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NOTICE OF AVAILABILITY, COMMENT, AND PUBLIC HEARINGS

To: Nevada State Clearinghouse
California State Clearinghouse
Cooperating Agencies
Other Interested Public Agencies
Interested Parties and Organizations
Affected Property Owners (within 300 feet)

Subject: Joint TRPA and NEPA Draft EA for the Nevada Stateline-to-Stateline Bikeway, South Demonstration Project in Stateline, Nevada

From the Lead Agencies:

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The USFS and TRPA have directed the preparation of a joint Draft Environmental Assessment (EA) pursuant to National Environmental Policy Act (NEPA) regulations, TRPA's Compact, and Chapter 5 of the TRPA Code of Ordinances for the Nevada Stateline-to-Stateline Bikeway, South Demonstration Project.

The South Demonstration Project is a component of the larger Nevada Stateline-to-Stateline Bikeway Project, which encompasses an approximately 30-mile-long corridor between Stateline, Nevada and Crystal Bay, Nevada. The South Demonstration Project shared-use path is located in Douglas County, Nevada on the east shore of Lake Tahoe, beginning on Lake Parkway at the Nevada/California border in the south shore casino core and ending approximately 0.3 mile north of the entrance to Round Hill Pines Beach. The proposed shared-use path would be entirely on the west side of U.S. 50 and is approximately 3.2 miles in length, of which approximately 2.2 miles is proposed to be located on NFS lands. Approximately 0.9 mile of the proposed shared-use path would extend along private parcels owned by Edgewood Companies along Lake Parkway and U.S. 50, requiring a deed-restricted easement from Edgewood Companies and encroachment permits from Douglas County and Nevada Department of Transportation (NDOT). The remainder of the path would be an on-road segment on Laura Drive, which would require an encroachment permit and/or right-of-way dedication from the Olive Park General Improvement District (GID). The shared-use path would cross two streams in the project area: Edgewood Creek and Burke Creek. The proposed shared-use path would generally include a 10-foot wide paved path with 2-foot shoulders on both sides. The segment along Lake Parkway and U.S. 50, between Lake Parkway and 4-H Camp Road, (approximately one quarter of the total path length) would include a 12-foot-wide paved path with 1-foot shoulders on both sides. The shared-use path would be limited to non-motorized vehicle use, except by maintenance vehicles.

The approximately 3.2-mile shared-use path would be within the LTBMU Round Hill and Urban Lots management areas defined in the Forest Plan. It would cross portions of the following TRPA Plan Area Statements: 068 (Round Mound), 070A (Edgewood), 070B (Rabe), and 077 (Oliver Park), and would be contiguous to the Stateline and Kingsbury Community Plan areas. The shared-use path meets the definition of a linear public facility (LPF) in Chapter 2, "Definitions," of the TRPA Code of Ordinances, and as such would be subject to the applicable TRPA Code provisions that apply to LPFs.

The Draft EA analyzes three alternatives for the South Demonstration Project, identified as Alternative A, Alternative B, and Alternative C (No Project/No Action Alternative). Under both action alternatives (A and B), the project would be constructed in three phases. Each phase would consist of one segment of shared-use path, approximately 1 mile in length. These segments and the affected parcels include:

- Segment 1: The California/Nevada state line on Lake Parkway to the north side of Kahle Drive. This segment includes an option to narrow the width of Lake Parkway west of U.S. 50 by 7 feet.

- Segment 2: North side of Kahle Drive to the existing shared-use path on the south side of Elks Point Road (Elks Point Bike Path).

- Segment 3: South side of Elks Point Road (Elks Point Bike Path) to Round Hill Pines Beach. This segment includes upper and lower optional alignments around the west side of Round Mound.

Segments 1 and 3, including the optional alignments, would be the same with both Alternatives A and B. Similarly, the proposed expansion and enhancement of the existing parking lot with a restroom facility at the northwest corner of the intersection of U.S. 50 and Kahle Drive and use of a portion of the Elks Point Bike Path in Segment 2 would be the same with both Alternatives A and B.

The primary difference between Alternatives A and B is the alignment of the shared-use path through Rabe Meadow, between Kahle Drive and Elks Point Road (Segment 2). The Alternative A and B alignment options in Segment 2 were determined to best meet the purpose and need and project goals and objectives and are intended to minimize effects on cultural and biological resources and stream environment zone (SEZ) areas; minimize tree removal; maximize use of existing disturbed areas; and enhance user experience.

This notice is to inform you that a public comment period for the South Demonstration Project Draft EA will commence on Thursday, **January 13, 2011** and will conclude on Monday, **February 14, 2011**. Comments will be solicited during this timeframe and will be incorporated into the final document. Written responses should be sent at the earliest possible date, as comments received after 11:59 p.m. on February 14, 2011 are not required to be considered and may not be included in the final document. Please send your written responses to Garrett Villanueva at USFS at the address shown above. Responses should include the name of a contact person at your agency or organization.

The Draft EA is available for the public to review at the USFS LTBMU office (35 College Drive, South Lake Tahoe, CA), the TRPA office (128 Market Street, Stateline, NV), and the Douglas County Library in Zephyr Cove. In addition, the document can be found on the USFS LTBMU website (under Land & Resources Management, Projects), the TRPA website (under Major Projects and Environmental Documents), and the project website at http://www.nvtahoebikeway.com (under Document Library, South Demonstration Project).

Three public hearings are scheduled to solicit comments on the Draft EA. The first will be at the Douglas County Board of County Commissioners meeting on Thursday **January 20, 2011**, beginning at 1:30 p.m. at the Tahoe Transportation Center, 169 U.S. 50, Stateline, Nevada 89449. The second will be at the Tahoe Transportation District Board meeting on **January 21, 2011**, beginning at 9:30 a.m. at the Tahoe Regional Planning Agency, 128 Market Street, Stateline, NV 89449. The third will be before the TRPA Public Hearings Officer on February 3, 2011, beginning at 2:00 p.m. at the Tahoe Regional Planning Agency, 128 Market Street, Stateline, NV 89449. Please note that no specific agenda time has been set for this item at these meetings. Please refer to the agenda

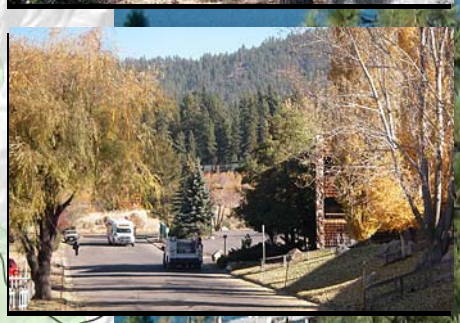
posted at http://cltr.co.douglas.nv.us/agendas.asp, http://www.tahoetransportation.org/board.html, and http://www.trpa.org/default.aspx?tabindex=1&tabid=239 one week prior to each of the meetings for updated information.

If you have any questions, please contact Garrett Villanueva at USFS or Jeanne McNamara at TRPA (contact information is provided above).

Draft
Joint Environmental Assessment

Nevada Stateline-to-Stateline Bikeway, South Demonstration Project

Lake Tahoe Basin Management Unit
Douglas County, Nevada



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TAHOE REGIONAL PLANNING AGENCY
Tahoe Regional Planning Agency

Forest Service

USDA
United States Department of Agriculture

January 2011

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Summary

Douglas County, Nevada proposes to construct the South Demonstration Project, a separated shared-use path located on the west side of U.S. 50 between the Stateline casino core on the south and Round Hill Pines Beach on the north. The shared-use path would be approximately 3.2 miles in length, of which approximately 2.2 miles is proposed on National Forest System (NFS) lands managed by the U.S. Department of Agriculture (USDA) Forest Service, Lake Tahoe Basin Management Unit (LTBMU). The remainder of the shared-use path would be constructed on private parcels owned by Edgewood Companies, or within an existing public rights-of-way belonging to Douglas County, the Oliver Park General Improvement District (Oliver Park GID), or the Nevada Department of Transportation (NDOT). It is a goal of the project to construct a separated, shared-use path designed to meet American Association of State Highway and Transportation Officials (AASHTO) and Americans with Disabilities Act (ADA) standards to serve a broad spectrum of users. With a few exceptions, the proposed shared-use path would generally consist of a 10-foot-wide, paved path with 2-foot-wide shoulders on both sides. Given the constraints of existing development west of U.S. 50 in the area between 4-H Camp Road and Kahle Drive, the project would include an approximately 0.15 mile (800 foot) on-road section that includes bicycle lanes on Laura Drive. The final trail design would meet ADA design standards, but would require some variances from the AASHTO standards at isolated locations due to topographic and environmental constraints.

The existing parking area at the northwest corner of the Kahle Drive/U.S. 50 intersection on NFS lands would be expanded to accommodate additional use of the Rabe Meadow area associated with the shared-use path. This parking lot would be expanded to approximately 12,000 square feet and would accommodate 14 additional parking spaces. An additional kiosk, two picnic tables, bicycle racks, a bear-proof garbage can, and an up to six-stall restroom building would also be added to the expanded lot.

Douglas County would be responsible for project construction and for the costs associated with the long-term management, operation, and maintenance of the proposed South Demonstration Project.

The South Demonstration Project is a near-term component of the larger 30+-mile-long Nevada Stateline-to-Stateline Bikeway Project that would parallel the east shore of Lake Tahoe and connect the California/Nevada border in the south shore casino core to the California/Nevada border in Crystal Bay, Nevada. The Nevada Stateline-to-Stateline Bikeway Project is a joint proposal of local, state, and Federal agencies with responsibilities of implementing the Lake Tahoe Environmental Improvement Program, Regional Transportation Plan, and Lake Tahoe Bicycle and Pedestrian Plan on the Nevada side of the Lake Tahoe Basin. The intent of the South Demonstration Project is to design and construct a working demonstration project for a shared-use path that serves users in this area, and to showcase the potential for creating the Nevada portion of a separated bikeway circling Lake Tahoe. Bicycle trail expansion has been identified as an important element of the Environmental Improvement Program (EIP) for air quality and recreation purposes and to encourage use of alternative modes of transportation. Although high quality trails exist in the Tahoe Basin, necessary connections for an integrated network of bicycle trails have been identified as a future need (TRPA 2007). Although the South Demonstration Project is not identified specifically as an EIP project, the project is consistent with the overall goals of the EIP, particularly the following EIP Air Quality and Transportation goal:

- 43 miles of bicycle and pedestrian trails to be constructed to help reduce dependency on the private automobile as directed by the Bi-State Compact.

This joint Environmental Assessment (EA) has been prepared to satisfy the applicable National Environmental Policy Act (NEPA) and Tahoe Regional Planning Agency (TRPA) environmental review requirements as described herein. The LTBMU is the lead agency under NEPA. LTBMU and TRPA maintain discretionary authority over the primary project approvals, which would include a LTBMU Special Use Permit (SUP) and a

TRPA Project Permit for a Linear Public Facility (LPF). This project is also identified in the Lake Tahoe Environmental Improvement Program as a means to achieve and maintain environmental threshold carrying capacities for Air Quality.

This EA evaluates three alternatives at an equal level of detail, two action alternatives (Alternatives A and B) and a no action/no project alternative (Alternative C). Alternative A was the alternative identified as the Proposed Action during public scoping, and is identified as such in this EA. The project proponent, Douglas County, has expressed a preference to construct Alternative B as have several other members of the Working Group. It is the purpose of this EA to disclose and provide an unbiased evaluation of the environmental effects of each of these action alternatives, as well as a no project/no action alternative. This EA addresses the direct, indirect, and cumulative effects of the three alternatives being considered. 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.

The action alternatives (Alternatives A and B) are similar in character. Both alternatives include common optional alignments that are considered in this EA for the portions of the shared-use path south of Kahle Drive and north of Elks Point Road. The primary difference between Alternatives A and B is the alignment of the shared-use path through Rabe Meadow, between Kahle Drive and Elks Point Road. The location of these alignments through Rabe Meadow was intended to minimize potential effects to cultural and biological resources, stream environment zone (SEZ) areas, and tree removal, while maximizing use of existing disturbed areas. Alternative A generally would extend parallel to and west of U.S. 50 for the majority of this segment. Alternative B would distance path users from U.S. 50 and cross Rabe Meadow at a mid-meadow location. Alternative B would merge with the Lam Watah Trail for a distance of approximately 1,200 linear feet.

Based on the analysis contained in this EA, LTBMU and TRPA will consider approval of the project. The Responsible Official under NEPA is the LTBMU Forest Supervisor. Given the purpose and need defined herein, the Forest Supervisor will review the proposed action and other alternatives to make the following decisions:

1) whether or not to implement the proposed action or an alternative to the proposed action; and

2) whether or not a Finding of No Significant Impact (FONSI) can be supported by the environmental analysis contained in this EA.

If a FONSI can be supported, then a Decision Notice will be issued by the Forest Supervisor.

After reviewing this EA and other information regarding the project proposal, the TRPA Governing Board will consider the adequacy of the EA and its compliance with the TRPA Regional Plan, Code of Ordinances, Rules of Procedure, and Goals and Policies. This will be followed by an action on the project by the TRPA Governing Board to approve or deny the project as presented.

This EA is also intended to be used by other agencies that may have authority over one or more elements of the South Demonstration Project as it relates to permitting and/or project approvals.

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ACRONYMS AND ABBREVIATIONS

AASHTO	American Association of State Highway and Transportation Officials
ACHP	Advisory Council on Historic Preservation
ADA	Americans with Disabilities Act
ADT	Average Daily Traffic
amsl	above mean sea level
APN	Assessor Parcel Numbers
BAPC	Bureau of Air Pollution Control
BAQP	Bureau of Air Quality Planning
bgs	below ground surface
BMPs	Best Management Practices
BWPC	Bureau of Water Pollution Control
BWQP	Bureau of Water Quality Planning
CAAA	Clean Air Act Amendments of 1990
Caltrans	Department of Transportation
CARB	California Air Resources Board
CEQ	Council on Environmental Quality
CHABA	Committee of Hearing, Bio Acoustics, and Bio Mechanics
CLOMR	conditional letter of map revision
CNEL	Community Noise Equivalent Level
CO	carbon monoxide
CWA	Clean Water Act
dbh	diameter at breast height
DCCDC	Douglas County Consolidated Development Code
DCMP	Douglas County Master Plan
DCSD	Douglas County Sheriff's Department
DCSID	Douglas County Sewer Improvement District
DOT	Department of Transportation
DVTE	Daily Vehicle Trip Ends
EA	Environmental Assessment
EPA	U.S. Environmental Protection Agency
EPN	eastside pine
EPSD	Elk Point Sanitation District
ESA	Endangered Species Act
Fed-OSHA	Federal Occupational Safety and Health Administration
FEMA	Federal Emergency Management Agency
FEW	freshwater emergent wetland
FHWA	Federal Highway Administration
Fire Plan	Tahoe-Douglas Fire Plan
FIRM	Flood Insurance Protection Agency
FLHP	Federal Lands Highway Program
FONSI	Finding of No Significant Impact
FSH	Forest Service Handbook
FSM	Forest Service Manual
ft	feet
FTA	Federal Transit Administration
GHGs	greenhouse gases
GID	General Improvement District
HAPs	hazardous air pollutants
IBC	International Building Code

IEC	Initial Environmental Checklist
in/sec	inches per second
IPES	Individual Parcel Evaluation System
ITAs	Indian Trust Assets
KGID	Kingsbury General Improvement District
Ksat	saturated hydraulic conductivity
LAC	lacustrine
LCD	Land Capability District
LCV	Land Capability Verification
LOMA	Letter of Map Amendment
LOPs	limited operating periods
LOS	Level of Service
LPF	linear public facility
LTAB	Lake Tahoe Air Basin
LTBMU	Lake Tahoe Basin Management Unit
MEI	Maximally Exposed Individual
MRI	montane riparian
MUTCD	Manual on Uniform Traffic Control Devices
NAC	Nevada Administrative Code
NDEP	Nevada Division of Environmental Protection
NDF	Nevada Division of Forestry
NDMV	Nevada Department of Motor Vehicles
NDOT	Nevada Department of Transportation
NDOW	Nevada Division of Wildlife
NDSL	Nevada Division of State Lands
NDSP	Nevada Division of State Parks
NEHRP	National Earthquake Hazards Reduction Program
NEHRPA	National Earthquake Hazards Reduction Program Act
NEPA	National Environmental Policy Act
Nev-OSHA	Nevada Occupational Safety and Health Act
NFIP	National Flood Insurance Program
NFS	National Forest System
NHPA	National Historic Preservation Act
NIST	National Institute of Standards and Technology
NNHP	Natural Heritage Program
NO	nitric oxide
NO_2	nitrogen dioxide
NOP	notice of preparation
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NRS	Nevada Revised Statutes
NSF	National Science Foundation
NWP	nationwide permit
ONRW	Outstanding National Resource Water
PAOT	persons at one time
PAS	Plan Area Statements
Plan	National Fire Plan Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment 10-year Strategy
PM_{10}	particulate matter measuring 10 microns or less
ppm	parts per million

PPN	ponderosa pine
PPV	peak particle velocity
RCRA	Resource Conservation and Recovery Act
RFR	red fir
RHGID	Round Hill General Improvement District
RIV	riverine
RMS	root mean square
ROD	Record of Decision
ROG	reactive organic gases
RTP	Regional Transportation Plan
SEIS	Supplemental Environmental Impact Statement
SERC	State Emergency Response Commission
SEZ	stream environment zone
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SMC	Sierran mixed conifer
SNFPA	Sierra Nevada Forest Plan Amendment
SNPLMA	Southern Nevada Public Lands Management Act
SO_2	sulfur dioxide
SQIP	Scenic Quality Improvement Program
SR	State Route
STR	South Tahoe Refuse, Inc.
SUP	Special Use Permit
SWPPP	Storm Water Pollution Prevention Plan
TAC	toxic air contaminants
TCORP	Tahoe Coalition of Recreational Providers
TCP	traffic control plan
TDD	Tahoe-Douglas District
TDFPD	Tahoe Douglas Fire Protection District
THPO	Tribal Historic Preservation Officer
TIPS	Terrestrial Invasive Plant Species
TMPO	Tahoe Metropolitan Planning Organization
TransCAD	Transportation Model
Tribe	Washoe Tribe of Nevada and California
TRPA	Tahoe Regional Planning Agency
TTD	Tahoe Transportation District
UCMP	University of California Museum of Paleontology
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish & Wildlife Service
USGS	U.S. Geological Survey
VdB	vibration decibels
VMT	vehicle miles traveled
VQO	Visual Quality Objectives
VRI	valley foothill riparian
WFR	white fir
WQ	Water Quality
WTM	Wet meadow
µin/sec	microinch per second

1 Introduction

1.1 Lead Agencies

The South Demonstration Project is a proposed share-use path in Douglas County, Nevada that would be a near-term component of the Nevada Stateline-to-Stateline Bikeway that would parallel the east shore of Lake Tahoe and connect the California/Nevada border in the south shore casino core area to the California/Nevada border in Crystal Bay, Nevada. The U.S. Department of Agriculture (USDA) Forest Service Lake Tahoe Basin Management Unit (LTBMU) is the lead agency under the National Environmental Policy Act (NEPA). LTBMU is the permitting authority for a Special Use Permit (SUP) required for implementation of the proposed bicycle facility on National Forest System (NFS) lands. The Tahoe Regional Planning Agency (TRPA) is the primary permitting agency and lead agency under the Tahoe Regional Planning Compact. This Environmental Assessment (EA) has been prepared in accordance with NEPA, Council on Environmental Quality (CEQ) Regulations Implementing NEPA (40 Code of Federal Regulations [CFR] Section 1500 et seq.), and Forest Service NEPA Procedures (36 CFR Section 220), as well as Chapter 5 of the TRPA Code of Ordinances and Article VI of the TRPA Rules of Procedure.

