50 from existing access road.

Based on the existing conditions, the location of the Resort access road is not sufficient to safely accommodate the volume of traffic entering into the recreation area. The increased visitation to the Resort, substandard sight distance, and lack of protected turning movement accommodations in northbound US 50 creates a safety hazard.

1.6.2 Accessibility

Existing pavement widths along the Resort access road varies between 12-feet and 18-feet wide, with a hairpin turn and steep grades leading down to the parking areas and beach access. The existing roadway has no shoulders or lane markings. These narrow conditions are inadequate to accommodate two-way traffic. The existing roadway does not provide sufficient width for opposing directional vehicles to safely pass each other. Larger vehicles, such as recreational vehicles, school buses, park shuttles, and delivery trucks, frequently encroach into the opposing travel lane due to the narrow width of the road. The 2016 ADT for the Resort access road is 1,200 which is based on proposed parking availability and concessionaire delivery vehicles. This scenario not only creates safety concerns, but also places stress on the pavement edges, requiring additional maintenance (CFLHD Pavement Tech Memo, 2019).

Drivers typically expect uniform or consistent roadway design, which can improve their ability to respond to situations on the roadway. The inconsistent widths along the project route present safety concerns because the roadway lacks the predictability users expect, particularly users who are not familiar with the roadway, such as tourists.



View of existing access road to Round Hill Pines Resort.

CHAPTER 2: ALTERNATIVES

This section describes the proposed action and the project alternatives that were developed pursuant to NEPA to meet the project purpose and need while avoiding or minimizing environmental impacts. The alternatives evaluated in this EA include the No Action Alternative and the Action Alternative.

2.1 Alternatives

A No Action Alternative and one Action Alternative (the Proposed Project) are analyzed in this EA. The National Environmental Policy Act requires agencies to analyze the consequences of taking no action, which is represented by the No Action Alternative. In addition, the No Action Alternative provides a baseline for comparing the consequences of the Action Alternative.

2.1.1 No Action Alternative

Under the No Action Alternative, the proposed activity would not take place.

- No actions to address safety concerns at the existing Resort access road and US 50 intersection. No changes will be made to address sight distance for visitors and the area.
- No actions to improve congestion and vehicle queuing in the northbound US 50 inside lane. Round Hill Pines Resort visitors will continue to make unprotected turning movements across US 50. Through traffic along US 50 will encounter vehicles stopped and waiting to enter the Resort.
- No actions to improve the access road other than routine maintenance activities. No changes would be made to widen the access road to accommodate two-way traffic, flatten curves, or other measures to increase accessibility for larger vehicles.

2.1.2 Action Alternative (Proposed Project)

Under the Action Alternative, a 0.35-mile segment of US 50 would be improved and the Round Hill Pines Resort access road and US 50 intersection would be relocated approximately 0.2 mile further to the north from the existing location. U.S. Highway 50 would be widened at the relocated intersection to accommodate a new northbound median left turn bay and northbound US 50 acceleration lane. The median left turn bay would accommodate travelers who are headed northbound along US 50 and are turning across traffic to enter the Round Hill Pines Resort. The US 50 cross section at the relocated intersection would consist of two 12-foot northbound lanes, two 12-foot southbound lanes, a 12-foot wide median left turn bay and a median northbound US 50 acceleration lane. Shoulder widths along US 50 would remain the same as existing and would consist of 4-foot along US 50 southbound and 6-foot along US 50 northbound. The US 50 alignment would not change as part of the Proposed Project. U.S. Highway 50 within the project area would receive a pavement mill and overlay, lane striping, pavement markings and a safety edge in addition to the relocated intersection widening.

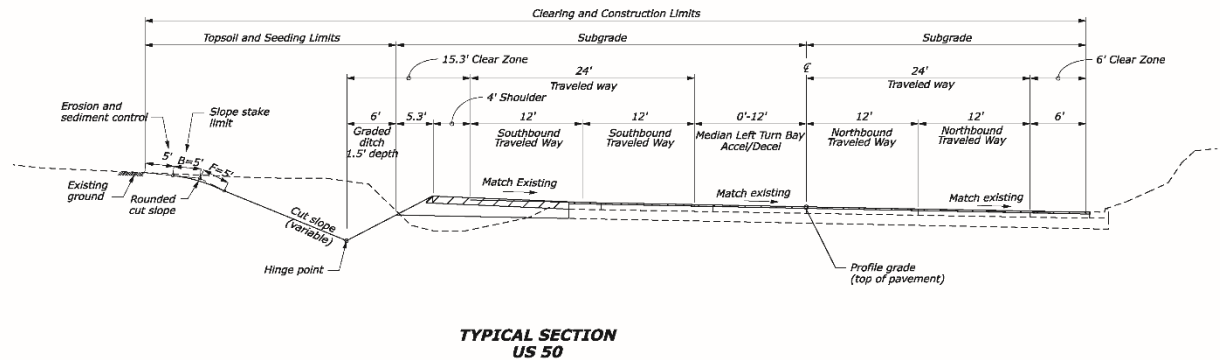
An existing concrete slab retaining wall is located along the west US 50 slope embankment facing into the Round Hill Pines Resort. The existing retaining wall would remain in place and the slope paving would be removed. Guardrail would be used at this location along with 1:2 slopes to minimize the construction footprint. A curb section with minimal ditching would be added along the west side of US 50 and no ditches would be constructed along the east side of US 50. Roadway slopes would be constructed using vegetation and/or rock to enhance visual aesthetics and blend into the natural setting.

Existing 18- and 36-inch culverts within the project area would be replaced as well as armored with riprap protection at the outlets. The clear zone, which is the area available for safe use by errant vehicles, would be improved through removal of obstructions, including clearing

vegetation adjacent to the roadway as feasible. All traffic control signs would be reviewed and replaced, if needed, to meet current standards.

Based on conceptual project design, a total of 0.6-acre of impervious surface would be added as a result of increased road surface. Because project design is still in preliminary stages, the area of disturbance and the amount of increased impervious surface anticipated represents a worst-case scenario. Refinements undertaken through the design process are anticipated to lessen the area of impact. Temporary and permanent water quality best management practices (BMPs) would be required as part of the proposed project and will be included in the final design.

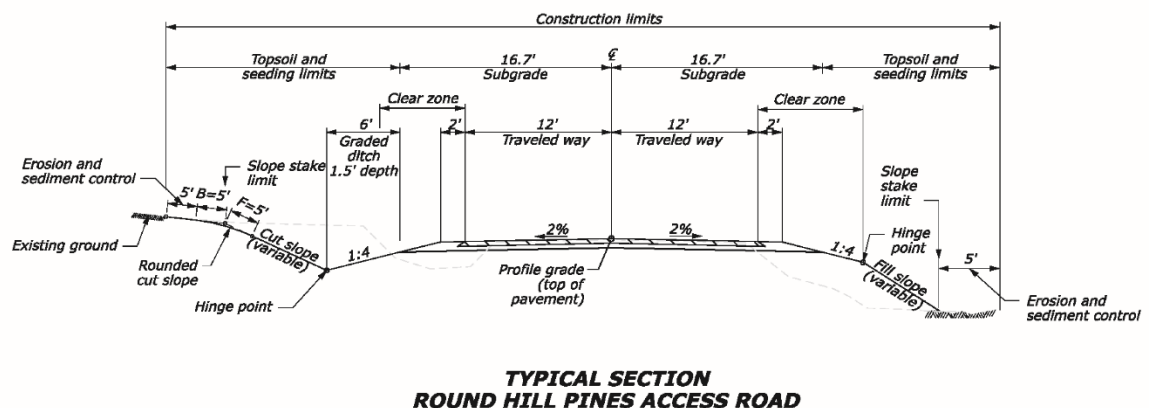
Figure 2.1-1: Proposed Typical Section for US Highway 50



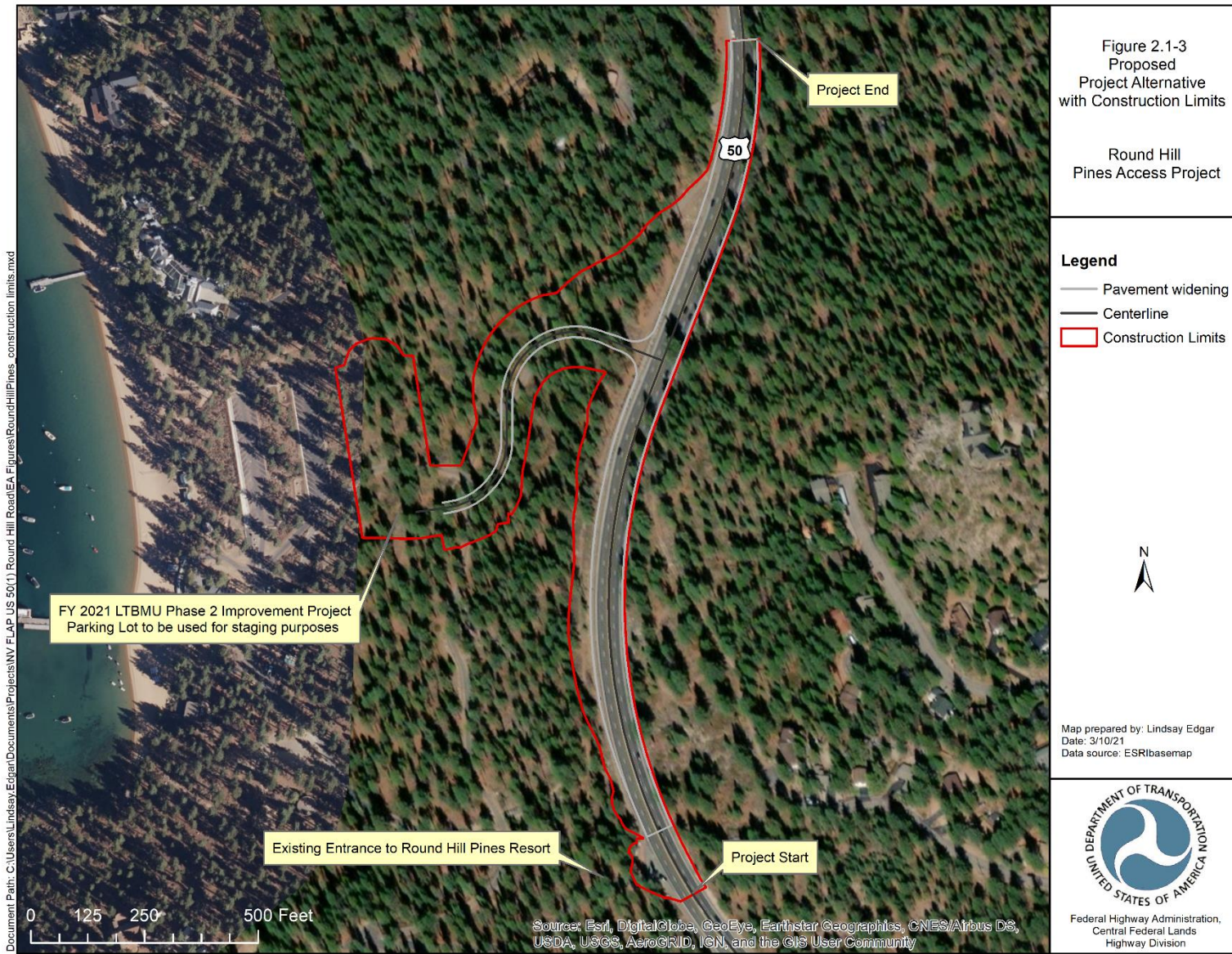
Note: Typical section may vary in areas of localized improvements.

The Round Hill Pines access road would be constructed on new alignment. The access road would be approximately 0.14-mile-long and reconstructed to accommodate two 12-foot lanes with 2-foot wide shoulders. The new access road would have barnroof slopes consisting of 1:4 within the clear zone with 1:2 slopes to reduce construction impacts. The existing access road would remain in place for use by LTBMU and a local utility company. Public access to the old access road would be restricted by placing a gate with a lock across it and the size of the entrance would be reduced to discourage vehicles from turning into this location.

Figure 2.1-2: Proposed Typical Section for Round Hill Pines Access Road



Note: Typical section may vary in areas of localized improvements.



The LTBMU is planning to design and construct the Round Hill Pines Resort Phase II Improvement project which will enhance access to day use activities by consolidating the existing parking at the resort with a designated parking area, improving traffic flow within the resort by constructing a roundabout, and realigning a portion of the Nevada Beach pedestrian trail. The LTBMU is responsible for the design, environmental review, permitting, and construction of the Round Hill Pines Resort Phase II Improvement project. Construction is anticipated to be completed by the fall 2021. The relocated Round Hill Pines Resort access road would be constructed as part of the Proposed Project Alternative and would tie into the Round Hill Pines Resort Phase II Improvement project.

2.1.3 Construction

In general, construction activities for the Proposed Project would include excavation of material sources, placement of fill material soil stabilization, clearing and grubbing, grading, placement of crushed aggregate base and paved surface, revegetation, installation of guardrail and signs, drainage improvements, and other safety related features necessary to meet current design practice.

In general, construction activities would be located within the existing 80-foot wide US 50 right of way easement along US 50 and within the LTBMU Round Hill Pines Resort area. Modifications to the existing NDOT ROW easement deed would be needed to accommodate temporary construction impacts and permanent improvements outside of the existing NDOT easement, specifically along the west side of US 50. Existing utilities impacted by construction within the easement may need to be relocated but would remain within the boundary of the updated NDOT easement. Construction disturbances would be minimized to the extent possible to avoid environmentally sensitive areas.

2.1.3.1 Timing and Duration

Construction of the Proposed Project would begin in 2022 and occur over one construction season, weather permitting, to accommodate the grading season which begins May 1st and ends October 15th. Tree removal for the Proposed Project would occur in late fall 2021 to avoid any potential impacts to migratory birds. The trees will be cut near ground level and harvested by LTBMU. Any tree stumps will remain in place over the winter to provide soil stability. The LTBMU would construct the Round Hill Pines Resort Phase II Improvement project in 2021. US 50 would remain open during construction with potential delays associated with lane closures. If any delay longer than 30 minutes is anticipated to accomplish specific construction activities, then notice would be provided to USFS staff, the public, relevant local agencies, and emergency service providers. All construction would occur on weekdays during daylight hours. The existing access road to Round Hill Pines Resort would remain in place.

2.1.3.2 Utility Relocations and Installations

There are existing telecommunication, gas, and water utilities within the Proposed Project area. Project construction may require relocation of these utilities. FHWA-CFLHD would coordinate with utility providers during final design. It is anticipated that relocated utilities would be similar in type, appearance, width, and height to existing facilities, or as amended to conform to latest industry standards. Furthermore, new conduit may be constructed to service future fiber optic lines along the US 50 corridor (NDOT Future Fiber Optic Conduit, Senate Bill SP53).

2.1.3.3 Construction Staging

Construction, equipment staging, and stockpiling would take place in an existing paved parking lot area on the Round Hill Pines Resort. All equipment and materials would be stored, maintained, and refueled in designated portions of the staging areas in accordance with permit requirements. As such, there would be no staging in areas with sensitive environmental areas.

2.1.4 Preferred Alternative

The benefits and impacts of the No Action Alternative and Proposed Project Alternative, as further discussed in Chapter 3, were analyzed and considered in the identification of a preferred alternative. Based on this analysis and the ability of each alternative to meet the purpose and need of the project, CFLHD has identified the Proposed Project as the Preferred Alternative. This determination is subject to public review and final selection of a Preferred Alternative will occur following the public review and comment period.

After the 30-day public comment period, all comments will be considered. A final determination of the project's effects on the environment will be identified at that time. If it is determined the proposed action would not significantly impact the environment, a Finding of No Significant Impact (FONSI) will be issued in accordance with NEPA.

2.2 Alternatives Considered but Dismissed from Evaluation

The safety issues associated with limited sight distance for vehicles exiting the Resort onto US 50, congestion along eastbound US 50 during the peak season, and narrow roadway widths along the existing access road were identified in the FLAP application and through the project scoping process as issues the project needs to resolve. The proposed action as well as the purpose and need statement was presented to the public on April 23, 2019 at an open house meeting. Based on the information presented at the public meeting, the following alternatives or options were presented to the public on September 25, 2019 and considered during preliminary design but were dismissed either because they did not meet the project's purpose and need, were beyond the scope of the project, or had unacceptable impacts.

- Acceleration/Deceleration lanes with median left turn lane along US 50 and relocated Round Hill Pines Resort access road.** An alternative to construct an acceleration lane along westbound US 50, a deceleration lane along westbound US 50, a median left turn and eastbound US 50 acceleration lane was considered based on information received in the 2017 FLAP application and during project scoping meetings with NDOT, LTBMU, and TRPA (project partners). The alternative was developed to 30% design with plans, cost estimates and supporting information which were presented to the project partners and general public in September 2019. Concerns on the overall construction footprint were raised by the project partner agencies and two additional alternatives were developed based on their feedback and concerns. CFLHD performed a safety analysis on this alternative as well as the two additional alternatives (relocation of the Round Hill Pines Resort access road only and the Proposed Project). An Interactive Highway Safety Design Model (IHSDM) software analysis tool was used to evaluate the operation effects of geometric design decisions on highways. The IHSDM analysis showed this alternative results in the largest reduction in crashes due to the additional acceleration and deceleration lanes. Of the three alternatives evaluated in the safety analysis memo, this alternative results in the longest overall length of project (2,240 linear feet), the largest addition of 4.8 acres of impervious pavement, and a wider construction footprint (CFLHD Safety Analysis Memo, 2020). It was determined that in order to provide a project that is sensitive to the context of the US 50 mountain corridor throughout the Lake Tahoe Basin and to minimize environmental impacts, this alternative would not be evaluated further for consideration.
- Relocation of the Round Hill Pines Resort access road only.** An alternative to only relocate the Round Hill Pines Resort access road further to the north along US 50 was considered based on input and recommendations from the project partners at the conclusion of the September 2019 public meeting. This alternative would not have included additional safety improvements such as the median left turn lane and median acceleration lane. Moving the intersection to the north significantly improves sight distance from the existing conditions. The new access road would also provide a better experience for visitors to the Resort. Based

on the CFLHD Safety Analysis Memo, the IHSDM software shows a significant reduction in crashes when comparing the Proposed Project Alternative and only relocating the Round Hill Pines Resort access road intersection. This is supported by a 2017 publication by NDOT which shows, based on DOT state-wide reported crash data, the most common vehicle actions for fatal and serious injury crashes are going straight or turning left. Based on this safety analysis, this alternative was not recommended for further evaluations because it does not meet the purpose and need for the project by improving safety along US 50.

- **Roundabout Intersection at US 50 and relocated Round Hill Pines Resort access road.** An alternative to construct a roundabout at the US 50 and Resort access road intersection was considered based on feedback received from TRPA and the public during the open house meeting in April 2019. Based on preliminary design, US 50 would need to be realigned slightly to the west in order to avoid impacting private property located along the east side of the highway. The new US 50 alignment and roundabout intersection would result in fill material and impervious pavement located closer to the Lake Tahoe shoreline, which is a protected scenic resource. The Resort access road under the Roundabout Alternative would need to be constructed at an 11% grade, which exceeds design standards. This would create potentially unsafe conditions for commercial delivery trucks, recreation vehicles, trailers, and transit entering the Resort. The steep grade may also have increased stormwater runoff concerns that may affect water quality.

A two-lane roundabout intersection would introduce a new traffic pattern to this segment of US 50, as there are no other roundabouts along US 50 within the South Lake Tahoe community. The constructability of a roundabout intersection along US 50 was also a concern. Maintaining traffic operations along US 50 during construction of the roundabout within the grading season would have significant costs. Construction may require nighttime work and lane closures which would have impacts to adjacent landowners as well as increased environmental impacts to noise and wildlife. This alternative was not evaluated further due to constructability concerns, increased cost, and safety issues due to the 11% grade at the new Resort access road.

- **Signalized Intersection at US 50 and relocated Round Hill Pines Resort access road.** An alternative to add a signal to US 50 and Resort access road intersection was considered based on feedback from TRPA during the project scoping phase. Adding a traffic signal at the intersection and a left turn lane for northbound US 50 visitors entering the Resort would eliminate sight distance issues and provide protected turning movements for visitors entering the Resort along northbound US 50. CFLHD, with support from NDOT, performed a signal warrant analysis to support the decision making process. The analysis determined that the intersection would not qualify for a signal, see the CFLHD Signal Analysis Technical Memo in Appendix A for additional information. The Resort area is open seasonally from May to September and the signal would only be operational during this time. Introducing a seasonally operated traffic signal along US 50 may create unsafe conditions for drivers because the signal will only be operational while the Resort is open. Douglas County would be responsible for the operation and maintenance of the traffic signal. Currently, there is no utility infrastructure at the new Resort access road intersection to support a traffic signal. Introducing a new traffic signal along US 50 has the potential to increase traffic crashes, which creates a safety issue for travelers along US 50. Because this option did not meet the project's purpose and need for improving safety, it was not evaluated further.
- **Relocate Round Hill Pines Resort access road to the south.** An alternative to relocate the Resort access road south of the existing intersection was considered during the project scoping phase. This alternative would not improve access to the Resort because sight distance issues would still remain for vehicles due to the vertical curve in this location. Connecting the access road from a southern location with the recreation and parking areas at

the Resort would not align with LTBMU's long term plan and vision for the Round Hill Pines beach area. This alternative would also have increased impacts to private property and a larger construction footprint. Because the alternative would not improve safety for travelers along US 50 and would have increased impacts to private property owners, this alternative was determined to not meet the overall purpose of the project and was not evaluated further.

- **US 50 Lane Modifications.** Alternatives that would have provided shortened acceleration/deceleration lanes or only included constructing the median turn lane along US 50 were not considered during preliminary design. Acceleration/deceleration lanes shorter than the AASHTO or NDOT design standards would create unsafe driving conditions because drivers would expect to encounter full length lanes. Only constructing the median turn lane would not meet the project's purpose and need because improvements would not be made to the existing Resort access road.
- **Widen the existing Round Hill Pines Resort access road only.** An option to retain the existing Resort access configuration with US 50, but realign and widen the access road to meet 25 miles per hour design speed was considered during preliminary design. This option would not improve access to RHPR because substandard sight distance would still remain at the intersection with US 50. This alternative was determined not to meet the overall purpose of the project because the alternative would not improve safety.

2.3 Permits and Approvals Needed

Table 2.3-1 summarizes the permits and approvals required prior to construction.

Table 2.3-1: Permits and Approvals

Agency	Permit/Approval	Status
U.S. Forest Service	USDOT Highway Easement Deed for expansion or alteration of existing easement	Modifications to the existing easement deed would be needed to accommodate temporary construction impacts and permanent improvements outside of the existing Nevada DOT easement. A USDOT Highway Easement Deed application will be submitted following NEPA decision documents. Existing utilities impacted by construction within the easement may need to be relocated but will remain within the easement.
Tahoe Regional Planning Authority	Construction Permit	Permit will be obtained after signature of FONSI.
Nevada Department of Transportation	NDOT Encroachment Permit	Permit will be obtained prior to the start of construction.
Nevada Office of Historic Preservation	Section 106 consultation for potential effects to historic resources	The request for concurrence on eligibility and effect determinations will be transmitted to Nevada SHPO with a copy of the cultural resource report prepared for this project. Coordination with SHPO is ongoing and will be completed prior to issuance of a decision document.
Nevada Department of Environmental Protection	Construction General Permit/Stormwater Pollution Prevention Plan for discharge of stormwater related to construction activities National Pollutant Discharge Elimination System Permit for discharge of materials from a point source	Permits for water quality certification for the project will be submitted following NEPA.

CHAPTER 3: ENVIRONMENTAL CONSEQUENCES

This chapter describes the resources that could be affected by the Proposed Project Alternative and an analysis of the impacts that are expected to result from its construction and implementation. The No Action Alternative is also analyzed as a baseline for comparison.

The resource sections discussed below are prepared in accordance with the *Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act* (40 CFT Section 1500 et seq.) issued by the CEQ. In addition, this EA follows the FHWA procedures for implementing NEPA, including *Environmental Impact and Related Procedures* (23 CFR Section 771), *Guidance for Preparing and Processing Environmental and Section 4(f) Documents* (T.6640.8a), and the *Environmental Guidebook*. As a joint EA, this document has also been prepared in accordance with the TRPA Tahoe Regional Planning Compact, Goals and Policies, Code, and Rules of Procedure. The TRPA Initial Environmental Checklist was used as a tool to guide the discussion of environmental effects.

The analyses that follow incorporate a conservative worst-case scenario based on conceptual design of the Proposed Project Alternative. The level of impact reported in this EA is expected to decrease as design progresses.

The project area and the study areas unique to each resource were defined in order to conduct the environmental impact analyses. For all resources, the project area consists of approximately 8.89 acres and is the construction limits of the Proposed Project Alternative, as described in Chapter 2. Proposed Project Alternative and Construction Limits. Because the nature and extent of an impact differs by resource, individual study areas were defined, as needed, to evaluate the existing condition and potential impact to each resource appropriately.

3.1 Organization of Resource Sections

Sections 3.3 through 3.12 of this EA are organized into the following subsections:

- **Regulatory Setting:** This subsection outlines any federal, state, and local regulations that are applicable to the designated resource.
- **Affected Environment:** This subsection describes the existing regional and local environmental conditions relevant to the resource under evaluation. The affected environment differs by resource area, and is determined by the potential for environmental effect. For example, air quality effects resulting from the Proposed Project Alternative are assessed in the context of the entire Lake Tahoe Basin, whereas cultural resource effects are assessed for the specific project area only.
- **Environmental Consequences and Recommended Mitigation Measures:** This subsection describes the criteria used to determine whether a significant adverse environmental effect could occur as a result of implementing the Proposed Project Alternative, the methods and assumptions used in the analysis, potentially adverse effects, and feasible mitigation measures that could reduce potentially adverse effects.

For all resources, direct effects are evaluated using the construction limits of the Proposed Project Alternative, as described in Chapter 2. The construction limits include all areas subject to construction disturbance, construction access, and staging areas. Indirect effects are generally evaluated for the entire project area and are defined as secondary consequences that are caused by the action and are often later in time or farther removed in distance, but are still reasonably foreseeable. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time. The cumulative effects discussion considers the combined effects of the Proposed Project Alternative and the projects identified in Section 3.12, “Cumulative Impacts”.

- **Consequences for TRPA Environmental Threshold Carrying Capacities:** For applicable resource sections, consequences for the relevant TRPA environmental threshold carrying capacities for water quality, soil conservation, air quality, vegetation, wildlife, fisheries, noise, recreation, and scenic resources are also discussed at the end of this section.

3.2 Resources with Negligible to No Impacts or Not Existing in the Project Area

The 1992 *Regulations for Implementing the Procedural Provisions of NEPA* direct federal agencies to “concentrate on the issues that are truly significant to the action in question” (40 Code of Federal Regulations [CFR] Part 1500.1(b)), “focus on significant environmental issues” (40 CFR Part 1502.1), and include “only brief discussion of other than significant issues” (40 CFR 1502.2(b)). Consideration and analysis was given to the resources listed below. These resources either do not occur in the project area or would have negligible or no impacts as a result of the project. The EA includes a summary statement describing why impacts to these resources will not be discussed further during the NEPA process.

3.2.1 Agricultural Resources

NEPA and the Farmland Protection Policy Act (FPPA, 7 United States Code [U.S.C.] 4201-4209; and its regulations, 7 CFR Part 658) require federal agencies, such as FHWA, to coordinate with NRCS if their activities may irreversibly convert farmland (directly or indirectly) to nonagricultural use. For purposes of the FPPA, farmland includes prime farmland, unique farmland, and land of statewide or local importance. Farmland subject to FPPA requirements does not have to be currently used for cropland; it can be forestland, pastureland, or cropland.

The Proposed Project is located entirely on land managed by the LTBMU and within the NDOT US 50 corridor and would not have any impact on agricultural resources.

3.2.2 Environmental Justice

FHWA projects must comply with Executive Order 12898 of February 11, 1994 titled *Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations*. This executive order strives to avoid, minimize, or mitigate disproportionately high and adverse human health and environmental effects on minority or low-income populations. The project is located entirely within NDOT right-of-way along US 50 and into the LTBMU Round Hill Pines Resort property. There are no residences within the project area. The actions proposed under this project are not expected to result in a disproportionately high adverse impact to any populations.

3.2.3 Floodplains

The Federal Emergency Management Agency (FEMA) establishes base flood heights for the 100-year flood zone. The 100-year flood zone is defined as the area that could be inundated by a flood that has a 1-percent probability of occurring in any given year, or once every 100 years. The project is located in an area that has been delineated on the FEMA Flood Insurance Rate Map (FIRM) as having areas in which flood hazards are undetermined, but possible. Impacts to floodplains typically occur when the topography within a floodplain is substantially modified either by placement or removal of materials within the floodplain. The Proposed Project would not substantially modify the floodplain topography therefore, no impacts to floodplains are anticipated.

3.2.4 Hazardous Waste and Materials

A search of the EPA EnviroMapper Database (2019) indicated the presence of four hazardous waste generating facilities reporting to the Environmental Protection Agency (EPA) within 1 mile of the project area. None of the facilities have a record of a significant violation or informal enforcement action related to hazardous materials within the last 5 years. Due to the search

results, it was determined there is a low potential for hazardous waste and materials within the project area and this topic was not further analyzed.

In accordance with TRPA Code of Regulations, due to the low potential for hazardous waste and materials within the project area, the project would not involve a risk of an explosion or the release of hazardous substances including, but not limited to, oil, pesticides, chemicals, or radiation in the event of an accident or upset conditions.

3.2.5 Land Use/Socioeconomics

The planning, design, and construction of roads is often based on land use development patterns and trends, and affects existing land uses and plans and proposals for future development. Induced growth is an indirect impact that occurs when a project causes changes in the intensity and integrity, location, or pattern of land use. The Proposed Project is located along a segment of US 50 that provides public access to the Round Hill Pines Resort, which is located within the LTBMU. Implementation of the Proposed Project would generally support the goals, objectives, and policies identified in the Linking Tahoe: Regional Transportation Plan – Tahoe Regional Planning Agency, Linking Tahoe: Lake Tahoe Basin Transit Master Plan, Linking Tahoe: Corridor Connection Plan, and Douglas County Transportation Plan.

The Lake Tahoe Basin Management Unit controls the land occupied by the Resort, which is operated by a third party under a special use permit. The terms of the special use permit require the third party operator to invest in the long term maintenance and operation of the facilities located on the Resort. The LTBMU, in cooperation with the third party operator, have identified parking and traffic flow improvements which will be completed prior to construction of the Proposed Project. No change to land use and no induced growth is expected.

Although Land Use was determined to have a negligible or no impact as a result of the proposed project, the TRPA Initial Environmental Checklist (IEC) requires some analysis, see Section 3.5 Earth Resources for a discussion on land use related to the TRPA IEC.

3.2.6 Paleontological Resources

Minimal excavation of undisturbed bedrock is anticipated because the majority of construction would be related to roadway widening and relocation of the Resort access road. A review of geological formations in this area revealed a very low propensity for fossils and other paleontological resources. If any such resource is encountered during construction, activities will cease and scientists will be brought to the site to investigate further and develop a course of action.

3.2.7 Right-of-Way

The Proposed Project is located within lands owned by the LTBMU and NDOT. The Proposed Project would require a modification of the existing NDOT Right of Way (ROW) easement deed. Modifications to the existing NDOT ROW easement deed would be needed to accommodate temporary construction impacts and permanent improvements outside of the existing Nevada DOT easement, specifically along the west side of US 50. Existing utilities impacted by construction within the easement may need to be relocated but would remain within the boundary of the updated NDOT easement.

3.2.8 Section 6(f) Properties

Section 6(f) of the Land and Water Conservation Act requires that the conversion of lands or facilities acquired with Land and Water Conservation Act funds be coordinated with the Department of Interior. Usually replacement in kind is required. No lands that meet this criterion were identified within the study area.

3.2.9 Utilities

Existing surface and subsurface utilities in the project area include active fiber-optic cables, water lines, telephone lines, and a natural gas line. Conflicts with existing utilities will be minimized in design to the extent practicable. Disruption of infrastructure and facility operations would be avoided in large part because the Proposed Project would not require extensive excavation activities. Coordination will continue with utility providers to ensure all conflicts are identified in design and any necessary utility relocations are scheduled to minimize potential service disruptions.