Douglas County is the project proponent for the proposed South Demonstration Project. Other entities that have been instrumental in guiding the preliminary design and preparation of this EA include the Tahoe Transportation District (TTD), the Nevada Department of Transportation (NDOT), and the Washoe Tribe of Nevada and California. Other agencies involved indirectly through sponsorship of the Nevada Stateline-to-Stateline Bikeway planning process include Washoe County, Carson City, the Incline Village General Improvement District, the Nevada Division of State Parks (NDSP), and the Nevada Division of State Lands (NDSL). Also due to sponsorship of the project, the Federal Highway Administration (FHWA) is a cooperating agency for the South Demonstration Project under NEPA.

1.2 Document Structure

The information provided in this EA is intended to satisfy environmental review requirements for the proposed South Demonstration Project. The EA discloses the direct, indirect, and cumulative environmental impacts that may result from implementation of any of the alternatives. The document is organized into the following five chapters:

- **1.0 Introduction:** This chapter includes information on: the background of the project proposal; the purpose and need for the project; project goals and objectives; the proposed action; project funding; the regulatory and decision-making framework; the public involvement process; project issues; and other applicable laws, regulations, or policies.

- **2.0 Alternatives:** This chapter provides a detailed description of the alternatives, including alternatives that have been considered but eliminated from detailed study. It contains maps that define the project area and identify the alternative shared-use path alignments and design features evaluated in this EA.

- **3.0 Affected Environment and Environmental Consequences:** This chapter is organized by resource area and, within each section, the direct, indirect, and cumulative environmental effects, and consequences for TRPA Environmental Threshold Carrying Capacities of the action alternatives are discussed, followed by the effects of the No Project/No Action alternative.

- **4.0 Consultation and Coordination:** This section provides a list of EA preparers and agencies consulted during the development of the EA.

- **5.0 References:** Provides a bibliography of sources cited in the EA.

1.3 Background

The Nevada Stateline-to-Stateline Bikeway Project is a joint proposal of local, state, and federal agencies with responsibilities on the Nevada side of the Lake Tahoe Basin. A "Working Group" has been formed to oversee the Bikeway project and it consists of the staff from the above-described sponsoring and partnering agencies that are helping to direct the project planning, environmental review, and bikeway design. The proposed South Demonstration Project is a near-term component of the larger Nevada Stateline-to-Stateline Bikeway.

1.4 Purpose and Need

1.4.1 Purpose

The purpose of the Nevada Stateline-to-Stateline Bikeway, South Demonstration Project is to provide a separated, shared-use path that links recreation areas, community centers, transportation facilities, and neighborhoods from the California/Nevada border at Lake Parkway West in Stateline, Nevada to Round Hill Pines Beach in Round Hill, Nevada.

1.4.2 Need

Existing bikeways in the Tahoe Basin are extremely popular and public surveys show that expansion of the bikeway system around the entire Lake is desired (TRPA/Tahoe Metropolitan Planning Organization 2010). Separated bicycle facilities are not available along most of the Nevada side of Lake Tahoe, so improved bicycle facilities are needed to serve residents and visitors in this area. The proposed South Demonstration Project of the Nevada Stateline-to-Stateline Bikeway would provide a spectacular recreation opportunity to link the Stateline community and its casino core to public beaches and coves along the east shore to Round Hill Pines Beach. These popular recreation areas are generally accessed by automobile only. Providing bicycle links to recreation areas and the casino core would be an important step toward reducing vehicle impacts, improving the multi-modal options available to residents and visitors, and providing a highly desirable recreation experience in the shared-use path itself. For these reasons, the South Demonstration Project provides high value as an independent facility, but is also a critical first step to completing the planned Nevada Stateline-to-Stateline Bikeway.

1.5 Project Goals and Objectives

The following goal and objectives were developed for the project to meet the purpose and need:

Goal: The primary goal of the project is to design and construct a demonstration project for a shared-use path to showcase the potential for creating the Nevada portion of a premier separated bikeway circling Lake Tahoe.

Objectives:

- Create a successful separated, shared-use path to promote alternative transportation modes to the automobile that connects the casino core in Stateline, Nevada to Nevada Beach and Round Hill Pines Beach.
- Provide a separated, shared-use path that provides a high-quality user experience.
- Serve a broad spectrum of users by meeting American Association of State Highway and Transportation Officials (AASHTO) and Americans with Disabilities Act (ADA) design standards.

- Provide new high quality recreation opportunities while protecting the quality, integrity, and character of existing recreation opportunities.

In addition to the AASHTO and ADA standards, the South Demonstration Project would be designed to meet the 15 design principles established by the Working Group for the broader Nevada Stateline-to-Stateline Bikeway. These principles are:

1. Identify and provide convenient buildable connections to communities, public facilities, public lands, the lakeshore, and open space.

2. Establish separated shared-use path alignments wherever feasible.

3. Serve both recreation and commuter needs, with recreation needs receiving first priority where choices must be made.

4. Support the protection, restoration, and sustainability of natural and cultural resources.

5. Anticipate future growth in the surrounding communities in Nevada and California.

6. Provide for a variety of bicycle and pedestrian uses on the separated, shared-use path, while recognizing and managing potential conflicts.

7. Provide adequate public and private support facilities.

8. Remain sensitive to the cultural resources and traditions of the Washoe Tribe.

9. Design the bikeway to create social and economic benefits.

10. Provide interpretive opportunities along the bikeway for natural, cultural, and historic resources.

11. Minimize the number of at-grade crossings on State Route 28 and U. S. Highway 50 (U.S. 50).

12. Provide connections to existing or new trails to recreation areas, transportation facilities, and community centers along the bikeway.

13. Where appropriate, enhance and use existing disturbed area, such as old logging and fire access roads, and take advantage of joint parking opportunities, such as at school sites.

14. Include opportunities for ADA accessibility.

15. Provide visitor amenities, such as rest areas and vistas, to make the bikeway an enjoyable experience.

1.6 Proposed Action

The proposed action and other alternatives evaluated in this EA are described in detail in Chapter 2, “Alternatives.” The proposed South Demonstration Project would be a shared-use path located on the west side of U.S. 50 between the Stateline casino core and Round Hill Pines Beach. The path would be limited to non-motorized vehicle use, except by maintenance vehicles. The proposed shared-use path would generally include a 10-foot-wide paved path with 2-foot shoulders on both sides. The segment along Lake Parkway and U.S. 50 between Lake Parkway and 4-H Camp Road (approximately one quarter of the total path length) would include a 12-foot-wide paved path with 1-foot shoulders on both sides. It would be approximately 3.2 miles in length, of which approximately 2.2 miles is proposed on NFS lands managed by the LTBMU. Approximately 0.9 mile of

the proposed shared-use path would extend along private parcels owned by Edgewood Companies along Lake Parkway and U.S. 50, requiring a deed-restricted easement from Edgewood Companies and encroachment permits from Douglas County and NDOT. The remainder of the path would be an on-road segment on Laura Drive which would require an encroachment permit and/or right-of-way dedication from the Olive Park General Improvement District (GID).

1.7 Project Funding

Public funding for the South Demonstration Project is provided by local, state, and federal grants some of which require matches provided by the project proponent (Douglas County) and partnering agencies for the Nevada Stateline-to-Stateline Bikeway. Funding for the proposed project and the broader Nevada Stateline-to-Stateline Bikeway originated with a State of Nevada Conservation and Resource Protection Grant Program (also known as State Question 1 Program), a voter-approved bond measure passed in 2002, which provided up to $5 million for the construction of a "Lake Tahoe Pathway System." Funds from this program are administered by NDSL. Since that time, Douglas County and the partnering agencies have secured additional funding sources for the South Demonstration Project that includes: Southern Nevada Public Lands Management Act (SNPLMA) Round 8 funds administered by the Forest Service, and FHWA Federal Lands Highway Program (FLHP) funds administered by TMPO and passed through TTD. Grant funds awarded to date have been used for preliminary design, environmental review, and permitting.

The South Demonstration Project has been designed in a series of segments (see Chapter 2, "Alternatives") that allows construction to occur in phases as funding becomes available. TTD and Douglas County are leading the effort to seek the additional matching funds necessary to complete final design and construction of the proposed South Demonstration Project. Douglas County would be responsible for the costs associated with the long-term operation and maintenance of the proposed South Demonstration Project.

1.8 Regulatory and Decision Framework

This EA is intended to meet the environmental review requirements of the LTBMU and TRPA, which maintain discretionary authority over the primary project approvals, which would include a LTBMU SUP and TRPA Project Permit for a Linear Public Facility.

The Responsible Official under NEPA is the LTBMU Forest Supervisor. Given the purpose and need, the Forest Supervisor will review the proposed alternatives, including the proposed action, to make the following decisions on NFS lands: 1) whether or not to implement the proposed action or an alternative to the proposed action; and 2) whether or not a Finding of No Significant Impact (FONSI) can be supported by the environmental analysis contained in this EA. If a FONSI can be supported, then a Decision Notice will be issued by the Forest Supervisor.

After reviewing this EA and other information regarding the project proposal, the TRPA Governing Board will consider the adequacy of the EA and its compliance with the TRPA Regional Plan, Code of Ordinances, Rules of Procedure, and Goals and Policies. This will be followed by an action on the project by the TRPA Governing Board to approve or deny the project as presented.

This EA is also intended to be used by other agencies that may have authority over one or more elements of the South Demonstration Project. Other potential permits and/or approvals that may be required for development are listed in Section 1.12, "Permitting," at the end of this chapter.

1.9 Public Involvement

NEPA requires public notification and scoping to determine the scope of the environmental analysis. The public scoping (request for comments) period began on August 21, 2009, and ended on September 21, 2009 (Project Record C-1). Public scoping included a public meeting (with approximately 20 attendees) held from 6:00 to 8:00 p.m. on September 10, 2009 at TRPA's offices in Stateline, Nevada. Scoping notices were mailed to interested parties requesting comments and issues for consideration in the South Demonstration Project joint EA be submitted by September 21, 2009. Parties contacted in the scoping process included outdoor retailers on the southeast shore of Lake Tahoe, property owners within 300 feet of the proposed bicycle path alternatives, individuals requesting to be included on the distribution list for all things project related, and an extensive list of government, public, and community organizations.

Additionally, public notices were placed in both the Tahoe Daily Tribune and the Nevada Appeal on August 21, 2009 and September 4, 2009, respectively. Copies of these notices are available in the project record on file at the LTBMU's offices at 35 College Drive in South Lake Tahoe, California.

Information on the Nevada Stateline-to-Stateline Bikeway may also be obtained at http://www.nvtahoebike way.com. This website is a key public outreach tool for the Nevada Stateline-to-Stateline Bikeway Project, providing information on how the public can get involved, when and where meetings and presentations will be scheduled, availability of documents, and answers to frequently asked questions.

A scoping summary report was prepared for the initial scoping process (Project Record E-1). This report summarizes comments received during the public scoping process and includes responses to those comments. The report identifies issues associated with the alternatives and was used by the LTBMU and TRPA to determine areas in the EA where additional assessment, information, or clarification would be necessary.

1.10 Project Issues

Comments received during scoping were separated into three groups: (1) non-significant issues, (2) significant issues considered but eliminated from detailed study, and (3) significant issues.

- **Non-Significant Issues** do not meet the Purpose and Need for the project; are outside the scope of the project; are already decided by law, regulation, or the LTBMU Land and Resource Management Plan (Forest Plan) (see Section 1.11.1 below); are not supported by scientific evidence; are addressed by project design features; or are addressed by additional information or clarification of the project. Non-Significant issues also represent opinions and statements which do not present problems or alternatives.

- **Significant Issues considered but eliminated from detailed study** meet the Purpose and Need for the project but were considered in alternatives already studied and eliminated, or additional project design features were developed which reduced or eliminated the effects.

- **Significant Issues** meet the Purpose and Need for the project and are "significant" in the extent of the geographic distribution, the duration of effects, or the intensity of interest or resource conflict and, therefore, merit consideration for the development of an alternative to the project.

In Section 1501.7, the CEQ NEPA regulations require this delineation, "…identify and eliminate from detailed study the issues which are not significant or which have been covered by prior environmental review (Section 1506.3)…" A list of non-significant issues and reasons regarding their categorization as non-significant and significant issues considered but eliminated from detailed study may be found in the Scoping Summary Report (Project Record E-1).

As for significant issues, LTBMU identified the following significant topics during scoping. These issues are included among the analyzed topics in the EA.

- Unwillingness of a private property owner to grant an easement for the proposed action, resulting in a substandard shared-use path section along U.S. 50;
- Concern about impacts to private property, and
- Concern over security in the Elks Point neighborhood.

1.11 Other Laws, Regulations, or Policies

1.11.1 National Forest Management Act

The National Forest Management Act requires the development of long-range land and resource management plans. In the Tahoe Region, the management of NFS lands is guided by the Land Resource Management Plan (Forest Plan), adopted in 1988. The Forest Plan provides guidance for all natural resource management activities on NFS lands. The National Forest Management Act requires all projects and activities to be consistent with the Forest Plan and amendments thereto. The Forest Plan was amended in 2001 by LTBMU with the adoption of the Sierra Nevada Forest Plan Amendment (SNFPA), which was intended to:

- Protect, increase, and perpetuate old forest ecosystems and provide for the viability of native plant and animal species associated with old forest ecosystems,
- Protect and restore aquatic, riparian, and meadow ecosystems and provide for the viability of native plant and animal species associated with these ecosystems,
- Manage fire and fuels in a consistent manner across the national forests, coordinate management strategies with other ownerships, integrate fire and fuels management objectives with other natural resource management objectives, address the role of wildland fire, and set priorities for fire and fuels management actions,
- Reduce and, where possible, reverse the spread of noxious weeds, and
- Maintain and enhance hardwood forest ecosystems in the lower westside of the Sierra Nevada.

This amendment was replaced in its entirety with a revised plan – SNFPA 2004. The SNFPA 2004 retained the goals of the 2001 SNFPA and added management policies for 1) old forest ecosystems; 2) aquatic, riparian, and meadow ecosystems; 3) and fire, fuels and forest health. Managing the risk of catastrophic wildfire in the Lake Tahoe Basin was viewed as the priority for the SNFPA 2004. On August 18, 2008, the Federal District Court, Eastern District of California decided in favor of the State of California in *People of the State of California v. United States Department of Agriculture* that an insufficient range of alternatives were evaluated in the SNFPA 2004 Supplemental Environmental Impact Statement (SEIS), overturning the record of decision and in effect the SNFPA until a subsequent SEIS can be prepared. The Draft SEIS for SNFPA 2004 was released for public review on February 19, 2010 and a Record of Decision (ROD) is anticipated in the spring/summer of 2011.

The Forest Plan has been reviewed in consideration of this project. The South Demonstration Project is within the Round Hill and Urban Lots management areas defined in the Forest Plan. A Forest Plan consistency matrix and review for this project was completed in October 2008 (Project Record A-1). The South Demonstration Project is consistent with the standards and guidelines contained in the Forest Plan.

1.11.2 Federal Endangered Species Act

The U.S. Fish & Wildlife Service (USFWS) has authority over projects that may result in take of a species listed as threatened or endangered under the Federal Endangered Species Act (ESA) of 1973 (Title 50, Part 17 of the Code of Federal Regulations [50 CFR 17]), as amended under the USFWS Mitigation Policy of 1956 (Title 16, Chapter 35, Section 1531 of the United States Code [16 U.S.C. 1531 et seq.], as well as those species that are designated by Region 1 of USFWS as species of concern. The ESA defines *take* as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct" (Public Law 93-205, as amended by Section 3 of Public Law 107-136 [16 U.S.C. 1532]). USFWS has also interpreted the definition of "harm" to include habitat modification that could result in take. If a project is likely to result in take of a Federally-listed species, either an incidental take permit under ESA Section 10(a) or a Federal interagency consultation under ESA Section 7 is required before the take may occur. Such a permit typically requires various types of mitigation to compensate for or to minimize a take.

In accordance with Section 7(c) of the Endangered Species Act, the USFWS list of "endangered and threatened species that may be affected by projects in the Lake Tahoe Basin Management Area" (updated on January 31, 2008) was reviewed and documented in a Biological Assessment prepared for the project (Project Record K-1). It should be noted that no such species were found in the project area therefore there are no adverse effects on threatened or endangered species as it relates to the ESA of 1973. A discussion of effects to endangered and threatened species can be found in Section 3.4, "Biological Resources."

1.11.3 Section 4(f) of the U.S. Department of Transportation Act

Section 4(f) of the U.S. Department of Transportation (DOT) Act of 1966 stipulates that the FHWA and other DOT agencies cannot approve the use of land from publicly owned parks, recreational areas, wildlife and waterfowl refuges, or public and private historical sites unless the following conditions apply:

- There is no feasible and prudent alternative to the use of land.
- The action includes all possible planning to minimize harm to the property resulting from use (DOT 2010).

The FHWA's *Final Negative Declaration / Section 4(f) Statement and Determination for Independent Bikeway or Walkway Construction Projects* (Negative Declaration) was prepared in 1977 in an effort to reduce processing time and delays in the construction of bikeway and walkway projects. This document applies to projects that meet certain criteria. The applicable criterion is discussed below with respect to the South Demonstration Project.

The negative declaration applies to independent bikeways as defined in Part 652 of Chapter 1 of Title 23 of the CFR:

(i) **Independent Bicycle Construction Project (Independent Bicycle Project)**. A project designation used to distinguish a bicycle facility constructed independently and primarily for use by bicyclists from an improvement included as an incidental part of a highway construction project.

Because the South Demonstration Project is a separated, shared-use path that is not associated with a highway construction project and outside the existing transportation corridor, the proposed project is consistent with this definition. The South Demonstration Project is generally consistent with AASHTO, NDOT, TRPA, and Douglas County standards related to alignment and profile, surface material, drainage, and width for a two-way facility. Variances from these standards at specific locations are described in Chapter 2, "Alternatives." The South Demonstration Project would be accessible from controlled access points at several locations along its length thereby connecting residential areas with employment centers, shopping, and entertainment.

A portion of the South Demonstration Project would require an easement across privately owned land; however, it would provide an alternative route for bicyclists that would otherwise have to utilize U.S. 50, a federal-aid highway that exhibits high traffic volumes and speeds thereby posing a safety risk to non-auto users. The shared-use path would be maintained by Douglas County and motorized vehicles would be prohibited from using the path, with the exception of maintenance and emergency vehicles.

The South Demonstration Project is an independent, shared-use path project that requires the use of NFS land that has been established and maintained primarily for recreation, open space, and similar purposes. The project would not require the use of critical habitat of endangered species, would not require use of any land from a publicly owned wildlife or waterfowl refuge or any land from a historic site of national, state, or local significance. There are no unusual circumstances (major impacts, adverse effects, or controversy) associated with the project.

The project proponent has submitted a request for concurrence from the FHWA's Nevada Division related to the above-referenced section of the CFR. Upon concurrence from FHWA, a similar request will be submitted to the USFS for concurrence as a cooperating agency to ensure compliance with Section 4(f) of the U.S. Department of Transportation (DOT) Act of 1966. Based on consultation with FHWA and LTBMU staff, concurrence is expected from both agencies, and it is expected that formal documentation of that concurrence will be available prior to that time in which the project will be considered by decision-makers for approval.

1.11.4 Section 106 of the National Historic Preservation Act

Section 106 of the National Historic Preservation Act (NHPA, Public Law 89.665, as amended) requires federal agencies to take into account the effect of proposed undertakings such as the South Demonstration Project on any district, site, building, structure, or object that is included in, or eligible for inclusion in the National Register of Historic Places (NRHP). Section 106 review is conducted to determine whether significant (per NRHP criteria) resources will be adversely affected by an undertaking, and if so, whether measures can be implemented to adequately resolve adverse effects. Section 106 requires federal agencies to afford the State Historic Preservation Officer (SHPO) a reasonable opportunity to comment. As part of the Cultural Resources Inventory and Evaluation prepared for the project (Project Record K-2), surveys were conducted for Native American religious or cultural sites, archaeological sites, and historic properties or areas that may be affected by the South Demonstration Project. Research conducted as part of this study indicates that the project area and vicinity contains a number of cultural resources that are considered eligible according to NRHP criteria. As described in Section 3.8, "Archaeological and Historical Resources," project design features would be implemented to reduce or avoid potential construction-related disturbances to cultural resources most likely to be affected by these activities. The SHPO would need to provide a letter of concurrence that the South Demonstration Project would have no effect on cultural sites eligible for listing on the NRHP, or that adequate measures to resolve potential adverse effects had been resolved before decision-makers could approve construction of the project.

1.11.5 Clean Water Act

The Clean Water Act (CWA) consists of the Federal Water Pollution Control Act of 1972 and subsequent amendments. All federal agencies must comply with the provisions of the Clean Water Act (CWA). The CWA establishes the basic structure for regulation of discharges of pollutants to surface waters within the United States. It authorizes the U.S. Environmental Protection Agency (EPA) to set effluent limits for discharges and requires the EPA to set water quality standards for contaminants in surface waters. The EPA has delegated responsibility to the State of Nevada to implement the National Pollutant Discharge Elimination System (NPDES) program authorized by the CWA. This is carried out by the Nevada Department of Environmental Protection (NDEP) Bureau of Water Pollution Control (BWPC).

The CWA regulates forest management activities near waters of the U.S. and riparian areas. A permit from the U.S. Army Corps of Engineers (USACE) is required prior to any work in, over, or under; excavation of material

from; or deposition of material into waters of the United States, including jurisdictional wetlands, in accordance with Section 404 of the CWA Section 404. Fills of less than 0.5 acre of nontidal waters of the United States for residential, commercial, or institutional development projects can generally be authorized under USACE's nationwide permit (NWP) program, provided that the project satisfies the terms and conditions of the particular NWP. Fills that do not qualify for a NWP require a letter of permission or an individual permit.

As analyzed in Section 3.4, "Biological Resources," the South Demonstration Project would cross Edgewood Creek and the main Burke Creek channel, and depending on alignment could cross a tributary to Burke Creek. The design features associated with the South Demonstration Project would ensure that the terms of the CWA are met, primarily related to minimizing fill in Section 404 jurisdictional areas and preventing pollution caused by erosion and sedimentation.

In the Lake Tahoe Basin the USACE has established a regional general permit to authorize certain activities with minimal individual and cumulative effects on waters of the U.S. that are subject to extensive regulatory review by other agencies, such as NDEP and TRPA. Called Regional General Permit No. 16, this permit can be used to authorize fill for restoration of stream channels and wetlands, among other things. The current term of this permit ends December 31, 2010. Official guidance from the USACE regarding project permitting in 2011 is forthcoming (Hansen, pers. comm. 2010). A USACE Section 404 Regional General Permit No. 16 and Section 401 water quality certification from NDEP would be required prior to initiating construction of the South Demonstration Project.

1.11.6 Section 10 of the Rivers and Harbors Act of 1989

Under Section 10 of the Rivers and Harbors Act of 1899, work in, over, or under; excavation of material from; or deposition of material into navigable waters is regulated by USACE. Navigable waters of the United States are defined as those waters, and the tributaries of those waters, subject to the ebb and flow of the tide shoreward to the mean high-water mark and those that are currently used, have been used in the past, or may be susceptible to use to transport interstate or foreign commerce. The jurisdiction of USACE under the CWA overlaps and extends beyond the geographic scope of its jurisdiction under the Rivers and Harbors Act. USACE permitting authority under the Rivers and Harbors Act is not subject to U.S. Environmental Protection Agency (EPA) oversight or any other restrictions specific to the CWA, and, in some cases the Rivers and Harbors Act alone will apply to waters. For the South Demonstration Project, authorization under Regional General Permit No. 16 would address the requirements of both the Rivers and Harbors Act Section 10 and CWA Section 404.

1.11.7 Clean Air Act

As described in Section 3.10, "Air Quality," the project area is within the Lake Tahoe Air Basin (LTAB) and air quality within the Douglas County portion of the LTAB is regulated by the EPA, TRPA, and NDEP Bureau of Air Pollution Control and Bureau of Air Quality Planning.

General conformity requirements were adopted by Congress as part of the federal Clean Air Act Amendments of 1990 (CAAA). General conformity requires that all federal actions conform to the state air quality control plan referred to as a State Implementation Plan (SIP). The Transportation Conformity Rule appears in 40 CFR Parts 51 and 93. 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 purpose of the general conformity program is to ensure that actions taken by the federal government do not undermine state or local efforts to achieve and maintain national ambient air quality standards. Before a federal action is taken, it must be evaluated for conformity with the SIP. All reasonably foreseeable emissions, both direct and indirect, that are predicted to result from the action are taken into consideration. The location and quantity of emissions must be identified. If it is found that the action would create emissions above de minimis threshold levels specified in EPA regulations, or if the activity is considered regionally significant because its emissions

exceed 10% of an area's total emissions, the action cannot proceed unless mitigation measures are specified that would bring the project into conformance.

The most recent conformity determination for the Lake Tahoe Regional Transportation Plan (RTP) was approved by the FHWA on January 26, 2008. The most recent amendment to the RTP referred to as "Mobility 2030" was adopted on August 27, 2008. The RTP amendment did not interfere with the timely implementation of transportation control measures contained in the SIP and therefore did not require a subsequent conformity determination.

The South Demonstration Project is a non-motorized transportation facility that supports the RTP's goal of bicycle and pedestrian modes of transportation. Because the South Demonstration Project action alternatives are consistent with the RTP for which an air quality conformity analysis has already been conducted, an independent conformity determination for the South Demonstration Project is not required.

1.11.8 Indian Trust Assets and Native American Consultation

Indian Trust Assets (ITAs) are legal interests in property held in trust by the United States for Native American tribes or individuals. The Secretary of the Interior, acting as the trustee, holds many assets in trust. Examples of trust assets include lands, minerals, hunting and fishing rights, and water rights. The United States has an Indian trust responsibility to protect and maintain rights reserved by or granted to Native American tribes or individuals by treaties, statutes, and executive orders. This requires federal agencies to carry out activities in a manner that avoids adverse impacts to ITAs when possible. When adverse impacts cannot be avoided, appropriate mitigation or compensation will be provided. Tribal lands ITAs consist of lands that have been deeded to tribes or upon which tribes have a historical legal claim. However, there are no such lands within or in the immediate vicinity of the project area and, for this reason, it was determined that the South Demonstration Project would have no impact on ITAs. Because ITAs have been evaluated and the project would have no impact on these resources, the proposed project would comply with ITAs.

As described in Section 3.8, "Archaeological and Historical Resources," the Washoe Tribe of California and Nevada was consulted regarding the proposed project. Surveys have been conducted to identify historic properties and evaluate their eligibility for inclusion in the NRHP. Design features have been proposed to avoid or minimize impacts on cultural resources such that no adverse effects would result from project implementation.

1.11.9 Environmental Justice (Executive Order 12898)

Executive Order 12898 requires that all federal actions consider potentially disproportionate effects on minority and low-income communities, especially if adverse effects to environmental or human health conditions are identified. Adverse environmental or human health conditions created by any of the South Demonstration Project alternatives considered would not affect any minority or low income neighborhood disproportionately.

The activities proposed in the action alternatives evaluated in this EA were based on sensitivity of the environment and providing a high quality recreation experience in response to the Purpose and Need. In no case were the alignments based on demographic makeup, occupancy, property value, income level or any other criteria reflecting the status of adjacent non-federal land. Federally owned lands are located throughout the project area, and are intermixed with non-federal lands. Reviewing the location of the proposed alternatives in relationship to non-federal land, there is no evidence to suggest that any minority or low income neighborhood would be affected disproportionately. Conversely, there is no evidence that any individual, group, or portion of the community would benefit unequally from either of the action alternatives.

1.11.10 Migratory Bird Treaty Act of 1918 as amended (16 U.S.C. 703-712)

The original 1918 statute, known as the Migratory Bird Treaty Act, implemented the 1916 Convention between the United States and Great Basin (for Canada) for the protection of migratory birds. Later amendments implemented treaties between the United States and Mexico, Japan, and the Soviet Union (now Russia). Specific provisions in the statute include the establishment of a federal prohibition, unless permitted by regulations, to "pursue, hunt, take, capture, kill, attempt to take, capture or kill, possess, offer for sale, sell, offer to purchase, purchase, deliver for shipment, ship, cause to be shipped, deliver for transportation, transport, cause to be transported, carry, or cause to be carried by any means whatever, receive for shipment, transportation or carriage, or export, at any time, or in any manner, any migratory bird, included in the terms of this Convention … for the protection of migratory birds … or any part, nest, egg of any such bird" (16 U.S.C. 703). The current list of species protected by the MBTA includes several hundred species and essentially includes all native birds. (The current list of species protected by the MBTA can be found in CFR Title 50, Section 10.13 [50 CFR 10.13].) Because forestlands provide a substantial portion of breeding habitat for certain migratory birds, land management activities within the LTBMU can have an adverse effect on local populations; however, the Migratory Bird Treaty Act Report prepared for the South Demonstration Project found that the project would not have an adverse effect on any populations or habitat of migratory birds (Project Record K-3).

1.11.11 Invasive Species (Executive Order 13112)

Executive Order 13112 requires federal agencies to identify actions that may affect the status of invasive species, prevent the introduction of invasive species to the extent practicable and permitted by law, and only authorize actions that could promote the introduction or spread of invasive species if the agency determines that (1) the benefits of the action outweigh the potential harm caused by invasive species and (2) all feasible and prudent measures to minimize the risk of harm will be taken. Section 3.4, "Biological Resources," of this EA covers botanical resources and noxious weeds. The proposed design features would minimize risk of new weed introductions, as described in Chapter 2, "Alternatives," and the Noxious Weed Risk Assessment prepared for the South Demonstration Project (Project Record K-5). Therefore, the project would comply with Executive Order 13112.

1.11.12 Recreational Fisheries (Executive Order 12962)

Federal agencies shall, to the extent permitted by law and where practicable, improve the quantity, function, sustainable productivity, and distribution of aquatic resources for increased recreational fishing opportunities by, among other things, evaluating the effects of federally funded, permitted, or authorized actions on aquatic systems and recreational fisheries. The effects to fish habitat from the project have been evaluated in Section 3.4, "Biological Resources," of this EA and are expected to be extremely limited. Direct effects on fish productivity and the quality of the recreational fisheries would be negligible. The project would therefore comply with Executive Order 12962.

1.11.13 Floodplain Management (Executive Order 11988) and Protection of Wetlands (Executive Order 11990)

These executive orders provide for protection and management of floodplains and wetlands. Executive Order 11988 for Floodplain Management directs all federal agencies to evaluate potential effects of any actions they may take in a floodplain and to avoid all adverse effects associated with modifications to floodplains. It also directs Federal agencies to avoid floodplain development whenever there is a practicable alternative and to restore and preserve the natural and beneficial values served by the floodplains (EPA 2008).

The lands within the study area floodplain are regulated as part of the National Flood Insurance Program (NFIP). Areas of special flood hazard are identified by the Federal Emergency Management Agency (FEMA), which issues regulatory floodplain maps (Flood Insurance Rate Maps [FIRMs]). The NFIP mandates that development cannot occur within the regulatory floodplain (typically the 100-year floodplain) if that development results in a material (i.e., more than 1 foot) increase in flood elevation.

In addition, no development is allowed in delineated floodways within regulatory floodplains. Any proposed project located within the regulatory floodplain must meet FEMA and Douglas County (County) floodplain management requirements and have a revised FIRM developed and submitted for approval.

If a regulatory floodplain is to be altered, a FIRM revision would be initiated by the issuance of a conditional letter of map revision (CLOMR) for the project. A CLOMR is FEMA's opinion that a project, upon construction, would affect the hydrologic or hydraulic characteristics of a flooding source and, thus, result in the modification of the existing regulatory floodway, the effective base flood elevations, or special flood hazard areas. The CLOMR does not revise an effective FIRM. Rather, it indicates whether the floodplain modifications, if built as proposed, would be recognized by FEMA as requiring a revision of the applicable FIRM. If not, no further action is required. If the FIRM needs to be revised, a request would be made to FEMA to do so, after the proposed floodplain modifications have been completed. The FIRM would be revised to reflect modifications in special flood hazard areas. If the modifications meet FEMA's requirements, FEMA would issue a Letter of Map Amendment (LOMA), an official amendment by letter, to an effective NFIP map. A LOMA establishes a property's location in relation to the special flood hazard area.

Executive Order 11990 requires that federal agencies avoid undertaking or providing assistance for new construction located in wetlands unless the head of the agency finds (1) that there is no practicable alternative to such construction, and (2) that the proposed action includes all practicable measures to minimize harm to wetlands which may result from such use.

Compliance with these orders will be assured by adhering to the project design features described in Chapter 2, "Alternatives," including implementation of best management practices. The project would not adversely affect floodplains, as explained in Section 3.3, "Hydrology and Water Quality." The only use of wetlands would be at and near stream crossings that cannot be avoided; all practicable measures to minimize harm to wetlands are included in the project design features and best management practices. Therefore, this project would comply with these executive orders as proposed.

1.11.14 Federal Antidegradation Policy

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. This policy provides for protection of water quality in high-quality waters that constitute an ONRW by prohibiting the lowering of water quality. ONRWs are often regarded as the highest quality waters of the United States.

The EPA's antidegradation guidance for ONRW waters provides that states may allow some limited activities that result in temporary and short-term changes to water quality, but such changes should not affect existing uses or alter the essential character or special use that makes the water an ONRW. The EPA interprets this provision to mean no new or increased discharges to ONRWs and no new or increased discharge that would result in water quality degradation. Temporary activities "must not permanently degrade quality or result in water quality lower than that necessary to protect the existing uses in the ONRW" (EPA 1994).

The EPA's Antidegradation Policy is designed to protect existing beneficial uses and the level of water quality necessary to protect existing uses. It also provides protection for high-quality water resources and water resources

of national importance. This policy further directs all states to adopt a statewide policy that includes the following provisions:

- Existing instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected.

- 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 (40 CFR 131.12).

1.11.15 Special Area Designations

There are no LTBMU specially designated areas that would be affected by the South Demonstration Project (i.e., Research Natural Areas, Inventoried Roadless Areas, Wilderness Areas, and Wild and Scenic Rivers).

1.11.16 Tahoe Regional Planning Agency

Throughout Chapter 3, the South Demonstration Project alternatives are reviewed for consistency with applicable TRPA Regional Plan Goals and Policies, Code of Ordinances, Plan Area Statements, and the Stateline Community Plan (pursuant to the direction of the Edgewood Plan Area Statement). The project alternatives are also evaluated for consistency with the Lake Tahoe Regional Transportation Plan—Mobility 2030 (2008) and the 2010 Lake Tahoe Bicycle and Pedestrian Plan. Adverse affects resulting from potential inconsistencies of the project alternatives with these policies and plans are evaluated in subsequent resource sections of this EA. Design features described in Section 2.3 of this EA ensure that the proposed project would not result in substantial (significant) effects (impacts) on the environment.

Regional Plan for the Lake Tahoe Basin

The Tahoe Regional Planning Compact (Bi-State Compact – PL 96-551) calls for the Regional Plan to establish a balance, or equilibrium, between the natural environment and the human-made environment. The Plan emphasizes an improvement in the quality of development in the Region and in the quality of the natural environment.

Article V. of the Bi-State Compact states that TRPA's goal of transportation planning shall be:

(A) To reduce dependency on the automobile by making more effective use of existing transportation modes and of public transit to move people and goods within the region; and

(B) To reduce to the extent feasible, air pollution that is caused by motor vehicles. Where increases in capacity are required, the agency shall give preference to providing such capacity through public transportation and public programs and projects related to transportation. The plan shall provide for an appropriate transit system for the region.

TRPA implements its authority to regulate growth and development in the Lake Tahoe region through the Regional Plan for the Lake Tahoe Basin. The Regional Plan includes the following: Goals and Policies (September 1986), environmental threshold carrying capacities (adopted in 1982 and evaluated every five years since 1991), Lake Tahoe Regional Transportation Plan—Mobility 2030 (2008), Water Quality Management Plan (1988), Scenic Quality Improvement Program (1989), Plan Area Statements (August 1987 and updated), the Stateline Community Plan (1993), and the Code of Ordinances (May 1987 and updated).

TRPA is currently working with several Lake Tahoe public agencies on a Regional Plan update. This update is taking place through a process referred to as Pathway. The process is a collaborative effort between TRPA, the

LTBMU, the Lahontan Regional Water Quality Control Board, and the Nevada Division of Environmental Protection. Because the environmental review for the Nevada Stateline-to-Stateline South Demonstration Project and related permits are anticipated to be completed prior to the completion of the Regional Plan update process, the project alternatives are evaluated for consistency with the current Regional Plan elements, rather than anticipating potential new planning decisions.