3.2.10 Wild and Scenic Rivers

No rivers officially designated as wild, scenic, or recreational exist within the project area.

3.3 Aesthetic and Visual Resources

This section describes impacts to visual and aesthetic resources expected from implementation of the No Action and Proposed Project Alternative. Visual or aesthetic resources are generally defined as the natural and built features of the landscape that can be seen. The features, or visual resources, contribute to the public's experience and appreciation of the environment.

3.3.1 Regulatory Setting

3.3.1.1 National Environmental Policy Act

NEPA establishes that the federal government use all practicable means to ensure for all Americans... aesthetically and culturally pleasing surroundings [U.S.C.] 4331[b][2]). The FHWA is required to promulgate guidelines to assure that final decisions on projects are to be made in the best overall public interest, taking into account adverse environmental impacts, including the destruction or disruption of aesthetic values (23 U.S.C. Sec. 109[h]).

3.3.1.2 Tahoe Regional Planning Agency

Based on TRPA's Initial Environmental Checklist, effects related to scenic resources were evaluated based on whether the Proposed Project Alternative would:

- Be visible from any state or federal highway, Pioneer Trail, or from Lake Tahoe;
- Be visible from any TRPA-listed public recreation area or TRPA-designated bicycle trail;
- Block or modify an existing view of Lake Tahoe or other scenic vista seen from a public road or other public area;
- Be inconsistent with the height and design standards required by the applicable ordinance or Community Plan; or
- Be inconsistent with the TRPA Scenic Quality Improvement Program (SQIP) or Design Review Guidelines.

TRPA has established environmental thresholds, goals, and policies for scenic resources in several categories: travel route ratings, scenic quality ratings, bike trail and public recreation area scenic quality ratings and community design. TRPA goals and policies are designed to achieve and maintain adopted environmental threshold carrying capacities, and are implemented through the TRPA Code of Ordinances. A combination of relevant TRPA thresholds, goals, policies, and ordinances for these resources were used to analyze potential effects from the Proposed Project Alternative on scenic resources.

3.3.2 Affected Environment

3.3.2.1 Location and Visual Context

The proposed Round Hill Pines Access project is located on the eastern side of Lake Tahoe in Douglas County, Nevada. The project includes a 0.35-mile section of US 50 which is a small segment of the Lake Tahoe East Shore Scenic Byway, a 28-mile long National Scenic Byway that traverses the eastern side of Lake Tahoe from Crystal Bay to Stateline, Nevada (Figure 3.3-1). The segment of US 50 located within the Project Area extends through an undeveloped, natural forested area that lies between the commercial and residential development at Zephyr Cove to the north and the shopping center at the intersection of US 50 and Elk Point Road to the south. Along this section of US 50, the landscape is heavily forested and views are restricted to the forested corridor along the highway with limited views of the lake or surrounding mountain ranges. Within the project area, metal guardrail and a concrete retaining wall can be observed along the west side of the highway corridor.

Wayfinding signage for the Round Hill Pines Beach and Marina can also be seen along US 50. The east side of US 50 contains rocky outcroppings with sparse shrub and other vegetation.

The project area is also located on LTBMU land within the Round Hill Pines Resort. This area is naturally forested and contains several buildings, mooring facilities, a restaurant and marina, parking areas, and swimming beach with views of Lake Tahoe and surrounding mountains.

3.3.2.2 Scenic Threshold Ratings within the Project Area

U.S. Forest Service Lake Tahoe Basin Management Unit

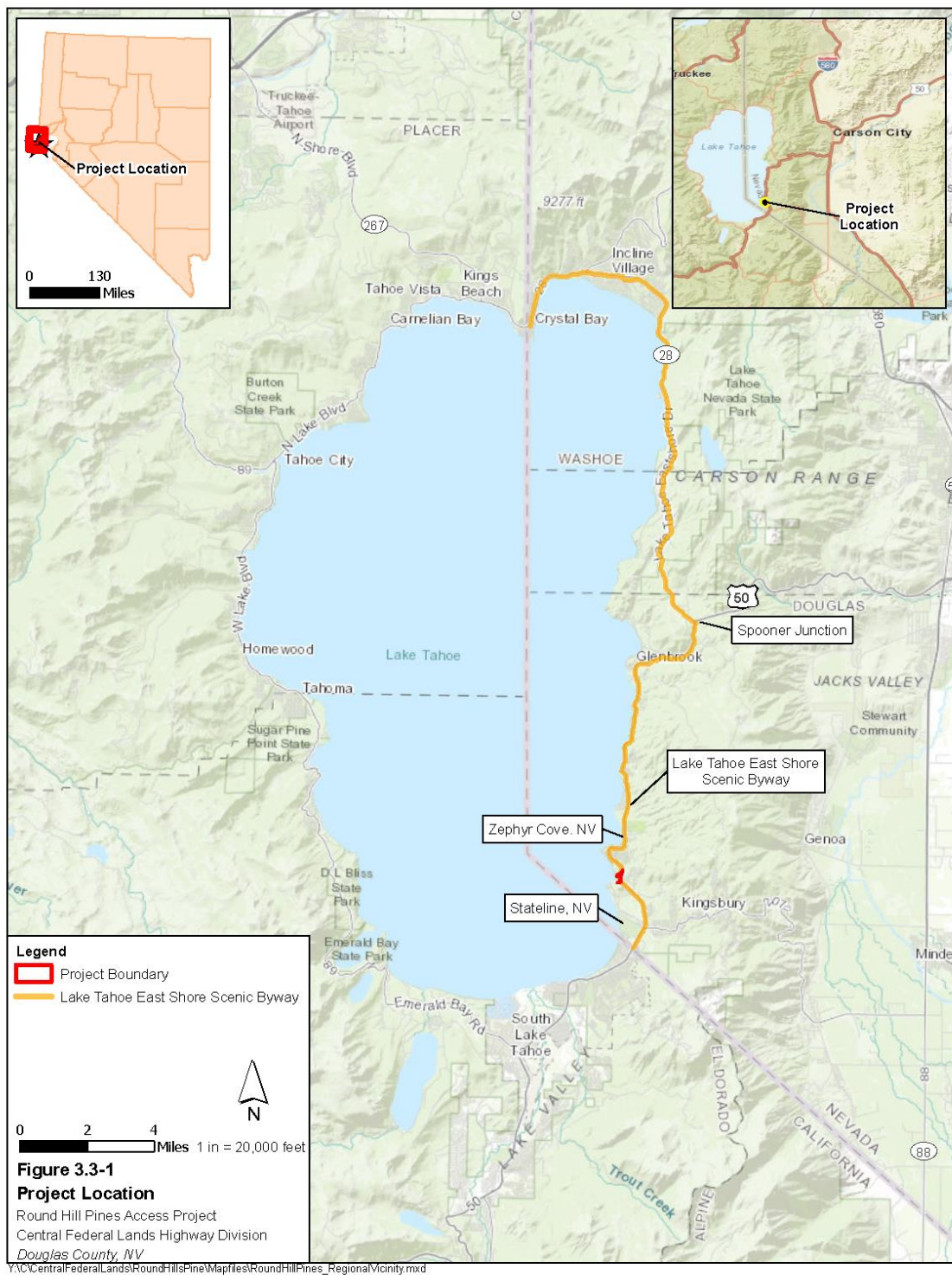
According to the Lake Tahoe Land Management Plan (USDA Forest Service, 2016) all lands under USFS jurisdiction are designated with a scenic integrity objective (SIO) that establishes the level of scenic quality that the plan seeks to achieve for each specific area. Within the project area, the plan has established an SIO of “High” a designation given to landscapes that appear unaltered. The “High” SIO designation refers to landscapes where the valued landscape character “appears” intact. Deviations may be present but must repeat the form, line, color, texture, and pattern common to the landscape character and at such a scale that they are not evident (USDA Forest Service, 1995).

Tahoe Regional Planning Agency

TRPA established a baseline for evaluating the potential effects of proposed projects on views from Lake Tahoe and on views from roadways toward the surrounding environment, including Lake Tahoe. In 1982, TRPA published the scenic resource inventories that focused on shoreline views from the lake and views toward the lake from surrounding roadways (TRPA, 1982). In evaluating the views from the lake toward the shore, known as Shoreline Units, the inventory used a landscape scoring system that assigned numerical scores ranging from 1 (low visual quality) to 5 (high visual quality) to three variables (human-made features, background views, and landscape variety) that combined to create an overall visual quality score. In evaluating views from the roadway toward the lake, known as Roadway Units, scores from 1 to 5 were assigned to six variables (human-made features, roadway distraction, road structure, lake views, landscape views, and variety). (TRPA, 2016 Appendix G-1).

The project area is located within TRPA Shoreline Unit 29, Zephyr Cove which includes the Round Hill Pines Resort. The TRPA threshold composite score for Shoreline Unit 29 is 9 (TRPA 2016, Appendix G). The TRPA Shoreline Study (TRPA, 1982) characterizes the scenic quality of this unit as moderate and rates its level of scenic quality as 2. The project area is also located within TRPA Roadway Unit 30D, Zephyr Cove-Lincoln Park (subunit Round Hill). The TRPA threshold composite score for Roadway Unit 30D is 19. The TRPA Roadway Study (TRPA, 1982) characterizes the scenic quality of this unit as moderate and rates its level of scenic quality as 2.

Figure 3.3-1 – Project Location and Lake Tahoe East Shore Scenic Byway



3.3.3 Environmental Consequences and Mitigation Measures

Methods and Assumptions

A Visual Impact Assessment was prepared for the project by Jacobs in September 2020 and is attached in Appendix A. The objective of the analysis was to identify visual impacts from the Proposed Project Alternative and the consistency of those impacts with the Land Management Plan, Lake Tahoe Basin Management Unit scenic quality and TRPA Shoreline and Roadway threshold composite ratings. The area analyzed encompasses the 0.35-mile segment of US 50, approximately 500 feet southeast of the original entrance road and continues along US 50 to approximately 130 feet north of the intersection of Sierra Sunset Lane and US 50.

The analysis area extends out approximately 0.1 mile to the eastern side of the roadway, but encompasses the potential views of the Proposed Project Alternative from Lake Tahoe. It includes the Round Hill Pines Resort area and extends approximately 400 feet out into Lake Tahoe. For analysis purposes, the project area has been divided into two landscape units: the area along the 0.35-mile US 50 roadway segment and the area within the Round Hill Pines Resort, adjacent to the lake.

As a study tool for this EA, a set of simulations of the project have been prepared to demonstrate the appearance of the project at three key observation points (KOP). Within the US 50 roadway segment, key observation point 1 (KOP 1) is a view from a point in the northern portion of the project area looking south towards the proposed location of the new access road into the Round Hill Pines Resort. Key observation point 2 (KOP 2) is a view from the point in the middle section of the project area looking north towards the proposed location of the new access road into the Round Hill Pines Resort. Within the Round Hill Pines Resort and Lake Tahoe segment, key observation point 3 (KOP 3) is a view from a point located 300 feet out on the pier at the Round Hill Pines Resort looking towards the location of the new access road. Figure 3.3-2 includes a map depicting the location and direction of views for the three simulations. The existing views and KOP simulations are presented in Exhibits 3.3-1 through 3.3-6.

Because specific features of the Proposed Project Alternative, including landscaping and aesthetic treatments, have not been designed at this stage, the character of the project as shown in the simulations is conceptual, but provides a reasonable representation of its potential appearance. Details regarding form, materials, colors, and textures would be determined during final design. They would conform to the specifications and performance standards described in Mitigation Measure (MM) AES-1 through AES-2.

3.3.3.1 Visual Changes

No Action Alternative

Under the No Action Alternative, there would be no construction-related ground disturbance or modification to the existing US 50 and access road to the Round Hill Pines Resort that could result in visual changes due to the Proposed Project Alternative.

Proposed Project Alternative

A simulation of KOP 1 and KOP 2 as it would appear with the project in place is shown below in Exhibits 3.3-1 through 3.3-4. A review of both simulations shows that the project would have no visual effects on the existing eastern edge of US 50. The rip rap-covered cut slopes and the forest-covered slopes above them will be untouched by the project and therefore, will not be modified from the existing conditions. The US 50 modifications would be accomplished by extending the highway to the west. The result would be a highway that generally follows the existing highway alignment with a slightly wider footprint making it

appear less constricted. The US 50 roadway bench would be slightly extended into the forested area on the western side and would require tree removal in areas that are closest to the existing highway, however the solid line of trees along the western edge would mostly remain.

At the location of the new access road, a partial disruption to the tree line along the western edge would appear in this area. This disruption would not appear as a sharp gap in the tree line because the narrowness of the access road will limit the number of trees that would be removed. The new access road joins US 50 at a right angle would limit the visual effect of the break in the tree line that this road would create.

A steel guard rail would need to be constructed along the western edge of the widened US 50 for safety purposes, but unlike the existing unpainted galvanized guard rail along the western edge, the planned guard rail would have a brown surface treatment to help reduce its visual contrast with the highway corridor's natural setting (MM AES-1). Disturbed or exposed soils related to placement of fill along the western edge of the highway would be revegetated with native plants. With the Project, this segment of US 50 would continue to be an area where there are no views of the lake. The Project would create no changes in the views of the mountains to the south seen at the southern end of the project and would have no effect on the views toward the houses on the hill above the project's northern end. The Proposed Project Alternative is described in detail in Chapter 2.

Exhibits 3.3-5 and 3.3-6 show existing viewshed conditions at KOP 3 and a simulation of the view from the Round Hill Pines Resort pier looking eastward as it would appear with the Proposed Project Alternative in place. Because the area where the proposed project-related changes would take place is located upslope, over 1,000 feet in the distance, and because of the screening provided by the thick forest cover, the roadway improvements would not be visible from this vantage point. The only change to this view, which would be subtle, will be that because of the limited tree clearing that will be required for construction of the new access road, a few of the treetops now seen on the far horizon in the area above the rest room building will disappear. This change is reflected in the simulation. Overall, the effect of this change on the visual character and quality of this view will not be significant. The Proposed Project Alternative would cause no significant visual impacts.

Figure 3.3-2 – Landscape Units and Key Observation Points

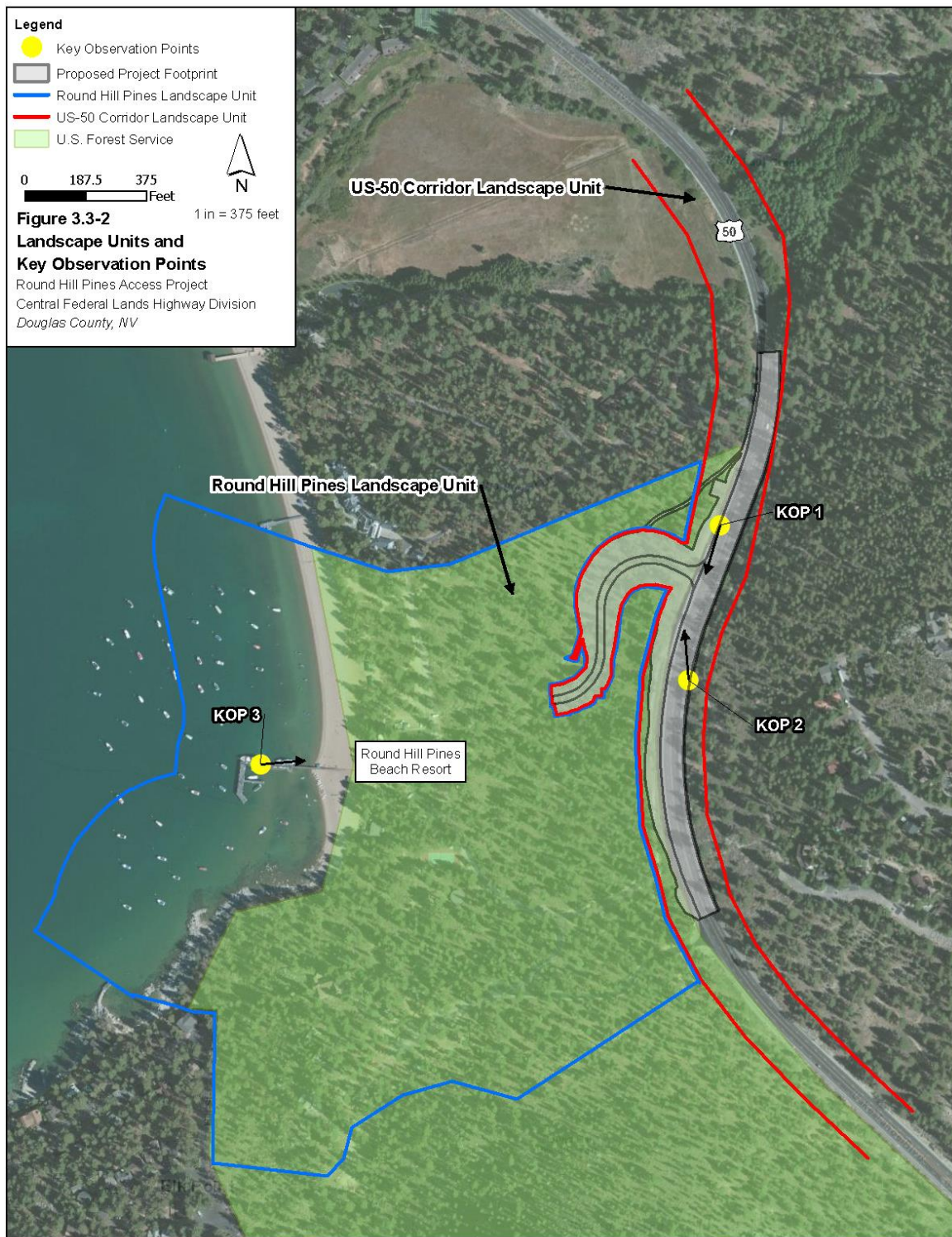


Exhibit 3.3-1 KOP-1. Existing view from US 50 looking South towards proposed access road location.



Exhibit 3.3-2 KOP-1. Simulated view from US 50 looking South showing proposed access road.



Source: Visual Impact Assessment, Jacobs 2020

Exhibit 3.3-3 KOP-2. Existing view from US 50 looking North towards proposed access road location.



Exhibit 3.3-4 KOP-2. Simulated view from US 50 looking North showing proposed access road.



Source: Visual Impact Assessment, Jacobs 2020

Exhibit 3.3-5 KOP-3. Existing view from Round Hill Pines Resort pier looking East towards project.



Exhibit 3.3-6 KOP-3. Simulated view from Round Hill Pines Resort pier looking East towards project.



Source: Visual Impact Assessment, Jacobs 2020

3.3.3.2 Consistency with Design Standards, SQIP, and Design Review Guidelines

No Action Alternative

Under the No Action Alternative, there would be no construction-related disturbance or modification to the existing US 50 and access road to the Round Hill Pines Resort that could result in visual changes. Therefore, questions of consistency with design standards, the SQIP, or design review guidelines do not apply.

Proposed Project Alternative

The Round Hill Pines Access Project would comply with LTBMU, TRPA, and NDOT design standards. All features would be consistent with applicable design standards and design review guidelines. The SQIP was adopted to provide a program for implementing physical improvements to the built environment in the Lake Tahoe Basin. The SQIP was incorporated into and became a component of the EIP in 2001 (TRPA 2001 EIP in 2001 (TRPA 2001) The Proposed Project Alternative would be consistent with the SQIP's Goal #1 for roadway and shoreline travel units, which is to maintain and restore the scenic qualities of the natural appearing landscape. The SQIP is an overall action plan to specifically improve the scenic quality of roadway and shoreline travel routes that do not meet the scenic resources thresholds. It is intended to contribute to the attainment of the scenic quality thresholds. The limits of the Proposed Project Alternative are located within units that currently meet scenic resources thresholds.

3.3.3.3 Avoidance, Minimization, and/or Mitigation Measures

The following measures will be implemented to reduce potential impacts to aesthetic and visual resources. The full description of the Proposed Project avoidance, minimization, and/or mitigation measures is provided in Table 3.13-1.

Mitigation Measure AES-1: Design applicable structures to be consistent with NDOT, TRPA, and LTBMU design standards and design review guidelines and compatible with existing architectural features in the Round Hill Pines Resort area.

Mitigation Measure AES-2: Design project features consisted with Chapter 66 of the TRPA Code.

3.3.4 Consequences for TRPA Environmental Threshold Carrying Capacities

This section describes the effects of the Proposed Project Alternative on TRPA environmental thresholds for scenic resources. Four scenic threshold reporting categories have been established by TRPA:

- Travel Route Ratings,
- Scenic Quality Ratings,
- Bike Trail and Public Recreation Area Scenic Quality Ratings, and
- Community Design.

As described in Section 3.3.2.2, the Round Hill Pines Access Project is located within TRPA Roadway Unit 30D, Zephyr Cove-Lincoln Park and Shoreline Unit 29, Zephyr Cove. Each of the travel units has a numeric scenic threshold rating. When the rating is equal to or above the applicable numeric scenic threshold standard, the unit meets or exceeds the standard, and is therefore in attainment. Otherwise the unit is below the standard and not in attainment. Roadway Unit 30D has a scenic threshold composite score of 19 and is in attainment status (TRPA, 2016). The threshold composite score was based on evaluation using five variables, each of which was rated on a scale ranging from 1 (low) to 5 (high), see the Visual Impact Assessment

for Round Hill Pines Access Project located in Appendix A for additional details and discussion. The Proposed Project Alternative would not reduce the composite score for the roadway unit, and thus would not reduce the “moderate” rating that was assigned to the Zephyr Cove-Lincoln Park unit (of which the Unit 30D Round Hill is a sub-unit) in the Scenic Resource Inventory Tahoe Environmental Study Roadway Unit Inventory (TRPA 1982a).

The Shoreline Unit 29, Zephyr Cove has a scenic threshold composite score of 9 and this has been maintained in assessment taken from 1982 to 2015 (TRPA, 2016). This score was based on evaluation using three variables (human-made features, background views, and variety), each of which was rated on a scale ranging from 1 (low) to 5 (high). Because the Project visual changes on the view seen in the simulation and described in the text are negligible, they will have no effect on the individual scores on which the overall score of 9 was based. Because the threshold composite score for the shoreline unit in which the Project is located will not change, the Project will not reduce the “moderate” rating that the Scenic Resource Inventory Tahoe Environmental Study Shoreline Unit Inventory (TRPA 1982b) assigned to Shoreline Unit 29 Zephyr Cove.

3.4 Biological Resources: Aquatic Resources, Vegetation and Wildlife

This section evaluates potential impacts relating to biological resources in and around the project biological study area. This section includes an analysis of impacts to sensitive habitats, sensitive plants and wildlife and their associated habitats that may be impacted by the Proposed Project. The resources considered in this section were compiled through detailed review of available documentation of the project vicinity, outreach to regulatory agencies such as the USFWS, field observations, and professional expertise.

3.4.1 Regulatory Setting

3.4.1.1 Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (16 U.S.C. 668–668c) prohibits the take of bald or golden eagles, including their parts, nests, or eggs. In terms of the act, “take” is defined as “pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb.”

3.4.1.2 Federal Endangered Species Act

In 1973, the federal Endangered Species Act (FESA) was established for the protection of threatened and endangered species and their habitats. Under Section 7 of this act, federal agencies are required to consult with the USFWS and National Marine Fisheries Service (NMFS) to ensure that they are not undertaking, funding, permitting, or authorizing actions likely to jeopardize the continued existence of listed species or destroy or adversely modify designated critical habitat. Critical habitat is defined as geographic locations critical to the existence of a threatened or endangered species. Section 9 of the FESA prohibits the take of threatened or endangered species, which is defined as “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect or any attempt at such conduct.”

3.4.1.3 Migratory Bird Treaty Act

Pursuant to the Migratory Bird Treaty Act (MBTA) of 1918, federal law prohibits the taking of migratory birds, their nests, or their eggs (16 U.S.C., Section 703). In 1972, the MBTA was amended to include protection for migratory birds of prey (e.g., raptors). The USFWS enforces the MBTA (16 U.S.C. 703-711).

3.4.1.4 Tahoe Regional Planning Agency

Based on TRPA’s Initial Environmental Checklist, effects related to vegetation, wildlife, and aquatic resources were also evaluated based on whether the Proposed Project Alternative would:

- Result in substantial removal of riparian vegetation or other vegetation associated with critical wildlife habitat, either through direct removal or indirect lowering of the groundwater table;
- Introduce new vegetation that would require excessive fertilizer or water, or would provide a barrier to the normal replenishment of existing species;
- Introduce new species of animals into the Region, or result in a barrier to the migration or movement of wildlife;
- Result in a substantial change in the diversity or distribution of species, or number of any species of plants or wildlife;
- Substantially reduce the numbers of any unique, rare, or endangered species of plants or wildlife;
- Result in a change in the natural functioning of a late seral or old-growth ecosystem; or

- Result in deterioration of existing fish or wildlife habitat quantity or quality.

TRPA has established environmental thresholds, goals, and policies for vegetation, wildlife, and fisheries resources in several categories: uncommon plant communities; sensitive plants; late seral/old-growth ecosystems; special-interest, threatened and endangered wildlife; protected wildlife habitat; and fish habitat. TRPA goals and policies are designed to achieve and maintain adopted environmental threshold carrying capacities, and are implemented through the TRPA Code of Ordinances. A combination of relevant TRPA thresholds, goals, policies, and ordinances for these resources were used to analyze potential effects from the Proposed Project Alternative on biological resources.

3.4.2 Affected Environment

3.4.2.1 Existing Biological and Physical Conditions

The proposed project is located along a developed portion of US 50 located within the Sierra Nevada Ecoregion, characterized by a deeply dissected block fault that rises sharply and slopes gently toward the Central California to the west (NFWS, 2014). The vegetation consists of mixed conifer forests, which are dominated by white fir (*Abies concolor*) and lodgepole pine (*Pinus contorta*) on the western side and Jeffery pine (*Pinus jefferyi*) and lodgepole pine on the eastern side. Several high elevation mountain lakes, streams, and meadow/riparian areas are located within this ecoregion. Alpine conditions exist at the highest elevations (NFWS, 2014). The project is located within the montane coniferous forest community (USDA NRCS 2006) at approximately 6,250 to 6,380 feet in elevation.

The project area is located within the Lake Tahoe sub-section of the Great Basin Watershed (USGS, 2019). Topography throughout the action area is generally sloped east to west, down towards Lake Tahoe which is located approximately 0.6-mile west of the project boundary. One culvert exists within the project boundary and only conveys flow during rain events. Flow from rain events through this culvert has created an un-vegetated swale that lacks an ordinary high water mark or other jurisdictional features.

As previously stated, because the nature and extent of an impact differs by resource, individual study areas were defined to evaluate the existing condition and potential impact to each resource appropriately. The study area for federally listed species consists of the survey area, which is defined as a 34-acre area that was defined during early preliminary engineering, and also includes an additional 1-mile radius when appropriate. The project area is defined as an 8.89-acre area that is entirely located within the survey area and contains all direct construction related activities associated with the project. The action area is defined by the Endangered Species Act as “all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action” (51 Federal Register 19957). The action area should be determined based on consideration of all direct and indirect effects of the Proposed Project (50 CFR 402.02 and 402.14[b][2]). For plants, the study area consists of the survey/project area only. The study area adequately captures the action area as defined by the FESA.

3.4.2.2 Desktop Research and Field Survey

To obtain baseline knowledge of the biological resources within the study area, qualified biologists reviewed existing information and conducted field surveys. A list of federal ESA-listed species, critical habitat, and State Species of Greatest Conservation Need (SGCN) that may occur in the action area was received from USFWS’s Information for Planning and Consultation (IPaC) online system, the Nevada Natural Heritage Program (NNHP) data request tool, TRPA Code of Regulations, and LTBMU.

A project site visit to perform a habitat assessment within the survey area for ESA-listed species, state SGCN, LTBMU sensitive and management indicator species (MIS) and TRPA special

interest species was conducted on June 5, 2019 by Jacobs biologists. The biologists walked the survey area and examined the project corridor for rare plants and focusing on known and potential habitat for sensitive wildlife resources. The biologists noted any presence of sensitive natural resources, potential habitat and habitat features, and wildlife signs in field journals and documented occurrences using resource-grade GPS with sub-meter accuracy and with photo-documentation. The results of this survey was documented within the *Biological Assessment/Biological Evaluation for Round Hill Pines Access Road Project NV FLAP US 50(1) Douglas County, Nevada*. This document can be found in Appendix A.

Vegetation and Habitats

Montane coniferous forest vegetation exists within the action area and consists mainly of Ponderosa Pine (*Pinus ponderosa*), Douglas fir (*Pseudotsuga menziesii*), western juniper (*Juniperus occidentalis*), snowbrush (*Ceanothus velutinus*), antelope bitterbrush (*Purshia tridentate*), whiteleaf manzanita (*Arctostaphylos viscida*), serviceberry (*Amelanchier spp.*), mountain big sagebrush (*Artemisia tridentate ssp. vaseyana*), prickly phlox (*Leptodactylon pungens*), fireweed (*Chamerion angustifolia*), threadleaf sedge (*Carex philifolia*), needlegrass (*Stipa occidentalis*), Sandberg bluegrass (*Poa secunda*), smooth brome (*Bromus inermis*), cheatgrass (*Bromus tectorum*), and bulbous bluegrass (*Poa bulbosa*).

Sensitive Biological Resources

The following analysis includes sensitive biological resources which include species and biological communities that have special protection through the ESA, the TRPA Code of Regulations, the LTBMU forest service manual, local plans, policies and regulations; or that are otherwise considered sensitive by federal, state, or local resource conservation agencies and organizations. Sensitive biological resources evaluated as part of this analysis include special-status species and sensitive natural communities. These resources are addressed in the following sections.

Special-Status Species

Special-status species include plants and wildlife that are legally protected or otherwise considered sensitive by federal, state, or local resource conservation agencies and organizations. For the purposes of this document, special status species are defined as species that are:

- Listed or proposed for listing as threatened or endangered under ESA,
- Designated as candidates for listing as threatened or endangered under ESA,
- Designated as a sensitive, special interest, or threshold species by TRPA,
- Designated as sensitive by the LTMBU,
- Designated as protected in Nevada and further classified as endangered or sensitive under Section 501 of the Nevada Revised Statutes and Section 503 of the Nevada Administrative Code,
- Listed plant species on Nevada's state list of fully protected species of native flora (Nevada Administrative Code, Section 527.010), also known as the Critically Endangered Species List,
- Designated as an At-Risk Species by the NNHP,
- Considered by the NNHP as a "watch list" or threatened plant species, or
- Identified as a species of conservation priority in the Nevada Wildlife Action Plan (NDOW 2013).

According to the IPaC and NNHP Data Request Tool results, seven ESA-listed species, state-listed, LTBMU sensitive, and/or TRPA sensitive species were identified as potentially occurring within the study area (Table 3.4-1). All seven of these species will be evaluated further for the presence of suitable habitat (e.g., soils, climate, disturbance, and plant communities) within the study area based on desktop analysis, project scoping, and field surveys. No critical habitat is located within the study area for any listed species. Table 1 summarizes the habitat and range information for each listed species evaluated during this analysis. A comprehensive review of the species list and justification for inclusion or exclusion for a detailed analysis can be found in the Biological Assessment/Biological Evaluation in Appendix A.

Table 3.4-1. Federal and State Listed Species Considered for Further Analysis

Scientific Name	Common Name	Regulatory Status ¹		General Habitat Description ²
		Federal	Special Status	
<i>Gulo gulo luscus</i>	North American Wolverine	PT	USFS	Uses caves, hollows, logs, rock outcrops, and burrows for cover. Presence is positively associated with higher elevation snow pack, snags, talus, and remote undisturbed wilderness with minimal motorized access and low human population densities.
<i>Rana sierra</i>	Sierra Nevada Yellow-legged frog	E	USFS	Large permanent water bodies or streams that are fishless and >4,000 feet. Associated with high-elevation water bodies, but they are capable of long distance travel, within water bodies, adults and tadpoles prefer shallower areas and shelves with solar exposure (features rendering these areas warmer).
<i>Oncorhynchus clarkia henshawi</i>	Lahontan Cutthroat Trout	T	GF, EM, S3	Inhabits lakes and streams and requires cool, well-oxygenated water. It is adapted to highly mineralized waters. In streams, the LCT uses rocky areas, riffles, deep pools, and areas under logs and overhanging banks.
<i>Rorippa subumbellata</i>	Tahoe yellowcress	-	CE, S1, USFS	Coarse sand and sandy soils of active beaches, stream inlets, beach dunes, and backshore depressions, generally within a few feet of the local water table, endemic to the shore zone of Lake Tahoe.
<i>Myotis thysanodes</i>	Fringed myotis	-	PM, S2, USFS	Roosts in crevices in rocks, cliffs, buildings, underground mines, caves, bridges, and in large, decadent trees. Mostly found in dry habitats (grasslands or deserts) interspersed with mature forests (especially ponderosa pine, piñon-juniper, or oak).
<i>Thomomys monticola</i>	Mountain pocket gopher	-	S3	Occur in mountain meadows and rocky slopes in pine, fir, and spruce. In rich moist soil, as well as gravelly or rocky ground. They can generally be found on open forest floor and at the edge of meadows. Mountain pocket gophers are found at high altitudes where temperatures are lower than the habitat of other pocket gopher species
<i>Zapus princeps</i>	Western jumping mouse	-	S2	Occur in mountain meadows, marshes, and along banks of streams and ponds, in dense cover of tall grasses and herbs. They nest in burrows in well-drained mound or elevated banks or on the surface among vegetation.