Goals and Policies

The Goals and Policies document for the Regional Plan establishes an overall framework for development and environmental conservation in the Lake Tahoe region. The Goals and Policies are grouped into the following elements: land use, transportation, conservation, recreation, public services and facilities, and implementation (TRPA 2004).

A complete list of the TRPA Goals and Policies and a discussion of the South Demonstration Project's consistency is provided in the TRPA Land Use Policy Consistency Analysis table (Project Record L-13) and is discussed further in Section 3.2, "Land Use," of this EA. Section 2.3, "Project Design Features," identifies project components for achieving goals for conservation with respect to cultural, botanical, and terrestrial and aquatic resources, as well as recreational policies relevant to the proposed project. Effects of construction and operation of the proposed shared-use path (Alternatives A and B) on biological resources in the vicinity of the project are evaluated in Section 3.4 of this EA and Section 3.8 evaluates potential impacts on cultural resources. Section 3.7 of this EA evaluates potential impacts on recreational resources, and Section 3.12 discusses potential impacts on public utilities and services. TRPA has set Goals and Policies for transportation and recreation programs in the Tahoe Basin, including bicycle trails. Goal 3 of the transportation element includes establishing an integrated transportation system that in part reduces reliance on the private automobile and provides for alternative modes of transportation. Policy 4 of the transportation element encourages the use and development of pedestrian and bicycle facilities as a safe and viable alternative to automobile use. The policy statement for the recreation element calls for the preservation and enhancement of the high quality recreational experience. For developed recreation, Goal 2 is to "provide for the appropriate type, location, and rate of development of outdoor recreational uses." Policy 2 under this goal calls for the expansion of bicycle trails to provide alternatives for travel in conjunction with transportation systems.

Environmental Threshold Carrying Capacities

TRPA Environmental Threshold Carrying Capacities are standards of environmental quality targets to be achieved in the Tahoe Region. The standards identify the level of human impact the Lake Tahoe environment can withstand before irreparable damage occurs. There are nine thresholds that include: water quality, air quality, scenic resources, soil conservation, fish habitat, vegetation, wildlife habitat, noise, and recreation. Where attainment of thresholds has been reached, TRPA standards require a threshold rating. TRPA cannot approve projects that would cause a significant adverse effect on a threshold rating without appropriate mitigation. TRPA conducts a comprehensive evaluation of all thresholds every 5 years. The most recent evaluation, TRPA's 2006 Thresholds Evaluation Report, was completed in September 2007 (TRPA 2007). Proposed changes to thresholds are being evaluated for adoption. Meanwhile, thresholds adopted in 1987 remain in effect and are used in this analysis.

The attainment status and consequences for TRPA Environmental Threshold Carrying Capacities as it relates to the South Demonstration Project are discussed for the relevant resources in Chapter 3, "Affected Environment and Environmental Consequences."

Lake Tahoe Region Environmental Improvement Program

Bicycle trail expansion has been identified as an important element of the Environmental Improvement Program (EIP) for air quality and recreation purposes and to encourage use of alternative modes of transportation. Although high quality trails exist in the Tahoe Basin, necessary connections for an integrated network of bicycle trails have been identified as a future need (TRPA 2007). Although the South Demonstration Project is not identified specifically as an EIP project, the project is consistent with the overall goals of the EIP, particularly the following EIP Air Quality and Transportation goal:

- 43 miles of bicycle and pedestrian trails to be constructed to help reduce dependency on the private automobile as directed by the Bi-State Compact.

Mobility 2030: Lake Tahoe Regional Transportation Plan

The purpose of the integrated Mobility 2030: Lake Tahoe Regional Transportation Plan (adopted on August 27, 2008) is to attain and maintain the Environmental Threshold Carrying Capacities established by TRPA in 1982 and all applicable federal, state, and local standards pertaining to air quality and transportation. TRPA Code of Ordinances, Chapter 14 establishes requirements for traffic considerations, including vehicle trip reduction targets; Chapter 91 establishes air quality control regulations; and Chapter 93 establishes requirements for traffic analyses. Effects of construction and operation of the proposed shared-use path (Alternatives A and B) on traffic circulation in the vicinity of the project are evaluated in Section 3.9 of this EA. Impacts on air quality related to changes in traffic volumes and patterns are evaluated in Section 3.10.

Level of Service (LOS) Standards

The Transportation Element of the Mobility 2030: Lake Tahoe Regional Transportation Plan establishes traffic capacity and level of service criteria for various types of highways, and an operational LOS for signalized intersections. LOS describes the quality of traffic flow through intersections, using a scale from A to F. This analysis procedure is a measure of several factors, including operating speeds, freedom to maneuver, traffic interruptions, and average delay for vehicles at intersections. Roadway elements operating at LOS A, B, or C function effectively. At LOS D, the traffic condition is characterized by heavy but stable traffic flows; typically LOS D is considered the minimum level of service appropriate for an urban setting. This is consistent with the RTP-AQP. An LOS E represents operating conditions at or near capacity and results in notable delays, frequently requiring motorists to wait more than one signal cycle. Finally, LOS F represents traffic volumes in excess of the intersection capacity, indicates extreme vehicle delay, and is characterized by long traffic queues. To meet the goals of the Transportation Element, peak-period traffic flow should not exceed:

- LOS C on rural scenic/recreational roads;
- LOS D in rural developed areas;
- LOS D on urban roads; or
- LOS D for signalized intersections. LOS E may be acceptable during peak periods not to exceed 4 hours per day.

TRPA does not have a specific adopted standard for unsignalized intersections.

Vehicle Miles of Travel (VMT)

VMT is a computed value that correlates to the extent of an area's reliance on the private automobile for trip-making. The TRPA Transportation Model (TransCAD) forecasts the number of trips made on the highway network and the distance between trip origins and destinations for each trip purpose. Total VMT is the sum of all these trip lengths.

The TRPA *Environmental Threshold Carrying Capacity Study Report* includes two air quality management threshold standards that relate to transportation facilities in the Region: 1) the reduction in VMT by 10% from 1981 base year conditions, to reduce nitrate deposition; and 2) the reduction in VMT by 10% from 1981 base year conditions, to improve visibility. TRPA's most recent assessment of VMT, presented in the TRPA's *2006 Threshold Evaluation Report*, stated a decrease in volumes at traffic count stations from 1981 to 2004 of 4.5%. At that time, the threshold was concluded to not be in attainment. Traffic counts conducted by the California Department of Transportation (Caltrans) and NDOT through 2008 indicate that overall VMT may have declined to a level 12% below 1981 levels. However, this finding has not been confirmed by TRPA.

TRPA has not established a specific standard of significance on a project-by-project basis with regards to VMT. However, TRPA staff has indicated that a VMT increase of 2,000 or more per day is considered by staff to be significant; this standard is applied in this document.

Lake Tahoe Regional Bicycle and Pedestrian Master Plan

The 2010 Lake Tahoe Bicycle and Pedestrian Plan (approved by the TRPA Governing Board at its August 25, 2010 meeting) was prepared by TRPA and the Tahoe Metropolitan Planning Organization (TMPO) to provide a blueprint for developing a regional bicycle and pedestrian system that includes both on-street and off-street facilities, as well as support facilities and programs throughout the Lake Tahoe Region. The plan also lays out goals and policies related to supporting the use of bicycles in the basin. The plan contains conceptual trail alignments for various areas throughout the Tahoe Basin (Tahoe Metropolitan Planning Organization 2010).

The Bicycle and Pedestrian Plan shows a proposed bike lane on U.S. 50 from Spooner junction to Elks Point Road, where it would transition to a shared use path that continues to the California/Nevada state line. The Bicycle and Pedestrian Plan recommends a shared use path adjacent to U.S. 50 between Round Hill and Stateline with a spur to Nevada Beach beginning at Kahle Drive.

Water Quality Management Plan (208 Plan)

Section 208 of the CWA (33 U.S.C. 466 et seq.) and the Code of Federal Regulations (40 CFR Part 130 and Part 35) authorize the preparation of area-wide water quality management plans. The Water Quality Management Plan (208 Plan) for the Lake Tahoe region fulfills TRPA's responsibilities under Section 208 of the federal Clean Water Act. TRPA is required to apply the strictest standards that apply to a jurisdiction by the 1980 Compact, regardless of whether they are state, Federal, or TRPA standards. The 208 Plan identifies water quality problems that have contributed to the degradation of Lake Tahoe and includes the Water Quality Management Plan, Handbook of Best Management Practices, Stream Environment Zone Protection and Restoration Program, and Capital Improvements Program for Erosion and Runoff Control (TRPA 1988). Implementation of water quality control programs in the Lake Tahoe Basin is of necessity a bi-state, interagency effort between TRPA, the Lahontan Regional Water Quality Control Board in California, and NDEP in Nevada. These agencies implement their respective water quality plans in a complementary manner, and entered into a Memorandum of Understanding in 1994 in order to increase their level of coordination.

Section 2.3.6 of this EA, "Soils and Hydrology," describes design features that would be implemented to ensure that implementation of either Alternative A or B would protect water quality and stream environment zones in accordance with the 208 Plan. Potential effects on water quality are discussed in Section 3.3, "Hydrology and Water Quality," of this EA and are also touched upon in biological resources (Section 3.4), earth resources (Section 3.5), and human health and risk of upset (Section 3.13) portions of this EA.

Scenic Quality Improvement Program

The TRPA Scenic Quality Improvement Program presents the prescriptions for scenic restoration required to attain and maintain the scenic quality thresholds of the Regional Plan. It includes design review guidelines and development standards for different visual environments, assigns implementation responsibilities, and identifies potential funding sources (TRPA 1989). Section 2.3.3, "Scenic Resources," describes design features that would be implemented to ensure that implementation of either Alternative A or B would promote the appearance of a natural forest floor. Potential effects on scenic resources are discussed in Section 3.6, "Scenic Resources."

Plan Area Statements

Chapter 13, "Plan Area Statements (PAS) and Plan Area Maps," in the TRPA Code of Ordinances requires that all projects and activities be consistent with the provisions of a particular area's applicable PAS. The Lake Tahoe Basin is divided into more than 175 separate Plan Areas, 33 in Douglas County alone. For each Plan Area, a "statement" is made as to how that particular area should be regulated to achieve environmental and land use objectives. PAS written text and maps provide specific land use policies and regulations for each planning area. PAS were designed to serve, promote and protect the public health and safety as well as the general welfare and environment.

The proposed shared-use path (Alternatives A and B) is located in four separate PAS areas listed from south to north: 070A (Edgewood), 077 (Oliver Park), 070B (Rabe), and 068 (Round Mound). The following PAS descriptions include the land-use classification and management strategy. The permissible recreational uses for each PAS are listed. The establishment of new uses not listed is prohibited within any plan area. Existing uses not listed are considered nonconforming uses within a given plan area.

- **PAS 70A—Edgewood.** Segment 1 of the proposed project (Alternatives A and B) is located in this PAS. This area includes the Edgewood Golf Course, the 4-H Camp area, and some miscellaneous private uses. Approximately 60 percent of this area is classified as SEZ and 40 percent is low hazard. The land coverage and disturbance are low. The land use classification is recreation and the management strategy is mitigation. PAS 070A has a maximum community noise level of 55 dBA CNEL.

  The planning statement for PAS 070A is:

  > This entire area should provide a range of visitor and local servicing outdoor oriented recreation opportunities, integrated with existing and planned improvements within the casino core. In addition, special areas should provide accommodations for tourists.

  The permissible uses, with provision for special use, for public service in PAS 070A include pipelines and power transmission, local public health and safety facilities, public utility centers, transmission and receiving facilities, transportation routes, transit stations and terminals, schools kindergarten through secondary. Class I and better paths are considered transportation routes that achieve goals established in the Lake Tahoe Regional Transportation Plan Mobility 2030. Special Policy 8 applies to the proposed project. It requires that all projects in this PAS be consistent with the planning direction provided in Chapter 1 of the Stateline Community Plan. Consistency with the Stateline Community Plan is evaluated in Section 3.2, "Land Use," of the EA.

- **PAS 077—Oliver Park.** A portion of Segment 2 of the proposed project (Alternatives A and B) connects with Segment 1 via Laura Drive (existing), which is located in PAS 077. This area is located along Kahle Drive, west of U.S. 50. The area is 95 percent built out with a mixture of lower income residential uses which include a large trailer court, apartment complex, and numbers other residential units. This area is classified as SEZ with land

coverage of 50 percent and disturbance of 35 percent. The land use designation is residential and the management strategy is redirection. PAS 077 has a maximum community noise level of 55 dBA CNEL.

The planning statement for PAS 077 is:

> This area should continue to serve as a residential area subject to a rehabilitation program.

The permissible uses, with special use provisions, for public service in PAS 077 include local public health and safety facilities, transit stations and terminals, pipelines and power transmission, transmission and receiving facilities, transportation routes, public utility centers, and day care centers/pre-school. Class I and better paths are considered transportation routes that achieve goals established in the Lake Tahoe Regional Transportation Plan Mobility 2030. No Special Policies are applicable to the proposed project.

- **PAS 70B—Rabe.** The remainder of Segment 2 of the proposed project (Alternatives A and B) is located in PAS 70B. This area includes the Rabe Meadow, Nevada Beach and Campground, Elk Point Yacht Club, a casino restored by LTBMU, and some miscellaneous private uses. Approximately 50 percent of the area is classified SEZ, 25 percent is low hazard, and the rest is moderate or high hazard. The land coverage and disturbance are low. The land use designation is recreation and the management strategy is mitigation. PAS 070B has a maximum community noise level of 55 dBA CNEL in the plan area and 65 dBA CNEL in the U.S. 50 corridor.

  The planning statement for PAS 070B is:

  > The existing recreation uses should continue and the public beach and camping areas should be expanded.

  The permissible uses, with special use provisions, for public service in PAS 070B include local public health and safety facilities, membership organizations, public utility centers, transportation routes, transit stations and terminals, and pipelines and power transmission. Special Policy 2 is applicable to the proposed project. It requires the expansion of opportunities for developed recreation on public lands.

- **PAS 068—Round Mound.** Segment 3 including is located in PAS 068. This area extends McFaul Creek to Elks Point Road. The area is generally undeveloped except for the Round Hill Pines Resort and few private residences. Approximately 33 percent of the area is high hazard while the remainder is classified as moderate. The land coverage and disturbance is low to moderate. The land use designation is recreation and the management strategy is mitigation. PAS 068 has a maximum community noise level of 50 dBA CNEL.

  The planning statement for PAS 068 is:

  > This area should be managed for recreational opportunities including provisions for increased public access to the shoreline.

  The permissible uses, with special use provisions, for public service in PAS 070B include churches, local public health and safety facilities, transportation routes, government offices, transit stations and terminals, and pipelines and power transmission. Class I and better paths are considered transportation routes that achieve goals established in the Lake Tahoe Regional Transportation Plan Mobility 2030. Special Policy 1 requires that a recreation master plan be prepared. None has been prepared to date. Special Policy 2, management of the site consistent with the historical levels of use until a recreation master plan is prepared, is applicable to the proposed project.

Stateline Community Plan

The primary goal of the Stateline Community Plan is to preserve it as a tourist hub and gaming area. The objectives and policies guide planning decisions to achieve the stated goal. The following goals are applicable to the proposed shared-use path under either Alternatives A or B:

- **Environmental Threshold Goal:** Ensure that physical development is consistent with the environment and ecology of the area.
- **Traffic Circulation and Parking Goal:** Reduce dependency on the automobile and improve the movement of people, goods, and services within Stateline and the Region consistent with the economic and environmental goals of the community plan.
- **Recreation Goal:** Preserve and enhance the high quality recreational experience of Stateline and the Region.

Code of Ordinances

The TRPA Code of Ordinances establishes standards and regulations for implementation of the Regional Plan for the Lake Tahoe Basin. Public agencies and organizations in the Lake Tahoe Basin must comply with TRPA provisions or may establish equivalent or higher requirements in their jurisdiction. Sections of the Code of Ordinances that are addressed in resource analyses in Chapter 3 of this EA are discussed below.

Linear Public Service Facilities

Chapter 2 of the TRPA Code of Ordinances (TRPA 2009) defines Linear Public Service Facilities as:

> Public service facilities which are linear in nature such as roads, streets, trails, utility transmission and distribution facilities and other similar right-of-ways (sic). Also includes accessory uses to such facilities, including without limitation pump houses, lift stations, substations, and access right-of-ways (sic).
>
> The proposed shared-use path meets the definition of linear public service facilities and the proposed parking lot and restroom facility meet the definition of accessory uses.
>
> Chapter 20 of the TRPA Code of Ordinances (TRPA 2008) specifies the regulations regarding land coverage standards. Section 20.3.B(4) lists maximum land coverage for linear public facilities. This ordinance states:
>
> Linear Public Facilities and Public Health and Safety Facilities: The maximum land coverage (base coverage plus transferred coverage) for linear public facilities and public health and safety facilities is limited to the minimum amount needed to achieve their public purpose. Such transfer may be permitted provided TRPA makes the following findings:
>
> 1. The project is on the list of additional public service facilities if required pursuant to Section 33.5 [required findings for TRPA approval of additional public service facilities];
> 2. There is no feasible alternative that would reduce land coverage;
> 3. The project, because of its unusual configuration or service requirement, requires special consideration; and

4. The facility primarily serves the needs of persons other than those who are, or will be, residents of the lands in question, or the owners of the land in question.

Land Capability Districts

Since the late 1970s, regulatory agencies in the Lake Tahoe Basin, primarily TRPA, have used the land capability classification system known as the "Bailey System" (Land-Capability Classification of the Lake Tahoe Basin, California-Nevada: A Guide to Planning [Bailey 1974]) to determine the allowable amount of land coverage for a subject property. The Bailey System (named for the author, Robert G. Bailey) was developed as a planning tool to help prescribe land uses suitable within the Lake Tahoe Basin. The Bailey System, as utilized by TRPA, regulates the amount of impervious land coverage on all parcels and generally prohibits new land coverage in areas classified as SEZ.

Land capability is defined as "the level of use an area can tolerate without sustaining permanent (environmental) damage through erosion and other causes" (Bailey 1974). The Bailey system established a methodology for classifying the suitability of land for various types of uses in the Basin based on soil types and geomorphic setting (i.e., relief features of the earth that affect soil behavior). Classification of land in this manner recognizes limitations on lands in the Lake Tahoe Basin, and this data is used to guide the types and intensities of uses on Lake Tahoe Basin lands while controlling erosion and maintaining ecological balances. The process to establish land capability classes included dividing and ranking the Lake Tahoe Basin into seven levels of land capability according to the frequency and magnitude of hazards that are present (i.e., floods, landslides, high water tables, poorly drained soils, fragile flora and fauna, and easily erodible soils). In the Bailey System, land tolerance is used as the principal measure of land capability. Table 1-1 shows the Bailey System land capability districts (LCDs), which range in value from 1 (lowest level of tolerance for use) to 7 (highest level of tolerance for use).