¹ Regulatory Status

- = No Status
 CE = critically endangered plant
 E = federally listed as endangered
 EM = Nevada state symbol
 GF = game fish
 PM = protected mammal
 PT = federally proposed threatened

S1 = NNHP state rank 1
 S2 = NNHP state rank 2
 S3 = NNHP state rank 3
 T = federally listed as threatened
 USFS = USFS Lake Tahoe Basin Management Unit [LTBMU] sensitive

² Sources:

NNHP's Species Information (2019b)
 NatureServe Species Profiles (2019)

Federally Listed Species

Preliminary desktop data review identified three federally listed species that have a potential to occur within or near the study area. These three species have been evaluated to determine if potentially suitable habitat is located within the study area. A summary of the evaluation for

these species is provided below. The Biological Assessment/Biological Evaluation summarizes the regulatory status, habitat associations, and potential for occurrence of each of the special-status plants in more detail.

North American Wolverine

The North American wolverine is limited to alpine tundra, boreal and mountain forests (primarily coniferous) in the western mountains, especially large wilderness areas. However, dispersing individuals have been found far outside of usual habitats. They are usually in areas with snow on the ground in winter. Riparian areas may be important winter habitat. When inactive, wolverines occupy dens in caves, rock crevices, under fallen trees, in thickets, or similar sites. Wolverines are primarily terrestrial but may climb trees. (Jacobs 2020).

The North American wolverine is not known to currently occur on the LTBMU (USFS LTBMU 2016). The presence of suitable habitat is not located within the study area.

Sierra Nevada Yellow-legged Frog

The Sierra Nevada yellow-legged frog occupies the western Sierra Nevada north of the Monarch Divide (in Fresno County) and the eastern Sierra Nevada (east of the crest) in Inyo and Mono counties. The Sierra Nevada yellow-legged frog are rarely found more than 3 feet from water, usually near rocky stream beds, lakes, ponds, and tarns, typically with grassy or muddy banks and edges.

The presence of suitable habitat, such as fishless streams and lakes, is not present within the study area.

Lahontan Cutthroat Trout

Lahontan cutthroat trout historically occupy large freshwater and alkaline lakes, small mountain streams and lakes, small tributary streams, and major rivers of the Lahontan Basin of northern Nevada, eastern California, and southern Oregon, including the Truckee, Carson, Walker, Susan, Humboldt, Quinn, Summit Lake/Black Rock Desert, and Coyote Lake watersheds. Optimal stream habitat is characterized by clear, cold water with silt-free substrate and a 1:1 pool-riffle ratio. Streams should have a variety of habitats including areas with slow deep water, abundant instream cover (i.e., large woody debris, boulders, undercut banks), and relatively stable streamflow and temperature regimes.

No suitable habitat for the Lahontan cutthroat trout is present within the study area.

Special-Status Plants

Preliminary desktop data review identified six special-status plant species that may occur within the Action Area. Five out of six special-status plant species considered in this analysis are not expected to occur within the study area due to the absence of suitable habitat or existing disturbance from construction related activities. One species – Tahoe yellowcress – has a likelihood of potential suitable habitat located within the study area.

None of the special-status plant species were observed during the field survey of the study area. The Biological Assessment/Biological Evaluation summarizes the regulatory status, habitat associations, and potential for occurrence of each of the special-status plants in more detail.

Tahoe yellowcress

Tahoe yellowcress is a herbaceous perennial forb that can be found in Carson City, Douglas and Washoe counties, Nevada. This species is restricted to the shore zone of Lake Tahoe (NNHP 2001) and suitable habitat consists of sandy beaches. The TRPA study site open data for Tahoe Yellowcress at Round Hill shows populations of this species documented in 2016, but it shows no individuals recorded at this site in 2017 or 2018. The study site is located outside of the study area, approximately 150 feet to the west at the Round Hill Beach, on the shore of Lake Tahoe.

Suitable habitat of sandy beaches for Tahoe yellowcress does not occur within the study area and was not observed during field surveys.

Special-Status Wildlife

Preliminary desktop data review identified 25 special-status wildlife species that may occur within the study area. Twenty-two of these special-status species considered in this analysis are not expected to occur within the project area due to the absence of suitable habitat. Three species – fringed myotis, Western jumping mouse, and mountain pocket gopher – have a likelihood of potential suitable habitat located within the study area.

None of the special-status wildlife species were observed during the field survey. The Biological Assessment/Biological Evaluation summarizes the regulatory status, habitat associations, and potential for occurrence of each of the special-status plants in more detail.

Fringed myotis

The fringed myotis is associated with piñon-juniper, valley foothill hardwood and hardwood-conifers (USFS LTBMU 2016). This species uses caves, crevices, cliffs, mines, large decadent trees, and bridges and buildings for roosting, hibernacula, and maternity colonies. They roost under bark and in tree hollows. Medium to large diameter snags are important day and night roosting sites. There is increased likelihood of occurrence of this species as snags greater than 1 inch-diameter increases and percent canopy cover decreases. Large snags and low canopy cover, typical of mature, forest habitat types, offer warm roost sites.

Fringed myotis are dependent on older forest types. Keinath (2004) summarized this in the USFS Region 2 conservation assessment for the fringed myotis, indicating that this species depends on abundant large diameter snags and trees with thick loose bark. Thus, harvesting old growth and removal of snags for safety or fuel reduction reasons may reduce available roost sites (USFS LTBMU 2016). The study area is located an area with high human traffic, and because of this, the vegetation within the study area has been highly managed.

The action area lacks old growth trees and the snags have been removed. Although this site has appropriate forage habitat, there is not suitable habitat for roosting.

Western jumping mouse

Western jumping mice occur in mountain meadows, marshes, and along banks of streams and ponds, in dense cover of tall grasses and herbs. They nest in burrows in well-drained mounds, elevated banks, or on the surface among vegetation.

Suitable habitat for the Western jumping mouse was not observed during field surveys.

Mountain Pocket Gopher

Mountain pocket gophers occur in mountain meadows and rocky slopes in pine, fir, and spruce, in rich, moist soil as well as gravelly or rocky ground. They can generally be found on open forest floor and at the edge of meadows. Mountain pocket gophers are found at high altitudes where temperatures are lower than the habitat of other pocket gopher species. Suitable habitat of open forest floor or mountain meadows is not present within the study area.

Sensitive Habitats

Sensitive habitats include those that are of special concern to resource agencies or are afforded specific consideration through the TRPA Goals and Policies and TRPA Code of Regulations, Section 404 of the Clean Water Act, and other applicable regulations. Sensitive natural habitats may be of special concern to these agencies and conservation organizations for several reasons, including their locally or regionally declining status, or because they provide important habitat to common and special-status species.

Sensitive habitats in the survey area include montane coniferous communities located on steep (30% slope) and moderately erodible soils. A majority of the study area is designated as Land Capability 4 (LC-4) and is not considered environmentally sensitive. A small portion of the project area is classified as LC-2, which is environmentally sensitive but is not considered a Stream Environment Zone (SEZ), see Section 3.6 “Earth Resources” for more discussion.

Noxious Weeds

The study area was surveyed for the presence of noxious weeds and no weeds from the Nevada Department of Agriculture noxious weed list or the LTBMU invasive plant list were identified on site. Bull thistle (*Cirsium vulgare*) is a documented noxious weed that has been previously identified on LTBMU lands near the project area, however it was not observed during field surveys.

3.4.3 Environmental Consequences and Mitigation Measures

This discussion is organized to first address general elements of the Proposed Project Alternative that could directly and indirectly affect all special status species permanently and/or during construction. Species-specific effects analyses are then addressed based on species categories.

The Proposed Project Alternative effects discussed below are a summary of the analysis completed for this project including the biological assessment/biological evaluation and prepared for this project. For a more detailed analysis of impacts and effects, refer to this report.

3.4.3.1 No Action Alternative

Under the No Action Alternative, the Round Hill Pines Resort access road and US 50 intersection would not be relocated to the north and the access road would remain in the existing location. Safety improvements to US 50 for visitors entering into the Round Hill Pines Resort would not be constructed. There would be no construction related impacts or direct adverse effects to sensitive habitats (LC-2). However, there would be continued use of the Round Hill Pines Resort area because it is one of the few public day-use only areas along Lake Tahoe. This continued use could result in minor adverse effects to habitat and species therein, which would be similar to existing conditions. Thus, the impact to biological resources would be less than significant.

3.4.3.2 Proposed Project Alternative

Vegetation and Habitats

Implementation of the Proposed Project Alternative would result in removal and trimming of plants and habitat in the project area. Some of these impacts would be short-term as temporarily impacted areas would be revegetated with native plant species appropriate for the project area. Temporary BMPs would be installed as discussed below to minimize erosion and protect receiving waters from sedimentation and pollutant introduction. Any necessary BMPs would remain in place until sufficient vegetation cover has established and permanent stabilization of temporarily impacted areas occurs. The utilization of a Stormwater Pollution Prevention Plan and associated stormwater BMPs, would protect freshwater and lacustrine communities from the erosion and sediment potential that exists from vegetation removal and ground-disturbing activities when soil is exposed and subject to erosive forces.

The short-term loss of vegetation would constitute a temporary habitat loss to those that may use that habitat for nesting or foraging. Permanent impacts would constitute a permanent habitat loss and would result from placement of the permanent fill material for construction of the new access road, widening along US 50 and associated features. Sensitive habitats have been identified and impacts to these habitats were avoided and minimized to the greatest extent possible. For purposes of analysis in this EA, the entire project construction limits were assumed to be permanently impacted because specific contractor means and methods are not known in preliminary design. Actual impacts would likely be less. Impacts would be highly localized

within the construction limits. The anticipated permanent and temporary impacts by habitat type is summarized in Table 3.4-2, below.

Table 3.4-2: Project Impacts by Habitat Type from the Proposed Project Alternative

Habitat Type	Permanent Disturbance (acres), includes existing disturbed areas	Temporary Disturbance Estimate (acres)
Montane Coniferous Forest (TRPA designated Land Capability District 2)	1.5	--
Montane Coniferous Forest (TRPA designated Land Capability District 4)	3.2	1.7
US Highway 50 Corridor	3.2	4.2
Total	7.9	5.9

Tree Removal

As shown in Table 3.4-3, the Proposed Project Alternative would remove an estimated 133 trees that are less than 24-inches diameter at breast height (dbh), 99 of which are greater than 14-inches dbh (i.e. the tree size that would require a TRPA permit for removal). The trees to be removed would primarily include Ponderosa pine and Douglas fir trees. Nineteen trees larger than 24 inches dbh would be removed.

Table 3.4-3: Number and Size Classes of Trees Removed by Proposed Project Alternative

Diameter at Breast Height (dbh) in Inches (")			
Location	6 to 14"	14" to 24"	>24"
NDOT Right of Way	0	7	2
LTBMU Right of Way	34	92	17
Total Trees Removed	152		

With limited exceptions, Section 61.1.4 "Old Growth Enhancement Protections," of the TRPA Code prohibits the removal of trees greater than 24 and 30 inches dbh in eastside and westside forest types. The entire project area has been classified as montane coniferous forest habitat the supports eastside forest communities. Section 61.1.4(A)(7) of the TRPA Code states that for Environmental Improvement Projects (EIP), "Trees larger than 24 inches dbh in eastside forest types may be removed when it is demonstrated that the removal is necessary for the activity." The Round Hill Pines Access Project is an EIP Project (EIP No. 04.01.03.0137) and is subject to this Code provision and allowance, so eastside forest trees greater than 24 inches dbh in the project area may be removed after demonstrating that removal is necessary.

If a project would result in "substantial tree removal" as defined by TRPA, a tree removal or harvest plan must be prepared by a qualified forester. Substantial tree removal is defined in Section 61.1.8 of the TRPA Code as activities on project areas of 3 acres or more and proposing the removal of more than 100 live trees 14 inches dbh or larger. The Proposed Project Alternative will remove approximately 109 live trees 14 inches dbh or larger from property that is owned and managed by LTBMU and 9 live trees 14 inches dbh or larger from property that is owned and

managed by NDOT. The tree removal associated with the Proposed Project Alternative that would occur on LTBMU property is not subject to the definition of “substantial tree removal” as defined in Section 61.1.8 of the TRPA Code because of the existing memorandum of agreement between TRPA and LTBMU. Tree removal that would occur on NDOT property would not qualify as a “substantial tree removal”; therefore, a tree removal and harvest plan would not be required.

During the design of the Proposed Project Alternative, efforts to avoid and minimize the removal of live trees, particularly greater than or equal to 24 inches dbh, would be applied to the extent practicable. Ground disturbance would be minimized to the extent practicable to avoid native vegetation and habitat loss. The estimated loss of habitat as a result of the Proposed Project Alternative would not substantially reduce the quantity or quality of these habitats in the region and would not result in a change in diversity or distribution of species in the region or result in a substantial change in local population numbers of any common plant or tree species or any unique, rare, or endangered species of plants or animals.

Wildlife and Special Status Wildlife Species

In addition to above discussed vegetation removal and associated habitat impacts, short-term impacts may also be associated with noise and disturbance during construction activities as some wildlife may be deterred from utilizing the project area. This could include reduction in nesting, foraging/hunting, roosting, or breeding in or near the project area, and the presence of noise may affect some species in adjacent habitats or in overflight.

In accordance with Section 7 of the ESA, the FHWA-CFLHD prepared a Biological Assessment (BA) and a Biological Evaluation (BE) dated July 2020. Based on extensive literature research, desktop review, and field survey, it has been determined that the Proposed Project Alternative would have **no effect** on any federally listed, proposed or candidate species or any proposed critical habitat. The Proposed Project Alternative will not jeopardize the continued existence nor lead to a decline in population that could lead to federal listing of the Tahoe yellowcress, fringed myotis, mountain pocket gopher, or western jumping mouse.

3.4.3.3 Avoidance, Minimization, and/or Mitigation Measures

The following measures will be implemented to reduce potential impacts to biological resources. The full description of the Proposed Project avoidance, minimization, and/or mitigation measures is provided in Table 3.13-1.

Mitigation Measure BIO-1: Minimize ground and vegetation disturbance, and limit construction and staging footprints.

Mitigation Measure BIO-2: Minimize removal of trees that are 24-inches diameter at breast height (dbh) or greater.

Mitigation Measure BIO-3: Coordinate tree felling schedule with the Lake Tahoe Basin Management Unit to minimize effects to migratory birds.

Mitigation Measure BIO-4: Prevent the contamination of construction-related materials by noxious weeds and invasive plant species.

Mitigation Measure BIO-5. Revegetate/landscape using appropriate native planting mixes.

3.4.4 Consequences for TRPA Environmental Threshold Carrying Capacities

Fish Habitat

This section summarizes the effects of implementing the Proposed Project Alternative on the environmental thresholds established by TRPA for fish habitat. Four fish habitat Indicator Reporting Categories have been established by TRPA:

- Lake Habitat,
- Stream Habitat,
- Instream Flows, and
- Lahontan Cutthroat Trout.

Lake Habitat

The Threshold Standard for the Lake Habitat Indicator Reporting Category is to apply a non-degradation standard to fish habitat in Lake Tahoe and achieve the equivalent of 5,948 total acres of excellent (prime) habitat. The current status of this Indicator Reporting Category is attainment with the Threshold Standard. Implementing the Proposed Project Alternative would not affect Lake Tahoe or change fish habitat conditions in the lake; therefore, implementing the Proposed Project Alternative would not affect attainment of this Threshold Standard.

Stream Habitat

The Threshold Standard for the Stream Habitat Indicator Reporting Category is to “maintain 75 miles of excellent, 105 miles of good, and 38 miles of marginal stream habitat.” The current status of this indicator is unknown due to lack of data (TRPA, 2016). The project area does not contain any stream habitat. Implementing the Proposed Project Alternative would not affect attainment of this Threshold Standard.

Instream Flows

The Threshold Standard for the Instream Flow Indicator Reporting Category states that “until instream flow standards are established in the Regional Plan to protect fishery values, a non-degradation standard shall apply to instream flows.” The current status of the threshold is attainment. The project area does not contain any permanent, intermittent or ephemeral stream flow. Implementing the Proposed Project Alternative would not affect attainment of this Threshold Standard.

Lahontan Cutthroat Trout

The Threshold Standard for the Lahontan Cutthroat Trout Indicator Reporting Category is to “support, in response to justifiable evidence, State and Federal efforts to reintroduce Lahontan cutthroat trout.” The current status of the threshold is attainment. Implementing the Proposed Project Alternative would not change habitat conditions for Lahontan cutthroat trout in the project vicinity, or conflict with reintroduction efforts. No aquatic habitats exist in the project area. Therefore, implementing the Proposed Project Alternative would not affect attainment of the Threshold Standard.

Vegetation

This section summarizes the effects of implementing the Proposed Project Alternative on the environmental thresholds established by TRPA for vegetation. Four vegetation Indicator Reporting Categories have been established by TRPA:

- Common Vegetation,
- Uncommon Plant Communities,

- Sensitive Plants, and
- Late Seral and Old Growth.

Common Vegetation

The Threshold Standard for the Common Vegetation Indicator Reporting Category includes increasing plant and structural diversity of forest and other vegetation communities through appropriate management practices as measured by diversity indices of native vegetation community richness, relative abundance, and pattern. The Common Vegetation Indicator Reporting Category includes separate standards for diversity, pattern of vegetation types and relative abundance for conifer forest, meadow, wetland, shrub, and deciduous riparian vegetation types that are applied basin-wide. The Indicator Reporting Category also applies a non-degradation Threshold Standard for native deciduous trees, wetlands, and meadows to provide for increases in riparian associations consistent with the Soil Conservation Threshold Standard.

For conifer forests, the TRPA Threshold Standard is to maintain 15–25 percent of yellow pine and red fir forests in seral stages other than mature to ensure that relatively young age classes of these forest types are represented in the Tahoe Region. TRPA's metric for this Threshold Standard is the relative proportion of tree stands dominated by small and large diameter trees in seral stages other than mature (less than 10.9 inches in dbh). The Threshold Standard for shrub vegetation is to maintain no more than 25 percent of undisturbed vegetation cover in the basin in shrub-dominated associations. For meadow, wetland, and deciduous riparian vegetation types, the Threshold Standard is to maintain at least 4 percent of each of these types in the Tahoe Region. The current status of the common vegetation threshold is nonattainment (considered worse than target) overall and for the specific indicators of: 1) proportion of red fir and yellow pine stands in small diameter size classes; and 2) relative abundance of meadow, wetland, and deciduous riparian vegetation types. The Threshold Standards for the indicators of community species richness and relative abundance of the shrub vegetation type are attainment (at or better than target condition).

Implementing the Proposed Project Alternative could affect approximately 4.7 acres of conifer forest (Ponderosa Pine, a type of yellow pine forest) see Table 3.4-2. Implementing the Proposed Project Alternative would not affect the attainment status of the Threshold Standards for conifer forests because it would not affect the overall diversity or pattern of common vegetation types throughout the Tahoe Region, or reduce the amount of yellow pine and red fir stands within seral stages other than mature and/or characterized by small size classes. Although tree and other vegetation removal would occur within the Ponderosa pine forest, the number, distribution, and sizes of trees removed would not substantially affect overall canopy cover or reduce the abundance of this vegetation type on the landscape. The values in Table 3.4-2 represent temporary and permanent effect areas within the montane conifer forest understory as a result of the Proposed Project Alternative construction (i.e., the ground-level footprint). Because tree removal within these forest vegetation types would be minimized or avoided in some locations by constructing around trees where feasible, the loss or conversion of forest canopy would be less than the impact values.

Implementing the Proposed Project Alternative would not result in the permanent disturbance or removal of any shrub-dominated vegetation communities because they are not present within the Project Area. Therefore, implementing the Proposed Project Alternative would not affect the attainment status of the common vegetation Threshold Standard for shrub communities.

Implementing the Proposed Project Alternative would not result in loss of any deciduous riparian vegetation, wetland or meadow vegetation because it is not present within the Project Area. Therefore, it would not conflict with the Threshold Standard of maintaining at least 4

percent meadow and wetland vegetation and 4 percent deciduous riparian vegetation in the Tahoe Region.

Uncommon Vegetation

The Threshold Standard for the Uncommon Plant Communities Indicator Reporting Category calls for providing the non-degradation of the natural qualities of any plant community that is uncommon to the Tahoe Region or of exceptional scientific, ecological, or scenic quality. The current status of this Threshold Standard is attainment overall, with some individual locations of uncommon plant communities in nonattainment. No uncommon plant communities are known to occur within the project area. Therefore, the Proposed Project Alternative would not contribute to non-attainment of this Threshold Standard.

Sensitive Plants

The Threshold Standard for the Sensitive Plants Indicator Reporting Category is to maintain the following minimum number of population sites for TRPA special-interest plant species: Galena Creek rockcress (*Arabis rigidissima* var. *demota*) (seven sites), long-petaled lewisia (*Lewisia longipetala*) (two sites), Cup Lake draba (*Draba asterophora* var. *macrocarpa*) (two sites), Tahoe draba (*Draba asterophora* var. *asterophora*) (five sites), and Tahoe yellow cress (*Rorippa subumbellata*) (26 sites). The current status of this threshold is attainment overall for long-petaled lewisia, Cup Lake draba, Tahoe draba, and Tahoe yellow cress. The attainment status of the Galena Creek rockcress indicator is unknown because of insufficient information. As described in Section 4.4.2, “Environmental Consequences and Mitigation Measures,” no TRPA special-interest plant species are expected to occur in the project area, due to existing disturbance, habitat modification, absence of habitat conditions for those species, or lack of recent occurrence records in the area. Additionally, no special-status plant species were observed during the sensitive species survey of the project area. Therefore, the Proposed Project Alternative would not affect the attainment status of the Sensitive Plants Threshold Standard.

Late Seral and Old Growth

The Threshold Standard for the Late Seral/Old Growth Indicator Reporting Category is to attain and maintain a minimum of 55 percent by area of forested lands within the Tahoe Region in a late seral or old-growth condition, distributed across elevation zones. Forested lands within TRPA-designated urban areas are excluded in the calculations for Threshold Standard attainment. The current status of this Threshold Standard is nonattainment (considerably worse than target) overall and for each elevation zone. None of the Ponderosa pine forest in the project area is considered late seral/old growth forest. Therefore, implementing the Proposed Project Alternative would not affect the attainment status of this Threshold Standard.

Wildlife Habitat

This section summarizes the effects of implementing the Proposed Project Alternative on the environmental thresholds established by TRPA for wildlife habitat. Two wildlife habitat Indicator Reporting Categories have been established by TRPA:

- Special Interest Species, and
- Habitats of Special Significance.

Special Interest Species

The Threshold Standard for the Special Interest Species Indicator Reporting Category is to provide a minimum number of population sites for six TRPA special-interest wildlife taxa: northern goshawk (*Accipiter gentilis*) (12 sites including a Protected Activity Center), osprey (*Pandion haliaetus*) (four sites), bald eagle (*Haliaeetus leucocephalus*) (two winter sites and one nesting site), golden eagle (*Aquila chrysaetos*) (four sites), peregrine falcon (*Falco peregrinus*) (two

sites), and waterfowl (18 sites). Mule deer (*Odocoileus hemionus*) is also a special-interest species; however, no threshold site number for deer has been specified. Lands within TRPA-designated urban areas are excluded from the standards for threshold attainment. The current status of this Indicator Reporting Category is attainment of the Threshold Standard overall for bald eagle nesting, osprey, and peregrine falcon. The current status for northern goshawk and waterfowl is nonattainment. The attainment status for golden eagle is unknown due to insufficient information. No attainment status has been established for bald eagle wintering or deer.

The Proposed Project Alternative would not affect designated waterfowl threshold areas or breeding sites or disturbance zones for northern goshawk, bald eagle, golden eagle, and peregrine falcon. The Proposed Project Alternative is not expected to affect the distribution, breeding productivity, viability, or the regional population of any of these TRPA special-interest wildlife species. Therefore, implementing the Proposed Action Alternative would not affect the attainment status for northern goshawk, bald eagle, golden eagle, peregrine falcon, or waterfowl.

Although deer is a TRPA special-interest species, no Threshold Standard has been adopted and no attainment target applies to this species. However, TRPA does not permit projects that would degrade fawning habitat or fragment known migration corridors (TRPA 2012). The project area is not expected to support fawning mule deer and does not provide important foraging or migratory habitat.

Habitats of Special Significance

The Threshold Standard for the Habitats of Special Significance Indicator Reporting Category is to apply a non-degradation standard to habitats consisting of deciduous trees, wetlands, and meadows while providing for opportunities to increase the acreage of such riparian associations. These opportunities include but are not limited to preserving existing naturally functioning SEZ lands in their natural hydrologic condition; restoring all disturbed SEZ lands in undeveloped, unsubdivided lands; and restoring 25 percent of the SEZ lands that have been identified as disturbed, developed, or subdivided, to attain a 5 percent total increase in the naturally functioning SEZ land. The current status of the Indicator Reporting Category is attainment with the Threshold Standard.

None of the habitats identified in the Project Area are classified as riparian and/or SEZ. Therefore, implementing the Proposed Project Alternative would not affect the attainment status of this Threshold Standard.

3.5 Cultural Resources

This section describes impacts expected to cultural resources, including historical and archeological resources. Historic built-environment resources may include engineering structures, buildings, objects, and monuments. Archaeological sites include prehistoric and historic evidence of past human occupation of the landscape, including village sites, shell middens, tool and food processing sites, privies, and refuse deposits. If a project would result in the alteration or destruction any of these resources, impacts to cultural resource may result.

3.5.1 Regulatory Setting

3.5.1.1 National Environmental Policy Act

NEPA establishes that the federal government use all practicable means to “assure for all Americans . . . culturally pleasing surroundings,” and “preserve important historic, cultural, and natural aspects of our national heritage . . .” (42 United States Code [U.S.C.] 4331[b][2]).

3.5.1.2 National Historic Preservation Act

The National Historic Preservation Act (NHPA) of 1966, as amended (54 U.S.C. 300101 - 307108), and its implementing regulations, Protection of Historic Properties (36 CFR 800), requires federal agencies to take into account the effects of their actions on historic properties for any federal undertaking. Historic properties are defined as those that are included in the National Register of Historic Places (NRHP) or that meet specific criteria (are “eligible”) for listing in the NRHP, which is the official list of America’s historic places worthy of preservation. An effect on a historic property is “an alteration to the characteristics of a historic property qualifying it for inclusion or eligibility for the NRHP” (36 CFR 800.16).

3.5.1.3 Tahoe Regional Planning Agency

Based on TRPA’s Initial Environmental Checklist, effects related to archaeological and historical resources were also evaluated based on whether the Proposed Project Alternative would:

- Result in an alteration of or adverse physical or aesthetic effect to a significant archaeological or historical site, structure, object or building;
- Involve a property with any known cultural, historical, and/or archaeological resources, including resources on TRPA or other regulatory official maps or records;
- Involve a property associated with any historically significant events and/or sites or persons;
- Have the potential to cause a physical change which would affect unique ethnic cultural values or;
- Restrict historic or pre-historic religious or sacred uses within the potential impact area.

TRPA goals and policies are designed to achieve and maintain adopted environmental threshold carrying capacities, and are implemented through the TRPA Code of Ordinances. A combination of relevant TRPA thresholds, goals, policies, and ordinances were used to analyze potential effects from the Proposed Project Alternative on cultural resources.

3.5.1.4 Nevada Revised Statute 383 Historic Preservation and Archaeology

Nevada Revised Statute 383.121 states that all departments, commissions, boards and other agencies of the State and its political subdivisions shall cooperate with the Nevada SHPO in order to salvage or preserve historic, prehistoric or paleo-environmental evidence located on property owned or controlled by the United States, the State of Nevada or its political subdivisions.

3.5.2 Affected Environment

3.5.2.1 Archaeological and Historical Resources

The following summarizes information contained in the “*Architectural History Report for Round Hill Pines Access Road Improvement Project*” and “*Archaeology Report for the Round Hill Pines Access Road Improvement Project*” written by Jacobs Consulting Group (Jacobs, 2021) for CFLHD. A records search was conducted through the Nevada State Historic Preservation Office, Nevada Cultural Resources Information System (NVCRIS), LTBMU office records, and via consultation with the Washoe Tribe of Nevada. The records search yielded information on previously recorded cultural resources, State Historical Preservation Office (SHPO) eligibility determinations and studies, plot base maps, and site form records on file at the NVCRIS, which administers cultural resources surveys and sites for the state of Nevada.

Table 3.5-1 summarizes the results of the research efforts and shows that nine cultural resource surveys have been conducted within or adjacent to the project Area of Potential Effect (APE) since 1991. The project APE includes all areas of potential disturbance associated with the Proposed Project Alternative. These previous studies and the “*Architectural History Report for Round Hill Pines Access Road Improvement Project*” and “*Archaeology Report for the Round Hill Pines Access Road Improvement Project*” reports identified that no historic or archaeological sites listed or eligible for listing on the NRHP are located within the APE and 20 previously identified sites are located adjacent to the APE, see Table 3.5-2.

Table 3.5-1 Previous Cultural Resource Studies Within 0.5-mile of the APE

Author (Year)	Title	Description	Cultural Resources
Valentine 1991	Archaeological Resources Inventory for the Round Hill State Park Feasibility Study, Douglas County, Nevada SHPO Report #8356	Survey	135 acres surveyed 13 cultural sites reviewed
Drews 1998	Inventory and Evaluation of Cultural Resources for a Timber Harvest Plan on the 223 Acre Tranquility Property, Near Round Hill, Douglas County, Nevada SHPO Report #6931	Survey	223 acres surveyed 2 cultural sites reviewed
Zeier 2002	Archaeological Inventory Report State Route 207, Kingsbury Grade Erosion Control / Archaeological Inventory Lower US 50 Erosion Control - Storm Water Management Master Plan Douglas County, Nevada SHPO Report #22313	Survey	25 acres surveyed 1 cultural site reviewed
Reno & Zeier 2004	Cultural Resources Inventory Report Lower US 50 Erosion Control -- Storm Water Management Master Plan Douglas County, Nevada NSM #DBI_NV_2007_198 SHPO Report #8149	Survey	0 acres surveyed 0 cultural site reviewed
Clark 2006	Archeological Survey of the Proposed Round Hill Water Intake Line Rebuild Project NSM #DBI_NV_2006_136	Survey	2 acres surveyed 0 cultural site reviewed
Zeier 2006	Archaeological Inventory Report State Route 207, Kingsbury Grade Erosion Control / Archaeological Inventory Lower US 50 Erosion Control - Storm Water Management Master Plan Douglas County, Nevada NDOT Undertaking 2010-1234 SHPO Report #5949	Inventory	70 acres surveyed 20 cultural site reviewed
Ludwig 2011	Nevada Stateline-to-Stateline Bikeway: South Demonstration Project Douglas County, Nevada Forest Service Undertaking 2011-1422 SHPO Report #6699	Survey	545 acres surveyed 24 cultural site reviewed
Blustain & Harmon 2012	Cultural Resources Survey of Approximately 36 Acres at 530 U.S. Highway 50, Zephyr Cove, Douglas County, Nevada USACE Undertaking 2012-2339 SHPO Report #8864	Survey	36 acres surveyed 2 cultural site reviewed
Research Archaeology 2012	A Class III Archaeological Inventory for the Kingsbury Regional Fuels Reduction Project, Douglas County, Nevada Undertaking 2012-2077	Inventory	181 acres surveyed 0 cultural site reviewed

4 Source: Jacobs, 2021

Table 3.5-2 Summary of Documented Resources Within 0.5-mile of the APE

Site Number	Description	NRHP Eligibility	In APE?
B1305	Round Mountain Lodge/Round Hill Pines Gate House and Garage	Eligible (demolished) ^a	No
B1306	Round Hill Pines Motel Units	Eligible (demolished) ^a	No
26 DO-451 ^b	Lincoln Highway	Eligible	No
26 DO-660 ^b	Historic Structure	Unevaluated	No
26 DO-669	Bourne Irrigation System	Ineligible	No
26 DO-677	Historic scatter	Ineligible	No
26 DO-678	Prehistoric bedrock milling complex	Unevaluated	No
26 DO-679	Historic scatter	Ineligible	No
26 DO-680	Unnamed road/trail	Ineligible	No
26 DO-681	Historic scatter	Ineligible	No
26 DO-682	Historic scatter	Ineligible	No
26 DO-683	Historic scatter	Ineligible	No
26 DO-684	Round Hill Resort	Unevaluated	No
26 DO-685	Historic isolated find	Ineligible	No
26 DO-687	Historic logging site	Ineligible	No
26 DO-688	Historic scatter	Ineligible	No
26 DO-805	Historic road remnants	Ineligible	No
26 DO-806	Prehistoric isolated bedrock mortar	Ineligible	No
26 DO-1136	McFaul (Bourne's) Meadow Ditch System	Ineligible	No
26 DO-1137	McFaul (Bourne's) Meadow – Historic, multi-use recreational area	Ineligible	No

5 Source: Jacobs, 2021

6 ^a Resource was demolished and apparently has not been reevaluated and/or removed from the NVCRIS GIS data set.

7 ^b Site 26 DO-451 is mapped by NVCRIS with large shape files that do not match with the actual site location. Site 26 DO-451 is parallel to US 50 and not in the APE. Site 26 DO-660 was also imprecisely plotted on the records search map and appears in the APE; however, the site record clearly indicates the site is on private property and outside of the APE.

Native American Consultation

An important element in National Historic Preservation Act, Section 106 compliance includes consultation with parties that might have an interest in or be affected by investigations of or effects on cultural resources. Coordination with LTBMU and TRPA suggested that the Washoe Tribe is the applicable tribal authority for lands encompassing the project area. FHWA-CFLHD formally initiated consultation with the Washoe Tribe of Nevada and California under Section 106 of the National Historic Preservation Act via letter to Mr. Smokey Serrell dated July 6, 2020 (Appendix B). Washoe Tribal Council members were also invited to attend and participate in public meetings for the project on April 23, 2019 and September 25, 2019. No comments were received from the Washoe Tribe in response to the tribal consultation letter or during the public meetings.

Field Investigation

The project APE was subject to an intensive pedestrian survey on July 29 and 31, 2019 and covered approximately 8.9 acres with 10 to 15 meter transects. The survey included an examination of the ground surface, exposed rock surfaces, structures, and cultural debris and included close examination of exposed sediments, cut-banks, graded areas, animal burrows, animal and human trails, and other areas where native soils were exposed. The pedestrian survey

also involved inspection of the local topography to identify areas that have been subject to modern anthropogenic landscape alterations within the APE. No materials were collected. Build-environment resources that were 50 years old or older were documented with digital photography, described, and measured. Two previously unrecorded sites were documented within the APE and consist of a stone entrance wall/gate into the Round Hill Pines Resort and utility poles, see Table 3.5-3.

Table 3.5-3 Summary of Cultural Resources, Potential Impacts and Significance

Cultural Resources Description	Potential Impact	Significance
Utility Poles	Yes	*Not Eligible
Round Hill Pines Resort Gate and Stone Wall	Yes	*Not Eligible

* A final determination of eligibility is pending concurrence by the Nevada Office of Historic Preservation.

Source: Jacobs, 2021

3.5.3 Environmental Consequences and Mitigation Measures

Significance Criteria

The significance of a cultural resource is typically evaluated in terms of criteria established in the NRHP, as authorized under the NHPA, as amended. Federal criteria (A through D) focus on a heritage property's associations with significant events and personalities in the nation's history and cultural heritage; its distinctive technical, architectural or artistic characteristics; and/or a property's information potential. Resources are evaluated within a specific and important time frame or period of significance during which time the property was occupied or used.

To be listed in the NRHP, a property must not only be shown to be significant under one or more of these criteria, but it must also have integrity. TRPA has adopted procedures for the identification, recognition, protection, and preservation of the region's significant cultural, historical, archaeological, and paleontological resources that are modeled after the NRHP guidelines. Chapter 67 of the TRPA Code requires a site survey by a qualified archaeologist, an inventory of any extant cultural resources, and consultation with the Washoe Tribe. The TRPA Initial Environmental Checklist was used to guide evaluation of the project's effects on archaeological and historical resources under TRPA regulations. The context and intensity of an alternative's potential to adversely affect archaeological and historical resources were evaluated based on the following:

- Would the project result in an alteration of or adverse physical or aesthetic effect to a significant archaeological or historical site, structure, object or building?
- Is the project located on a property with any known cultural, historical, and/or archaeological resources, including resources on TRPA or other regulatory official maps or records?
- Is the property associated with any historically significant events and/or sites or persons?
- Does the project have the potential to cause a physical change which would affect unique ethnic cultural values?
- Will the project restrict historic or pre-historic religious or sacred uses, or alter unique paleontological resources, within the potential impact area?

Methods and Assumptions

Project-related actions undertaken by FHWA-CFLHD are subject to compliance with Section 106 of the NHPA and its implementing regulations (36 CFR Part 800), as amended. Section 106 constitutes the main regulatory framework guiding cultural resource investigations for federal undertakings. The Section 106 review process involves a four-step procedure:

- Initiate the Section 106 process by establishing the APE for the undertaking, developing a plan for public involvement and identifying other consulting parties.
- Identify cultural resource properties (sites, districts, buildings, objects, traditional cultural properties, etc.) by inventorying and evaluating their eligibility for inclusion in the NRHP.
- Assess any potential adverse effects on properties that are listed in or may be eligible for listing in the NRHP by applying the criteria of adverse effect (noted in 36 CFR Part 800).
- Resolve potential adverse effects by consulting with the SHPO and other consulting agencies, including the Advisory Council of Historic Preservation if necessary, to develop an agreement that addresses the proper treatment of historic properties.

As described above, the stand-alone inventory and evaluation report was prepared based on an APE that included all areas of potential disturbance associated with the Round Hill Pines Access Project. The inventory of cultural resources was based on a thorough research of previous studies within the APE and a comprehensive field investigation by qualified archaeologists. Based on these efforts, Table 3.5-2 and Table 3.5-3 includes significance assessments of cultural resources inventoried within or near the Round Hill Pines Access Project APE. None of the recorded sites within the APE are found to be NRHP eligible.

3.5.3.1 No Action Alternative

Under the No Action Alternative, there would be no construction-related ground disturbance that could result in adverse effects to undiscovered buried archaeological, historical, or human remains.

3.5.3.2 Proposed Project Alternative

Section 106 of the NHPA requires that federal agencies consider the effects of their actions on significant archaeological properties before implementing a project (i.e., undertaking). Federal regulatory impact thresholds are found in 36 CFR 800. Regulations require that the federal agency apply the criteria of adverse effect to heritage properties that would be affected by a proposed undertaking (36 CFR Part 800.9b). The criteria of adverse effect, defined at 36 CFR Part 800.5(a)(1), states that:

An adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association.

Section 67.7.3 of the TRPA Code also requires the protection of sites, objects, structures, or other resources designated as historic resources or for which designation is pending. Demolition, disturbance, removal, or significant alterations are prohibited unless TRPA has approved a resource protection plan to protect the historic resources.

If a cultural resource is not a unique archaeological or a historical resource and if it is determined not eligible to the National Register, the effects of a project on the resource are not considered to be a significant effect on the environment. It is sufficient that both the resource and the effect on it are noted in the environmental document, but they need not be considered further in the Section 106 process.

None of the cultural resources recorded within the APE meet NRHP criteria of significance and none are considered eligible resources. All of their potentially significant information has been recovered with the completion of Intermountain Antiquities Computer System (IMACS) archaeological site record forms that accompany the standalone inventory and evaluation report (Jacobs 2021). Therefore, the Proposed Project Alternative would not have an adverse effect on any significant properties potentially eligible for the NRHP and a determination of “No Historic Properties Affected” was recommended in the inventory and evaluation report.

Archival research, Native American consultation, and intensive field survey conducted within the APE indicate that the area is not likely to contain cultural resources that may be buried or otherwise not visible on the ground surface. However, the potential exists that undocumented and concealed prehistoric or historic-era sites, structures, features, artifacts, or human interments could be present and encountered during project-related ground-disturbing activities. If previously undiscovered and significant (per NRHP/TRPA criteria) archaeological or historical resources or human remains were disturbed by construction, this would be an adverse effect. However, implementation of proposed design features would reduce or avoid potential construction-related disturbances to undocumented resources and human remains, such that the Proposed Project Alternative would not result in an adverse effect to these resources.

3.5.3.3 Avoidance, Minimization, and/or Mitigation Measures

The following measures will be implemented to reduce potential impacts to cultural resources. The full description of the Proposed Project avoidance, minimization, and/or mitigation measures is provided in Table 3.13-1.

Mitigation Measure CR-1. Cease work and implement notification procedures for previously undiscovered archaeological and historical resources.

3.5.3.4 SHPO Concurrence

The request for concurrence on eligibility and effect determinations will be transmitted to Nevada SHPO with a copy of the cultural resource report prepared for this project. Coordination with SHPO is ongoing and will be completed prior to issuance of a decision document.

3.6 Earth Resources: Geology, Soils, Land Capability and Coverage

This section evaluates potential impacts relating to the existing geologic and soil conditions within the project area and an analysis of the potential geologic hazards and soils impacts associated with project implementation. The analysis includes a description of existing conditions, a discussion of any changes in or to geologic conditions, relevant soil properties, and a discussion of land capability and coverage. Potential environmental effects related to water quality resulting from soil erosion and other stormwater effects are addressed in Section 3.7, “Hydrology and Water Quality.”

3.6.1 Regulatory Setting

3.6.1.1 Tahoe Regional Planning Agency

Based on TRPA’s Initial Environmental Checklist, effects related to land were also evaluated based on whether the Proposed Project Alternative would:

- Compact or cover soil beyond the limits allowed in Chapter 30 of the TRPA Code;
- Result in a change in the topographic features of the site inconsistent with the natural surrounding conditions;
- Change the undisturbed soil or native geologic substructures or grading in excess of 5 feet, unless TRPA makes the findings set forth in Section 64.7.B of the TRPA Code, in which case such grading is permissible;
- Continue or increase wind or water erosion of soils;
- Result in changes in situation, deposition, or erosion that could modify the channel of a river or stream or the bed of a lake;
- Result in unstable soil conditions during or after completion of the project; or
- Expose people or property to geologic hazards such as earthquakes, landslides, avalanches, or similar hazards.

TRPA goals and policies are designed to achieve and maintain adopted environmental threshold carrying capacities, and are implemented through the TRPA Code of Ordinances. A combination of relevant TRPA thresholds, goals, policies, and ordinances for were used to analyze potential effects from the Proposed Project Alternative on cultural resources.

3.6.2 Affected Environment

Geology

The project area is located in the Cascade-Sierra Mountains Province of the Pacific Mountain System. The Sierra Nevada is a tilted fault block with a gentle western slope and a steep, rugged eastern escarpment. It runs through eastern California and a small portion of western Nevada, from the Mojave Desert in the south to the Cascade Range and Modoc Plateau on the north, for more than 400 miles and averages 50 to 80 miles wide. The Sierra Nevada geomorphic province is primarily composed of massive granitic bedrock and remnants of metavolcanic and metasedimentary rocks (volcanic and sedimentary rocks subsequently subjected to substantial heat and pressure), and more recent volcanic and sedimentary rocks. It is bounded on the west by sedimentary rocks of the Great Valley geomorphic province and on the north by volcanic sheets extending south from the Cascade Range (California Department of Conservation, California Geological Survey [CGS] 2005).

The Lake Tahoe Basin is located in the northern Sierra Nevada, between the Sierra crest to the west and the Carson Range to the east, and is one of the most prominent mountain ranges in

California. Faulting and volcanism created the Lake Tahoe Basin over 2 million years ago, and as a result, the basin contains granitic, metamorphic, and volcanic rock (Saucedo 2005). The predominant bedrock in the Tahoe Basin is Cretaceous granodiorite of the Sierra Nevada batholith. Cretaceous rock formed during the later period of the Mesozoic Era, characterized by the development of flowering plants and ending with the sudden extinction of the dinosaurs and many other forms of life. Pre-Cretaceous metamorphic rocks are found in localized areas. Over the past 1.5 million years, the Lake Tahoe Region has been altered by glacial activity, and most of the landforms surrounding the lake are a result of glaciation. During glacial activities, valley glaciers dammed the Truckee River Canyon, raising the water level of Lake Tahoe. Lacustrine sediments were deposited in the bays and canyons around the lake as a result of the rising lake levels. The faulting, folding, and in some cases overturning of rock formations that has taken place during various periods of geologic activity, in combination with erosion, deposition, and subsequent cementation of rock materials that occurred during relatively quiet periods, have left a complex arrangement of geologic rock types and structures in the area. However, the extraordinary clarity of Lake Tahoe is related to the prevalence of resistant granitic bedrock in the Lake Tahoe Basin and the unusually small drainage basin relative to the size of Lake Tahoe.

The project area is mapped as underlain by Pleistocene Lacustrine Terrace Deposits and Cretaceous Granodiorite of East Peak. The lacustrine deposits are described as poorly to moderately sorted silt, sand, and gravel forming broad low terraces 5 to 10 meters above lake level. The granodiorite is described as fine- to medium-grained, well-foliated, equigranular to weakly porphyritic hornblende-biotite granodiorite to quartz monzodiorite. Undivided granite and granodiorite and quartz diorite and diorite are also mapped in the vicinity of the project area. These units are described as fine- to coarse-grained with various compositions and potential origins.

Topography

Slope of the land is an important consideration in development planning. Slopes, in conjunction with soil types, geological and seismic hazards, and scenic vistas, are potential limitations to development. Typically, challenges associated with development on slight slopes are minimal. Development on steep slopes, hillsides, and ridgelines have greater potential for erosion problems, have lower rates of revegetation, can degrade the aesthetic value of the natural environment and can also represent hazards to the land itself.

The project area is located on the Freel Peak, California 7.5 minute U.S. Geological Survey (USGS) quadrangle map. The topography of the project site slopes from the east and northeast to the west and southwest. The project area is located between the elevations of 6,240 feet and 6,500 feet above mean sea level (amsl). The hill slopes throughout the project area range from 2 to greater than 50 percent (Table 4.5-1). Significant geographic features along this segment include Tunnel Creek and Bonpland Creek, both of which run through steep ravines into Lake Tahoe.

Seismicity

The potential for seismic activity at a given project location is most often related to the proximity of faults, which are fractures or zones of closely associated fractures along which rocks on one side have been displaced with respect to those on the other side. Most faults are the result of repeated displacement that may have taken place suddenly and/or by slow creep (Bryant and Hart 2007: p. 3).

Lake Tahoe lies within a tectonically active, asymmetric half-graben (down-dropped fault block). Evidence shows that pre-historic earthquakes of a magnitude of 7.0 have occurred on Tahoe Basin faults within the past 10,000 years. However, scientists believe that large quakes are “rare events” in the Tahoe Basin, meaning quakes of magnitude 6.5 or greater occur on individual faults about every 3,000 to 4,000 years (Segale and Cobourn 2005: p. 1). Numerous seismic source faults are mapped within 40 miles of the project area. These faults are generally oriented north-

south and located both east and west of the project site. Most of the faults have been active in the Holocene (less than 15,000 years ago) and have slip rates between 0.008 and 0.08 inches per year.

Tsunami/Seiche

A tsunami is a series of waves that may result from a major seismic event that involves the displacement of a large volume of water and can occur in any large body of water. A seiche is a periodic oscillation of an enclosed or restricted water body, typically a lake or reservoir, produced by seismic shaking or massive landslide (above ground or underwater). A seiche results in a potentially damaging wave, similar to a tsunami, which may result from seismic activity near a large lake. A seiche may occur in (wave) periods that differ from a tsunami. But should the period of wave propagation occur simultaneously with a tsunami, it could result in cumulative seismic-related wave effects.

Soils

Soils are a critical element in land-use planning and environmental analyses in the Lake Tahoe Region; the TRPA land capability districts are determined based on soil types. The Natural Resources Conservation Service (NRCS) 2007 Soil Survey update shows four soil map units within the project area. The Cagwin and Cassenai soil types dominate these map units.

Cagwin and Cassenai are deep to very deep soils. The upper horizons are typically composed of gravelly loamy coarse sands that occur as mixed colluviums (material relocated by gravity) over residuum (material that has weathered in place) derived from the weathering of granodiorite, underlain by grus (actively decomposing granitic material) (NRCS 2007). These soils are highly permeable and somewhat excessively drained. This means that water moves quickly through the soil profile and away from the root zone of plants. These coarse textured granitic soils are notoriously droughty and have low or very low water holding capacity in the upper 60 inches.

Both the Cagwin and Cassenai soils have very little structure in the upper horizons and are underlain by massive, dense but brittle, cemented grus. Disturbance of these soils in steep areas, especially when it involves the lower horizons, can lead to chronic sloughing and erosion. This type of structure, combined with their limited water holding capacity, can make successful revegetation of these soils a challenge in steep areas.

The NRCS Erosion Hazard rating for the soil located within the project area estimates the risk of soil loss from sheet and rill erosion (erosion caused by overland flow of water) for disturbed soils where 50 to 75 percent of the soil surface has been exposed. This rating is based on slope and soil erosion factor K. Since the project area soils are structurally similar, the Erosion Hazard rating is driven by slope. Within the project area, soils on 2 to 15 percent slopes are rated as "slight," soils on 15 to 30 percent slopes are rated as "moderate," soil on 30 to 50 percent slopes are rated as "severe," and soil with greater than 50 percent slopes are rated as "very severe."

Table 3.6-1, which is based on NRCS soil survey data (NRCS 2007), lists the soil types and soil characteristics present within the Round Hill Pines Access Project area.

Table 3.6-1: Soils within the Round Hill Pines Access Project Area

Soil Map Unit Name	% in Project Area	Shrink Swell Potential ¹	Permeability ²	Erosion Hazard Rating ³	Drainage	Concrete corrosivity
Cagwin Rock Outcrop Complex, 5-15% slopes, extremely stony	56.5%	Low	High	Moderate	Somewhat excessively drained	Low
Cagwin Rock Outcrop Complex, 15-30% slopes, extremely stony	14.6%	Low	High	Moderate	Somewhat excessively drained	Low
Cassenai gravelly loamy coarse sand, 5-15% slopes, very stony	25.9%	Low	High	Moderate	Somewhat excessively drained	Low
Cassenai gravelly loamy coarse sand, 15-30% slopes, very stony	3.1%	Low	High	Moderate	Somewhat excessively drained	Low
<p>Notes:</p> <p>¹ Based on percentage of linear extensibility. Shrink-swell potential ratings of “moderate” to “very high” can result in damage to buildings, roads, and other structures.</p> <p>² Based on standard U.S. Department of Agriculture (USDA) saturated hydraulic conductivity (Ksat) class limits; Ksat refers to the ease with which pores in a saturated soil transmit water.</p> <p>³ Based on slope and soil erosion factor K. The erosion hazard rating estimates the risk of soil loss due to sheet and rill erosion after disturbance activities that expose 50 to 75 percent of the soil surface.</p> <p>Source: NRCS 2007</p>						

Land Capability and Coverage

Chapter 30 of the TRPA Code of Ordinances sets forth regulations for the permissible amount of land coverage in the region. It implements provisions of the Goals and Policies concerning the land capability system, land capability districts (LCDs), prohibition of additional land coverage in certain LCDs, and transfer and mitigation of land coverage. The LCDs within the project area are 2 and 4 (Bailey 1974).

The majority of the project area is within LCD 4 (base allowable coverage of 20 percent) and a small portion of the project area is within 2 (base allowable coverage of 1 percent). There are no SEZ or backshore areas located within the project area. Existing coverage within the project area includes the existing US 50 transportation corridor and the Round Hill Pines Resort area, which contains a series of paved roads, pedestrian trails and parking areas.

3.6.3 Environmental Consequences and Mitigation Measures

Evaluation of potential geologic and soils impacts was based on a review of documents pertaining to the project site, including the draft Round Hill Pines Access Road Project Geotechnical Investigation Report, the NRCS Soil Survey of Tahoe Basin Area (NRCS 2007) and TRPA regulations and planning documents. The information obtained from these sources was reviewed and summarized to establish existing conditions and to identify potential environmental effects, based on the regulatory setting mentioned in Section 3.6.1.1. In determining the level of significance, the analysis assumes that the proposed project would comply with relevant federal, state, and local ordinances and regulations.

3.6.3.1 No Action Alternative

Under the No Action Alternative, there would be no construction related ground disturbance along US 50 or within the Round Hill Pines Resort. The US 50 transportation corridor, the Round Hill Pines Resort access road, and US 50 intersection would not be relocated to the north and the access road would remain in the existing location. However, there would be continued public use of the Round Hill Pines Resort area as well as required maintenance and improvements.

3.6.3.2 Proposed Project Alternative

Seismic and Geologic Features

Lake Tahoe lies in an inter-montane basin bounded by normal faults. Active faults are located in the project vicinity. According to the Earthquake Potential Map for Portions of Eastern California and Western Nevada (Saucedo 2005, CGS 2005), the Zephyr Cove area is considered to have a moderate potential for shaking caused by seismic-related activity (CGS 2005). The Proposed Project Alternative would include construction of a new access road to the Round Hill Pines Resort and widening along a segment of US 50. Areas of steep side slopes are present along the west side portion of US 50 within the project area. The project does not include the construction of any buildings intended for human occupation, bridge structures, or retaining walls.

Soil liquefaction occurs when ground shaking from an earthquake causes a sediment layer saturated with groundwater to lose strength and take on the characteristics of a fluid, thus becoming similar to quicksand. Factors determining the liquefaction potential are soil type, the level and duration of seismic ground motions, the type and consistency of soils, and the depth to groundwater. Liquefaction poses a hazard to engineered structures. The loss of soil strength can result in bearing capacity insufficient to support foundation loads, increased lateral pressure on retaining walls, and slope instability.

The soils within the project area are coarse textured with a high rock content and low water holding capacity. These features combined with the high depth to groundwater create little potential for liquefaction to occur within the project area. However, proposed project structures would be designed and constructed in accordance with the current design requirements of UBC Seismic Zone 3 and NDOT that are intended to reduce the risk of injury or property damage from seismic hazards, including strong ground shaking and liquefaction.

Ichinose et al. (2000) show through simulations modeling wave propagation for various earthquake scenarios that if a large earthquake were to occur (approximately magnitude 7.0), a potential exists for both tsunami and seiche-related waves up to 30 feet to occur along the shore of Lake Tahoe. The Proposed Project Alternative is located outside the 30-foot wave range therefore, implementation of the proposed project alternative would not create a situation that exposes additional people to tsunami or seiche hazards.

No previous landslides have been mapped in the location of planned project facilities, however some granitic soils within the project area may be prone to instability once disturbed. Design features incorporated into the project would minimize the disturbance footprint to the greatest

extent possible and stabilize disturbed areas. Additionally, a detailed geotechnical report would be conducted prior to final design to identify any slope instability issues and the maximum slope for construction to occur. The project will include preparation of a Geotechnical Report by a registered professional geologist or engineer that will be used to develop the final design of all project components to ensure that the potential for landslides, slope instability, seismic events, and all applicable codes and seismic standards are adequately addressed in the design and construction of the project.

Implementation of the design features described above would ensure that implementation of the project would not result in the creation of unstable slopes that would subject recreational users to an increased hazard.

Site Topography, Grading and Soil Erosion

Construction of the Proposed Project Alternative will require minimal excavation. The project limits along the east side of US 50 will generally follow the existing contours. No cuts will be made to the hillside along the east side of the project area. Excavation will be required along the existing Round Hill Pines Resort access road and a segment of the bike trail to obliterate and remove old pavement. Excavation depths are not expected to exceed approximately 5 feet. Placement of fill material will be required for construction of the relocated Round Hill Pines Resort access road and widening along the west side of US 50 for the median left turn bay and acceleration lane.

As noted in Table 3.6-2, a majority of the project is located on soils that contain 15% or less slope. The project area is also dominated by granitic soils, which can be difficult to stabilize once disturbed. Construction activities would result in the temporary disturbance of soil and would expose disturbed areas to potential storm events. Rain of sufficient intensity and duration could dislodge soil particles, generate runoff, and cause localized erosion. Soil disturbance during the summer months could result in loss of topsoil because of wind erosion or thundershower event.

The NRCS Erosion Hazard rating for the soils within the project area estimates the risk of soil loss from sheet and rill erosion (erosion caused by overland flow of water) for disturbed soils where 50 to 75 percent of the soil surface has been exposed (NRCS 2007). Soils on 2 to 15 percent slopes are rated as "slight," soils on 15 to 30 percent slopes are rated as "moderate." A rating of "slight" indicates that erosion is unlikely under ordinary climatic conditions; "moderate" indicates that some erosion is likely and that erosion-control measures may be needed.

The potential for increased wind and water erosion of the soils within the project area would be minimized through design features incorporated into the project. All areas disturbed during project construction would be stabilized. Disturbed areas outside of the roadway footprint with less than 20 percent slopes would be restored and revegetated. In areas with slopes between 20 and 30 percent, the soil would be stabilized using a combination of biotechnical and revegetation methods which may include planted geotextiles (an engineered soil stabilization fabric anchored with plants) or rock reinforcement in isolated areas.

Design features incorporated into the project would: minimize soil erosion by limiting surface disturbance to between May 1 and October 15; require implementation of temporary and permanent water quality BMPs; use existing disturbed areas for staging and storage; restore soil function and organic matter post project implementation; and restore protective ground and vegetative cover (see Table 13.1-1 Mitigation Measures BIO-4 and BMP-1 through BMP-3).

Land Coverage

Final design features and landscape restoration incorporated into the Proposed Project Alternative would limit effects to sensitive land capability district (LCD 2). Table 3.5-2 provides a preliminary summary of coverage increases by LCD for the Proposed Project Alternative. The preliminary coverage numbers would be refined as the design process progresses and prior to

TRPA permit acknowledgement, but the information contained herein is representative of the minor nature of the land coverage changes. Because the coverage increases associated with the Proposed Project Alternative would occur in accordance with TRPA regulations, the project would not result in adverse effects as it relates to land coverage and land capability.

Table 3.6-2: Preliminary Land Coverage Increases for the Proposed Project Alternative

Land Capability District	Impervious Pavement Addition	Impervious Pavement Removal	Net Increase
LCD 2	0.3 acre	0.04 acre (Existing Bike Trail Segment)	0.26 acre
LCD 4	0.34 acre	0 acre	0.34 acre

3.6.4 Consequences of TRPA Environmental Threshold Carrying Capacities

This section describes the effects of implementing the Proposed Project Alternative on the thresholds established for soil conservation by TRPA. Two soil conservation threshold reporting categories have been established by TRPA:

- Impervious Cover (land coverage), and
- Stream Environment Zone (SEZ).

According to the 2015 Threshold Evaluation (TRPA 2015), status for the Impervious Cover threshold reporting category within LCD 2 is “Somewhat worse than target” and LCD 4 is “Considerably better than target”.

Impervious Cover

On a region-wide basis, Bailey land capability class LCD 4 is currently in compliance. Land Capability District 2 is not in attainment (TRPA 2015), because existing coverage is in excess of the base allowable for these LCDs. Within LCD 2, Table 3.5.2.3 shows a net impervious pavement addition of 0.26 acre which includes the removal of a portion of paved bike trail (0.04 acre). Work at this location includes widening along the west side of US 50 for the median left turn bay and northbound acceleration lane and a small portion of the relocated Round Hill Pines access road. Within LCD 4, Table 3.5.2.3 shows a net impervious pavement addition of 0.34 acre of new impervious pavement added for the relocated Round Hill Pines access road.

The Proposed Project Alternative would result in a very minor increases in land coverage in LCD 2 (0.24 acre) and (0.34 acre) LCD 4. Any new coverage associated with the Proposed Project Alternative would be consistent with TRPA land coverage regulations and consistent with what had already been contemplated for the project in the TRPA Regional Plan. Implementation of the project would not impede progress toward attainment of the TRPA threshold reporting category for Impervious Cover.

Stream Environment Zone

Attainment of the SEZ threshold is tracked basin wide and tracked for three categories: naturally functioning SEZs; SEZs in undeveloped, un-subdivided lands; and SEZs in disturbed, developed, or subdivided areas. The SEZ threshold has a nonattainment status. The Proposed Project Alternative is not located within a SEZ and would not impede or degrade the attainment of the SEZ threshold reporting category.

3.7 Hydrology and Water Quality

This section describes the existing hydrologic and water quality conditions within the project area and provides an analysis of the potential effects due to implementation of the Proposed Project Alternative. This analysis includes review of surface water, runoff patterns, and water quality. A discussion of effects to coverage and potential land surface erosion is provided in Section 3.6, “Earth Resources: Geology, Soils, Land Capability, and Coverage.” A discussion of effects to sensitive habitat is found in Section 3.4, “Biological Resources: Aquatic Resources, Vegetation, and Wildlife.”

3.7.1 Regulatory Setting

3.7.1.1 Clean Water Act (Public Law 92-500)

Section 404

The Clean Water Act (CWA) consists of the Federal Water Pollution Control Act of 1972 and subsequent amendments. The CWA provides for the restoration and maintenance of the physical, chemical, and biological integrity of the nation’s waters. Section 404 of the act prohibits the discharge of fill material into waters of the United States, including wetlands, except as permitted under separate regulations by the U.S. Army Corps of Engineers (USACE) and U.S. Environmental Protection Agency (EPA). To discharge dredged or fill material into waters of the United States, including wetlands, Section 404 requires projects to receive authorization from the Secretary of the Army, acting through the USACE. Waters of the U.S. are generally defined as “...waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide; territorial seas and tributaries to such waters.”

Section 401

Under CWA Section 401, applicants for a federal license or permit to conduct activities that may result in the discharge of a pollutant into waters of the United States must obtain certification for the discharge. The certification must be obtained from the state in which the discharge would originate or, if appropriate, from the interstate water pollution control agency with jurisdiction over the affected waters at the point where the discharge would originate. Therefore, all projects that have a federal component and may affect state water quality (including projects that require federal agency approval, such as issuance of a Section 404 permit) must also comply with CWA Section 401. Water quality certification requires evaluation of potential impacts in light of water quality standards and CWA Section 404 criteria governing discharge of dredged and fill materials into waters of the United States. The federal government delegates water pollution control authority under CWA Section 401 to the states.

Section 402

Section 402 of the CWA establishes the National Pollutant Discharge Elimination System (NPDES) permit program to regulate discharges of pollutants into waters of the United States. An NPDES permit sets specific discharge limits for point sources discharging pollutants into waters of the United States and establishes monitoring and reporting requirements, as well as special conditions. Two types of nonpoint source discharges are controlled by the NPDES program: discharges caused by general construction activities and the general quality of stormwater in municipal stormwater systems. The goal of the NPDES nonpoint source regulations is to improve the quality of stormwater discharged to receiving waters to the maximum extent practicable. The State of Nevada Department of Environmental Quality is responsible for implementing the NPDES permit system.

Section 303d

Section 303(d) of the CWA requires states to develop lists of water bodies that do not attain water quality objectives after implementation of required levels of treatment by point source dischargers (municipalities and industries). Section 303(d) requires that the state develop a total maximum daily load (TMDL) for each of the listed pollutants. The TMDL is the amount of the pollutant that the water body can receive and still be in compliance with water quality objectives. The TMDL is also a plan to reduce loading of a specific pollutant from various sources to achieve compliance with water quality objectives. EPA must either approve a TMDL prepared by the state or disapprove the state's TMDL and issue its own. NPDES permit limits for listed pollutants must be consistent with the waste load allocation prescribed in the TMDL. After implementation of the TMDL, it is anticipated that the problems that led to placement of a given pollutant on the Section 303(d) list would be remediated.