Table 1-1
Capability Districts for Lake Tahoe Basin Lands

Capability Levels	Tolerance for Use	Slope Percent	Relative Erosion Control	Runoff Potential	Disturbance Hazards
7	Most	0–5		Low to moderately low	Low-hazard lands
6		0–16	Slight	Low to moderately low	
5		0–16		Moderately high to high	
4		9–30	Moderate	Low to moderately low	Moderate-hazard lands
3		9–30	Moderate	Moderately high to high	
2		30–50	High	Low to moderately low	
1a	Least				High-hazard lands
1b	(Poor Natural Drainage)	30+	High	Moderately high to high	
1c	(Fragile Flora and Fauna)				

Source: TRPA 2000

LCDs were derived by analyzing the land capability according to frequency and magnitude of hazards that may be encountered and by considering the type and intensity of uses suitable for each unit (TRPA 2000). The integration of the LCDs and land use suitability resulted in limits on land-surface modifications for each unit. The limits are expressed as a percentage of each area that can be used for impervious coverage. Table 1-2 summarizes the characteristics and intensity of uses for the LCDs.

Table 1-2
Characteristics of Lands According to Capability Class and Suitable Uses Based on Relative Tolerance Levels

Capability Level (Class)	General Characteristics	Intensity of Uses
Low hazard lands – Classes 5–7	Gently sloping foothills and plains with deep soils. Surface erosion and drainage problems are generally minor to moderate.	Generally suited for various development activities and concentrated public occupancy. Access should be by high-standard roads and trails. May support most kinds of intensive or mass recreational uses. Facilities include campgrounds, recreational residences, hotels, and resorts or other commercial services where these uses would not destroy other values.
Moderate hazard lands – Classes 3 and 4	Moderately steep mountain slopes. These lands may provide visual backdrops for low hazard areas.	Recreation use may be varied and concentrated, including campgrounds, picnic areas, and winter sports sites. Access should be by low-standard roads and trails. Low-density housing may be permitted in some circumstances. Limited timber harvest may be appropriate.
High hazard lands – Class 2	Steep slopes and a fragile environment with unique plants and animals. High scenic value. Little or no soil mantle. Generally occurs in scattered areas at the base of steep slopes and along entrenched stream valleys.	Generally suited for limited recreation, restricted grazing, and selective timber harvest because of erosion hazard on slopes greater than 30%. These lands should generally remain in their natural condition. Access facilities should be restricted to foot and horse trails. Dispersed recreational uses could include hiking, backcountry camping, and fishing. These lands should not be managed for intensive commercial uses.
High hazard lands – Class 1	Mountaintops with little or no soil mantle, and very steep slopes with shallow soils. Subclasses (i.e., 1a, 1b, 1c) refer to marshes, stream channels, floodplains, meadows, beaches, steep slopes, and bedrock/rock outcrop areas.	Some of the uses specified under Class 2 apply to Class 1 as well. However, Class 1 areas are not suited for development, grazing, or forestry uses. Areas identified as Class 1 provide valuable wildlife habitat and are suited for low-intensity recreational uses. Protection of water supplies and watershed values is desirable.

Source: Data compiled by AECOM from Bailey 1974

Land Coverage Regulations

Soil conservation is essential for the maintenance of healthy plant communities, prevention of erosion, protection of water quality, maintenance of healthy stream systems, and protection of lake clarity. There are two major elements regarding soil conservation in the Lake Tahoe Basin: impervious land coverage and SEZs. Impervious land coverage, such as asphalt, concrete, and roofs, prevents stormwater runoff from absorbing into the ground. When runoff bypasses this natural process, it is not filtered by the soil and does not contribute to local groundwater supplies. Excess runoff can overload stream channels with both sediments and higher water volumes, erode stream banks, and unnecessarily damage vegetation. Stream channel erosion transports nutrients and sediments to Lake Tahoe and contributes to the degradation of water clarity. SEZs are creeks, meadows, marshes, wetlands, and riparian areas that in low-gradient systems slow runoff by dispersing it, allowing sediment to settle out and vegetation to take up nutrients.

Chapter 2 of the TRPA Code of Ordinances defines land coverage as a man-made structure, improvement, or covering that prevents normal precipitation from directly reaching the surface of the land underlying the structure, improvement, or covering. Compacted areas without structures are defined as “soft coverage.” A structure, improvement, or covering is not considered to be land coverage if it permits at least 75% of normal precipitation

to directly reach the ground and permits growth of vegetation described on TRPA's currently approved species list. TRPA Code of Ordinances Chapter 20, "Land Coverage Standards," applies the LCD to allowable land coverage. Table 1-3 presents the base percent coverage allowed for each land capability classification as set forth in TRPA Code Section 20.3.A.

Table 1-3
Tahoe Regional Planning Agency Base Land Coverage Requirements

Land Capability District	Base Coverage
6, 7	30%
5	25%
4	20%
3	5%
2	1%
1a, 1b, 1c	1%

Source: TRPA 1991

The TRPA Code of Ordinances provides two methods for calculating allowable coverage. The first, as described in Section 20.3.D (2)(a)(ii), is to calculate allowable coverage using the 1/20/25/30 method: based on 1% allowable percent coverage for low capability land classes 1a, 1b, 1c, 2, and 3 and 20%, 25%, and 30% allowable coverage for high capability land classes 4, 5, and 6, respectively. The second, as described in Section 20.3.D (2)(a)(iii), is to calculate allowable coverage based on the 1/20/20/20 method: based on 1% allowable coverage for low capability land 1a (steep slopes), 1b (SEZ), 1c (bedrock/rock outcrops), 2, and 3 and 20% allowable coverage for high capability classes 4, 5, and 6. Using the latter method, coverage may be relocated throughout the site, while the former method limits the land capability classes on the site to which certain of the coverage may be located within specific land classes.

Water Quality

The TRPA Code of Ordinances contains a range of requirements and standards intended to help achieve water quality goals, policies, and thresholds. Chapters 81 and 82 of the TRPA Code of Ordinances are directed specifically at water quality, but a number of other chapters contain provisions related to installation of best management practices (BMPs) and standards for grading and excavation that relate to water quality (Table 1-4).

Numerical discharge standard limitations are specified in the TRPA Code of Ordinances for nitrogen, phosphates, iron, turbidity, suspended sediments, and grease and oil. All surface flows generated by the project action alternatives, or as a result of development of the project action alternatives, which are discharged to land treatment systems and/or surface waters shall not contain constituents in excess of the concentrations listed in Table 1-5. In addition to numerical discharge limits, TRPA Code also restricts the discharge of wastewater and toxic substances, sets requirements for snow removal and control of salts, and sets criteria for pesticide use and fertilizer control.

Stream Environment Zones

SEZs are perennial, intermittent, and ephemeral streams, meadows, wetlands, and other areas of surface water and near-surface groundwater influence within the Lake Tahoe Basin. The TRPA threshold numerical standard for SEZ was designed to preserve existing naturally functioning riparian communities and to restore disturbed riparian communities to a naturally functioning hydrologic condition (Bailey 1974). The threshold requires that

Table 1-4
Selected TRPA Code Requirements Related to Proposed Project Water Quality

Ordinance	Requirement
Chapter 25	Excess runoff shall be controlled with implementation of BMPs.
Chapter 28	This chapter sets forth regulations pertaining to recognition of natural hazards, including floodplains, prevention of damage to property, and protection of public health relating to such natural hazards.
Chapter 61	Sets requirements for special investigations, reports, and plans, determined to be necessary by TRPA to protect the environment against significant adverse effects from grading projects.
Chapter 62	This chapter sets forth the requirements for grading and construction schedules when grading or construction is to occur pursuant to a TRPA permit.
Chapter 64	Sets standards for grading and excavation. Grading is permitted only between May 1 and October 15.
Chapter 81	Sets discharge standards for runoff and discharge to surface and groundwater.
Chapter 82	For projects which result in increased impervious coverage, implementation of off-site water quality control or stream environment zone mitigation projects is required; or payments into the Water Quality Mitigation Fund.

Source: TRPA 2004; 2007; 2008

Table 1-5
TRPA Water Discharge Limits

Constituent	Units[1]	Discharge to Surface Waters [2, 3]	Discharge to Groundwater
Dissolved Inorganic Nitrogen	mg/l as N	0.5	5
Dissolved Phosphate	mg/l as P	0.1	1
Dissolved Iron	mg/l	0.5	4
Turbidity	NTU	20	200
Suspended Sediment	mg/l	250	–
Grease and Oil	mg/l	2.0	40

Notes:
[1] mg/l = milligrams per liter
NTU = Nephelometric Turbidity Units
[2] If the constituent levels of water entering a site from upstream areas are of a superior or equal quality to the above, those waters shall meet the quality level listed above before discharge from the site.
[3] If the constituent levels of waters entering a site do not meet the quality levels above, there shall be no increase in the concentrations of these constituents in water discharged from the site, based on a 24-hour average.
Source: TRPA 2002; 2007

25% of disturbed, developed, or subdivided SEZ lands be restored to attain a 5% increase in the overall area of naturally functioning SEZ. Subsection 74.2 of the Code of Ordinances and TRPA Goals and Policies (TRPA 2004) provides protection for SEZ vegetation by prohibiting projects or activities that convert riparian vegetation to a non-native or artificial state, or that negatively affect riparian vegetation through action including, but not limited to, reducing biomass, removing vegetation, or altering vegetation composition. Removal or manipulation of riparian vegetation is allowed to improve vegetation health, enhance fish and wildlife habitat, expand public outdoor recreation, or to provide defensible fuel breaks (TRPA Code of Ordinances Sections 4.2.A [5], 4.3.A [6], 55.4, 65.2, 74.2). Therefore, because this project is expanding public outdoor recreation it is allowed to remove or manipulate riparian vegetation.

Protection and Management of Vegetation

The Code of Ordinances requires the protection and maintenance of all native vegetation types. Chapter 74, "Vegetation Protection and Management," provides for the protection of SEZ vegetation, other common vegetation, uncommon vegetation, and sensitive plants in SEZs (TRPA 2004a). TRPA defines a SEZ as an area that owes its biological and physical characteristics to the presence of surface water or groundwater. The term SEZ includes perennial, intermittent, or ephemeral streams; meadows and marshes; and other areas with near-surface water influence within the Lake Tahoe Basin. No project or activity may be implemented within the boundaries of a SEZ except as otherwise permitted for habitat improvement, dispersed recreation, vegetation management, or as provided in Chapter 20, "Land Coverage Standards," of the TRPA Code of Ordinances. TRPA can require the preparation and implementation of a remedial vegetation management plan, where the need has been identified, for the purposes of environmental threshold maintenance or attainment. In addition, Chapter 77, "Revegetation," specifies policies for revegetation programs.

Protection of Sensitive and Uncommon Plants

Chapter 75, "Sensitive and Uncommon Plant Protection and Fire Hazard Reduction," of the TRPA Code of Ordinances establishes standards for preserving and managing sensitive plants and uncommon plant communities; these plants and communities are referenced below under the header "Environmental Threshold Carrying Capacities." Projects and activities that are likely to harm, destroy, or otherwise jeopardize sensitive plants or their habitat must fully mitigate their significant adverse effects. Measures to protect sensitive plants and their habitat include:

- fencing to enclose individual populations or habitat,
- restricting access or intensity of use,
- modifying project design as necessary to avoid adverse effects,
- dedicating open space to include entire areas of suitable habitat, or
- restoring disturbed habitat.

Tree Removal

TRPA regulates the management of forest resources in the Lake Tahoe Basin to achieve and maintain the environmental thresholds for species and structural diversity, to promote the long-term health of the resources, and to create and maintain suitable habitats for diverse wildlife species. Provisions for tree removal are provided in Chapter 71, "Tree Removal," and Chapters 30, "Design Standards"; 65, "Vegetation Protection During Construction"; 75, "Sensitive and Uncommon Plant Protection and Fire Hazard Reduction"; and 77, "Revegetation," of the TRPA Code of Ordinances, and tree removal requires the review and approval by TRPA (TRPA 2004a).

Project proponents must obtain a permit from TRPA for cutting of live trees greater than 14 inches dbh (diameter at breast height). However, trees of any size marked as a fire hazard by a fire protection district or fire department that operates under a memorandum of understanding with TRPA can be removed without a separate TRPA permit.

In conservation or recreation lands, trees greater than or equal to 30 inches dbh in westside forest types, and trees greater than or equal to 24 inches dbh in eastside forest types, must be retained, except under circumstances specified in the TRPA Code of Ordinances (Section 71.2.A). In particular Section 71.2.A of the TRPA Code of Ordinances states that "For activities that are consistent with a TRPA-approved master plan, trees larger than 30 inches dbh in the westside forest types and 24 inches dbh in eastside forest types may be removed when it is demonstrated that the removal is necessary for the activity". Activities proposed in the South Demonstration

Project are consistent with the 2010 Lake Tahoe Bicycle and Pedestrian Plan (approved by the TRPA Governing Board at its August 25, 2010 meeting).

In addition, trees and vegetation not scheduled to be removed must be protected during construction in accordance with Chapter 65, "Vegetation Protection During Construction," of the TRPA Code of Ordinances.

If a project would result in substantial removal of live trees 10 inches dbh or larger (as defined by TRPA Code Section 71.4.I), a tree removal or harvest plan must be prepared by a qualified forester. The required elements of this plan, and TRPA's review process for tree removal plans, are described in Chapter 71 (Section 71.3.B) of the TRPA Code of Ordinances.

The TRPA Code of Ordinances (Chapter 78) also provides quantitative requirements for snag and coarse woody debris retention and protection by forest type, in terms of size, density, and decay class.

Wildlife

TRPA sets standards for preserving and managing wildlife habitats, with special emphasis on protecting or increasing habitats of special significance, such as deciduous trees, wetlands, meadows, and riparian areas (TRPA Code of Ordinances, Chapter 78). Specific habitats that are protected include riparian areas, wetlands, and SEZs; wildlife movement and migration corridors; important habitat for any species of concern; critical habitat necessary for the survival of any species; nesting habitat for raptors and waterfowl; fawning habitat for deer; and snags and coarse woody debris. In addition, TRPA special-interest species (also referred to as "threshold species"), which are locally important because of rarity or other public interest, and species listed under the ESA are protected from habitat disturbance by conflicting land uses.

TRPA special interest wildlife species are northern goshawk (*Accipiter gentilis*), osprey (*Pandion haliaetus*), bald eagle (*Haliaeetus leucocephalus*), golden eagle (*Aquila chrysaetos*), peregrine falcon (*Falco peregrinus anatum*), mule deer (*Odocoileus hemionus*), and waterfowl species.

The TRPA Code of Ordinances includes the following requirements for protection of wildlife movement and migration corridors:

- SEZs adjoining creeks and major drainages that link islands of habitat will be managed, in part, for use by wildlife as movement corridors. Structures, such as bridges, proposed within these movement corridors will be designed to avoid impairment of wildlife movement.

- Projects and activities in the vicinity of deer migration areas will be required to mitigate or avoid significant adverse effects.

The TRPA Code of Ordinances also contains several provisions regarding critical habitat. TRPA defines critical habitat as any element of the overall habitat for any species of concern that, if diminished, could reduce the existing population or impair the stability or viability of the population. This applies also to habitat for special interest species native to the Lake Tahoe Basin whose breeding populations has been extirpated, but could return or be reintroduced. The TRPA Code of Ordinances includes the following critical-habitat provisions:

- No project or activity will cause, or threaten to cause, the loss of any habitat component considered critical to the survival of a particular wildlife species.

- No project or activity will threaten, damage, or destroy nesting habitat of raptors and waterfowl or fawning habitat of deer.

- Wetlands will be preserved and managed for their ecological significance, including their value as nursery habitat to fishes, nesting and resting sites for waterfowl, and as a source of stream recharge, except as permitted pursuant to Chapter 20 of the TRPA Code of Ordinances.

- No project or activity will be implemented within the boundaries of a SEZ except as otherwise permitted for habitat improvement, dispersed recreation, vegetation management, or as provided in Chapter 20 of the Code of Ordinances.

Fish Resources

Chapter 79, "Fish Resources," of the TRPA Code of Ordinances includes provisions for the protection of fish habitat and the enhancement of degraded habitat. For instream habitats, protection provisions include prohibiting stream channel alterations, facilitating fish movement at stream crossings, removing barriers to fish movement, mitigating effects on fish habitat from development, maintaining instream flows, preventing sediment entry into the stream system, and encouraging native vegetative cover.

The maintenance of essential habitat serves as the fisheries management emphasis for the Conservation Element of TRPA's Goals and Policies (TRPA 2004b). The first goal of the Conservation Element fisheries is to "improve aquatic habitat essential for the growth, reproduction and perpetuation of existing and threatened fish resources in the Lake Tahoe Basin." For streams within the Lake Tahoe Basin, management focus is on the quality and quantity of habitat provided for fish species, including spawning and rearing habitat, food supply, and cover. The Conservation Element identifies the following five attainment policies related to instream fish habitat:

- Development proposals affecting streams, lakes, and adjacent lands will evaluate effects on the fishery.

- Unnatural blockages and other impediments to fish movement will be prohibited and removed wherever appropriate.

- Habitat improvement projects in streams and lakes will be encouraged.

- Instream flows will be maintained or enhanced.

- State and Federal efforts to reintroduce Lahontan cutthroat trout will be supported.

Grading, Excavation, and Groundwater

TRPA Code of Ordinances, Chapter 64 Grading Standards, Section 64.7.A, provides that excavation is prohibited if excavation of the project interferes with or intercepts 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, unless TRPA approves interference or interception of groundwater by making one of the findings outlined in Section 64.7.A (2).

TRPA Code, Chapter 64, Section 64.7.B prohibits excavations in excess of 5 feet in depth unless the following findings can be made:

1. A soils/hydrologic report prepared by a qualified professional, whose proposed content and methodology has been reviewed and approved in advance by TRPA, demonstrates that no interference or interception of groundwater will occur as a result of the excavation; and

2. The excavation is designed such that no damage occurs to mature trees, except where tree removal is allowed pursuant to Subsection 65.2.E, including root systems, and hydrologic conditions of the soil. To ensure the protection of vegetation necessary for screening, a special vegetation protection report shall be prepared by a qualified professional identifying measures necessary to ensure damage will not occur as a result of the excavation; and

3. Excavated material is disposed of pursuant to Section 64.5 and the project area's natural topography is maintained pursuant to Subparagraph 30.5.A(1); or if groundwater interception or interference will occur as described in the soils/hydrologic report, the excavation can be made as an exception pursuant to Subparagraph 64.7.A (2) and measures are included in the project to maintain groundwater flows to avoid adverse effects to SEZ vegetation, if any would be affected, and to prevent any groundwater or subsurface flow from leaving the project area as surface flow.

Design Review Guidelines

Chapter 30 of the Code of Ordinances contains design standards. The TRPA Design Review Guidelines provide a summary of the Code requirements and guidelines or suggestions for attainment of the standards (TRPA 1989b). Chapter 30 also contains standards pertaining to scenic quality. These ordinances establish a process for analyzing projects for impacts on scenic quality. Specifically, Section 30.12 describes scenic quality standards for projects visible from Roadway and Shoreline Travel Units, and Public Recreation Areas and Bicycle Trails. The project is partially within TRPA Roadway Travel Unit 30D, Round Hill; Roadway Travel Unit 31, Meadow; and Roadway Travel Unit 32, Casino Area. The project is partially within the grounds of Nevada Beach, a TRPA-listed public recreation area identified in the 1993 Lake Tahoe Basin Scenic Resource Evaluation.

Historic Resource Preservation

TRPA has adopted guidelines to determine cultural resources significance and effects in the Lake Tahoe Basin. Chapter 29, "Historic Resource Preservation," of the TRPA Code of Ordinances states that for sites, objects, structures, districts or other resources of historical, cultural, archaeological, paleontological, or architectural values to be considered significant (a "historic resource") on a local, regional, state-wide, or national level, they must meet at least one of the following criteria:

- Resources associated with historically significant events such as an important community function in the past, a memorable happening in the past, or that which contains qualities reminiscent of an early stage of development in the region (TRPA Code Section 29.5.A).

- Resources associated with significant persons include buildings or structures associated with a locally, regionally, or nationally known person, notable examples or best surviving works or a pioneer architect, or structures associated with the life or work of significant persons (TRPA Code Section 29.5.B).

- Resources embodying distinctive characteristics include those resources of a distinctive type, period, or method of construction, possessing high artistic values, or representing a significant or distinguishable entity (TRPA Code Section 29.5.C).

- Archaeological or paleontological resources protected or eligible for protection under state or federal guidance (TRPA Code Section 29.5.D).

- Prehistoric archaeological or paleontological resources that contribute to the knowledge and understanding of early cultural or biological development (TRPA Code Section 29.5.E).

Section 29.2 of the TRPA Code of Ordinances 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. Section 29.2.A requires the resource protection plan to be prepared by a qualified professional and provide surface or subsurface recovery data and artifacts and recordation of structural and other data. Section 29.2.B requires protection during construction, which includes prohibiting grading or excavation in designated historic resource areas, except with a TRPA-approved resource protection plan.

TRPA Code of Ordinances Section 29.6 addresses projects related to historic resources. Projects affecting designated historic resources would be required to supply documentation of compliance with standards in Sections 29.6.A through 29.6.D related to additions to historic structures or adjacent structures or in historic sites or districts; and repair, maintenance, reconstruction, or demolition of historic resources.

TRPA Code of Ordinances Section 64.8 addresses the discovery of historic resources during grading activities. This section requires grading to cease and TRPA notification if resources are encountered that appear to be 50 years or older. TRPA would suspend grading and consult with appropriate local, state, or federal entities to determine the significance of the resource, if any. The property owner is required to provide protection for the materials during the investigation period.

Air Quality

The provisions of Chapter 91 apply to direct sources of air pollutants in the Lake Tahoe Region, including certain motor vehicles registered in the region, combustion heaters installed in the region, open burning, stationary sources of air pollution, and idling combustion engines.

Section 91.2, Vehicle Inspection and Maintenance Program, states that to avoid duplication of effort in implementation of an inspection/maintenance program for certain vehicles registered in the CO non-attainment area, TRPA shall work with the affected state agencies to plan for the application of state inspection/maintenance programs to the Lake Tahoe Region.

Section 91.5.B states that any new stationary source of air pollution that produces emissions for the peak 24-hour period beyond any of the numeric limits shall be considered to have a significant adverse environmental effect. However, the analysis in Section 3.10 of this EA focuses on mobile and area source emissions generated by the South Demonstration Project alternatives, as no permanent stationary sources affecting air quality would be developed under any of the project alternatives.

Traffic and Air Quality Mitigation Program

The purpose of Chapter 93 is to establish fees and other procedures to offset impacts from indirect sources of air pollution. As part of the project application for additional development that would result in an increase of more than 200 daily vehicle trips, a technically adequate analysis of potential traffic and air quality impacts shall be prepared (Section 93.3.B). To offset regional and cumulative impacts, additional development shall contribute to the Air Quality Mitigation Fund. The amount of contribution is established in Section 93.3.D. Instead of a contribution, additional development may provide mitigation measures, the cost of which shall be equal to, or greater than, the required contribution to the Air Quality Mitigation Fund (Section 93.3.C).

Public Services

Although the Code of Ordinances contains numerous ordinances applicable to the design, construction, and operation of facilities providing public services, it does not contain ordinances related to public services that are applicable to the proposed project. With respect to utilities, Chapter 27, "Basic Service Requirement," establishes requirements for projects to be served by paved roads and water, electrical, and wastewater treatment services and establishes standards to implement those requirements. Chapter 27 specifically directs that projects that would generate wastewater shall be served by facilities for the treatment and export of wastewater from the Lake Tahoe Basin. To be considered "served," a service connection shall be required to transport wastewater from the parcel to a treatment plant (TRPA 2004b).

Hazards and Hazardous Materials

The TRPA Code of Ordinances (TRPA 2004), Section IX, Chapter 75, Section 75.3 provides the following ordinances related to hazards and hazardous materials applicable to the project:

> Vegetation Management to Prevent the Spread of Wildfire: Within areas of significant fire hazard, as determined by local, state, or federal fire agencies, flammable or other combustible vegetation may be removed, thinned, or manipulated up to 30 feet from any structure to prevent the spread of wildfire. Sufficient quantities of residual vegetation should remain in this 30 foot zone to stabilize the soil and prevent erosion. Whenever possible, vegetation in this zone should be thinned, tapered, cut back, or otherwise selectively manipulated, rather than removed entirely. Revegetation with approved species may be required where vegetative ground cover has been eliminated or where erosion problems may occur.

1.11.17 Nevada Division of Environmental Protection

Nevada Division of Environmental Protection (NDEP) has been working for more than three decades to improve water quality and develop water protection programs in the Lake Tahoe Basin. In 2001, the State of Nevada, through the NDEP, joined with the State of California, through the Lahontan Regional Water Quality Control Board, to address Lake Tahoe's declining water clarity. NDEP issues permits that limit the amount of pollutants which can be discharged to the air and water of the State. NDEP has a variety of permitting programs that address such discharges. Permit compliance is ensured through design reviews, inspections, review of monitoring reports, and enforcement actions.

The Bureau of Water Quality Planning (BWQP) is part of the NDEP and is responsible for several water quality protection functions in the state. These include collecting and analyzing water data, developing standards for surface waters, publishing informational reports, providing water quality education, and implementing programs to address surface water quality. The BWQP is divided into three branches: water quality standards, monitoring and nonpoint sources, and groundwater protection.

Nevada relies on EPA criteria when establishing numeric water quality standards for toxics. Water quality standards are contained in the Nevada Administrative Code (NAC), Chapter 445A.119-445A.225. Lake Tahoe water quality standards for Nevada are prescribed in NAC 445A.191.

NPDES Permitting

The BWQP administers the NPDES program authorized by the CWA, described above. NPDES permits regulate discharges to "waters of the United States." The state issues NPDES permits for discharges to surface waters, including lakes, streams, dry washes, and storm drains. The NPDES program includes stormwater runoff. All surface discharge permits are sent to EPA Region IX for review before they are issued.

Pursuant to Federal regulations, an operator must obtain a General Permit under the NPDES Stormwater Dischargers Program for all construction activities greater than 1 acre. The General Permit requires the implementation of BMPs to reduce pollutant loadings into waters of the State.

Stormwater permits issued by NDEP are implemented based on BMPs such as diversion, detention, erosion control, sediment traps, gravel construction entrances, covered storage, spill response, and good housekeeping. Permittees select the BMPs subject to approval by NDEP. A stormwater permit is required under NDEP's general permit NVR100000 for stormwater discharge associated with construction activity.

Air Quality Monitoring

The NDEP BAQP is also the agency responsible for air quality surveillance and coordination and oversight of state and local air pollution control programs in Douglas County, Nevada. Its duties include: developing regulations and policies, reviewing federal regulations and policies, preparing SIPs, and developing and managing grants and contracts.

By multi-agency cooperative agreement, the California Air Resources Board (CARB) conducts ambient air quality monitoring within both the California and Nevada portions of the Lake Tahoe Basin. In Nevada, this has included monitoring for CO at Stateline and for ozone, PM_{10}, and $PM_{2.5}$ at Cave Rock; however, this data is only available through the year 2003. See Table 3.10-1 in Section 3.10 of this EA for the most recent ambient air quality monitoring data measured at the closest monitoring station in South Lake Tahoe, California.

1.11.18 Nevada Division of Wildlife

The Nevada Division of Wildlife (NDOW) manages fish and wildlife resources on the Nevada side of the Tahoe Basin. Under Title 45 (*Wildlife*) of the Nevada Revised Statutes (NRS), NDOW provides a program for the conservation, protection, restoration, and propagation of selected species of native fish and other vertebrate animals, including migratory birds. These provisions are specified primarily in NRS 503.584-503.589. Under this program, wildlife species are classified as wild mammals, wild birds, fish, reptiles, mollusks, crustaceans, or amphibians; and, depending on the species, they are further classified as either game, non-game, protected, or unprotected species. Species may additionally be classified as sensitive, threatened, or endangered.

The Nevada Wildlife Commission may designate a species or subspecies of native fish or wildlife as threatened with extinction, if it determines that the species' existence is endangered and its survival requires assistance due to overexploitation, disease or other factors, or habitat loss. Any animal declared as threatened by the Commission is placed on Nevada's list of fully protected species. Designated Fully Protected species may not be captured, removed, or destroyed at any time by any means, except under special permit issued by NDOW under NRS 503.585.

Bald eagles, golden eagles, and migratory birds are specifically protected under NRS 503.610 and NRS 503.620. Under these statutes, it is unlawful for any person or organization to "kill, destroy, wound, trap, injure, possess dead or alive, or in any other manner to catch or capture, or to pursue with such intent" bald eagles and golden eagles or to "take, injure, possess or destroy the nests or eggs" of these species.

Nevada Department of Natural Resources, Natural Heritage Program

The mission of the Nevada Department of Natural Resources, Natural Heritage Program (NNHP) is to help coordinate the resource needs of Nevada's diverse biological heritage with human activities. NNHP maintains an inventory and databases on the locations, biology, and conservation status of all threatened, endangered, sensitive, and at-risk species and biological communities in Nevada.

1.11.19 Nevada Division of Forestry

The Nevada Division of Forestry (NDF) manages all forestry, nursery, endangered plant species, and watershed resource activities on certain public and private lands. NDF also provides fire protection of structural and natural resources through fire suppression and prevention programs and other emergency services. Under Title 47 – Forestry, of NRS, NRS 527.050 specifies that it is unlawful to cut, destroy, mutilate, pick, or remove any flora declared endangered by the State Forester Firewarden from any lands owned by or under the control of the State of Nevada or the United States without a written permit from the State Forester Firewarden or his designate. NRS 527.270 designates the State Forester Firewarden as the state authority to designate a species as threatened with extinction. Any species declared as threatened with extinction is placed on the list of fully protected species, and no individuals may be removed or destroyed at any time by any means except under special permit issued by the State Forester Firewarden.

1.11.20 Douglas County Rules and Regulations

The Douglas County Master Plan (DCMP) is the official land planning guide for Douglas County and provides a framework to guide the development and growth of the county (Douglas County 2006). The DCMP 2006 Update contains the following applicable recreation policies:

- **Policy 12.08.03.** To provide recreation opportunities that enhance the physical and mental well-being of the community, which are deemed of critical importance.

- **Policy 12.08.11.** To continue to acquire/develop facilities through joint ventures and agreements with other public and/or private entities including, but not limited to: Douglas County School District, NDSP, TRPA, NDOT, and private enterprises.

- **Policy 12.08.14.** To promote tourism and the desire for use of self-sustaining parks and recreation opportunities by those outside visiting Douglas County (Douglas County 2007:12-87—12-88).

The Douglas County Master Plan 2006 Update also contains the following applicable transportation goals and implementation strategies:

- **Goal 12.23:** Douglas County will ensure development and maintenance of multi-purpose (hiking, equestrian, bikeway, and off-road bicycle) trail systems throughout Douglas County. This system should provide connection and access to Bureau of Land Management and NFS lands, recreation facilities, facilities of local and regional interest, and public facilities.

  Implementation Strategies:

  – **12.23.01.2**. The plan shall be integrated with the bikeway and pedestrian system contained within the Transportation plan.

  – **12.23.01.3** Design criteria and standards including, but not limited to, trail and trailhead requirements, parking, and improvements.

- **Goal 12.24:** Adopt and implement a safe comprehensive bikeway and pedestrian trail plan that provides opportunity for non-motorized transportation within the county that meets both recreational and commuter needs.

Implementation Strategies:

- **12.24.01.1:** Designate and construct regional bicycle routes to connect residential areas with major activity centers.

- **12.24.01.2:** Designate and construct bicycle and hiking trail systems throughout the county to provide access to the county's recreational trail system as indicated in the Parks and Recreation Element of the Master Plan and the Comprehensive Trails Plan.

- **12.24.01.4:** Bicycle (Class I Bikeways), pedestrian and equestrian paths (separate from roadways) shall be included in the county's recreational trail system, as indicated in the adopted Park and Recreation Master Plan and the Recreation Element of this Master Plan.

- **12.24.01.5:** Trail systems and bicycle lanes shall be connected at appropriate points to maximize the accessibility of the system to commuter and recreational users.

- **12.24.01.8:** Bicycle facilities shall be constructed in accordance with the AASHTO, "Guide for the Development of Bicycle Facilities," 1991.

- **12.24.01.10:** Regional trail access shall be provided to public lands in cooperation with the Forest Service and Bureau of Land Management through community access points as designated on the adopted Comprehensive Trails Plan. Persons who enter trails on public lands in Douglas County for equestrian use must comply with the Certified Weed Free Feed regulations.

- **12.24.02.11:** The Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) "Recognizes the transportation value of bicycling and walking" and provides opportunities to set aside federal funding for bicycle and pedestrian facilities (Douglas County 2007:12-133—12-135).

Further, the DCMP Conservation Element (Chapter 4) describes goals and policies to protect the natural resources of Douglas County. Policies 4.10.01 through 4.10.04 were enacted to protect wetland resources and specify compliance with the CWA, the possibility of wetland mitigation banking, and the protection of wetlands for groundwater discharge, flood protection, sediment and pollution control, wildlife habitat, and open space. Policies 4.14.01 through 4.15.02 address the need in the county for a system of open space areas that are connected by trails and the means to implement such a system. Policies 4.19.01 through 4.19.04 address the protection of sensitive wildlife, vegetation, and habitats through limitations on development or mitigation. Policy 4.19.02 directs the County to develop regulations and design guidelines to minimize effects of new development on sensitive habitats and migration routes.

The DCMP Conservation Element also contains water quality goals and policies to protect surface and groundwater quality and flood protection goals and policies. These goals and policies apply to the Tahoe planning area to the extent that they do not conflict with the provisions of plans or regulations adopted by TRPA.

The DCMP Conservation Element also describes goals and policies relevant to geology, soils, and seismicity in the project area. Goal 4.01 was enacted to minimize danger and damage to County residents from natural hazards due to seismic activity, liquefaction, and other geologic hazards. Policies 4.01.03 and 4.01.01 and Policies 4.02.03 and 4.02.06, require site specific soils and geologic studies and development guidelines to minimize seismic hazards.

DCMP Chapter 5, Floodplain Management, Goal 5.03, also provides for a sufficient level of safety from flooding for the residents of Douglas County. Policies 5.03.01 through 5.03.04 were enacted to restrict development in the floodplain and minimize alteration of natural floodplains so as not to increase flood potential. Goals 5.11 and 5.12 also provide for protection of the functions and values of surface water systems.

Douglas County Building and Development Ordinances

Douglas County Consolidated Development Code Title 20, Chapter 20.690, "Property Development Standards," contains provisions related to grading activities in hillside areas with slopes of 15% or greater and having a minimum vertical rise of at least 30 feet. Chapter 20.690, Section K(4) requires that a slope analysis and a grading plan, prepared by a Nevada registered professional engineer, be submitted to the Community Development Department for review and approval. The grading plan must include data on proposed slopes, drainage patterns, storm water detention, and cross-section exhibits showing preliminary cut-and-fill areas. An applicant must also submit an erosion control and re-vegetation plan prepared by a Nevada licensed landscape architect, registered forester, or civil engineer. Chapter 20.690, Section K(6) sets forth Douglas County grading standards that apply in hillside areas.

Douglas County Title 20 Drainage Facilities Requirements

Title 20.100.060 of the Douglas County Consolidated Development Code (DCCDC) includes the following criteria for drainage design in the County (Douglas County 2010):

A. Adequate storm drainage: "Storm drainage shall be considered adequate when, pursuant to an approved drainage plan, on-site drainage facilities are capable of conveying through and from the property the design flow of storm water originating within the development, as determined in accordance with design criteria and improvement standards manual, as well as flows originating from upstream properties in pre- and post-development stages, post development being based on ultimate master build out; and the off-site downstream drainage system is capable of conveying to an approved outfall the design flow of storm water runoff originating in the development and from other developed and undeveloped land upstream, without resulting in erosion, sedimentation or flooding of the receiving channel and downstream properties and without creating any adverse effect to downstream property."

B. Prohibition on alteration of a water course: "Storm drainage shall not result in the alteration or relocation of a water course which will reduce the flood-carrying capacity of the water course, nor shall drainage facilities result in the damming, filling, relocating or other interference with the natural flow of surface water along any surface water drainage channel or natural water course, except as may be approved as part of the drainage study."

C. Drainage facilities: "Design and construction of storm drainage facilities shall be in accordance with county design criteria and improvement standards. Detention facilities, restrictions on impervious surfaces and other techniques may be required by the county in order to satisfy adequacy requirements, in accordance with an approved drainage plan. Where special site conditions or circumstances require, the county may allow the use of retention or infiltration facilities." This statute authorizes the drainage manual "Douglas County Design Criteria and Improvement Standards" (Douglas County 2007a) for drainage design.

F. Automotive fluids: "Disposal or collection of any fluids or other waste streams containing automotive related fluids into drainage systems that utilize infiltration facilities such as, but not limited to, injection wells, dry wells, retention or detention basins is prohibited."

Douglas County LOS Standards

Applicable roadway standards are provided in the *Douglas County Design Criteria and Improvement Standards*, as follows:

> "A traffic LOS C or better, in the context of providing a safe, efficient and convenient transportation system, shall be maintained through mitigation of impacts from all conditions on all County, Town, and District maintained arterial and collector roads and at County road intersections, except as noted in Implementation Strategies 10.11.01.2 and 10.11.01.3 of the Douglas County Master Plan."