3.7.1.2 Federal Antidegradation Policy

The Federal Antidegradation Policy was enacted to provide protection to high-quality water resources of national importance. It directs states to develop and adopt statewide antidegradation policies that include protecting existing instream water uses and maintaining a level of water quality necessary to protect those existing uses and the water quality of high-quality waters. In EPA's Clean Water Act regulations regarding water quality standards (40 CFR Sec. 131.12(a)(3)), the criteria for requiring an antidegradation standard includes: "where high quality waters constitute an outstanding National resource, such as waters of National and State parks and wildlife refuges and waters of exceptional recreational or ecological significance, that water quality shall be maintained and protected." The EPA has designated Lake Tahoe an Outstanding National Resource Water (ONRW). ONRWs are provided the highest level of protection under EPA's Antidegradation Policy, stipulating that states may allow some limited activities that result in temporary and short-term changes to water quality, but such changes should not adversely affect existing uses or degrade the essential character or special uses for which the water was designated an ONRW. The EPA interprets this provision to prohibit new or increased discharges to ONRWs that would degrade water quality.

3.7.1.3 Floodplain Management Executive Order (11988)

Floodplain Management Executive Order 11988 (May 24, 1977) directs all federal agencies to evaluate potential effects of any actions it may take in the floodplain and to avoid all adverse impacts associated with modifications to floodplains. It also directs federal agencies to avoid encroachment into the 100-year floodplain, whenever there is a practicable alternative, and to restore and preserve the natural and beneficial values served by the floodplains.

The Federal Emergency Management Agency (FEMA) oversees floodplain management and runs the National Flood Insurance Program (NFIP) adopted under the National Flood Insurance Act of 1968. FEMA prepares Flood Insurance Rate Maps (FIRM) that delineate the regulatory floodplain to assist local governments with land use and floodplain management decisions to meet the requirements of the NFIP. In general, the NFIP mandates that development is not to proceed within the 100-year regulatory floodplain, if the development is expected to increase flood elevation by one foot or more. Very limited development is allowed in designated 100-year floodways (i.e., flood flow channels and areas with sufficient directional flow velocity of 100-year floodwaters). As discussed in Section 3.2.3, the Proposed Project would not substantially modify the floodplain topography therefore, no impacts to floodplains are anticipated.

3.7.1.4 Tahoe Regional Planning Agency

Based on TRPA's Initial Environmental Checklist, effects related to hydrology and water quality were evaluated based on whether the Proposed Project Alternative would result in:

- Changes in absorption rates, drainage patterns, or the rate and amount of surface water runoff so that a 20-year, 1-hour storm event (approximately 1-inch per hour) cannot be contained on the site;
- Alterations to the course or flow of 100-year flood waters;
- Change in the amount of surface water in any water body;
- Discharge into surface waters, or in any alteration of surface water quality, including but not limited to temperature, dissolved oxygen or turbidity;
- Alteration of the direction or rate of groundwater;
- Change in the quantity of groundwater, either through direct additions or withdrawals, or through interception of an aquifer by cuts or excavations;
- Substantial reduction in the amount of water otherwise available for public water supplies;
- Exposure of people or property to water related hazards such as flooding and/or wave action from a 100-year storm occurrence or seiches; or
- Location of the project within 600 feet of a drinking water source.

TRPA goals and policies are designed to achieve and maintain adopted environmental threshold carrying capacities, and are implemented through the TRPA Code of Ordinances. A combination of relevant TRPA thresholds, goals, policies, and ordinances were used to analyze potential effects from the Proposed Project Alternative on hydrology and water quality.

3.7.2 Affected Environment

3.7.2.1 Regional Hydrology

The Round Hill Pines Project is located within the South Stateline Hydrologic Unit of the larger Lake Tahoe Hydrologic Unit, located east of the California/Nevada border in the Sierra Nevada. The project is located within the McFaul Creek Watershed, which is a subwatershed of the Lake Tahoe Hydrologic Unit. McFaul Creek is located just outside of the project area to the north and drains into Lake Tahoe.

3.7.2.2 Local Watershed Description

McFaul Creek is located just north of the project area and discharges to Lake Tahoe. Historically, the McFaul Creek watershed was subject to both logging and grazing disturbances. The watershed was logged extensively in the late 1880s, like much of the surrounding area in the Lake Tahoe Basin, to supply timber to mining and development during the Comstock Era.

3.7.2.3 100-year Floodplain

The Federal Emergency Management Agency (FEMA) establishes base flood heights for the 100-year flood zone. The 100-year flood zone is defined as the area that could be inundated by a flood that has a 1-percent probability of occurring in any given year, or once every 100 years. The project is located in an area that has been delineated as Zone D on the FEMA Flood Insurance Rate Map (FIRM). Zone D defines areas that have no analysis of flood hazards and are undetermined, but possible.

3.7.2.4 Jurisdictional Waters of the United States

A determination of potential jurisdictional waters of the U.S. within the project area was completed on May 16, 2018 by CFLHD staff during the project scoping trip. Waters of the U.S. include all essential surface waters such as all navigable waters and their tributaries, all interstate waters and their tributaries, all wetlands adjacent to these waters, and all impoundments of these waters. Wetlands are defined as “those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions” (33 CFR Section 328.3[c]). Non-jurisdictional waters are not considered waters of the U.S. and are identified in 33 CFR Section 328.3[b].

The 2018 determination did not identify any potential waters of the U.S. or wetlands within the project area.

3.7.2.5 Surface Water Quality

Lake Tahoe is classified by limnologists as an oligotrophic lake, which means the lake has very low concentrations of nutrients that can support algal growth leading to clear water and high levels of dissolved oxygen (Tahoe Environmental Research Center, 2020). The most recent scientific research points to inorganic fine sediment particles as the primary pollutant of concern impairing Lake Tahoe’s transparency. This finding is based on the ability of inorganic fine sediment particles to efficiently scatter light and decrease observed transparency (Swift et al. 2006). Additional pollutants of concern include phosphorus and nitrogen, which stimulate algal growth in the lake contributing to declines in transparency and the quality of the near-shore environment. Nutrient and sediment sources include soil erosion, fertilizer application, automobile and motorized watercraft operation, application and breakdown of winter deicers and traction abrasives, as well as others.

3.7.2.6 Groundwater

The Round Hill Pines Access project is located within the Lake Tahoe Basin groundwater basin within the Truckee River Region. Water bearing formations within the southern portion of the Lake Tahoe Basin consist of exposed Tertiary and Quaternary age glacial, fluvial, and lacustrine sediments, collectively referred to as basin-fill deposits (DWR, 2004). Although groundwater studies have not been undertaken specific for this project, a previous FHWA-CFLHD project known as the South Demonstration Project reported other groundwater investigations in the vicinity (Burke Creek Meadow and Beach Club on Lake Tahoe site [at the west end of Kahle Drive]) show groundwater levels ranging from 6.5 feet to 10 feet below ground surface (bgs), and shallow groundwater caused by a perched aquifer (i.e., an aquifer “perched” above the main water table by a confining layer below).

3.7.3 Environmental Consequences and Mitigation Measures

Significance Criteria

The Round Hill Pines Access Project would result in a significant adverse effect on hydrology or water quality and attainment of water quality thresholds if it would:

- result in any permanent or long-term degradation of Lake Tahoe water clarity;
- substantially alter existing surface water drainage patterns or cause existing or planned stormwater drainage systems to exceed capacity;
- interfere with groundwater movement or reduce groundwater infiltration, except as permitted under Section 33.3.6(A)(2) of the TRPA Code;
- degrade a source water supply;

- cause substantial interference with or adverse effects on littoral processes in the project area;
- place housing within a 100-year flood hazard area as mapped on a federal flood hazard boundary, FIRM, or other flood hazard delineation map; or
- place structures or fill within a 100-year flood hazard area that would impede or redirect flood flows.

Littoral drift refers to the transportation of sediments, such as sand, along the shoreline, at an angle to the shoreline. Wave and current actions near the lake shoreline can affect sediment transport and, in turn, accumulation of beach sand along the shore and sediment deposition in the near-shore area. Disruption of these actions, then, can alter natural deposition processes. This can, in turn, alter near-shore and shoreline erosion. The Proposed Project Alternative would not result in the placement of structures at an elevation that would be subject to wave and current actions of Lake Tahoe; therefore, the potential for the proposed project to affect littoral processes is not discussed. Similarly, the proposed project would not result in the placement of housing and structures within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary; therefore, the potential for the project to place structures or housing within a 100-year flood hazard area is not discussed.

Method and Assumptions

The evaluation of potential hydrology and water quality effects associated with implementation of the Proposed Project Alternative was based on a desktop review of available data, applicable federal, state, and TRPA regulations, codes, guidelines, and consultation with the project team.

3.7.3.2 No Action Alternative

Under the No Action Alternative, the Round Hill Pines Resort access road and US 50 intersection would not be relocated to the north. The No Action Alternative would not result in any effects related to erosion or release of pollutants to receiving waters from construction activities.

3.7.3.3 Proposed Project Alternative

Soil Erosion and Sedimentation and/or Release of Pollutants to Nearby Water Bodies

Construction activities would involve tree and vegetation removal, grading, excavation, and temporary stockpiling of soils, all of which could expose soils to erosion. In addition, there would be onsite staging of construction equipment and vehicles, as well as construction-related vehicle trips. The potential exists for fuels and other construction-related chemicals to be accidentally spilled or leaked, or otherwise be discarded into nearby drainages during construction of the Proposed Action Alternative.

Excavation, fill slopes, and grading activities necessary to construct the Proposed Project Alternative would occur within moderate erodible soils, along steep topography, and in close proximity to Lake Tahoe. Once disturbed, soils on sensitive lands (primarily TRPA designated LCD 2 areas) within the project area could become unstable and susceptible to increased rates of land surface erosion. Furthermore, successful long-term stabilization of soils disturbed on sensitive lands by project construction using soil restoration and revegetation techniques would present a number of challenges given the lack of nutrients within the soil, low amounts of precipitation during the summer growing season, and steep topography.

A Storm Water Pollution Prevention Plan (SWPPP) would be required as part of the NPDES permitting process. The SWPPP would describe the site conditions, erosion and sediment controls, means of waste disposal, implementation of approved local plans, control of post-construction sediment and erosion control measures and maintenance responsibilities, and

management controls unrelated to stormwater. All temporary BMPs identified in the SWPPP would be implemented during site development activities. Water quality controls outlined in the SWPPP must be consistent with TRPA and Nevada Department of Environmental Protection (NDEP) guidelines and would be required to ensure that runoff water quality meets or surpasses TRPA waste discharge effluent limits and maintains beneficial uses of Lake Tahoe, as defined by the Nevada Administrative Code (NAC) 445A.191. As part of the SWPPP, stormwater quality sampling would be described in detail that identifies sampling locations, protocols, and reporting mechanisms would be the responsibility of the contractor. A spill prevention and contingency plan would be established and maintained for proposed construction activities, and the construction contractor(s) would be required to maintain a cache of materials to contain and treat any potential spills. A Rain Event Action Plan will be included in the SWPPP to monitor the weather on a daily basis and will implement pre-defined actions within the SWPPP to avoid discharges during rain events.

Any disturbances within the Project Area, such as clearing and grubbing, grading, and cut/fill, would be limited to the period from May 1 to October 15 without special authorization from the appropriate agencies. Pursuant to TRPA Code of Ordinances 64.2, grading activities would be prohibited during winter months, unless approved by TRPA. Exposed areas of disturbance would be required to be protected during winter months using approved methods. Due to the number of trees that need to be cleared, tree felling work may be conducted during the winter months. Removing trees during the winter would minimize the ground disturbance and impacts to migratory birds. The trees would only be cut and the tree stumps would remain in the ground until the grading season begins. Further coordination with TRPA would be conducted during final design stages of the project. Permanent BMPs would be incorporated into the project design that would minimize soil erosion within the project area. To the maximum extent possible, permanent BMPs would be installed prior to construction.

TRPA- and NDEP-identified water quality control features such as revegetation, erosion control measures, and detention and infiltration basins have been successful in controlling water quality and avoiding water quality effects (metals and organic compounds associated with stormwater are typically dispersed within the first few feet of the soil of the retention basins prior to reaching groundwater). Technical sources (e.g., the NDEP BMP Handbook; the TRPA Handbook of Best Management Practices, USFS BMP Handbook) demonstrated that the use of these BMPs have been able to maintain surface water quality conditions in adjacent receiving waters. If needed, a Dewatering Plan will be developed, and implemented if groundwater is encountered, to protect groundwater during excavations from potential sediment and contaminant releases, including methods to clean up releases if they do occur. The plan would include methods for controlling potentially sediment-laden water from dewatering activities.

3.7.3.4 Impervious Surface Area Runoff

Rates and volumes of runoff are affected by development through multiple mechanisms, but the most important of these are: (1) the conversion of vegetated or pervious surfaces to impervious surfaces; and (2) the development of drainage systems that connect these impervious surfaces to streams and other water bodies, thus increasing the rate of runoff and eliminating storage and infiltration that would otherwise occur along natural drainage paths. As water runs off the land surface, it collects and carries material that accumulates on the land surface. If the entrained material has potentially harmful effects on receiving waters downstream (e.g., fine sediment particles in Lake Tahoe), the material is defined as a stormwater pollutant. Additionally, runoff from impervious surfaces can become concentrated, causing land surface erosion and subsequent sediment transport into streams and Lake Tahoe.

The Proposed Project Alternative would result in the addition of 26,136 square foot (0.6 acre) of impervious pavement, see Table 3.6-2 in Section 3.6 Earth Resources, that could alter runoff

patterns. Permanent BMPs would be included for the project that will minimize soil erosion, include BMPs adequate to meet applicable water quality standards, incorporate adequate maintenance activities, and be subject to review and approval by TRPA, NDEP, and Douglas County. Because the Proposed Project Alternative would meet all regulatory requirements for controlling runoff as required by TRPA, the effects related to impervious surfaces and associated runoff would not result in significant short-term or long-term adverse effects on hydrology or water quality. To the extent that any factors (e.g., physical, technical, etc.) which are currently unknown later result in the modification of the proposed project as it is transformed from a preliminary engineering design, to a constructed permanent BMP plan for the project, the permanent BMPs for the project would be revised as necessary and would still be required to meet or exceed all LTBMU, NDEP, TRPA and Douglas County standards that apply to the project.

On relatively flat existing side slopes (less than 20 percent), stormwater from the US 50 and new access road would runoff as sheet flow onto the adjacent downstream pervious area and naturally infiltrate. Soils within the project area have been mapped by the NRCS (2006) to be somewhat excessively well drained, exhibiting high rates of measured saturated hydraulic conductivity. On moderately steep to steep side slopes (greater than 20 percent), stormwater from the US 50 corridor will sheet flow into one of four existing drop inlets and dissipate at riprap aprons at culvert outlets. Of the four existing drop inlets, one will be replaced as it conflicts with the proposed road widening along US 50. This inlet replacement will include a 2-foot sump within the structure to collect sediment prior to discharge. Stormwater runoff from the new access road will also sheet flow into the adjacent forested areas, where it will infiltrate into the excessively drained soils in the area.

3.7.3.5 Interception of Groundwater During Construction

Section 33.3 of the TRPA Code prohibits excavations, except under certain defined and permitted conditions, that interfere with or intercept the seasonal high water table by altering the direction of groundwater flow, altering the rate of flow of groundwater, intercepting groundwater, adding or withdrawing groundwater, or raising or lowering the water table. Construction of the Proposed Project Alternative will primarily consist of fill areas with minimal excavation. The areas of excavation will be limited to the culvert replacement locations and removal of the bike path segment. The average depth of excavation will be between 1-5' deep and groundwater is not expected to be encountered. Construction of the Proposed Project Alternative would not result in adverse effects related to groundwater interception.

3.7.3.6 Source Water Quality

Projects within 600 feet of a drinking water source identified by TRPA require special consideration in accordance with TRPA's Initial Environmental Checklist. There are no groundwater wells located within 600 feet of the Proposed Project Alternative. As such, the Proposed Project Alternative would not result in a degradation to an existing source water supply.

3.7.3.7 Avoidance, Minimization, and/or Mitigation Measures

The following measures will be implemented to reduce potential impacts to hydrology and water quality. The full description of the Proposed Project avoidance, minimization, and/or mitigation measures is provided in Table 3.13-1.

Mitigation Measure BMP-1. Develop and implement a Stormwater Pollution Prevention Plan (SWPPP).

Mitigation Measure BMP-2. Develop Permanent BMPs to control stormwater runoff and minimize erosion and the transport of sediment and other pollutants of concern to Lake Tahoe.

Mitigation Measure BMP-3. Provide mitigation for additional impervious pavement.

3.7.4 Consequences for TRPA Environmental Threshold Carrying Capacities

This section summarizes the effects of implementing the Proposed Project Alternative on the environmental thresholds established by TRPA for water quality. The following Indicator Reporting Categories have been established by TRPA:

- Pelagic Lake Tahoe (deep waters),
- Littoral Lake Tahoe,
- Tributaries,
- Surface Runoff,
- Groundwater, and
- Other Lakes.

Pelagic Lake Tahoe and Littoral Lake Tahoe

The Pelagic Lake Tahoe and Littoral Lake Tahoe Threshold Indicator Reporting Categories include numerical standards that pertain to the quality and clarity of Lake Tahoe's waters, where measurements of the numerical standards are influenced by the amount of pollutant loading discharged to Lake Tahoe. According to the 2015 Threshold Evaluation (TRPA 2015), the status of the three water quality thresholds is the following:

- Nearshore Turbidity (Littoral Lake Tahoe): Status = At or somewhat better than target; Trend = Unknown;
- Nearshore Attached Algae (Littoral Lake Tahoe): Status = Unknown; Trend = Unknown, not assessed in 2011;
- Invasive Species (Littoral Lake Tahoe): Status = Unknown; Trend = Unknown, not assessed in 2011;
- Secchi Depth (Pelagic Lake Tahoe): Status = Somewhat worse than target; Trend = No change
- Clarity – Vertical Extinction Coefficient (Pelagic Lake Tahoe): Status = At or somewhat better than target; Trend = No change, not assessed in 2011.
- Phytoplankton Productivity (Pelagic Lake Tahoe): Status = Considerably below target; Trend = Rapid decline.

The Proposed Project Alternative would implement a SWPPP and permanent BMPs. The collective set of water quality protection measures and BMPs implemented through the Plans would: (1) demonstrate that erosion would be minimized; (2) include BMPs adequate to meet applicable water quality standards; (3) incorporate adequate maintenance activities; and (4) be subject to review and approval by TRPA, NDEP, and Douglas County. Therefore, the Proposed Project Alternative would not contribute to the nonattainment of the Pelagic Lake Tahoe and Littoral Lake Tahoe Threshold Indicator Reporting Categories.

Tributaries

The Tributaries Threshold Indicator Reporting Category includes indicators that have been interpreted to include Nevada nutrient standards for nitrogen and phosphorus in streams, as well as fine sediment and suspended sediment loads. The 2015 Threshold Evaluation (TRPA 2015) identifies the status for these threshold indicator reporting category as "unknown" status with "little or no change" or "moderate improvement" trends.

There are no tributaries located within the project area that could be impacted as part of the Proposed Project Alternative. Therefore, implementation of the Proposed Project Alternative would not contribute to the nonattainment of this threshold.

Surface Runoff and Groundwater

The Surface Runoff and Groundwater Threshold Indicator Reporting Categories include numerical standards for specific water quality constituents that set maximum allowable concentrations for discharges to surface water or infiltration into soils. According to the 2015 Threshold Evaluation (TRPA 2015), the status for these water quality thresholds consist of the following:

- Surface Runoff: Status = Unknown; Trend = Unknown; and
- Groundwater: Status = Unknown; Trend = Unknown.

The concentrations of pollutants in stormwater runoff discharged to surface waters or infiltrated in soils would be minimized by temporary and permanent BMPs within the project area, as depicted in the SWPPP and Permanent BMP Plans. Implementation of the Proposed Project Alternative would not result in a significant contribution to the nonattainment of these thresholds.

Other Lakes

The Other Lakes Threshold Indicator Reporting Category includes numerical standards for specific water quality constituents that set maximum allowable concentrations for lakes in the Region other than Lake Tahoe. The 2015 Threshold Evaluation (TRPA 2015) identifies the status for this threshold as “unknown” with a trend that is also “unknown.” The project area is located along US 50 at the Round Hill Pines Resort area, which is adjacent to the east shore of Lake Tahoe. The Proposed Project Alternative would not affect other lakes within the Tahoe Region and therefore would not affect this water quality threshold.

3.8 Recreation and Visitor Experience

This section evaluates the potential environmental effects associated with implementation of the Proposed Project Alternative to public parks, recreation, and open space recreational resources in and near the Project area.

3.8.1 Regulatory Setting

3.8.1.1 Lake Tahoe Basin Land Management Plan

The Land Management Plan for the Lake Tahoe Basin Management Unit guides the management of the land in order to promote a sustainable flow of uses, benefits, products, services, and visitor opportunities (USDA 2016). The plan provides a framework for informed decision making, while guiding resource management programs, practices, uses, and projects. The Forest Plan identifies a recreation program strategy to provide for a range of recreation opportunities while emphasizing shared use and sustainability objectives. The Forest Plan also identifies controlled expansion strategies to provide future recreation opportunities. Recreation expansion is an increase of infrastructure in support of additional recreation opportunities over the LTBMU landscape and can be defined as the addition of new infrastructure to accommodate recreation activities.

3.8.1.2 Tahoe Regional Planning Agency

Based on TRPA's Initial Environmental Checklist, effects related to recreation were also evaluated based on whether the Proposed Project Alternative would:

- Create substantial, unmet additional demand for recreation facilities;
- Result in conflicts between recreational uses, either existing or proposed;
- Result in a decrease or loss of public access to any lake, waterway, or public lands; or
- Result in a reduction of public access to public recreation areas or public recreation opportunities.
- Result in changes in situation, deposition, or erosion that could modify the channel of a river or stream or the bed of a lake;
- Result in unstable soil conditions during or after completion of the project; or
- Expose people or property to geologic hazards such as earthquakes, landslides, avalanches, or similar hazards.

TRPA goals and policies are designed to achieve and maintain adopted environmental threshold carrying capacities, and are implemented through the TRPA Code of Ordinances. A combination of relevant TRPA thresholds, goals, policies, and ordinances for were used to analyze potential effects from the Proposed Project Alternative on recreational resources.

3.8.2 Affected Environment

Recreational opportunities in the Lake Tahoe Basin are abundant and diverse, with activities generally associated with Lake Tahoe's open water (e.g., swimming, motorized and non-motorized boating, personal watercraft use, and fishing), shoreline (e.g., sunbathing, beach play, picnicking, camping, bicycling, and sightseeing), and the terrain surrounding the lake (e.g., hiking, mountain biking, snowshoeing, skiing, and snowboarding). The following describes existing recreation sites within the project area and in the project vicinity. Information on existing facilities, capacity, and current usage at each recreation site is summarized below.

Round Hill Pines Beach and Marina Resort

Round Hill Pines Beach and Marina is located within the project area along US 50, on the east shore of Lake Tahoe. It is located on NFS land managed by the LTBMU but the resort and marina facilities are operated by a concessionaire through a special use permit from the LTBMU. Round Hill Pines Beach is considered a major destination at the southern end of Marla Bay and is open seasonally from May through September, weather dependent.

Round Hill Pines Resort provides the following recreational facilities:

- The Main Beach is a narrow (75 to 100-foot wide) 1000-foot long stretch of sandy beach along the east shore of Lake Tahoe. Two paved concrete parking areas serve the resort area. Two additional asphalt parking areas will be added in Summer 2021. The resort is open for May to September from 8:00am to sunset.
- Day use activities offered along the beach include swimming, beach volleyball, and general recreation along the beach.
- The Round Hill Pines Marina offers watercraft mooring, boat access at the pier, boat, jet-ski, kayak, and stand up paddleboard rentals. Daily cruises along Lake Tahoe are also offered by the Tahoe Serenity, which is docked at the marina.
- A newly renovated restaurant and restrooms are located at the edge of the beach near the pier.

Visitors are charged a fee for on-site parking. Currently, the South Demonstration Bike Trail enters the Round Hill Pines Resort area from the south and terminates at US 50. The restaurant and restroom facilities were recently improved by the LTBMU in partnership with the concessionaire. Parking is available at the Round Hill Pines Resort and currently has 83 formal designated parking spaces. The Round Hill Pines Resort Improvement Project (Phase 2) will improve traffic flow and consolidate informal parking on the resort into 112 formal parking spaces. This project will be conducted by LTBMU in partnership with the concessionaire and is currently in the final design phase. This project is separate from the Round Hill Pines Access project and construction is anticipated to begin in 2021.

Existing Bicycle and Pedestrian Trails

U.S. Highway 50 provides the primary access to the project area and is classified as a shared use path for bicycles and pedestrians. Currently, there is no designated bike lane and cyclists use the shoulder when available (NDOT 2014).

Additional existing shared-use paths located within the project area are described below.

Stateline to Stateline Trail, South Demonstration Segment

The Stateline-to-Stateline Trail (South Demonstration Segment) is located on the east shore of Lake Tahoe beginning at Laura Drive and ending on the Round Hill Pines Resort property at US 50. The segment is approximately 2.2 miles in length and includes a 10-foot wide paved path with 2-foot wide shoulders on both sides. This segment is a component of the larger Nevada Stateline to Stateline Bikeway and overall regional shared-use path network.

Dispersed Lake Access Points and Trails

Several paved trails and informal footpaths are located within the Round Hill Pines Resort, most of which are not officially designated as trails by LTBMU. These trails and trail networks provide access to parking areas, beach areas, and other recreation destinations located at Round Hill Pines Resort.

3.8.3 Environmental Consequences and Mitigation Measures

Significance Criteria

Based on the TRPA Initial Environmental Checklist, a project would result in a significant adverse effect on recreation if it would:

- result in a decrease or loss of public access to any lake, waterway, or public lands;
- result in a reduction of public access to public recreation areas or public recreation opportunities;
- create substantial, unmet additional demand for recreation facilities; or
- result in conflicts between recreation uses, either existing or proposed.

The effects of the project on TRPA recreation thresholds (“Quality Experience and Additional Access” and “Fair Share of Resource Capacity”) are discussed separately at the end of this section. Because the proposed project would provide improvements to an existing recreational facility and has been designed to specifically meet the demand for high-quality, outdoor recreation opportunities in the Tahoe Basin, the “unmet additional demand” significance criterion is not discussed further in this document.

3.8.3.2 No Action Alternative

Under the No Action Alternative, the Round Hill Pines Access project would not be constructed. Therefore, the inventory of existing recreation facilities would remain unchanged from existing conditions.

3.8.3.3 Proposed Project Alternative

Increased Public Access and Recreational Opportunities

Implementation of the Proposed Project Alternative would not reduce public access and recreation opportunities. Relocation of the Round Hill Pines Resort access road would maintain access to recreation, as well as potentially increasing access for larger vehicles such as RVs, transit busses.

As part of the Proposed Project Alternative, a 549-foot long portion of the Stateline-to-Stateline Bike trail would be removed due to construction of the new access road and would not be replaced. The Stateline-to-Stateline Bike trail would terminate at an existing paved path that leads to the Round Hill Pines public beach area. LTBMU, TRPA, and Douglas County support removing this short segment of trail because it terminates at US 50 in an undesirable location and does not continue further along the east shore of Lake Tahoe. During several site visits in 2019, trail users were observed directly turning around at the US 50 terminus, instead of crossing the roadway. LTBMU, TRPA, and Douglas County have stated that a future Stateline-to-Stateline Bike trail project is in the planning stages and this future project would provide trail users with a safer US 50 crossing location. Recreational trail users would still be able to access the Round Hill Pines Resort from the Stateline-to-Stateline bike trail; therefore, the loss of a 549-foot segment of trail would not be a significant impact.

The Proposed Project Alternative would provide a new access road into the Round Hill Pines Resort while protecting and enhancing the quality, integrity, and character of existing recreation opportunities. The Proposed Project Alternative would support the recommendations of the LTBMU, the TRPA’s Goals and Policies from the Recreation Element related to increased recreational access, as well as support the goals of the TRPA Regional Plan and Tahoe Transportation District. Therefore, Proposed Project Alternative would result in a beneficial effect related to increased recreational opportunities.

Increase In Demand For and Use of Existing Recreation Facilities

Implementation of the Proposed Project Alternative not would result in changes to public access within the study area. The access point would be relocated further to the north along US 50, but the proposed project would maintain the public access at the Round Hill Pines Resort that exists today. The Proposed Project Alternative would restrict public access to the existing access road into the Round Hill Pines Resort. As previously stated, a 549-foot long segment of the Stateline-to-Stateline trail will be removed as part of the proposed project. This segment currently ends at US 50 and does not continue further to the north. Recreational trail users would no longer have access to this short segment of the trail; however, a future Stateline-to-Stateline trail project is currently in the planning phases and would begin at Round Hill Pines Resort and continue to the north along the east coast of Lake Tahoe (Mitigation Measure REC-1). In conclusion, the Proposed Project Alternative would not result in an increase in demand for and use of existing recreation facilities.

Conflicts with Existing or Proposed Recreation Uses

The Proposed Action Alternative would not result in substantial conflicts with any existing or planned recreation facilities nor any known planned bicycle/pedestrian trails, including those identified in the 2020 TRPA Regional Transportation Plan. The plan envisions the US 50 East Shore Corridor would provide safe on- and off-street transportation with connected pedestrian and bicycle paths, transit service, sustainable recreation access, and connectivity to the many neighborhoods and businesses from within the Region and from neighboring regions. The intersection improvements at Round Hill Pines Resort are included in the plan; therefore, the Proposed Project Alternative would not result in a substantial conflict with existing or proposed recreation uses.

3.8.3.4 Avoidance, Minimization, and/or Mitigation Measures

The following measures will be implemented to reduce potential impacts to recreation. The full description of the Proposed Project avoidance, minimization, and/or mitigation measures is provided in Table 3.13-1.

Mitigation Measure REC-1. Use signage and/or additional public information methods to notify Stateline-to-Stateline trail users that access will be temporarily modified during construction.

3.8.4 Consequences for TRPA Environmental Threshold Carrying Capacities

This section summarizes the effects of implementing the Proposed Project Alternative on the environmental thresholds established by TRPA for recreation. The following Indicator Reporting Categories have been established by TRPA:

- Quality of Recreation Experience and Access to Recreational Opportunities: "It shall be the policy of the TRPA Governing Body in development of the Regional Plan to preserve and enhance the high quality recreational experience including preservation of high-quality undeveloped shore zone and other natural areas. In developing the Regional Plan, the staff and Governing Body shall consider provisions for additional access, where lawful and feasible, to the shore zone and high-quality undeveloped areas for low density recreational uses."
- Fair Share Distribution of Recreation Capacity: "It shall be the policy of the TRPA Governing Body in development of the Regional Plan to establish and ensure a fair share of the total Basin capacity for outdoor recreation is available to the general public."

Adopted threshold standards for recreation are statements of policy, rather than a numerical standard. These adopted threshold standards direct TRPA to adopt policies that would preserve and enhance high-quality recreational experiences, and provide additional access to the shore

zone and other areas for dispersed recreational uses. These threshold standards also direct TRPA to "...establish and ensure a fair share of the total basin capacity for outdoor recreation is available to the general public." The goal of the Recreation element of the Regional Plan is to promote and manage recreational improvements to achieve these recreation threshold standards, and "ensure equilibrium between the region's natural endowment and its manmade environment."

Quality of Recreation Experience and Access to Recreational Opportunities

The Round Hill Pines Access Project would improve vehicular and pedestrian access to the resort area and various recreation opportunities located at the resort. In addition, the project would support Douglas County's Recreation Goals and Policies, TRPA's Goals and Policies from the Recreation Element related to increased recreational access. The Proposed Action Alternative would contribute positively towards attainment of TRPA's Recreation Threshold Indicator, which is currently in attainment.

Fair Share Distribution of Recreation Capacity

The Round Hill Pines Access Project would enhance outdoor recreation opportunities available to the general public. Therefore, the Proposed Project Alternative would contribute positively towards attainment of TRPA's Recreation Threshold Indicator, which is currently in attainment.