The *Douglas County Master Plan* also establishes traffic capacity and LOS criteria for various types of highways, and an operational LOS for signalized intersections. To meet the goals of the plan, peak-period traffic flow should not exceed:

- LOS C on all county, town, and District maintained principal arterial roads (Implementation Strategy 10.11.01.1)
- LOS D on all NDOT maintained principal arterial roads (Implementation Strategy 10.11.01.2)

Douglas County Parking

The design of parking facilities for the South Demonstration Project is regulated by Douglas County Code (Title 20 Consolidated Development Code: Section 20.660 Use Regulations). Douglas County does not specify a parking requirement for a shared-use path trailhead.

Public Services, Levels of Service Standards

Douglas County uses levels of service (quantifiable measures of the amount or quality of the public facilities that are provided by the community) to plan and implement its capital improvement projects. The County selects the way in which it will measure each facility (e.g., acres, gallons, etc.), and identifies the amount of current and proposed (i.e., standard) level of service for each measurement. The County determines if the public service facilities are meeting the current level of service, whether the facilities would meet the level of service at the end of its planning period, and if it is financially feasible to provide the facilities needed to meet the level of service by the end of the planning period. For purposes of this analysis, the proposed action alternatives are evaluated to determine if after implementation they would cause the level of service not to be met without the need for new capital improvement projects. The evaluation of financial feasibility, as it relates to the County's capital improvements plan, remains in the purview of the County. In the following sections, the current levels of service and future levels of service are defined for the public services that could be affected by the alternatives under consideration.

Law Enforcement

Douglas County sets level-of-service standards for central administrative offices, jails, and substations. The current level of service for central administrative offices is 282 square feet per 1,000 persons and the future level of service is set at 211 square feet per 1,000 persons (0.21 square feet per capita). The current level of service for jail facilities is 3.48 beds per 1,000 persons and the future level of service is set at 1.93 beds per 1,000 persons (0.00193 beds per capita). The current level of service at the Indian Hills substation is 398 square feet per 1,000 persons and the future level of service is a total of 100 square feet per 1,000 persons (0.10 per capita) based upon the additional Gardnerville Ranchos and Topaz substations. A County jail and Sherriff's substation is located in the immediate vicinity of the South Demonstration Project at the southeast corner of the intersection of Kahle Drive and U.S. 50.

Fire Protection and Emergency Medical Services

Emergency medical facilities include fire station facilities with emergency response vehicles and paramedic districts. The County's current and future level-of-service standard for emergency medical response is to be

located within a 5-mile radius of developed properties. Tahoe Douglas Fire Protection District (TDFPD) Fire Station #3 is located in the immediate vicinity of the South Demonstration Project at the southwest corner of the intersection of Elks Point Road and U.S. 50 (Exhibit 2-4). Stateline Medical Center, an urgent care facility affiliated with Barton Hospital, is also located in the immediate vicinity of the project at a location across U.S. 50 near the northeast corner of the intersection of SR 207 and U.S. 50.

Solid Waste

There are no level-of-service standards in Douglas County for solid waste disposal because these services are provided by independent refuse haulers, Douglas Disposal, Inc., and South Tahoe Refuse, Inc. (STR). STR serves the project area.

Douglas County Code, Title 20, Section 20.690.030 (I) requires projects and/or businesses that store hazardous materials to prepare a spill management plan and containment systems to the satisfaction of the Fire District with appropriate jurisdiction.

Emergency Dispatch Program

Douglas County provides emergency services through the Emergency Dispatch Program. This provides a direct service to the citizens of Douglas County, Nevada and Alpine County, California on a 24-hour, 7 days per week basis. The program provides a consolidated countywide communications center that dispatches the appropriate response units for the Douglas County Sheriff's Department, East Fork Fire and Paramedic District, TDFPD, Washoe Tribal Police, and 75% of Alpine County's Sheriff, fire, and medical dispatching services.

E-911 Program

The County's E-911 Program provides for "Enhanced 911" service to citizens of Douglas and Alpine Counties. This program provides citizens with a single universal three digit emergency number that allows the communications center to quickly identify the caller's phone number and address. With this system, response times to emergencies are substantially reduced, by up to 1 minute, while providing information to the Communications Center in the event the caller cannot talk or does not know their location.

The Communications Director reports to the County Manager and to the Emergency Response Council that is appointed by the Board of County Commissioners. The Emergency Response Council is made up of the County Manager, Douglas County Sheriff, East Fork Fire Chief, East Fork Deputy Chief in charge of Paramedics, TDFPD Chief, and a representative of the Nevada Division of Forestry.

1.11.21 Other Relevant Laws and Regulations

Federal

Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act, enacted in 1940 and amended multiple times since, prohibits the taking of bald and golden Eagles without a permit from the Secretary of the Interior. Similar to the ESA, the Bald and Golden Eagle Protection Act defines "take" to include "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb" (16 U.S.C. 668-668c). For the purpose of the Act, disturbance that would injure an eagle, decrease productivity, or cause next abandonment, including habitat alterations that could have these results, are considered take and can result in civil or criminal penalties.

Earthquake Hazards Reduction Act

The U.S. Congress passed the Earthquake Hazards Reduction Act in 1997 to "reduce the risks to life and property from future earthquakes in the United States" through the establishment and maintenance of an effective earthquake hazards and reduction program. To accomplish this, the Act established the National Earthquake Hazards Reduction Program (NEHRP). This program was significantly amended in November 1990 by the National Earthquake Hazards Reduction Program Act (NEHRPA) by refining the description of the agency responsibilities, program goals, and objectives.

NEHRP's mission includes improved understanding, characterization, and prediction of hazards and vulnerabilities; improved building codes and land use practices; risk reduction through post-earthquake investigations and education; development and improvement of design and construction techniques; improved mitigation capacity; and accelerated application of research results. The NEHRPA designates FEMA as the lead agency of the program and assigns it several planning, coordinating, and reporting responsibilities. Other NEHRPA agencies include the National Institute of Standards and Technology (NIST), the National Science Foundation (NSF), and the U.S. Geological Survey (USGS).

U.S. Environmental Protection Agency Office of Noise Abatement and Control

The U.S. Environmental Protection Agency (EPA), Office of Noise Abatement and Control, was originally established to coordinate federal noise control activities. After inception, EPA's Office of Noise Abatement and Control issued the Federal Noise Control Act of 1972 which established programs and guidelines to identify and address the effects of noise on public health and welfare and the environment. Administrators of EPA determined in 1981 that subjective issues such as noise would be better addressed at lower levels of government. Consequently, in 1982, responsibilities for regulating noise control policies were transferred to state and local governments. However, noise control guidelines and regulations contained in the rulings by EPA in prior years remain upheld by designated federal agencies, thereby allowing more individualized control for specific issues by designated federal, state, and local government agencies.

U.S. Department of Transportation Vibration Criteria

To address the human response to groundborne vibration, the U.S. Department of Transportation (DOT), Federal Transit Administration (FTA) has set forth guidelines for maximum-acceptable vibration criteria for different types of land uses. Vibration is the periodic oscillation of a medium or object. Sources of groundborne vibrations include natural phenomena (e.g., earthquakes, volcanic eruptions, sea waves, landslides) or human-made causes (e.g., machinery, traffic, trains, construction equipment). Vibration amplitudes are usually expressed in peak particle velocity (PPV) or root mean square (RMS), as in RMS vibration velocity. The PPV and RMS velocity are normally described in inches per second (in/sec). PPV is defined as the maximum instantaneous positive or negative peak of a vibration signal. PPV is often used in monitoring of blasting vibration because it is related to the stresses that are experienced by buildings (FTA 2006).

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). This is based on a reference value of 1 micro inch per second (μin/sec).

The background vibration-velocity level in residential areas is usually approximately 50 VdB. Groundborne 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).

FTA guidelines for maximum-acceptable vibration criteria include 65 VdB referenced to 1 μin/sec and based on the RMS velocity amplitude for land uses where low ambient vibration is essential for interior operations (e.g., hospitals, high-tech manufacturing, laboratory facilities); 80 VdB for residential uses and buildings where people normally sleep; and 83 VdB for institutional land uses with primarily daytime operations (e.g., schools, churches, clinics, offices) (FTA 2006).

Standards have also been established to address the potential for groundborne vibration to cause structural damage to buildings. These standards were developed by the Committee of Hearing, Bio Acoustics, and Bio Mechanics (CHABA) at the request of EPA (FTA 2006). For fragile structures, CHABA recommends a maximum limit of 0.25 in/sec PPV (FTA 2006).

Federal Hazardous Materials Transportation Law

The U.S. Department of Transportation regulates hazardous materials transportation between states. The federal hazardous materials transportation law (federal hazmat law), 49 U.S.C. Section 5101 et seq., (formerly the Hazardous Materials Transportation Act, 49 App. U.S.C. Section 1801 et seq.) is the basic statute regulating hazardous materials transportation in the United States. Hazardous material regulations are enforced by the Federal Highway Administration, the U.S. Coast Guard, the Federal Railroad Administration, and the Federal Aviation Administration.

Federal Emergency Planning and Community Right to Know Act

The Federal Emergency Planning and Community Right to Know Act of 1986 defines hazardous materials planning requirements to help protect local communities in the event of accidental release.

Federal Occupational Safety and Health Administration

The Federal Occupational Safety and Health Administration (Fed-OSHA) is the agency responsible for assuring worker safety in the handling and use of chemicals in compliance with the Occupational Safety and Health Act of 1970. Fed-OSHA has adopted numerous regulations pertaining to worker safety, contained in Title 29 of the Code of Federal Regulations (29 CFR). These regulations set standards for safe workplaces and work practices, including standards relating to hazardous material handling.

Federal Resource Conservation and Recovery Act

The Federal Resource Conservation and Recovery Act (RCRA) requires a comprehensive regulatory system for handling hazardous waste in a manner that protects human health and the environment. This regulatory system includes tracking all generators of hazardous waste. There are no documented hazardous waste sites within the project area (EPA 2010). As such, RCRA regulations related to generators of hazardous waste do not apply.

State

Community Right to Know Act of 1986

In compliance with the Community Right to Know Act of 1986, the Nevada State Emergency Response Commission (SERC) was established in 1987. SERC coordinates and supervises the activities of the Local Emergency Planning Committees to ensure that each Committee has an approved Hazardous Materials

Emergency Response Plan. SERC also collects chemical inventory reports, provides funds through grants, and processes information requests from the public.

Nevada Occupational Safety and Health Act

The Nevada Occupational Safety and Health Act (Nev-OSHA) promotes safe and healthful working conditions to provide job safety and health protection for workers in the State of Nevada. This Act provides the Nev-OSHA the power to issue citations for conditions inspected and found to be unsafe.

Nevada Revised Statute NRS 459.7052

Nevada Revised Statute NRS 459.7052 requires motor carriers to register and obtain a permit for the transportation of hazardous materials before transporting a hazardous material on a public highway of the state. As part of this statute the Nevada Department of Motor Vehicles (NDMV) requires anyone applying for a permit to transport hazardous waste to have a commercial driver's license and to undergo a background check that includes a fingerprint-based Security Threat Assessment.

The State agency with primary responsibility for enforcing federal and state regulations and responding to hazardous materials transportation emergencies is the Nevada Highway Patrol (NRS 459.250).

Nevada Division of Environmental Protection, Bureau of Waste Management

The Nevada Division of Environmental Protection, Bureau of Waste Management manages a Hazardous Waste Program that is responsible for enforcing state hazardous waste statutes and regulations in lieu of the EPA. With some modifications, Nevada has adopted the federal hazardous waste regulations. The Hazardous Waste Program is responsible for permitting and inspecting hazardous waste generators and disposal, transfer, storage, and recycling facilities.

Local

Kingsbury General Improvement District

Water for the project would be provided by the Kingsbury General Improvement District (KGID). The KGID is a publicly owned, non-county general improvement district. KGID operates under a set of ordinances effective since 2003 that establish the rates, rules and regulations for water service (KGID 2003).

KGID determines if there is sufficient water supply and conveyance capacity available in the system to meet the requested level of service. The following regulations would apply to the action alternatives being considered:

- A person seeking to substantially increase or alter the use of water must make an application to the KGID, secure a permit, and pay applicable charges.

- A service connection to a parcel of land not part of a developed subdivision will be the responsibility of the property owner. Any change in the location or size of an existing service connection and service line shall be solely the responsibility of the property owner.

Douglas County Sewer Improvement District

Wastewater services for the project site would be provided by the Douglas County Sewer Improvement District (DCSID). The DCSID Sewer Ordinance (DCSID 2003) regulates the installation and maintenance of private and community wastewater collection, treatment, and export. Sewer user fees are a flat residential fee per unit that is

assessed through Douglas County's property tax per the District Ordinance. This fee would not apply to the any of the action alternatives evaluated in this EA, because the proposed up to 6-stall restroom is a public facility.

Tahoe Douglas Fire Protection District

Fire prevention, protection, and emergency services in the project area are provided by TDFPD. The TDFPD has a strategic plan that outlines response time objectives and other goals of the District. The strategic plan sets a level-of-service standard of a response time of 5 minutes after the processing of alarm to the arrival of the first unit.

The station nearest the project site is the Round Hill Fire Station (Fire Station #3) on Elks Point Road. Fire Station #3 is staffed with five line personnel: a Captain, an Engineer, two Firefighter/Paramedics, and a Battalion Chief. The station also houses TDFPD's administrative offices. Administration positions include Fire Chief, Assistant Chief-Administrative, Assistant Chief-Fire Marshal, Battalion Chief-Fuels Manager, and Administrative Assistant (Tahoe Douglas 2008:8).

Fire Station #3 houses one type-I engine, two advanced life support ambulances (one front line and one reserve), one type-I reserve engine, one command vehicle, a multi casualty trailer, and one utility vehicle. The aerial ladder truck may be located at the station during peak periods to enhance operational effectiveness (Tahoe Douglas 2008:8).

Fire Station #3 provides all types of fire suppression, A.L.S. medical response, rope rescue, ice rescue, and vehicle extrication. Fire Station #3 is budgeted for 15 line personnel including Battalion Chief to maintain its acceptable level of service (Tahoe Douglas 2008:8).

Nevada Community Wildfire Risk/Hazard Assessment Project

In 2002, the Healthy Forests Initiative was announced by the White House to implement the core components of the *National Fire Plan Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment 10-year Strategy (Plan)*. The Plan called for more active forest management to reduce the threat of wildland fire in the wildland-urban interface. A report was prepared specifically for the Douglas County communities within the Lake Tahoe Basin in conjunction with the Nevada Community Wildfire Risk/Hazard Assessment Project. The communities included are among those named in the 2001 Federal Register list of Communities-at-Risk within the vicinity of federal lands that are most vulnerable to the threat of wildfire.

1.12 Permitting and/or Approvals

In addition to the primary project approvals, which include a LTBMU SUP and TRPA Project Permit for a Linear Public Facility (discussed in Sections 1.1, "Introduction, and 1.8, "Regulatory and Decision Framework," above), other potential permit and/or approvals that may be required for development of the project could include, but are not limited to, the following:

- Douglas County Site Improvement Permit
- Douglas County Building Permit for the Proposed Restroom at Kahle Drive
- Encroachment Permits (Oliver Park General Improvement District [Laura Drive/4-H Camp Road], Douglas County [Lake Parkway], and NDOT [U.S. 50 and Elks Point Road])
- Douglas County Sewer Improvement District (DCSID) Sewer Permit for the proposed restroom at Kahle Drive

- Federal Emergency Management Agency (FEMA) Letter of Map Amendment (LOMA) for Edgewood Creek
- Kingsbury General Improvement District (KGID) water connection for the proposed restroom at Kahle Drive
- NDEP Construction General Storm Water Permit
- NDEP Section 401 Water Quality Certification
- NDEP National Pollutant Discharge Elimination System (NPDES) Permit
- Nevada SHPO Concurrence Letter
- USACE Section 404 Regional General Permit No. 16
- USFWS Section 7 – Endangered Species Act (ESA) consultation

2 Alternatives

2.1 Regional and Local Setting

The South Demonstration Project is a component of the larger Nevada Stateline-to-Stateline Bikeway Project, which encompasses an approximately 30-mile-long corridor between Stateline, Nevada and Crystal Bay, Nevada. The South Demonstration Project shared-use path is located in Douglas County, Nevada on the east shore of Lake Tahoe, beginning on Lake Parkway at the Nevada/California border in the south shore casino core and ending approximately 0.3 miles north of the entrance to Round Hill Pines Beach (Exhibits 2-1 and 2-2). For the purpose of this EA, the project area is generally defined as extending from the California/Nevada border in the south to the boundary between NFS land and private property north of Round Hill Pines Beach and from the shoreline of Lake Tahoe on the west to U.S. 50 on the east. The proposed shared-use path would be entirely on the west side of U.S. 50 and is approximately 3.2 miles in length, of which approximately 2.2 miles is proposed to be located on NFS lands. The shared-use path would cross two streams in the project area: Edgewood Creek and Burke Creek. The proposed shared-use path would generally include a 10-foot wide paved path with 2-foot shoulders on both sides. The segment along Lake Parkway and U.S. 50, between Lake Parkway and 4-H Camp Road, (approximately one quarter of the total path length) would include a 12-foot-wide paved path with 1-foot shoulders on both sides. The shared-use path would be limited to non-motorized vehicle use, except by maintenance vehicles.

The approximately 3.2-mile shared-use path would be within the LTBMU Round Hill and Urban Lots management areas defined in the Forest Plan. It would cross portions of the following TRPA Plan Area Statements (PAS) 068 (Round Mound), 070A (Edgewood), 070B (Rabe), and 077 (Oliver Park), and would be contiguous to the Stateline and Kingsbury Community Plan areas. The shared-use path meets the definition of a linear public facility (LPF) in Chapter 2, “Definitions,” of the TRPA Code of Ordinances, and as such would be subject to the applicable TRPA Code provisions that apply to LPFs.