3.9 Transportation

This section describes the potential impacts to transportation and traffic on and around the Project corridor that might be expected from implementation of the Proposed Project Alternative. The analysis in this section relies on the following: traffic engineering guidelines, supporting technical memorandums prepared by FHWA-CFLHD and sight distance guidelines specified in American Association of State Highway and Transportation Officials' (AASHTO's) A Policy on Geometric Design of Highways and Streets (AASHTO 2018).

3.9.1 Regulatory Setting

3.9.1.1 Tahoe Regional Planning Agency

Based on TRPA's Initial Environmental Checklist, effects related to traffic, parking, and transit were evaluated based on whether an alternative would:

- Generate an increase in Daily Vehicle Trip Ends and related Vehicle Miles Traveled (VMT) not contemplated in the Regional Transportation Plan;
- Create an unmet demand for parking;
- Cause a substantial adverse effect upon existing transportation systems, including highway, transit, bicycle or pedestrian facilities;
- Alter present patterns of circulation or movement of people and/or goods; or increase traffic hazards to motor vehicles, bicyclists, or pedestrians.

An environmental document prepared to comply with NEPA must consider the context and intensity of the environmental effects that would be caused by or result from the proposed action. The factors that are taken into account under NEPA to determine the significance of an action in terms of the context and the intensity of its effects are encompassed by the TRPA criteria used for this analysis.

3.9.1.2 Nevada Department of Transportation

Nevada Department of Transportation (NDOT) is responsible for the operation and maintenance of the state highway system in Nevada. NDOT has a right-of-way corridor approximately 80-feet wide along this segment of US 50 within the project area and actively maintains the corridor. The US 50 access road to the Round Hill Pines Resort and additional distributor roads located on the property are owned and operated by the LTBMU and the concessionaire.

3.9.2 Affected Environment

3.9.2.1 Study Area Roadways

This section identifies the existing transportation facilities and describes traffic conditions for the roadway network within the vicinity of the proposed project.

- **U.S. Highway 50** is functionally classified as a Principal Arterial with a primary function of delivering traffic from collector roads to freeways or expressways between urban centers. In 2016, the ADT along U.S. 50 within the study area is estimated at 20,000 vehicles with projected 2036 traffic volumes of 25,641 vehicles (NDOT Road Safety Audit, 2016). The roadway consists of two travel lanes in each direction with a posted speed limit within the study area of 45 mph. In addition to passenger cars, larger vehicles hauling boats, trailers, freight trucks, and other recreation vehicles such as campers, frequently utilize the U.S. 50 corridor to access commercial, residential, or recreation areas. U.S. 50 is classified as a shared use path for bicycles and pedestrians, however there is no designated bike lane (NDOT 2014).
- **Round Hill Pines Resort access road** is designated as Forest Service Road 1339, which is open to highway legal vehicles only during the seasonal designation of May through

October. The roadway consists of one travel lane in each direction with a speed limit of 20 mph.

- **Sierra Sunset Lane** is a private drive that provides access to private property.

3.9.2.2 Intersection Configuration

The following is a description of the intersections included in the analysis:

- The **U.S. 50/Round Hill Pines Access** road intersection is an unsignalized intersection with no posted traffic control. Currently, there are no turn lanes provided along US 50.
- The **U.S. 50/Sierra Sunset Lane** intersection is an unsignalized intersection with no posted traffic control. Currently, there are no turn lanes provided along US 50.

3.9.2.3 Ground Transit Services and Facilities

The East side of Lake Tahoe (including both California and Nevada portions) is primarily served by the Tahoe Transportation District (TTD). Currently, no transit service offers stops at the Round Hill Pines Resort. The following route provides transit service along US 50 within the project area:

- East Shore Express Route 28 Sand Harbor Shuttle is operated by the Tahoe Transportation District and provides access to Sand Harbor. Transit users can park at the main parking area located at Incline Village, NV or the Kingsbury Transit Center in Stateline, NV. This service runs every 20 minutes from 10:00am to 7:00pm beginning weekends in June and daily from June 29th through Labor Day weekend.

3.9.2.4 Pedestrian and Bicycle Facilities

The Stateline-to-Stateline Trail (South Demonstration Segment) is located on the east shore of Lake Tahoe beginning at Kahle Drive and ending on the Round Hill Pines Resort property at US 50. The segment is approximately 2.2 miles in length and includes a 10-foot wide paved path with 2-foot wide shoulders on both sides. This segment is a component of the larger Nevada Stateline to Stateline Bikeway and overall regional shared-use path network. Several paved trails and informal footpaths are located within the project area, most of which are not officially designated as trails by LTBMU. These trails and trail networks provide access to parking areas, beach areas, and other recreation destinations located at Round Hill Pines Resort.

U.S. 50 is classified as a shared use path for bicycles and pedestrians. Currently, there is no designated bike lane and cyclists use the shoulder when available (NDOT, 2014).

3.9.2.5 Parking Facilities

Parking in the vicinity of the proposed Round Hill Pines Access Project is available at the following locations:

- Round Hill Pines Resort has 83 formal designated parking spaces and approximately 200 informal parking spaces. The Round Hill Pines Resort Improvement Project (Phase 2) will consolidate informal parking on the resort into 112 formal parking spaces by the end of 2021.
- Limited shoulder parking is available along US 50 near the Round Hill Pines Resort existing access road.

3.9.2.6 Roadway Traffic Volumes

The existing peak hour and Average Daily Traffic (ADT) volumes for US 50 are presented below in Table 3.9-1.

Table 3.9-1: Existing Average Daily Traffic Volumes

Roadway	Average Daily Traffic Volumes
US 50, 50ft east of Yan Road	14,100
US 50, 220ft west of Sierra Sunset Lane	19,800
US 50, 530ft north of Kahle Drive	22,000
Source: NDOT 2019	

Traffic counts for the existing Round Hill Pines access road were provided in the FLAP application, with an estimated ADT of 1,000. Based on the existing parking availability and accounting for the seasonal closure of the Round Hill Pines Resort, an estimated ADT of 1,200 was established for project design and the signal warrant analysis (Appendix A).

3.9.3 Environmental Consequences and Mitigation Measures

Significance Criteria

Based on TRPA's Initial Environmental Checklist, effects related to transportation were evaluated based on whether an alternative would:

- generate an increase in Daily Vehicle Trip Ends and related Vehicle Miles Traveled (VMT) not contemplated in the Regional Transportation Plan;
- create an unmet demand for parking;
- cause a substantial adverse effect upon existing transportation systems, including highway, transit, bicycle or pedestrian facilities;
- alter present patterns of circulation or movement of people and/or goods; or increase traffic hazards to motor vehicles, bicyclists, or pedestrians.

An environmental document prepared to comply with NEPA must consider the context and intensity of the environmental effects that would be caused by or result from the proposed action. The factors that are taken into account under NEPA to determine the significance of an action in terms of the context and the intensity of its effects are encompassed by the TRPA criteria used for this analysis.

3.9.3.2 No Action Alternative

Under the No Action Alternative, no changes to the existing Round Hill Pines Resort access road, no relocation of the Round Hill Pines Resort access road intersection with US 50, and no widening along US 50 to accommodate a median turn lane and acceleration lane would occur. The existing access road would continue to be narrow, with sharp curves and poor pavement conditions. Large vehicles, such as boat trailers and commercial trucks transporting goods to the Round Hill Pines Resort, would continue to occupy both travel lanes, particularly where the road is narrow and curves are sharp. The existing entrance to the Round Hill Pines Resort from US 50 would continue to have safety concerns due to poor sight distance. No median turn lane would be added to US 50 and visitors to the Round Hill Pines Resort would continue to utilize the existing access road intersection.

3.9.3.3 Proposed Project Alternative

Traffic

The Round Hill Pines Access Project did not evaluate if the existing and projected traffic volumes in the study area warrant capacity improvements. The proposed access improvements to the Round Hill Pines Resort would not change the capacity of US 50. Construction activities to implement the Proposed Project Alternative would temporarily impact access to Round Hill Pines Resort and traffic during weekdays. The project may create temporary traffic lines and congestion, which would be particularly intensified during peak visitation during the summer holidays.

Safety

The Federal Highway Administration, Central Federal Lands Highway Division prepared a Safety Analysis Memo to discuss the existing safety conditions and the anticipated safety improvements achieved by the project. The existing intersection was analyzed for left turn intersection sight distance. Based on existing conditions, the required sight distance is 588-feet for passenger vehicles. For vehicles turning left onto US 50 from the existing entrance road, the existing sight distance to the north is approximately 760-feet; however, the existing sight distance is only 310-feet to the south due to the location of a vertical curve. This results in the existing intersection configuration with insufficient sight distance to the south.

The Proposed Project Alternative would improve safety by relocating the US 50 and Round Hill Pines Access Road further to the north to improve sight distance. The proposed location for the relocated intersection was selected to maximize sight distance. By relocating the entrance road, an increased sight distance of approximately 665-feet is achieved in both directions, which is sufficient for passenger vehicles (CFLHD 2020).

The Safety Analysis Memo also applied the Interactive Highway Safety Design Model (IHSDM), which is a software analysis tool used to evaluate the safety and operational effects of geometric design decisions on highways. The software allows the user to import roadway geometry and assign attributes (such as lane widths, traffic data, turn lanes, etc.) for analysis. With this information, the software applies crash reduction factors (CRFs) and predicts total number and types of crashes for a specified time range. The IHSDM results show a significant reduction in crashes (11.5% total crash reduction) by adding a left turn lane along US 50 for Round Hill Pines Resort visitors.

Existing pavement widths along the Round Hill Pines Resort access road varies between 12-feet and 18-feet wide, with a hairpin turn and steep grades leading down to the parking areas and beach access. The existing roadway has no shoulders or lane markings. The Proposed Project Alternative would widen the access road for two 12-foot wide lanes with 2-foot shoulders and 1:4 shoulders. This would improve conditions for passenger vehicles, large trucks with trailers, recreational vehicles, and shuttle buses. The paved shoulders would also improve the safety for bicyclists by providing some degree of separation from vehicles. Safety would be improved not only for drivers and passengers of these vehicles, but for other travelers and cyclists sharing the road with these large vehicles.

Conclusion

Based on the information above, the Proposed Project Alternative would not result in a significant increase in VMT not assumed in the Regional Transportation Plan. The project would not introduce new traffic patterns or new destinations along US 50 or within Douglas County. The project would not create an unmet demand for parking within the project area. The project would not cause a substantial adverse effect upon the existing transportation system or alter existing traffic patterns, or increase traffic hazards.

3.10 Noise

This section includes a description of acoustic fundamentals, existing ambient noise conditions, and an analysis of potential short- and long-term noise effects associated with implementation of the Round Hill Pines Access Project. Potential effects of the Proposed Project Alternative on wildlife are addressed in Section 3.4 Biological Resources.

3.10.1 Regulatory Setting

Acoustic fundamentals will be defined below to gain context and understanding into the regulatory setting. Key federal, state and local regulatory and conservation planning issues applicable to the project for noise-related impacts are also discussed below.

Acoustic Fundamentals

Acoustics is the scientific study that evaluates perception and properties of sound waves. Sound that is loud, disagreeable, unexpected, or unwanted is generally defined as noise. Common sources of environmental noise and associated noise levels are presented in Table 3.10-1.

Table 3.10-1: Typical Noise Levels

Common Outdoor Activities	Noise Level (dB)	Common Indoor Activities
	110	Rock band
Jet flyover at 1,000 feet	100	
Gas lawnmower at 3 feet	90	
Diesel truck moving at 50 feet	80	Food blender at 3 feet, Garbage disposal at 3 feet
Noisy urban area, Gas lawnmower at 100 feet	70	Vacuum cleaner at 10 feet, Normal speech at 3 feet
Commercial area, Heavy traffic at 300 feet	60	
Quiet urban daytime	50	Large business office, Dishwasher in next room
Quiet urban nighttime	40	Theater, Large Conference Room
Quiet suburban nighttime	30	Library, Bedroom at night, Concert hall
Quiet rural nighttime	20	Broadcast/Recording Studio
Threshold of Human Hearing	0	Threshold of Human Hearing
Source: Federal Transit Administration (FTA) 2006: 2-16		

Sound Properties

Sound levels are measured using the decibel (dB) scale, developed to relate to the range of human hearing. A decibel is logarithmic; it does not follow normal algebraic methods and cannot be directly summed. For example, a 65 dB source of sound, such as a truck, when joined by another 65 dB source results in a sound amplitude of 68 dB, not 130 dB (i.e., doubling the source strength increases the sound pressure by 3 dB). A sound level increase of 10 dB corresponds to 10 times the acoustical energy, and an increase of 20 dB equates to a 100-fold increase in acoustical energy.

The human ear is not equally sensitive to loudness at all frequencies in the audible spectrum. To better relate overall sound levels and loudness to human perception, frequency-dependent weighting networks were developed, identified as A through E. There is a strong correlation between the way humans perceive sound and A-weighted sound levels. For this reason, the A-weighted sound levels are used to predict community response to noise from the environment, including noise from transportation and stationary sources, and are expressed as A-weighted

decibels (dBA). All sound levels discussed in this section are A-weighted decibels unless otherwise noted.

Noise can be generated by a number of sources, including mobile sources such as automobiles, trucks, and airplanes and stationary sources such as activity at construction sites, machinery, and commercial and industrial operations. As sounds travel through the atmosphere from the source to the receiver, noise levels attenuate (i.e., decrease) depending on ground absorption characteristics, atmospheric conditions, and the presence of physical barriers. Noise generated from mobile sources generally attenuate at a rate of 4.5 dB per doubling of distance from the source. Noise from stationary sources spread with more spherical dispersion patterns that attenuate at a rate of 6 to 7.5 dB per doubling of distance from the source.

Atmospheric conditions such as wind speed, wind direction, turbulence, temperature gradients, and humidity also alter the propagation of noise and affect levels at a receiver. Furthermore, the presence of a barrier (e.g., topographic feature, intervening building, and dense vegetation) between the source and the receptor can provide substantial attenuation of noise levels at the receiver. Both natural (e.g., berms, hills, and dense vegetation) and human-made features (e.g., buildings and walls) may function as noise barriers.

Common Noise Descriptors

The intensity of environmental noise fluctuates over time, and several different descriptors of time-averaged noise levels are used. The selection of a proper noise descriptor for a specific source depends on the spatial and temporal distribution, duration, and fluctuation of both the noise source and the environment. The noise descriptors most often used to characterize environmental noise are defined below (FTA 2006: p. 2-25).

- **Equivalent Noise Level (Leq):** The average noise level during a specified time period; that is, the equivalent steady-state noise level in a stated period of time that would contain the same acoustic energy as the time varying noise level during the same period (i.e., average noise level).
- **Maximum Noise Level (Lmax):** The highest instantaneous noise level during a specified time period.
- **Minimum Noise Level (Lmin):** The lowest instantaneous noise level during a specified time period.
- **Day-Night Noise Level (Ldn):** The 24-hour Leq with a 10-dB penalty applied during the noise-sensitive hours from 10:00 p.m. to 7:00 a.m., which are typically reserved for sleeping.
- **Community Noise Equivalent Level (CNEL):** Similar to the Ldn described above with an additional 5-dB penalty applied during the noise-sensitive hours from 7:00 p.m. to 10:00 p.m., which are typically reserved for evening relaxation activities.
- **Single Event Noise Levels (SEL):** Sounds that occur in an irregular or non-repetitive manner, which makes them difficult to anticipate; these are usually measured by Lmax noise levels.

Community noise is commonly described in terms of the ambient noise level, which is defined as the all-encompassing noise level associated with a given noise environment. The Leq, or average noise level over a given period of time, is the foundation of composite noise descriptors such as Ldn and CNEL, which effectively indicate community response to ambient noise levels.

Effects of Noise On Humans

Excessive and chronic (long-term) exposure to elevated noise levels can result in auditory and non-auditory effects on humans. Auditory effects of noise on people are those related to

temporary or permanent hearing loss caused by loud noises. Non-auditory effects of exposure to elevated noise levels are those related to behavior and physiology. The non-auditory behavioral effects of noise on humans are primarily subjective effects such as annoyance, nuisance, and dissatisfaction, which lead to interference with activities such as communications, sleep, and learning. The non-auditory physiological health effects of noise on humans have been the subject of considerable research into possible correlations between exposure to elevated noise levels and health problems, such as hypertension and cardiovascular disease. The mass of research implies that noise-related health issues are predominantly the result of behavioral stressors and not a direct noise-induced response. The extent to which noise contributes to non-auditory health effects remains a subject of considerable research, with no definitive conclusions.

Negative effects of noise exposure include physical damage to the human auditory system, interference with daily activities, sleep disturbance, and disease. Exposure to noise may result in physical damage to the auditory system, which may lead to gradual or traumatic hearing loss. Gradual hearing loss is caused by sustained exposure to moderately high noise levels over a period of time; traumatic hearing loss is caused by sudden exposure to extremely high noise levels over a short period. Gradual and traumatic hearing loss both may be permanent. In addition, noise may interfere with or interrupt sleep, relaxation, recreation, and communication.

Although most interference may be classified as annoying, the inability to hear a warning signal (for example) may be considered dangerous. Noise may also be a contributor to diseases associated with stress, such as hypertension, anxiety, and heart disease. The degree to which noise contributes to such diseases depends on the frequency, bandwidth, and level of the noise and the exposure time (EPA 1974).

Ground Vibration

Vibration is the periodic oscillation of a medium or object with respect to a given reference point. Sources of ground vibration include natural phenomena (e.g., earthquakes, volcanic eruptions, sea waves, and landslides) and those introduced by human activity (e.g., explosions, machinery, traffic, trains, and construction equipment). Vibration sources may be continuous, (e.g., operating factory machinery) or transient in nature (e.g., explosions). Vibration levels can be depicted in terms of amplitude and frequency, relative to displacement, velocity, or acceleration.

Vibration amplitudes are commonly expressed in peak particle velocity (PPV) or root mean square (RMS) vibration velocity. Peak particle velocity is defined as the maximum instantaneous positive or negative peak of a vibration signal. Peak particle velocity is typically used in the monitoring of transient and impact vibration and has been found to correlate well with the stresses experienced by buildings (FTA 2006: p.7-3). PPV and RMS vibration velocity are normally described in inches per second (in/sec).

Although PPV is appropriate for evaluating the potential for building damage, it is not always suitable for evaluating human response. It takes some time for the human body to respond to vibration signals. In a sense, the human body responds to average vibration amplitude. The RMS of a signal is the average of the squared amplitude of the signal, typically calculated over a 1-second period. As with airborne sound, the RMS velocity is often expressed in decibel notation as vibration decibels (VdB), which serves to compress the range of numbers required to describe vibration (FTA 2006: p.7-3). This is based on a reference value of 1 micro (μ) in/sec. The typical background vibration-velocity level in residential areas is approximately 50 VdB. Ground vibration is normally perceptible to humans at approximately 65 VdB. For most people, a vibration-velocity level of 75 VdB is the approximate dividing line between barely perceptible and distinctly perceptible levels (FTA 2006).

3.10.1.2 Federal Highway Traffic Noise Regulation (23 CFR Part 772)

Under 23 CFR Sec. 772.7, projects are categorized as Type 1, Type 2, or Type 3 projects. FHWA defines a Type 1 project as a proposed federal or federal-aid highway project for the construction of a highway on a new location, or the physical alteration of an existing highway where there is either substantial horizontal or substantial vertical alteration, or increases the number of through-traffic lanes. A Type 2 project is a noise barrier retrofit project that involves no changes to highway capacity or alignment. A Type 3 project is a project that does not meet the classifications of a Type 1 or Type 2 project. Type 3 projects do not require a noise analysis. Type 1 projects include the addition of through traffic lanes that function as high-occupancy vehicle lanes, high-occupancy toll lanes, bus lanes, or truck climbing lanes. Type 1 projects include the addition of an auxiliary lane (except when an auxiliary lane is a turn lane); addition or relocation of interchange lanes or ramps; restriping existing pavement for the purpose of adding a through-traffic lane or auxiliary lane; and the addition of a new or substantial alteration of a weigh station, rest stop, ride-share lot, or toll plaza. Projects unrelated to increased noise levels, such as striping, lighting, signing, and landscaping projects, are not considered Type 1 projects. The Proposed Project includes construction of an access road in a new location and substantial horizontal alteration; therefore, the Round Hill Pines Access Project is categorized as a Type 1 Project according to 23 CFR 772.

Under 23 CFR 772.11, noise abatement must be considered for Type 1 projects if the project is predicted to result in a traffic noise impact. In such cases, 23 CFR 772 requires that the project sponsor “consider” noise abatement before adoption of the final NEPA document. This process involves identification of noise abatement measures that are reasonable, feasible, and likely to be incorporated into the project, and of noise impacts for which no apparent solution is available. Traffic noise impacts, as defined in 23 CFR 772.5, occur when the predicted noise level in the design year approaches or exceeds the NAC specified in 23 CFR 772, or a predicted noise level substantially exceeds the existing noise level (i.e., a “substantial” noise increase).

3.10.1.3 Tahoe Regional Planning Agency

Based on TRPA’s Initial Environmental Checklist, effects related to noise were evaluated based it the Proposed Project Alternative would result in:

- Increased in existing Community Noise Equivalency Levels (CNEL) beyond those permitted in the applicable Plan Area Statement, Community Plan or Master Plan;
- Exposure of people to severe noise levels;
- Single event noise levels greater than those set forth in the TRPA Noise Environmental Threshold;
- The placement of residential or tourist accommodation uses in areas where the existing CNEL exceeds 60dBA or is otherwise incompatible;
- The placement of uses that would generate an incompatible noise level in close proximity to existing residential or tourist accommodation uses;
- Exposure of existing structures to levels of ground vibration that could result in structural damage.

TRPA goals and policies are designed to achieve and maintain adopted environmental threshold carrying capacities, and are implemented through the TRPA Code of Ordinances. A combination of relevant TRPA thresholds, goals, policies, and ordinances for were used to analyze potential effects from the Proposed Project Alternative on noise.

3.10.2 Affected Environment

Sensitive Land Uses

Noise-sensitive land uses generally include those uses where noise exposure could result in health-related risks to individuals, as well as places where quiet is an essential element of their intended purpose. Residential dwellings are of primary concern due to the potential for increased and prolonged exposure of individuals to both interior and exterior noise levels. Parks, schools, historic sites, cemeteries, and recreation areas are also generally considered sensitive to increases in exterior noise levels. Places of worship, and other similar places where low interior noise levels are of great importance, are also considered noise-sensitive. Noise-sensitive land uses are also considered to be vibration sensitive. Specifically, commercial and industrial buildings where ground vibration (including vibration levels that may be well below those associated with human annoyance) could interfere with operations within the building would be most sensitive to ground vibration (e.g., hospitals, laboratories).

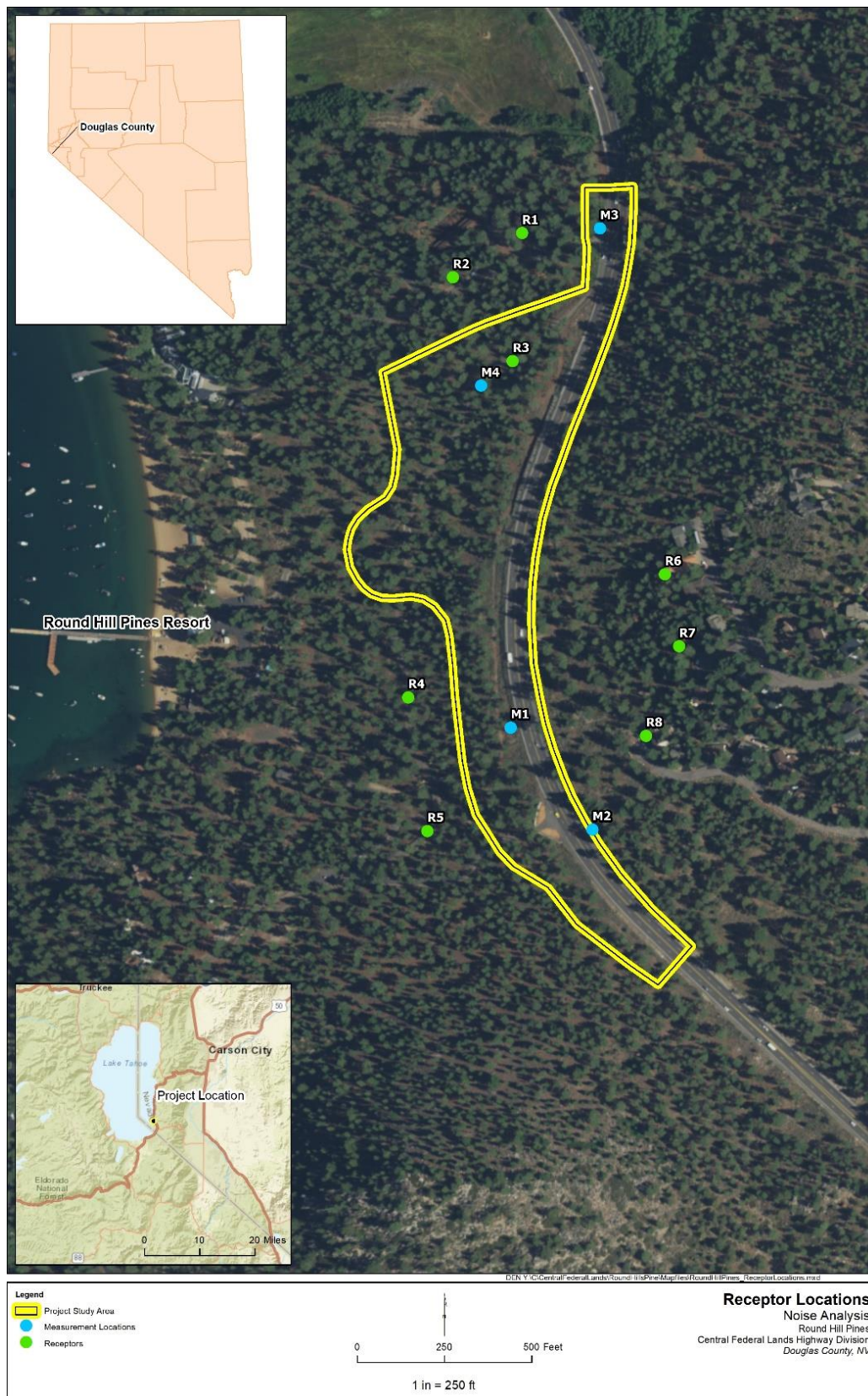
Sources and Ambient Levels

The noise study area is located along a segment of US 50 with scattered residential development and recreational use facilities associated with the Round Hill Pines Resort. Private residences are located along Sierra Sunset Lane and at Round Hill Village (east of US 50) between 250 and 400 feet from the nearest travel lane. The noise environment within the study area is predominately influenced by vehicular traffic along US 50 and visitors entering and exiting the Round Hill Pines Resort. Less pronounced noise sources in the area include recreational activities on the Round Hill Pines Resort (people talking and boat activities).

Existing traffic noise levels were modeled for US 50 within the study area in accordance with the FHWA's approved Traffic Noise Model (TNM) 2.5 as well as NDOT noise guidelines. Traffic noise modeling results are based on existing average daily traffic (ADT) volumes and speeds from NDOT (NDOT 2016). Modeling assumes no natural or human-made shielding. The extent to which land used are affected by existing traffic noise depends on their respective proximity to US 50 and sensitivity to noise.

On July 22, 2019, noise measurements were taken at four locations within the study area to determine ambient noise levels, see Figure 3.10-1 showing the locations of the field measurements. Short-term noise readings were collected for 15 minutes for each event as required by NDOT. Traffic counts, by vehicle type, were collected simultaneously with the noise measurements. Operating speeds and existing geometry were also collected and input into the FHWA-approved TNM 2.5 for validation, see Traffic Noise Study (Jacobs, 2021) in Appendix A.

Figure 3.10-1: Receptor Noise Locations



3.10.3 Environmental Consequences and Mitigation Measures

Significance Criteria

The project would result in a significant adverse noise effect if implementation of the project would result in any of the following:

Short-term construction-related noise levels that:

- exceed applicable noise standards established by TRPA during the more noise-sensitive early morning, evening, and nighttime periods of the day that are not exempt by TRPA (i.e., 8:00 a.m. to 6:30 p.m., daily [Section 68.9 of the TRPA Code]); and/or
- expose noise-sensitive receptors to noise levels that exceed applicable noise standards established by Douglas County during the more noise-sensitive periods of the day that are not exempt by Douglas County.
- New stationary or area sources that would generate long-term operational noise levels that exceed TRPA noise standards; or,

Long-term traffic noise levels that:

- exceed an Environmental Threshold Carrying Capacity noise standard established by TRPA for different land use categories and highway corridors (including the CNEL standards in relevant Community Plans and Plan Area Statements), or FHWA Noise Abatement Criteria defined in 23 CFR, Part 772;
- result in a long-term perceptible increase in the ambient noise level (i.e., 3-dBA or greater) in an area where the applicable TRPA Environmental Threshold Carrying Capacity noise standard is not exceeded;
- result in a long-term noise level increase, of any magnitude, in an area where the applicable TRPA Environmental Threshold Carrying Capacity noise standard is already exceeded.

Methods and Assumptions

To assess potential short-term and long-term noise effects, sensitive receptors and their relative exposure were identified. The methodology employed for this analysis is consistent with both FHWA and NDOT guidelines for analyzing traffic noise. FHWA's approved TNM 2.5 was used for this analysis. The basic inputs to noise modeling include roadway network layout, site characteristics, peak hour traffic volume projections, fleet mix, and vehicular operating speeds. Roadway and noise receiver geometry was based on an AutoCAD design file and aerial photography.

3.10.3.2 No Action Alternative

The No Action Alternative would not involve relocation of the Round Hill Pines Resort access road construction or improvement of the roadway. Noise levels in the study area are not anticipated to substantially change with ongoing maintenance activities described in Chapter 2. Therefore, noise impacts are not anticipated as a result of this alternative.

3.10.3.3 Proposed Project Alternative

Construction activities associated with the Proposed Project Alternative would generate noise from diesel-powered earth-moving equipment, such as dump trucks and bulldozers, back-up alarms on certain equipment, and compressors. Construction noises at off-site receptor locations would depend on the loudest piece of equipment operating at the moment. According to the FHWA Construction Noise Handbook (2006), noise levels from diesel-powered equipment range from 80 to 95 dBA at a distance of 50 feet. Impact equipment, such as pile drivers, can generate

louder noise levels. Construction activities would be temporary and would occur during normal daytime hours when occasional loud noises are more tolerable. None of the receptors are expected to be exposed to construction noise for a long duration; therefore, any extended disruption of normal daytime activities is not expected. Coordination will be conducted with local agencies to secure necessary construction permits which may include variances for any nighttime construction work and/or exceedance of any maximum thresholds specified in local ordinances.

Construction equipment use would be intermittent throughout the course of a normal work period. The entire construction period for the Proposed Project Alternative is anticipated to last approximately 6 months, although construction would be suspended as necessary during inclement weather. Construction activities would be temporary and would occur during weekday daytime hours only.

Trucks transporting materials and equipment to and from the project area would generate noise during construction. However, traffic associated with construction would not result in a noticeable increase in noise levels. As defined by FHWA, noise levels from an increase in traffic would only be perceptible to the human ear if there was an increase of greater than 3 dBA. Traffic trips associated with construction would be well below the amount required to double current traffic volumes. Therefore, the additional traffic associated with construction is not anticipated to result in a noticeable increase in noise levels in the study area.

Table 3.10-2 Modeled Noise Levels

Receiver No.	No. of Receiver by Activity	NAC (dBA)	Existing 2016 (dBA)	No-Build Alternative 2036 (dBA)	Build Alternative 2036 (dBA)*	Build increase over Existing	Noise Impact
R1	1	66.0/B	58	59	61	3	No
R2	1	66.0/B	54	55	57	3	No
R3	1	66.0/B	59	60	61	2	No
R4	1	66.0/B	54	55	55	1	No
R5	1	66.0/B	53	54	55	2	No
R6	3	66.0/B	56	57	59	3	No
R7	2	66.0/B	55	56	58	3	No
R8	2	66.0/B	58	59	61	3	No

Long term noise impacts were analyzed and are shown in Table 3.10-2. Based on the TNM, there are no impacts at any of the noise-sensitive receivers, which are set back between 175 and 475 feet from the road. The largest increase between the Existing and Proposed Project Alternative is less than 3dBA and would therefore not be a noticeable increase to the human ear. Additionally, the noise levels are below the CNEL limit of 65 dB for this plan area and, therefore, this Project is consistent with the TRPA noise limits.

3.10.3.4 Avoidance, Minimization, and/or Mitigation Measures

The following measures will be implemented to reduce potential noise impacts. The full description of the Proposed Project avoidance, minimization, and/or mitigation measures is provided in Table 3.13-1.

Mitigation Measures NOS-1. Implement noise controls on construction equipment.

Mitigation Measures NOS-2. Implement construction hour limits.

Mitigation Measures NOS-3. Consider equipment placement and operation during construction.

3.10.4 Consequences for TRPA Environmental Threshold Carrying Capacities

This section describes the effects of implementing the Proposed Project Alternative on the thresholds established for noise by TRPA. Two Indicator Reporting Categories for noise have been established by TRPA:

- Single Noise Events, and
- Cumulative Noise Events.

The 2015 TRPA Threshold Evaluation identifies the US 50 Transportation Corridor as somewhat better than target with an unknown trend. A majority of the single noise level events are identified as unknown due to on-going changes in TRPA noise program.

Single Noise Event

Single noise events may result from the use of aircraft, watercraft, on-road vehicles (e.g., automobiles, motorcycles), and off-road vehicles (e.g., snowmobiles, all-terrain vehicles). Implementation of the Proposed Project Alternative would not affect aircraft noise because none of the alternatives would have an effect on aircraft operations or be located within the area of influence of an existing airport. The use of watercraft or off-road vehicles would not increase or otherwise be affected by any of the proposed alternatives.

Implementation of the Proposed Project Alternative would not affect attainment of the Single Event Noise Threshold, as defined in the TRPA Environmental Threshold Carrying Capacity Noise Standards, because single-event noise from project related increases in traffic would not result in a noticeable change in the traffic noise contours of area roadways (i.e., less than 3 dBA) based on existing traffic volumes. No other single-event noise sources would be created or modified due to construction or operation of the project.

Cumulative Noise Event

Implementation of the Proposed Project Alternative would not result in any short-term or long-term adverse noise effects. Implementing the Proposed Project Alternative would not affect attainment of the CNEL Threshold. Implementation of the project would increase short-term noise levels due to construction equipment and activities involved in constructing the new access road and widening along US 50.

Implementation of design features would ensure that construction of the Proposed Project Alternative would not exceed CNEL standards or vibration standards, disturb and/or disrupt the sleep of occupants of existing vibration-sensitive land uses in the project vicinity, nor create a substantial temporary increase in ambient noise or vibration levels.

Operational noise from use of the Round Hill Pines Access Road would not cause perceptible noise increases at nearby sensitive receptors and thus would not increase CNELs sufficiently to adversely affect or interfere with attainment of community noise thresholds established by TRPA. For these reasons, changes to the existing attainment status of the CNEL Threshold would not occur under the Proposed Project Alternative.

3.11 Air Quality

This section will describe the existing air quality conditions within the proposed project area and will evaluate potential impacts to air quality related to the implementation of the Proposed Project Alternative.

3.11.1 Regulatory Setting

3.11.1.1 Clean Air Act

The Clean Air Act (CAA) is the federal law that governs air quality and the Environmental Protection Agency (EPA) is responsible for implementing national air quality programs. The EPA's air quality mandates are drawn primarily from the federal CAA, which was enacted in 1970 and amended by Congress in 1990.

Criteria Air Pollutants

The EPA is responsible for establishing national ambient air quality standards (NAAQS), as shown below in Table 3.11-1, the EPA has established primary and secondary NAAQS for the following criteria air pollutants (CAPs): carbon monoxide (CO), nitrogen dioxide (NO₂), ozone (O₃), particulate matter (PM_{2.5} and PM₁₀), lead (Pb), and sulfur dioxide (SO₂). The primary standards protect the public health and the secondary standards protect public welfare. The CAA also required each state to prepare an air quality control plan, referred to as a state implementation plan (SIP), for areas that do not attain the NAAQS. The federal Clean Air Act Amendments of 1990 (CAAA) added requirements for states with areas that are not in attainment of all NAAQSs to revise their SIPs to incorporate additional control measures to reduce air pollution. The SIP is modified periodically to reflect the latest emissions inventories, planning documents, and rules and regulations of the air basins as reported by their jurisdictional agencies. EPA is responsible for reviewing all SIPs to determine whether they conform to the mandates of the CAA and its amendments, and whether implementation will achieve air quality goals. If EPA determines a SIP to be inadequate, a federal implementation plan that imposes additional control measures may be prepared for the nonattainment area. If an approvable SIP is not submitted or implemented within the mandated time frame, sanctions may be applied to transportation funding and permitting of stationary air pollution sources in the nonattainment air basin.

General conformity requirements were adopted by Congress as part of the federal Clean Air Act Amendments of 1990 (Public Law 84-159). General conformity requires that all federal actions conform to the state air quality control plan referred to as a State Implementation Plan (SIP). Areas that do not meet or previously have not met national ambient air quality standards are required to prepare, submit, and implement a SIP or Federal Transportation Improvement Program demonstrating how attainment and maintenance of these standards will be achieved. An analysis that determines whether an individual project complies with the SIP or FTIP is called a conformity analysis. The Transportation Conformity Rule appears in 40 CFR, Parts 51 and 93.

The Tahoe Regional Planning Agency, in its role as the Tahoe Metropolitan Planning Organization (TMPO), is responsible for conducting conformity determinations for both the California and Nevada portions of the LTAB where conformity requirements apply. The most recent conformity determinations for the 2021-2024 FTIP was approved in February 2021 and the Round Hill Pines Access Project was included in the conformity analysis (TRPA 2021). Because the Proposed Project Alternative for the Round Hill Pines Access Project is consistent with the 2021-2024 FTIP for which an air quality conformity analysis has already been conducted, an independent conformity determination is not required.

Hazardous Air Pollutants

Air quality regulations also focus on toxic air contaminants (TACs) or, in federal terminology, hazardous air pollutants (HAPs). In general, for those TACs that may cause cancer, there is no concentration that does not present some risk. In other words, there is no threshold level below which adverse health impacts may not be expected to occur. Instead, EPA and ARB regulate HAPs and TACs, respectively, through statutes and regulations that generally require the use of the maximum available control technology or best available control technology for TACs to limit emissions. (See the discussion of TACs under “State,” below, for a description of ARB’s efforts.) These, in conjunction with additional rules set forth by PCAPCD, described under “Local” establish the regulatory framework for TACs.

EPA has programs for identifying and regulating HAPs. Title III of the CAA directed EPA to promulgate national emissions standards for HAPs (NESHAP). The national emissions standards for HAPs may differ for major sources and for area sources of HAPs. Major sources are defined as stationary sources with potential to emit more than 10 tons per year (TPY) of any HAP or more than 25 TPY of any combination of HAPs; all other sources are considered area sources. The emissions standards are to be promulgated in two phases. In the first phase (1992–2000), EPA developed technology-based emission standards designed to produce the maximum emission reduction achievable. These standards are generally referred to as requiring maximum available control technology for toxics. For area sources, the standards may be different, based on generally available control technology. In the second phase (2001–2008), EPA is required to promulgate health risk-based emissions standards, where deemed necessary, to address risks remaining after implementation of the technology-based NESHAP standards.

The CAA also required EPA to issue vehicle or fuel standards containing reasonable requirements that control toxic emissions of, at a minimum, benzene and formaldehyde. Performance criteria were established to limit mobile-source emissions of toxics, including benzene, formaldehyde, and 1,3-butadiene. In addition, Section 219 required the use of reformulated gasoline in selected areas with the most severe ozone nonattainment conditions to further reduce mobile-source emissions.

3.11.1.2 Tahoe Regional Planning Agency

TRPA threshold carrying capacity standards address CO, ozone, regional and sub-regional visibility, and nitrate deposition. Numerical standards have been established for each of these parameters, and management standards include reducing particulate matter, maintaining levels of oxides of nitrogen, reducing traffic volumes on US 50, and reducing vehicle miles traveled. These threshold indicator reporting categories and designations are described below in Table 3.11.1.2. In addition, the TRPA compacts states that the Regional Plan shall provide for attaining and maintaining federal, state, or local air quality standards, which ever are strictest, in the respective portions of the Region for which the standards are applicable (TRPA 2012). Se

Based on TRPA’s Initial Environmental Checklist, effects related to air quality were also evaluated based on whether the Proposed Project Alternative would:

- Result in substantial air pollutant emissions;
- Result in a deterioration of existing ambient air quality;
- Result in a creation of objectionable odors;
- Result in an alteration of air movement, moisture or temperature, or any change in climate, either locally or regionally;
- Result in an increased use of diesel fuel.

Table 3.11-1. Attainment Status for the Lake Tahoe Air Basin in Douglas County

Pollutant	Threshold Indicator Reporting Category	National Designation ³	TRPA Designation ¹
Ozone	Highest 1-hour Average Concentration	--	Moderate improvement trend, at or somewhat better than target.
	Highest 8-hour Average Concentration	Attainment	Moderate improvement trend, somewhat worse than target.
	3-year Average of 4 th Highest 8-hour Average Concentration	--	Moderate improvement trend, at or somewhat better than target.
	Oxides of Nitrogen Emissions (Average tons/day)	--	Moderate improvement trend, considerably better than target.
Respirable Particulate Matter (PM ₁₀)	Highest 24-hour Average PM ₁₀ Concentration	Attainment	Little or no change trend, somewhat worse than target.
	Annual Average PM ₁₀ Concentration	--	Moderate improvement trend, considerably better than target.
Fine Particulate Matter (PM _{2.5})	24-hour PM _{2.5} Concentration	Attainment	Little or no change trend, at or somewhat better than target.
	Annual Average PM _{2.5} Concentration	Attainment	Little or no change trend, considerably better than target.
Visibility Reducing Particles	Regional Visibility 50 th Percentile	--	Little or no change trend, at or somewhat better than target.
	Regional Visibility 90 th Percentile	--	Little or no change trend, at or somewhat better than target.
	Sub-regional Visibility 50 th Percentile	--	Insufficient data.
	Sub-regional Visibility 90 th Percentile	--	Insufficient data.
Carbon Monoxide	Highest and 2 nd Highest 1-hour Carbon Monoxide Standard	Maintenance	Moderate improvement trend, considerably better than target.
	Highest and 2 nd Highest 8-hour Carbon Monoxide Standard	Maintenance	Moderate improvement trend, considerably better than target.
	Average Daily Winter Traffic Volumes	--	Moderate improvement trend, considerably better than target.
Nitrogen Deposition	Vehicle Miles Traveled	--	Moderate improvement trend, at or somewhat better than target.
Sulfur Dioxide	No Standard	Attainment	--
Nitrogen Dioxide	1-hour	Attainment	--
	1-year	Attainment	--
Odor	Non-numerical Standard	--	Implemented. ²
Lead (Particulate)	3-month average	Attainment	--

¹Source: 2015 TRPA Threshold Evaluation – Air Quality, EPA 2021

²Implemented refers to implementation of a management standard rather than monitoring the achievement of a numerical standard.

³Nonattainment: any area that does not meet (or that contributes to ambient air quality in a nearby area that does not meet) the national primary or secondary ambient air quality standard for the pollutant.

Attainment: any area that meets the national primary or secondary ambient air quality standard for the pollutant.

Maintenance: any area that has been re-designated from nonattainment to attainment due to successful completion of certain conditions.

3.11.2 Affected Environment

Douglas County is located within the LTAB and air quality is regulated by the EPA, TRPA, and the Nevada Department of Environmental Protection (NDEP) Bureau of Air Pollution Control (BACP) and Bureau of Air Quality Planning (BAQP). These agencies, as well as Douglas County, are responsible for developing rules, regulations, policies, and/or goals to comply with applicable legislation.

3.11.2.1 Climate Conditions

Lake Tahoe lies in a topographic depression between the crests of the Sierra Nevada and Carson ranges on the California-Nevada border at a surface elevation of approximately 6,260 feet above mean sea level. The LTAB is defined by the 7,000-foot contour, which is continuous around the Lake, except near Tahoe City. The mountains surrounding the Lake are approximately 8,000–9,000 feet in height on average, with some reaching 10,000 feet.

The constant water temperature of Lake Tahoe, at 600 feet below the surface, is approximately 39°F (4°C). This characteristic, in combination with the topographic location of the lake, defines one of the LTAB's most important atmospheric regimes. In the absence of strong synoptic weather systems in the Lake Tahoe Basin, shallow subsidence and radiation inversions occur throughout the year. In addition, the rapid radiation cooling at night regularly generates gentle down-slope nocturnal winds draining from the mountain ridges down to the shore and then fanning across the lake (Cahill and Cliff 2000).

Pollutants from local sources are trapped by frequent inversions in the LTAB, greatly limiting the volume of air into which the pollutants are mixed (e.g., diluted), which results in accumulation and elevated concentrations of pollutants. A second important meteorological regime is the transport of pollutants from the Sacramento Valley and San Francisco Bay Area because winds from these areas move upslope in the Sierra Nevada and the lake is located directly east of the Sierra Nevada crest (Cahill and Cliff 2000).

The project site generally experiences warm, dry summers and wet and snowy winters. According to the Western Regional Climate Center (WRCC), local climatology of the project site can be best represented by measurements at the Stateline-Harrah's, Nevada Station for the project area. The annual normal precipitation is approximately 13 inches, which primarily occurs from November through March in the form of snowfall. January temperatures range from a normal minimum of 23°F to a normal maximum of 42°F. August temperatures range from a normal minimum of 48°F to a normal maximum of 78°F (WRCC 2006a). The annual predominant wind direction and mean speed is from the south at 7 mph (WRCC 2006b, 2006c).

3.11.2.2 Existing Air Quality Conditions

Fugitive Dust

Fugitive dust is particulate matter that becomes airborne and has the potential to adversely affect human health or the environment. The most common forms of particulate matter are known as PM₁₀ and PM_{2.5}. Fugitive dust is mainly generated from construction activities such as earth moving, driving on haul roads, and ground disturbance.

Class I Areas

Construction activities contribute to visibility concerns through their primary PM_{2.5} and nitrogen oxides (NO_x) emissions, which contribute to the formation of secondary PM_{2.5}. Under the provisions of the CAA, EPA has designated specific areas in each state as Mandatory Class I Federal Areas, where visibility is an important value. These mandatory Class I areas are listed in 40 CFR 81.400-81.437. The project area is not located within a Class I area.

3.11.3 Environmental Consequences and Mitigation Measures

Significance Criteria

For the purpose of analysis, the following significance criteria are used to determine whether implementation of the proposed project would result in significant air quality impacts. The Proposed Project Alternative would result in significant adverse air quality effects if implementation would result in:

- Result in conflict with or obstruct implementation of an applicable air quality plan (such as a SIP or FTIP), violate any air quality standard or contribute substantially to an existing or projected air quality violation,
- Expose sensitive receptors to substantial pollutant concentrations (including criteria air pollutants and HAPs),
- Result in the exposure of sensitive receptors to an objectionable odor source,
- Result in construction-generated emissions that exceed Nevada Administrative Code (NAC) Sections 445B.7665 (Heavy-duty Equipment Opacity) or 445B.22037 (PM Emissions-Fugitive Dust) standards (NAC 2008).
- Result in construction-generated or long-term operational (regional) emissions of reactive organic grasses (ROG), NO_x, or PM₁₀ that exceed mass emissions of 82 pounds per day (lb/day), or
- Result in long-term operational (e.g. regional and local) emissions that exceed TRPA's numerical Environmental Threshold Carrying Capacities thresholds.

3.11.3.1 No Action Alternative

The No Action Alternative would result in a continuation of current roadway conditions and maintenance activities, which would not substantially affect air quality in the study area.

3.11.3.2 Proposed Project Alternative

Based on 40 CFR 93.126, the Proposed Project Alternative is considered an exempt project per Table II and the TRPA FTIP; therefore, this project is exempt from transportation conformity requirements. No long-term air quality impacts are anticipated and no further analysis is required.

Construction generated criteria air pollutant and precursor emissions

Construction activities are a source of dust and exhaust emissions that can have substantial impacts on local air quality (i.e., exceed state air quality standards for ozone, CO, PM₁₀, and PM_{2.5}). These impacts include emissions resulting from earthmoving and use of heavy equipment, as well as land clearing, ground excavation, cut-and-fill operations, paving, and roadway reconstruction. Emissions can vary substantially from day to day, depending on the level of activity, the specific operations, and the prevailing weather. Construction under the Proposed Project Alternative is expected to last no more than 6 months due to the TRPA grading season. Therefore, long-term construction-related impacts are not anticipated. Short-term construction-related impacts will be mitigated by implementation of design features would include implementing TRPA, NDEP, and NAC requirements with respect to best management practices, heavy-duty equipment opacity, and fugitive dust control to prevent adverse effects related to short-term construction related emissions. Therefore, construction-related emissions of criteria air pollutants and precursors would not conflict with or obstruct implementation of an applicable air quality plan, violate any air quality standard or contribute substantially to an existing or projected air quality violation, or expose sensitive receptors to substantial pollutant

concentrations. Construction activities would not result in a significant adverse effect related to pollutant emissions.

Long-Term Operational (Regional) Criteria Air Pollutant and Precursor Emissions

Long-term operational emission sources associated with the Proposed Project Alternative would include vehicle trips by travelers along US 50, visitors to Round Hill Pines Resort, concessionaire staff, maintenance staff, and Forest Service personnel as well as occasional operation of maintenance equipment. Long-term operational emissions of ROG, NOX, PM10, and PM2.5 for the Proposed Action Alternative would be small compared with applicable significance thresholds that are tied to attainment planning efforts and would not contribute substantially to a long term regional air quality impact and it would not affect TRPA's attainment designations.

Localized Mobile-Source Emissions

The LTAB is designated as a maintenance area for the national ambient air quality standards for CO. Thus, pursuant to the procedures for a hot-spot analysis in the CFR (40 CFR Section 93.123; CFR 2008) the potential for the proposed project to result in localized concentrations of CO that exceed the national ambient air quality standards can be assessed qualitatively.

The Proposed Action Alternative has the potential to increase vehicle trips to and from the Round Hill Pines Resort. Carbon monoxide emissions are a direct function of vehicle idling time and, thus, traffic flow conditions. Under specific meteorological conditions, the concentration of CO emissions near congested roadways and/or intersections may reach unhealthy levels with respect to local sensitive land uses such as residential areas. The improvements associated with the Proposed Project Alternative would result in an overall reduction of congestion along US 50 and the access road to the Round Hill Pines Resort. The relocation of the existing access road into the Round Hill Pines Resort and the addition of the northbound median turn lane will result in a reduction of congestion along US 50. The Proposed Project Alternative would not result in or contribute to CO concentrations that exceed applicable 1-hour and 8-hour CO ambient air quality standards. As a result, no adverse effect on localized CO concentrations would occur with implementation of the Proposed Project Alternative. The LTAB has been designated as attainment with respect to the national ambient air quality standards for PM10 and PM2.5. Therefore, no analysis of PM10 and PM2.5 hot spots is needed (FHWA and EPA 2021).

Also, the proposed project is not anticipated to have any meaningful effects with respect to mobile-source air toxics (MSATs), which are the subset of EPA-recognized HAPs that are generated by mobile sources, because the proposed project would not have any meaningful effect on traffic volumes or the mix of vehicles that travel on the affected roadways.

Odor Emissions

Construction activities that would take place could result in temporary generation of objectionable odors associated with diesel exhaust, asphalt paving that may be considered offensive to some individuals. Objectionable odors may also be associated with striping installation. However, these odors would be temporary and would generally not be produced in the same locations during the entire construction period. Furthermore, such odorous emissions generally disperse rapidly with distance from the source and construction equipment would be staged as distant as possible from any nearby residences or other sensitive receptors. Therefore, these activities would not result in the frequent exposure of receptors to objectionable odorous emissions.

Hazardous Air Pollutant Emissions

Construction-related activities that would take place under the Proposed Project Alternative would result in temporary, short-term emissions of diesel PM from the exhaust of off-road heavy-duty diesel equipment used for site preparation (e.g., excavation, grading, and clearing); paving; trucks hauling materials to and from construction staging areas; and other miscellaneous activities. The potential cancer risk from the inhalation of diesel PM is a more serious risk than the potential non-cancer health impacts (California Air Resources Board 2003). Consequently, for the purposes of this analysis, this discussion focuses on cancer rather than non-cancer risks.

The dose to which receptors are exposed is the primary factor used to determine health risk (i.e., potential exposure to HAP emission levels that exceed applicable standards). Dose is a function of the concentration of a substance or substances in the environment and the duration of exposure to the substance. It is positively correlated with time, meaning that a longer exposure period would result in a higher level of exposure to the exposed individual. In other words, the risks estimated for an exposed individual are higher if a fixed exposure occurs over a longer period. According to the Office of Environmental Health Hazard Assessment (OEHHHA), Health Risk Assessments, which determine the exposure of sensitive receptors to HAP emissions, should be based on a 70-year exposure period; however, such assessments should be limited to the duration of exposure (OEHHHA 2001). Due to the nature of the project, the use of mobilized equipment for construction activities would be temporary at any one location, and would dissipate with increasing distance from the source.

In addition, construction equipment would be staged as distant as possible from any nearby residences and other sensitive receptors (Design Feature NOI-3). On-going maintenance of the shared-use path would consist of occasional maintenance vehicles and repair equipment operating along the corridor. However, no new stationary sources or continuously operating area sources of HAPs would be introduced to the project area. For these reasons, and because of the highly dispersive properties of diesel PM (Zhu et. al. 2002) short-term construction-generated and long-term operational HAP emissions would not expose sensitive receptors to an incremental increase in cancer risk that exceeds of 10 in one million or a Hazard Index greater than 1.0 at the maximally exposed individual. Therefore, the project would not have an adverse effect on the environment related to exposure to HAPs.

3.11.3.3 Avoidance, Minimization, and/or Mitigation Measures

The following measures will be implemented to reduce potential impacts to air quality. The full description of the Proposed Project avoidance, minimization, and/or mitigation measures is provided in Table 3.13-1.

MM AQ-1. Reduce construction-generated emissions.

3.11.4 Consequences for TRPA Environmental Threshold Carrying Capacities

This section summarizes the effects of implementing the Proposed Project Alternative on the thresholds established by TRPA for air quality. The following Indicator Reporting Categories for air quality have been established by TRPA:

- Carbon Monoxide and Traffic Volumes;
- Ozone, Particulate Matter, Wood Smoke, Regional Visibility, and Sub-Regional Visibility;
- Vehicle Miles Traveled and Atmospheric Deposition; and
- Odors.

Carbon Monoxide and Traffic Volumes

According to the most recent threshold evaluation, TRPA's ETCC for carbon monoxide is "considerably better than target" (TRPA 2015). The potential for CO hot spots is greater in winter because motor vehicles generate higher emissions of CO when ambient temperature is low (ARB 2013). Trips generated by the project are not anticipated to occur between the hours of 4:00 p.m. and midnight in the US 50 corridor during the months of November through February, as the Round Hill Pines Resort is only open seasonally (May to October). Long-term operational (local) mobile-source CO emissions would not violate an air quality standard (i.e., 8-hour TRPA standard of 6 ppm), contribute substantially to an existing or projected air quality violation, or expose sensitive receptors to substantial pollutant concentrations. Therefore, the Proposed Project Alternative would not exceed the applicable significance criteria, and it would not be expected that the project would affect attainment of relevant TRPA thresholds for CO.

Ozone, Particulate Matter, Wood Smoke, Regional Visibility, and Sub-Regional Visibility

As discussed in the analyses above, short-term construction-related emissions and long-term operational emissions of ozone precursors, ROG and NOX, and particulate matter, including PM10 and PM2.5, would not exceed the mass emission thresholds established by air districts with jurisdiction in the LTAB and used by TRPA for analysis purposes. Because construction and operation of the Proposed Project Alternative would not exceed the local significance criteria, the net increase in long-term daily emissions of PM10 and ozone precursors would be nominal. In addition, because the project would not result in open burning or the introduction of new wood-burning fireplaces or other wood-burning devices in the LTAB, the proposed project would not affect attainment of the TRPA thresholds for wood smoke, regional visibility, or sub-regional visibility.

Vehicle Miles Traveled and Atmospheric Deposition

TRPA adopted its Vehicle Miles Travelled (VMT) threshold in 1982 as both a water quality and air quality threshold. The TRPA thresholds for air quality, under both visibility and nitrate deposition, include the following management standard: "reduce vehicle miles of travel by 10 percent of the 1981 base values." The indicator for TRPA's VMT threshold states that there shall be a 10 percent reduction in VMT below the 1981 peak summer day levels. The Tahoe Region has been in compliance with this standard since 2007. Considering that traffic volumes have not increased since 2008, it can be concluded that the region is currently in attainment of the VMT threshold. Because the proposed project is consistent with the RTP, it would not conflict with TRPA's VMT threshold.

Odor

As discussed, the Proposed Project Alternative is not expected to result in any new permanent odor sources and odors associated with project construction (e.g., diesel exhaust from equipment and the application of architectural coatings) would be temporary and would generally not be produced in the same locations during the entire construction period. Furthermore, such odorous emissions generally disperse rapidly with distance from the source and construction equipment would be staged as distant as possible from any nearby residences, schools, or other sensitive receptors. Therefore, the proposed project would not result in the introduction of new odor sources or new odor exposure problems in the LTAB.

3.12 Cumulative Impacts

Cumulative impacts are impacts that result from the incremental effect of a proposed action when added to other past, present, and reasonably foreseeable future actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (40 CFR § 1508.7). The purpose of a cumulative effects analysis is to ensure that federal agencies consider the full range of the consequences of their actions when making decisions in order to move towards sustainable development (CEQ 1997).

FHWA guidance states that the degree to which cumulative impacts need to be addressed in an EA depends on the potential for the impacts to be significant, and will vary by resource, project type, geographic location, and other factors. The 2021 NDOT Statewide Transportation Improvement Program (STIP), 2020 TRPA Regional Transportation Plan, and the cumulative list of projects below (Table 3.12-1) includes projects along the US 50 corridor within the project area as well as planned improvements at the Round Hill Pines Resort.

Table 3.12-1: List of Cumulative Projects

Project Name	Location	Description
Round Hill Pines Redevelopment Project (Phase 2)	Round Hill Pines Resort	Consolidate on-site parking by constructing 2 parking lots and distribution roads within the Round Hill Pines Resort. Planned construction in 2021.
US 50 Preservation in the Tahoe Basin	US 50, from CA/NV Stateline to Kings Canyon Road in Douglas County	Mill and overlay roadway surface, ADA, hydraulic and safety improvements. Planned for construction in 2022.
US 50, Safety and Hydraulic Improvements	US 50, from 0.37 miles west of Warrior Way to 0.22 miles East of Tahoe Drive	Install infiltration basin along US 50 and signal at Warrior Way
Source: NDOT 2021 Statewide Transportation Improvement Program, LTBMU Management Plan		

3.12.1 Regulatory Setting

The Council on Environmental Quality (CEQ) developed *Considering Cumulative Effects Under the National Environmental Policy Act*, which recommends identifying those resources that could experience cumulative impacts, and then determining the separate effects of past actions, present actions, the proposed action, and other future actions. CEQ notes that, “most often, the historical context surrounding the resource is critical to developing baselines” and supporting decision-making (CEQ 1997). This historical context is presented in the Affected Environment section, below.

3.12.2 Environmental Consequences and Mitigation Measures

The environmental consequences of the No Action Alternative and the Proposed Project Alternative on individual resources are presented throughout this EA. Included below are the overall cumulative impacts that may be anticipated when the effects of the Proposed Project Alternative are combined with other past, present, and reasonably foreseeable future actions.

The cumulative impact assessment presented in this EA focuses on resources for which the cumulative projects or plans would have measurable impacts on the resource. The contribution of the Project’s impacts to cumulative impacts was then assessed. The cumulative impact analysis should be commensurate with the potential for adverse impacts therefore, only resources that are

expected to experience long-term adverse impacts were assessed for cumulative impacts in this section. Those resources include:

- Aesthetic and Visual Resources
- Biological Resources (Vegetation)
- Earth Resources (Impervious Cover)
- Hydrology and Water Quality

3.12.2.1 No Action Alternative

Implementation of the No Action Alternative would result in a continuation of current conditions. This alternative would not involve the relocation of the Round Hill Pines intersection, the new access road, or widening along US 50 to accommodate a median left turn lane/acceleration lane.

3.12.2.2 Proposed Project Alternative

Aesthetic and Visual Resources

The cumulative setting for aesthetic and visual resources includes the proposed Round Hill Pines Resort Redevelopment Phase 2 Project that will be constructed by the LTBMU in 2021. The proposed project will include the construction of parking lots, an entrance road that will tie into the Proposed Project Alternative, 2 lane interior roads and parking areas, and a roundabout area that will serve as a public drop-off area for visitors to the Resort.

As discussed in Section 3.3, the proposed project is also located within TRPA Shoreline Unit 29, Zephyr Cove which includes the Round Hill Pines Resort. The TRPA threshold composite score for Shoreline Unit 29 is 9 and the TRPA Shoreline Study characterizes the scenic quality of this unit as moderate and rates its level of scenic quality as 2. Construction of the Round Hill Pines Resort Redevelopment phase 2 project would result in tree removal and grading. Construction of these improvements would result in increased potential for impacts to the Zephyr Cove Shoreline Unit 29.

The proposed Round Hill Pines Resort redevelopment phase 2 project would remove approximately 80 trees. Avoidance and minimization efforts during construction would be implemented to reduce the number of trees removed. Existing trees located between the shoreline and the parking area would not be removed and would continue to serve as a visual screen, obscuring the view of the parking lot areas and relocated access road. These avoidance and minimization efforts would be consistent with proposed efforts mentioned in Section 3.3.3. Thus cumulative impacts to aesthetic and visual resources would be less than significant, and the Proposed Project Alternative's contribution to this cumulative effect would not be significant.

Biological Resources (Vegetation)

The cumulative setting for biological resources (vegetation) includes the proposed Round Hill Pines Resort Redevelopment Phase 2 Project that will be constructed by the LTBMU in 2021. The proposed project will include the construction of parking lots, an entrance road that will tie into the Proposed Project Alternative, 2 lane interior roads and parking areas, and a roundabout area that will serve as a public drop-off area for visitors to the Resort.

The proposed Round Hill Pines Resort Redevelopment Phase 2 Project would include clearing and grubbing, as well as tree removal within areas designated as montane coniferous forests primarily within TRPA designated Land Capability Zone 4. Minimization efforts during design have reduced the clear zone width along the LTBMU access roads within the resort area. By reducing the clear zone widths, the LTBMU has reduced the number of trees to remove and the amount of land that will require clearing and grubbing. These avoidance and minimization

efforts would be consistent with proposed efforts mentioned in Section 3.4.3. Thus cumulative impacts to Biological Resources (Vegetation) would be less than significant, and the Proposed Project Alternative's contribution to this cumulative effect would not be significant.

Earth Resources (Impervious Cover)

The cumulative setting for earth resources (impervious cover) includes the proposed Round Hill Pines Resort Redevelopment Phase 2 Project that will be constructed by the LTBMU in 2021 and the US 50 Rehabilitation Project constructed by NDOT in 2022. The US 50 rehabilitation project would consist of a mill and pavement overlay, ADA improvements, drainage and safety improvements. No additional impervious pavement will be added to US 50 as part of the NDOT US 50 Rehabilitation Project.

Construction of the LTBMU Round Hill Pines Resort Redevelopment Phase 2 Project would be entirely located within Land Capability District 4. This project would result in an additional 1.23 acres of impervious pavement due to the relocated bike path, proposed additional parking lots, roundabout visitor drop-off area, and administrative road and parking area. Based on the TRPA threshold evaluation, Land Capability District 4 is listed as in compliance and trending towards "considerably better than target".

Any new coverage associated with these projects would be consistent with TRPA land coverage regulations. Implementation of the project would not impede progress toward attainment of the TRPA threshold reporting category for Impervious Cover. Thus cumulative impacts to earth resources (impervious cover) would be less than significant, and the Proposed Project Alternative's contribution to this cumulative effect would not be significant.

Hydrology and Water Quality

The cumulative setting for hydrology and water quality includes the proposed Round Hill Pines Resort redevelopment phase 2 project that will be constructed by the LTBMU in 2021 and the US 50 rehabilitation project constructed by NDOT in 2022. The US 50 rehabilitation project would consist of a mill and pavement overlay, ADA improvements, drainage and safety improvements. Hydrology and Water Quality is discussed in Section 3.7.

Construction of the Round Hill Pines Resort Redevelopment Phase 2 would result in an increase of impervious pavement due to the proposed additional parking lots, roundabout visitor drop off area, and administrative road and parking area. The US 50 rehabilitation project would result in drainage improvements along US 50, but the culverts located within the Round Hill Pines Resort would not be disturbed.

Compliance with mitigation measures would ensure that construction activities associated with these projects would not adversely impact the hydrology and/or water quality of Lake Tahoe. These mitigation measures would be developed by LTBMU and NDOT in coordination with TRPA and would be consistent with proposed efforts mentioned in Section 3.7.3. Thus cumulative impacts to hydrology and water quality would be less than significant, and the Proposed Project Alternative's contribution to this cumulative effect would not be significant.

3.13 Avoidance, Minimization, and Mitigation Measures

The following table summarizes the mitigation measures for each resource identified in the Environmental Assessment for the Round Hill Pines Access Project. The table also identifies the timing of the mitigation measures and the responsible agency or party.

Mitigation Measure	Implementation Timing	Responsible Agency or Party
Aesthetics and Visual Resources		
MM AES-1. Design applicable structures to be consistent with NDOT, TRPA, and LTBMU design standards and design review guidelines and compatible with existing architectural features in the Round Hill Pines Resort area. Project structures such as guardrails and retaining walls will be designed to meet TRPA design standards (Chapter 36 of the TRPA Code) and design review guidelines. Structures located within the NDOT right-of-way (ROW) will also meet NDOT design standards. A narrow range of colors and materials will be used. Materials will be primarily natural or natural appearing. Ranges of subdued earth tone colors will be used that blend, rather than contrast, with the existing vegetation and soils color in and around the immediate area. The project will reflect the visual characteristics of line, form, color, and texture found in the characteristic landscape.	Prior to construction	FHWA-CFLHD
MM AES-2. Design project features consisted with Chapter 66 of the TRPA Code. The project will comply with Chapter 66 of the TRPA Code. The total visible area of lakeward facing surfaces of project features (e.g. retaining walls and safety rails) will not exceed the total surface area allowed.	Prior to construction	FHWA-CFLHD
Biological Resources: Aquatic Resources, Vegetation, and Wildlife		
MM BIO-1. Minimize ground and vegetation disturbance, and limit construction and staging footprints. Ground and vegetation disturbance will be minimized during construction to avoid or minimize loss of native vegetation and disturbance to terrestrial wildlife habitat. Construction staging, vehicle use and parking, and placement of equipment and materials will be restricted the designated staging area only. The construction limits will be identified by placing silt fencing or other fencing mechanism to deter accidental encroachment.	Prior to construction	FHWA-CFLHD

<p>MM BIO-2. Minimize removal of trees that are 24-inches diameter at breast height (dbh) or greater. The proposed widening along US 50 and construction of the relocated Round Hill Pines Access Road will require the removal of live trees over 24 dbh or greater. For any tree 24 inches dbh or greater that will be felled during the construction of the project, removal will occur, as allowable, under circumstances specified in Section 61.4(A)(7) of the TRPA Code. Section 61.1.4(A)(7) states that, for EIP Projects, "Trees larger than 30 inches dbh in the westside forest types and larger than 24 inches dbh in eastside forest types may be removed when it is demonstrated that the removal is necessary for the activity." The Round Hill Pines Access Project is an EIP Project (EIP No. 04.01.03.0137) and subject to this Code provision.</p>	Prior to and during construction	FHWA-CFLHD
<p>MM BIO-3. Coordinate tree felling schedule with the Lake Tahoe Basin Management Unit to minimize effects to migratory birds. The avian breeding/nesting season occurs approximately between March 1 through September 1, depending on species and weather. To avoid impacts to migratory birds, conduct tree felling after September 1 and before March 1. Coordinate with LTBMU to utilize their staffing and expertise to fell and remove trees. Tree stumps would not be removed at this time and would remain in ground until the grading season (May 1st to October 15th).</p> <p>If vegetation or other substrates that could support nesting birds would be removed during the nesting season, a qualified approved biologist will be retained to conduct focused preconstruction surveys for active nest sites of migratory birds. The survey area will be limited to the areas where project activities could lead to direct destruction of active nests. The results of nesting bird surveys conducted between March 1 and June 15 will be considered valid for no more than 14 days (i.e., the onset of each construction phase should begin no later than 14 days after these surveys are completed). Results of surveys conducted after June 15 can be considered valid for up to 30 days. Because most neotropical migrant birds that nest in the region typically arrive and begin establishing territories between March and June, and new individuals and species continually arrive in the area during this period, negative survey results (e.g., absence, no nesting activity) for a given location may be valid only for a short period. If an active nest is located, removal of the nest site will be avoided until it is no longer active. Exclusionary buffer zones (to be determined based on species-specific needs) will be created surrounding any active nests within the project area. Buffers will be established by a qualified biologist prior to the start of construction. If an area is given clearance to proceed with construction and nesting subsequently occurs, it will be assumed that the individuals are acclimated to the ongoing disturbance of construction. If circumstances exist such that future activities may result in the abandonment or failure of the nest, as determined by a qualified biologist, an appropriate exclusionary buffer will be established.</p>	Prior to and during construction	FHWA-CFLHD and LTBMU

<p>MM BIO-4. Prevent the contamination of construction-related materials by noxious weeds and invasive plant species. The following actions will ensure that construction-related materials entering or leaving the project area are not potential sources of noxious weed infestations.</p> <ul style="list-style-type: none"> • The construction contractor will ensure that any clothing, footwear, and equipment used during construction is free of soil, seeds, vegetative matter or other debris or seed-bearing material before entering the construction area. • Where it is not possible to keep equipment out of sites infested with noxious weeds, the equipment will be cleaned so that it is free of soil, seeds, vegetative matter or other debris before being moved from infested sites to un-infested sites and before being transported out of the project area. • The construction contractor will ensure that any fill soil, mulch, seeds, and straw materials used during construction and implementation of BMPs are weed-free. Certified weed-free material will be used. • All earth-moving equipment, gravel, fill, or other materials will be required to be weed free. Sand, gravel, rock, or organic matter from an approved onsite source will be used when possible. Otherwise, weed-free materials will be obtained from gravel pits and fill sources that have been surveyed and approved by a botanist or ecologist at the LTBMU. • The construction contractor will ensure that equipment and vehicles are washed when exiting the perimeters of infested areas before proceeding outside the infested perimeters to un-infested areas. 	During construction	FHWA-CFLHD, LTBMU, Contractor
<p>MM BIO-5. Revegetate/landscape using appropriate native planting mixes. Appropriate plant species native to the area that do not require long-term irrigation, or species approved by a qualified botanist for local use, will be used when revegetating disturbed areas and for landscaping improvements. This measure will contribute to minimizing impacts to areas that are temporarily disturbed during project construction, but will also help to minimize permanent loss of native habitats. LTBMU will provide assistance with landscape design for permanent vegetation establishment.</p>	Prior to construction	FHWA-CFLHD, LTBMU
Cultural Resources		
<p>MM CR-1. Cease work and implement notification procedures for previously undiscovered archaeological and historical resources. In the event that previously undocumented cultural resources or human remains are discovered during any project-related ground-disturbing</p>	During construction	FHWA-CFLHD, LTBMU, NDOT, TRPA

<p>activities, the construction crew will immediately cease ground-disturbing activities in the vicinity of the find and the procedures of 36 CFR Part 800 will be implemented. A qualified archaeologist approved by FHWA-CFLHD will be consulted to evaluate the resource in accordance with Section 106 and TRPA guidelines. If the discovered resource is determined to be significant per NRHP and TRPA criteria, mitigation measures consistent with the TRPA Code will be devised and a mitigation plan submitted for approval by the FHWA-CFLHD, NDOT, LTBMU, and TRPA. Any necessary archaeological excavation and monitoring activities will be conducted in accordance with prevailing professional standards and the Federal Secretary of the Interior's Standards and Guidelines for Identification of Cultural Resources and Professional Qualifications (National Park Service 1983). Mitigation, in accordance with a plan approved by FHWA-CFLHD, NDOT, LTBMU, and TRPA will be implemented before ground-disturbing work in the area of the resource find can continue.</p> <p>The State of Nevada Revised Statutes Section 383.170 requires a person to report to the Office of Historic Preservation immediately upon discovery of a previously unreported Native American interment inadvertently disturbed by ground-disturbing activities such as construction, logging, or farming. The Office of Historic Preservation must consult immediately with the Nevada Indian Commission and notify the appropriate Indian tribe. The authorized tribe or their representative, with the permission of the landowner, must inspect the burial site and recommend an appropriate means for the treatment and disposition of the site and all associated artifacts and human remains. If the burial site is located on private land, Section 383.170 allows, at the owner's expense, the reinterment of all human remains and associated artifacts in a location not subject to further disturbance if the Indian tribe fails to make a recommendation within 48 hours after it receives notification of the find.</p>		
Hydrology and Water Quality		
<p>MM BMP-1. Develop and implement a Stormwater Pollution Prevention Plan (SWPPP). A SWPPP will be prepared by a qualified SWPPP practitioner and/or a qualified SWPPP developer that identifies water quality controls consistent with TRPA and Nevada Division of Environmental Protection (NDEP) requirements, and will ensure that runoff quality meets TRPA water quality requirements under the TRPA Code, and maintains beneficial uses of Lake Tahoe, as defined by Section 445A.191 of the Nevada Administrative Code (NAC). The SWPPP will describe the site controls, erosion and sediment controls, means of waste disposal, implementation of approved local plans, control of post-construction sediment and erosion control measures, and management controls unrelated to stormwater. Best management practices (BMPs) identified in the SWPPP will be implemented during all site development activities. The following will be required elements of the SWPPP:</p> <p>(1) Temporary BMPs to prevent the transport of earthen materials and other construction waste materials from disturbed land areas, stockpiles, and staging areas during periods of precipitation or runoff, including: filter fence, fiber roll, erosion control blankets, mulch</p>	<p>Prior to construction, during construction</p>	<p>FHWA-CFLHD, LTBMU, NDOT, TRPA</p>

<p>(such as pine needles and wood chips).</p> <p>(2) TRPA pre-grade inspection a minimum of 48-hours prior to commencement of construction related activities to ensure proper and adequate installation of the temporary erosion control measures.</p> <p>(3) Designated staging and storage areas will be protected by construction fencing and/or silt barriers, as appropriate. Following project completion, all areas used for staging will be restored to preconstruction conditions.</p> <p>(4) Temporary BMPs to prevent the tracking of earthen materials and other waste materials from the project site to offsite locations, including stabilized points of entry/exit for construction vehicles/equipment and designated vehicle/equipment rinse stations, and sweeping.</p> <p>(5) Temporary BMPs to prevent wind erosion of earthen materials and other waste materials from the project site, including routine application of water to disturbed land areas and covering of stockpiles with plastic or fabric sheeting.</p> <p>(6) Earthmoving activities will be limited to May 1 through October 15, unless a grading ordinance exemption is granted by TRPA. At the end of the grading season or before completion of the project, all surplus or waste earthen materials from the project site will be removed and disposed of at a TRPA-approved disposal site or stabilized on-site in accordance with TRPA regulations.</p> <p>(7) A spill prevention and containment plan will be prepared and implemented. Project contractors will be responsible for storing on-site materials and temporary BMPs capable of capturing and containing pollutants from fueling operations, fuel storage areas, and other areas used for the storage of hydrocarbon-based materials. This will include maintaining materials on-site (such as oil absorbent booms and sheets) for the cleanup of accidental spills, drip pans beneath construction equipment, training of site workers in spill response measures, immediate cleanup of spilled materials in accordance with directives from the TRPA and the NDEP, and proper disposal of waste materials at an approved off-site location that is licensed to receive such wastes.</p> <p>(8) Protective fencing, as needed, to prevent damage to trees and other vegetation to remain after construction, including tree protection fencing and individual tree protection such as wood slats strapped along the circumference of trees.</p> <p>(9) Daily inspection and maintenance of temporary BMPs. The contractor will be required to maintain a daily log of Temporary Construction BMP inspections and keep the log on site during project construction for review, as needed.</p>		
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(10) Develop and implement a Rain Event Action Plan as a component of the SWPPP that will include monitoring the weather on a daily basis and implementing pre-defined action within the SWPPP to avoid discharges during rain events in the construction period. During periods of inclement weather, and when the weather forecasts exceed a pre-defined threshold for forecasted precipitation (typically 60 percent or greater), active areas of construction will be stabilized and all earth moving activities will cease.		
MM BMP-2. Develop Permanent BMPs to control stormwater runoff and minimize erosion and the transport of sediment and other pollutants of concern to Lake Tahoe. Permanent slope stabilization measures will be designed and implemented to address the fill slopes associated with the widening along US 50 and the new access road. These measures will be aligned with the proposed road grades and may consist of a combination of bio-technical and revegetation methods such as soil restoration, soil amendment, revegetation with native seed mixes, planted geotextiles, or other features to be developed during final design. On relatively flat existing side slopes (less than 20 percent), stormwater would runoff as sheet flow onto the adjacent downstream pervious area and naturally infiltrate. Place riprap aprons at culvert outlets to dissipate flow energy before naturally infiltrating into the surrounding well drained wooded areas. Coordination with LTBMU, NDOT, and TRPA will be ongoing during permanent BMP design.	Prior to construction	FHWA-CFLHD, LTBMU, NDOT, TRPA
MM BMP-3. Provide mitigation for additional impervious pavement. Based on preliminary design, the project would result in the addition of 26,136 square foot (0.6 acre) of impervious pavement that could alter runoff patterns. The addition of impervious pavement will continue to be evaluated as the project progresses towards final design. The TRPA Code of Ordinances requires that any project that results in the creation of additional impervious coverage will require Water Quality Mitigation. FHWA-CFLHD will continue to work with LTBMU on water quality mitigation opportunities located on Forest Service land.	Prior to construction, during construction	FHWA-CFLHD, LTBMU, TRPA
Recreation		
MM REC-1. Use signage and/or additional public information methods to notify Stateline-to-Stateline trail users that access will be modified during construction. Use conflicts will be reduced or minimized on the Stateline-to-Stateline trail through use of informational signage posted at the Round Hill Pines Resort and trailheads to alert users of possible obstacles or changes in access. These notifications can also be posted on the LTBMU website.	Prior to construction, during construction	FHWA-CFLHD, LTBMU
Noise		
MM NOS-1. Implement noise controls on construction equipment. Construction equipment will be properly maintained and equipped with noise control, such as mufflers, in accordance with manufacturers' specifications.	During construction	FHWA-CFLHD

MM NOS-2. Implement construction hour limits. Typical construction activities will be limited to the hours between 8:00 a.m. and 6:30 p.m., during which such activities are exempt from noise levels identified in Chapter 68 of the TRPA Code of Ordinances. Emergency work to protect life or property is exempt from these hourly limits and applicable noise standards. If construction activities must run past exempted hours (e.g., during wastewater line relocation or highway closures), any nearby sensitive receptors (less than 200 feet from those activities) will be given at least 1 week notice of such activities.	During construction	FHWA-CFLHD
MM NOS-3. Consider equipment placement and operation during construction. Construction equipment will be arranged to minimize travel adjacent to noise-sensitive receptors and turned off during prolonged periods of non-use. Construction equipment will be staged and construction employee parking will be located in designated areas only. All construction equipment and vehicles used for project construction will be fitted with the factory installed muffling devices and will be maintained in good working order. Should noise complaints be received, FHWA-CFLHD and/or the project contractor will attempt to respond within 1 working day and to resolve noise complaints as soon as possible.	During construction	FHWA-CFLHD
Air Quality		
MM AQ-1. Reduce construction-generated emissions. The contractor will implement practices that minimize exhaust and fugitive dust emissions during construction. Measures to be implemented will comply with TRPA and NDEP. More specifically, the measures will conform with: NAC Sections 44B.7665 and 445B. 22037 related to opacity (visible emissions) for heavy duty equipment and fugitive dust; <ul style="list-style-type: none"> • Section 33.1 of the TRPA Code related to seasonal limitations on construction and dust control measures; • Section 65.1.8 of the TRPA Code related to vehicle idling time limitations; • TRPA's Standard Conditions of Approval for Grading Projects (Attachment Q) 	During construction	FHWA-CFLHD, TRPA

CHAPTER 4: SECTION 4(F) PROPERTIES

4.1 Section 4(f)

This section provides an evaluation of the Round Hill Pines Access Project relative to Section 4(f) of the Department of Transportation Act of 1966 (49 U.S.C. 303). Section 4(f) of the Department of Transportation Act of 1966, a law applying only to agencies within the U.S. Department of Transportation (USDOT), states it is the policy of the federal government “that special effort should be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites” (49 U.S.C. 303). Section 4(f) specifies that the Secretary of Transportation may approve a transportation program or project requiring the use of publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge of national, state, or local significance, or land of a historic site of national, State, or local significance located on public or private land, only if:

- There is no prudent and feasible alternative to using that land; and
- The program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from the use; or
- FHWA determines that the use of the property, including measures to minimize harm (such as any avoidance, minimization, mitigation, or enhancement measures) committed to by the applicant, will have a *de minimis* impact, as defined in 23 CFR 774.17, on the property.

4.2 Section 4(f) Resources

The study area used to identify Section 4(f) resources was dependent on the Section 4(f) property type. Recreational resources were identified using LTBMU, TRPA, and Douglas County planning documents. There are no historic sites, wildlife, or waterfowl refuges located within the Project Area and therefore were not considered. Table 4.1-1 lists potential Section 4(f) properties within the Project Area and whether the Proposed Project would result in a “use” of the property.

Table 4.1-1 Potential Section 4(f) Resources Located within the Project Area

Resource	Official with Jurisdiction	Type of Resource	Anticipated Section 4(f) Use
Round Hill Pines Resort	U.S. Forest Service Lake Tahoe Basin Management Unit	Recreational: The Round Hill Pines Resort is located on LTBMU property and includes public beach access.	<i>De minimis</i>
Stateline-to-Stateline Bike Trail, South Demonstration segment	Douglas County	Recreational: The Stateline-to-Stateline Bike Trail is a 2.2-mile trail segment beginning at Laura Drive and ending on the Round Hill Pines Resort property at US 50.	<i>De minimis</i>
Dispersed Lake Access Points and Foot Trails	N/A	Several informal footpaths are located within the project area, which are not officially designated as trails by LTBMU. These trails and trail networks provide access to parking areas, beach areas, and other recreation destinations located at Round Hill Pines Resort.	Not applicable for Section 4(f) protection, therefore there is no use.

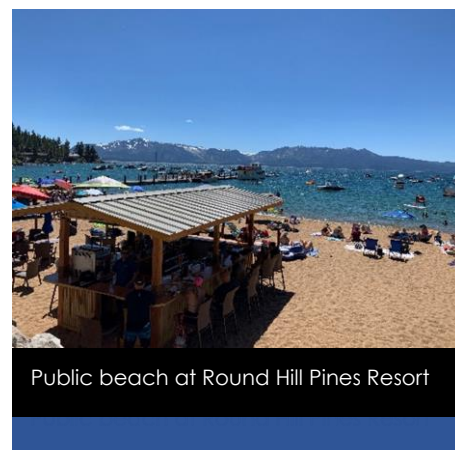
4.2.1 Round Hill Pines Resort

Round Hill Pines Beach and Marina is located within the project area along US 50, on the east

shore of Lake Tahoe. It is located on U.S. Forest Service land managed by the LTBMU but the resort and marina facilities are operated by a concessionaire through a special use permit from the LTBMU. Round Hill Pines Beach is considered a major destination at the southern end of Marla Bay and is open seasonally from May through September, weather dependent.

Round Hill Pines Resort provides the following recreational facilities:

- The main beach area is a narrow (75 to 100-foot wide) 1000-foot long stretch of sandy beach along the east shore of Lake Tahoe. Two paved concrete parking areas serve the resort area. Two additional asphalt parking areas will be added in Summer 2021. The resort is open for May to September from 8:00am to sunset.
- Day use activities offered along the beach include swimming, beach volleyball, and general recreation along the beach.
- The Round Hill Pines Marina offers watercraft mooring, boat access at the pier, boat, jet-ski, kayak, and stand up paddleboard rentals. Daily cruises along Lake Tahoe are also offered by the Tahoe Serenity, which is docked at the marina.

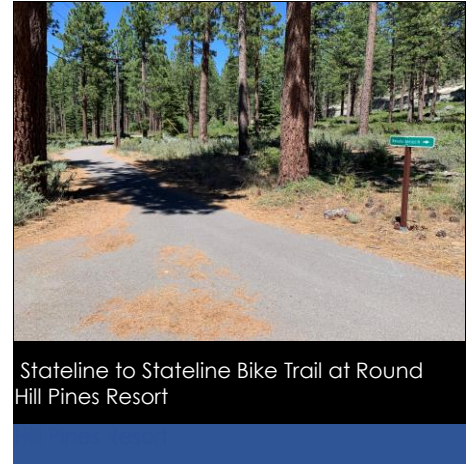


Public beach at Round Hill Pines Resort

- A newly renovated restaurant and restrooms are located at the edge of the beach near the pier.

4.2.2 Stateline-to-Stateline Bike Trail

The Stateline-to-Stateline Trail (South Demonstration Segment) is located on the east shore of Lake Tahoe beginning at Laura Drive and ending on the Round Hill Pines Resort property at US 50. The segment is approximately 2.2 miles in length and includes a 10-foot wide paved path with 2-foot wide shoulders on both sides. This segment is a component of the larger Nevada Stateline to Stateline Bikeway and overall regional shared-use path network.



Stateline to Stateline Bike Trail at Round Hill Pines Resort

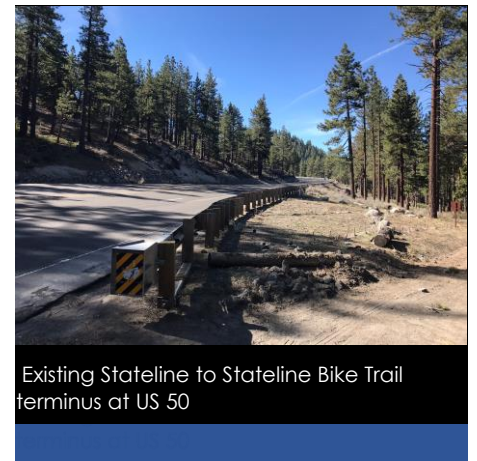
4.3 Use of Section 4(f) Resources

The “use” of a Section 4(f) resource is defined and addressed in the FHWA Regulations at 23 CFR 774.17. “Use” is defined as:

“Except as set forth in Sections 774.11 and 774.13, a ‘use’ of Section 4(f) property occurs: (1) when land is permanently incorporated into a transportation facility; (2) when there is a temporary occupancy of land that is adverse in terms of the statute’s preservation purpose as determined by the criteria in Section 774.13(d); or (3) when there is a constructive use of a Section 4(f) property as determined by the criteria in Section 774.15.”

As part of the Proposed Project, the Round Hill Pines access road will be relocated further to the north and constructed on NDOT and LTBMU-managed land. The access road would extend predominately through LTBMU open space that is designated as the Round Hill Pines Resort. Approximately 2.3 acres of open space would be converted to a transportation use for the access road. The Lake Tahoe Basin Management Unit, in partnership with the concessionaire, is conducting phased improvements to the Round Hill Pines Resort that will include parking consolidation and improving traffic flow into the newly designated parking lot areas. The Proposed Project would support this future LTBMU improvement project and would also provide a safer access location for Resort visitors.

Also as part of the Proposed Project, a 549-foot long portion of the Stateline-to-Stateline Bike trail will be removed due to construction of the relocated access road and will not be replaced. The Stateline-to-Stateline Bike trail would terminate at an existing paved path that leads to the Round Hill Pines public beach area. LTBMU, TRPA, and Douglas County support removing this short segment of trail because it terminates at US 50 in an undesirable location and does not continue further along the East Shore of Lake Tahoe. During several site visits in 2019, trail users were observed directly turning around at the US 50 terminus, instead of crossing the roadway. LTBMU, TRPA, and Douglas County have stated that a future Stateline-to-Stateline Bike trail project is in the planning stages and this future project will provide trail users with a safer US 50 crossing location.



Existing Stateline to Stateline Bike Trail terminus at US 50

The Code of Federal Regulations in 23 CFR 774 allows the FHWA to approve the use of a Section 4(f) property if “the Administration determines that the use of the property, including any measure(s) to minimize harm (such as any avoidance, minimization, mitigation, or enhancement measures) committed to by the applicant, will have a *de minimis* impact, as defined in §774.17, on the property.” A *de minimis* impact is one that, after taking into account any measures to

minimize harm, results in a determination that the project would not adversely affect the activities, features, or attributes qualifying a park, recreation area, or refuge for protection under Section 4(f). Per 23 CFR 774.5, coordination with others is required prior to making the *de minimis* impact determination. It is FHWA-CFLHD's intent to make a *de minimis* impact determination associated with the conversion of approximately 2.3 acres of open space located within the LTBMU Round Hill Pines Resort to a transportation use and the removal of a 549-foot segment of the Stateline-to-Stateline bike trail. The Proposed Project would not adversely affect the recreational attributes of the Round Hill Pines Resort or the Stateline-to-Stateline bike trail. The Round Hill Pines Resort will remain open and accessible during construction and no recreational attributes will be adversely affected by the Proposed Project. The loss of 549-linear feet of Stateline-Stateline bike trail would be minor in the context of the overall trail length. Recreational trail users would be able to get on the Stateline-to-Stateline bike trail at Laura Drive or Kahle Drive and access the Round Hill Pines Resort. The removed trail segment will be replaced by a future Stateline-to-Stateline bike trail project.

4.4 Avoidance, Minimization, and Mitigation Measures

The following measures have been incorporated into project design to reduce potential impacts to Section 4(f) properties:

- All areas beyond the construction limits will not be disturbed.
- Temporarily disturbed areas will be restored to pre-existing conditions. Degraded areas impacted from construction related activities will be reseeded with native plants under guidance from LTBMU staff.
- Access to the Round Hill Pines Resort, public beach areas, and the Stateline-to-Stateline Bike trail will be maintained throughout construction of the Proposed Project.

4.5 Agency Coordination

This project has been developed in coordination with LTBMU, TRPA, NDOT, and other local agency partners through scoping efforts, project design and environmental compliance reviews. As part of the EA process, there have been two public meetings held to discuss the purpose and need of the Proposed Project and the alternatives analysis. The public will have an opportunity to review the EA and FHWA's finding of a *de minimis* impact determination during the public comment period. The public can submit comments by utilizing the methods outlined in Chapter 1 of this EA document. Coordination with partner agencies is on-going and concurrence on FHWA's finding of a *de minimis* impact determination will be obtained prior to issuance of the decision document.

CHAPTER 5: PUBLIC INVOLVEMENT AND COORDINATION

5.1 Public Involvement

NEPA regulations and TRPA policy require public notification and scoping to determine the scope of the environmental analysis. The public scoping effort included a newsletter that was distributed to adjacent landowners, public agencies, and community groups in March 2019. The newsletter contained a general project overview, public meeting information, ways to be involved with the project development process, and contact information for CFLHD and LTBMU project staff. A public notice concerning the proposed project and public scoping meeting was advertised in the Tahoe Daily Tribute on April 5, 2019. A public scoping meeting was held at the USFS Lake Tahoe Basin Management Unit Office at 35 College Drive in South Lake Tahoe, CA on April 23, 2019. The public was introduced to a general project overview, the project team, existing conditions along US 50 and the Round Hill Pines Resort, and purpose and need for the project. Comments received at the public scoping meeting consisted of general support for improvements needed at the US 50 intersection, improved bike and pedestrian facilities along US 50, and general feedback on construction timeline and access during construction.

A second public meeting was held to discuss the Proposed Project and intersection alternatives. A newsletter was also distributed to adjacent landowners, public agencies, and community groups in August 2019 advertising the public meeting and the intersection alternatives. A public notice concerning the meeting was advertised in the Tahoe Daily Tribute and Reno Gazette Journal on September 7, 2019. The public meeting was held at the USFS Lake Tahoe Basin Management Unit Office at 35 College Drive in South Lake Tahoe, CA on September 25, 2019. The public was introduced to the intersection alternatives and participated in a question/answer session with members of the project team. Comments received at the public meeting consisted of preference on the intersection alternatives, general comments about the US 50 corridor and facilities at the Round Hill Pines Resort, and improved bike facilities.

Information on the Round Hill Pines Access Project may also be obtained at <https://highways.dot.gov/federal-lands/projects/nv/round-hill-pines> and includes information on how the public can get involved, when and where meetings and presentations can be scheduled, and availability of public meeting documents. Public meeting documents and comments received during the public meetings can be found in Appendix B.

5.2 Project Coordination

Correspondence with various federal, state, and local agencies and organizations occurred throughout project development. Correspondence is categorized by subject below.

5.2.1 Cultural Resources

A records search was conducted through the Nevada State Historic Preservation Office, Nevada Cultural Resources Information System (NVCRIS) by consultant staff prior to the field survey. Coordination with the LTBMU heritage resource staff was also conducted to gather additional information on the Round Hill Pines Resort. Nevada Department of Transportation cultural resources staff participated in reviewing the Architectural History and Archaeology Reports for the project and provided feedback. Native American consultation was conducted by FHWA-CFLHD and initiated consultation with the Washoe Tribe on July 6, 2020. Washoe Tribe Headquarters were invited to all public meetings for the project. FHWA-CFLHD is in the process of consulting with the Nevada SHPO regarding the area of potential effects, determinations of eligibility and finding of adverse effects.

5.2.2 Biological Resources

Consultation with USFWS began when an official species list was received through USFWS's Information for Planning and Consultation (IPaC) online system on May 29, 2019. Additional information on State of Nevada Protected Species, LTBMU sensitive species, TRPA special interest species was obtained on June 5th, 2019 and verified again on July 15, 2020. Coordination on the Biological Assessment/Biological Evaluation was conducted with LTBMU, TRPA and NDOT, which resulted in a determination of No Effect.

5.2.3 Noise Analysis

Coordination with TRPA and NDOT was initiated in September 2019 to review the Noise Analysis Report and discuss analysis methods to satisfy FHWA/NDOT noise regulation as well as TRPA noise policy.

5.2.4 Scenic Resources

Coordination with TRPA was initiated in September 2019 to discuss and select the viewpoints located within the project area that would require visual simulation. Several follow up meetings were scheduled with TRPA to discuss the visual simulations and the TRPA Code of Ordinances policy regarding scenic resources.

5.2.5 Hydrology/Water Quality

Coordination with TRPA, LTBMU, and NDOT on permanent BMPs for water quality was initiated on February 2, 2021 and will continue through the final design process.

5.2.6 Cumulative Effects

Coordination with TRPA, LTBMU, and NDOT on cumulative effects from adjacent projects was initiated in September 2019.

5.2.7 Section 4(f)

The Proposed Project would have impacts to resources identified as protected resources under Section 4(f) of the Department of Transportation Act of 1966 (49 U.S.C. 303). In order to apply *de minimis* under Section 4(f) requires public involvement and agency coordination with the officials having jurisdiction over the Section 4(f) property. Coordination with the Douglas County and LTBMU is on-going and concurrence will be obtained prior to issuance of the decision document.

CHAPTER 6: LIST OF PREPARERS

This EA was developed by the Federal Highway Administration's Central Federal Lands Highway Division (CFLHD) and is the lead agency under the National Environmental Policy Act (NEPA). The following individuals; federal, state, and local agencies; tribes and non-agency persons contributed to the development of this EA.

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- Ryan Mathis, Project Manager
- Thomas Sohn, PE, Former Project Manager
- Adrian Smith, Lead Design Engineer
- Christine Black, Safety Engineer
- Aaron Estep, Hydraulics Engineer
- James Arthurs, Geotechnical Engineer

U.S. Forest Service, Lake Tahoe Basin Management Unit

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- Michael Alexander, PE, Civil Engineer
- Ashley Sibr, Landscape Architect/Recreation Planner

Nevada Department of Transportation

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- Devin Cartwright, Roadway Design
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- Jessica Goza-Tyner, Air Quality and Traffic Noise Analyst

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- Shannon Friedman, Senior Planner
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- Michelle Glickert, Principal Transportation Planner

Tahoe Transportation District

- Danielle Hughes, Capital Program Manager

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