2.2 Alternatives Considered in Detail

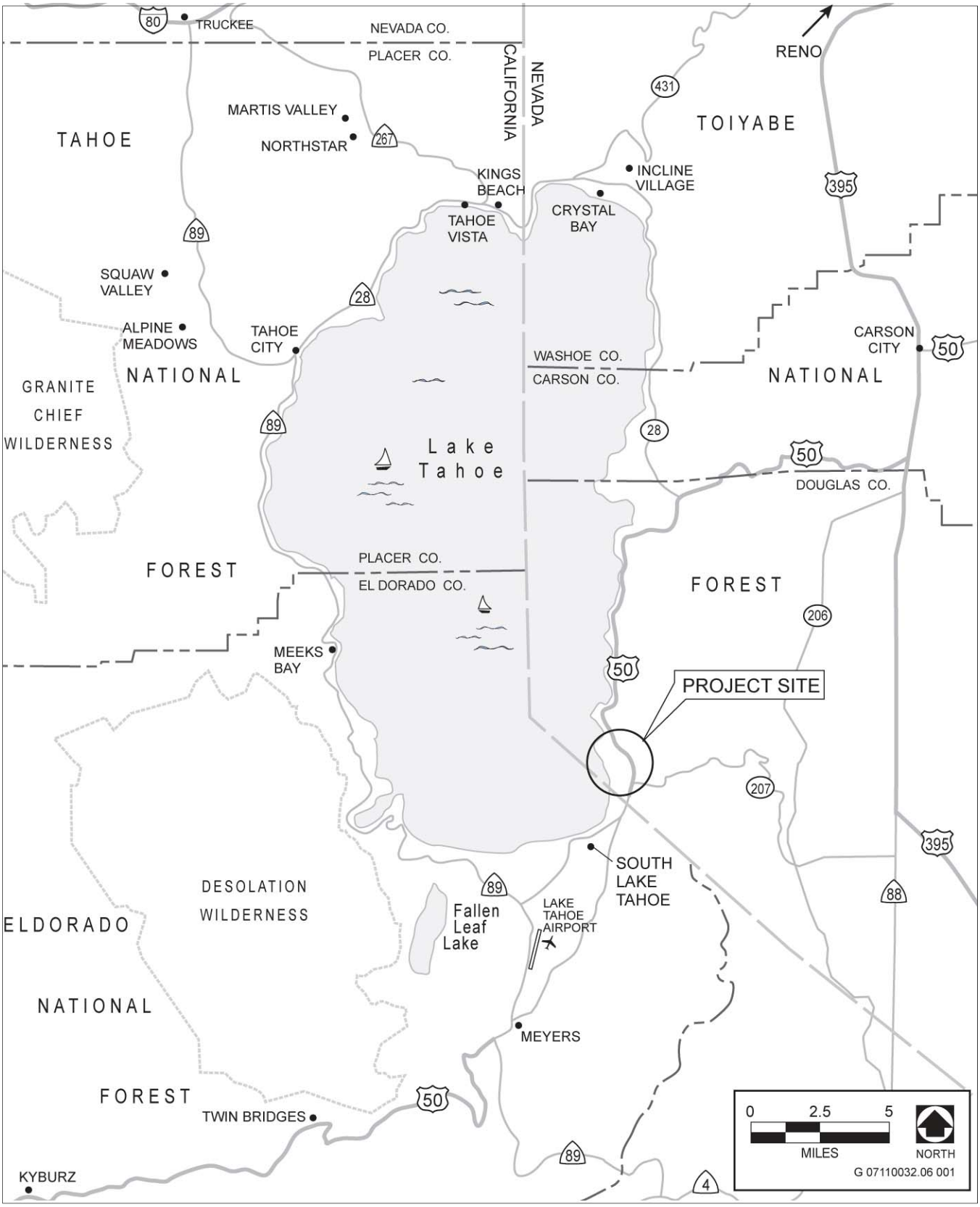
Three alternatives are under consideration for the South Demonstration Project, identified as Alternative A, Alternative B, and Alternative C (No Project/No Action Alternative). The following provides an overview of the segments and project elements that are common to both action alternatives followed by a more detailed description of project segments by alternative.

2.2.1 Segment Overview and Common Project Elements

Under both action alternatives (A and B), the project would be constructed in three phases. Each phase would consist of one segment of shared-use path, approximately 1 mile in length. These segments and the affected parcels include:

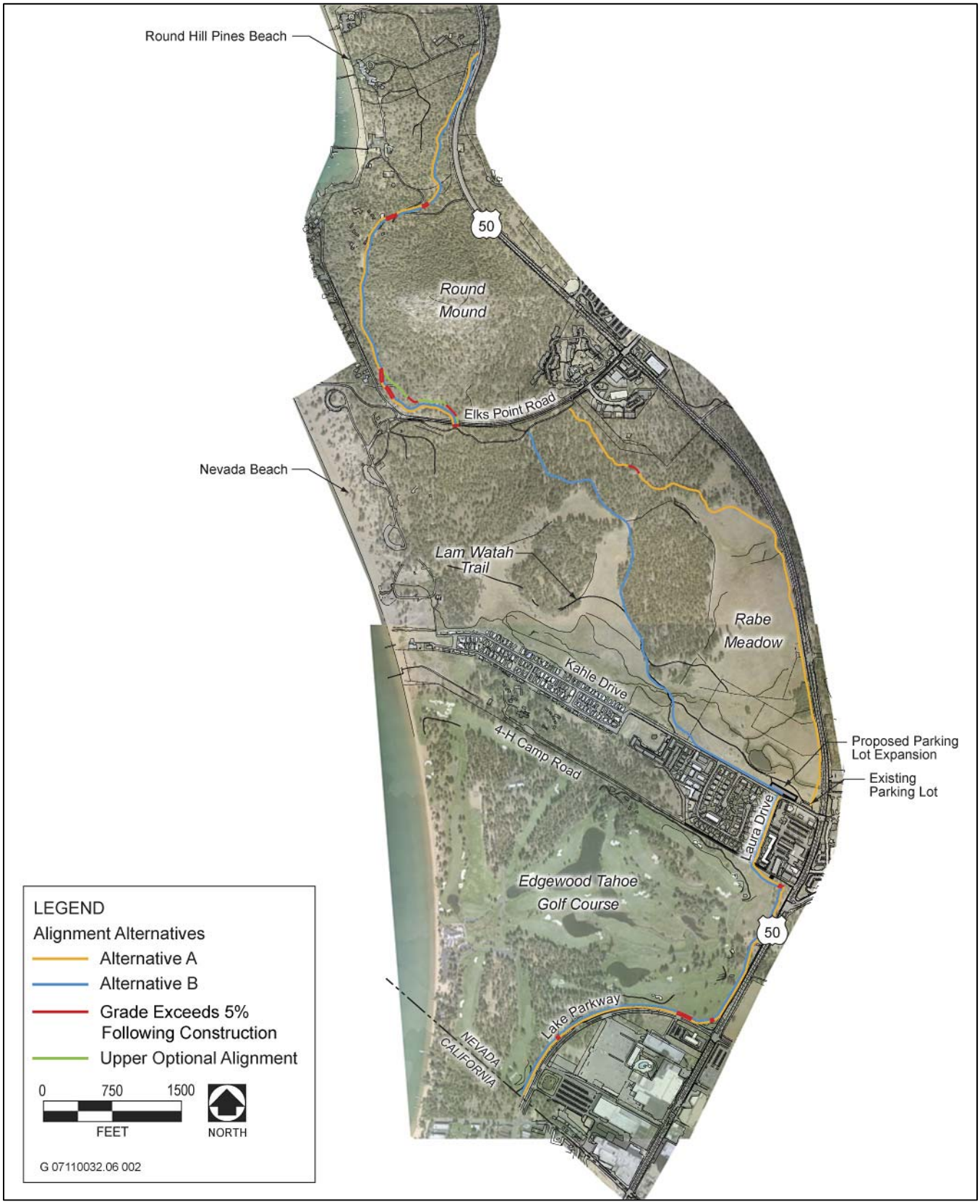
- Segment 1: The California/Nevada state line on Lake Parkway to the north side of Kahle Drive – approximately 5,350 linear feet (Exhibit 2-3). This segment includes an option to narrow the width of Lake Parkway west of U.S. 50 by 7 feet. The affected parcels include Assessor Parcel Numbers (APN) 1318-27-001-001 and 1318-27-001-004.

- Segment 2: North side of Kahle Drive to the existing shared-use path on the south side of Elks Point Road (Elks Point Bike Path) – approximately 5,450 linear feet (Exhibit 2-4). The affected parcels include APNs 1318-22-002-017 and 1318-22-001-009.



Source: Adapted by AECOM in 2010

South Demonstration Project Regional Location **Exhibit 2-1**



Source: Adapted by AECOM in 2010

South Demonstration Project – Alternative Alignments **Exhibit 2-2**

- Segment 3: South side of Elks Point Road (Elks Point Bike Path) to Round Hill Pines Beach – approximately 6,100 linear feet. This segment includes upper and lower optional alignments around the west side of Round Mound (Exhibit 2-5). The affected parcels include APNs 1318-22-001-001, 1318-22-001-002, and 1318-15-401-001.

Segments 1 and 3, including the optional alignments, would be the same with both Alternatives A and B. Similarly, the proposed expansion and enhancement of the existing parking lot with a restroom facility at the northwest corner of the intersection of U.S. 50 and Kahle Drive and use of a portion of the Elks Point Bike Path in Segment 2 would be the same with both Alternatives A and B.

The primary difference between Alternatives A and B is the alignment of the shared-use path in Segment 2 through Rabe Meadow, between Kahle Drive and Elks Point Road. The Alternative A and B alignment options in Segment 2 under consideration in this EA are those that would best meet the purpose and need and project goals and objectives (see Sections 1.4 and 1.5 in Chapter 1, "Introduction"). Generally, the location of these alignments in Segment 2 was intended to minimize effects to cultural and biological resources, stream environment zone (SEZ) areas, and tree removal effects, maximize use of existing disturbed areas, and enhance user experience.

Exhibits 2-3, 2-4, and 2-5 show the location of major elements of Alternatives A and B and proposed contractor staging areas. (Note: a complete set of 30% preliminary engineering plans for both alignments are available in the Project Record, L-10). Exhibit 2-6 shows in detail the proposed parking lot expansion and enhancement features. Exhibits 2-7, 2-8, and 2-9 show path cross-sections and typical details for the various cross slopes, and the boardwalk and bridge crossings discussed below.

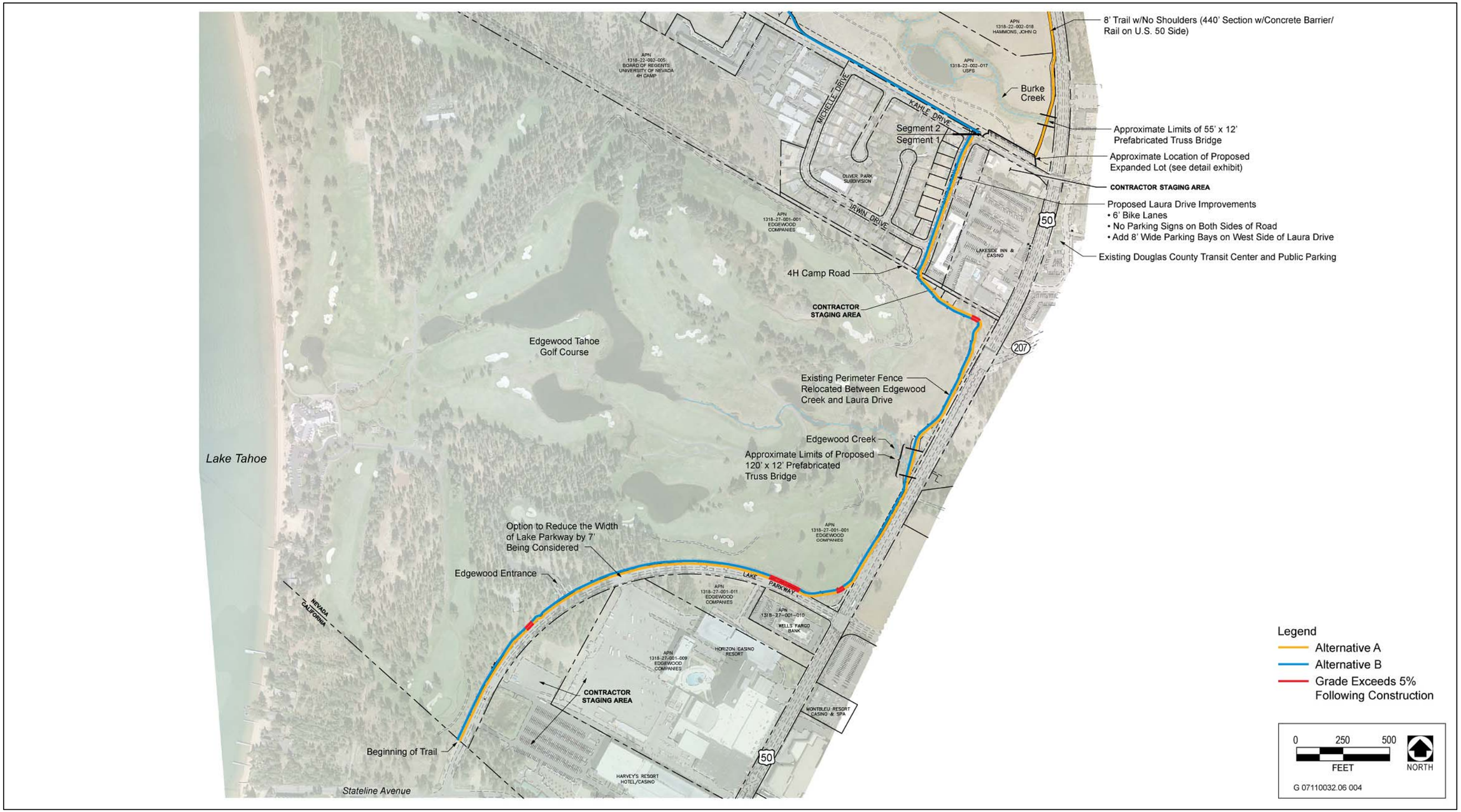
Design Standards

It is a goal of the project to construct a separated, shared-use path designed to meet AASHTO and ADA standards to serve a broad spectrum of users. The shared-use path designed for Alternatives A and B would be consistent with ADA standards having a firm and stable surface with resting intervals (landings) between changes in grade over 5%. The majority of both shared-use path alternatives would also meet AASHTO standards by having a 10-foot-wide paved path with graded/cleared 2-foot-wide shoulders on either side. (The specific sections of Alternative A and B that deviate from this standard are discussed below in more detail.) The shoulders would have a maximum slope of 1:6 unless lateral obstructions, such as trees, poles, and fences require that narrower shoulders be constructed in order to minimize effects (e.g., tree removal). The path would primarily be an asphalt surface, except in specific areas where other materials are necessary, such as on bridges and boardwalks (see detail below).

The final design would require some variances from the AASHTO standards at isolated locations. For example, a small section of Alternative A would include a substandard shared-use path width, grades would exceed the recommended 5% criterion for short distances at locations on and around Round Mound (Exhibits 2-4 and 2-5), and shared-use path curves at isolated locations would not meet the recommended standards for minimum design radius for curvature for the purpose of avoiding the removal of trees with a diameter at breast height (dbh) of 24 inches or greater.

Access/Parking and Connectivity

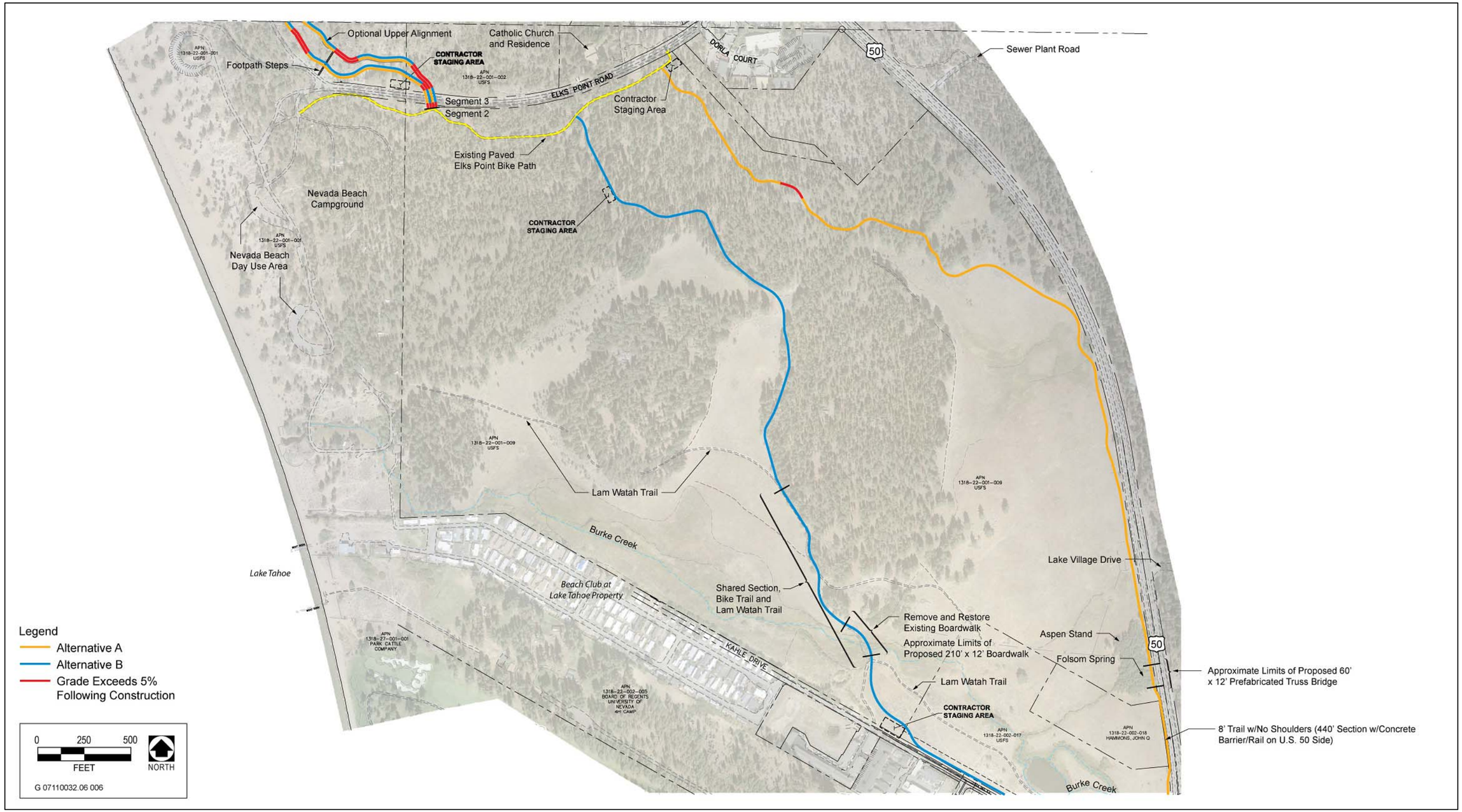
Formal access to the shared-use path would be provided from the casino core, with primary access off Lake Parkway, near the corner of U.S. 50 and Lake Parkway, and the corner of Kahle Drive and U.S. 50. Access to the shared-use path from the casino core would be from one of the existing parking facilities available in that area. The existing parking area at the northwest corner of the Kahle Drive/U.S. 50 intersection on NFS lands would also be expanded to accommodate additional use of the Rabe Meadow area associated with the shared-use path. The existing parking area includes a paved surface with a one-way travel lane and nine parking spaces (includes



Source: Lumos & Associates 2010; AECOM 2010

South Demonstration Project – Segment 1

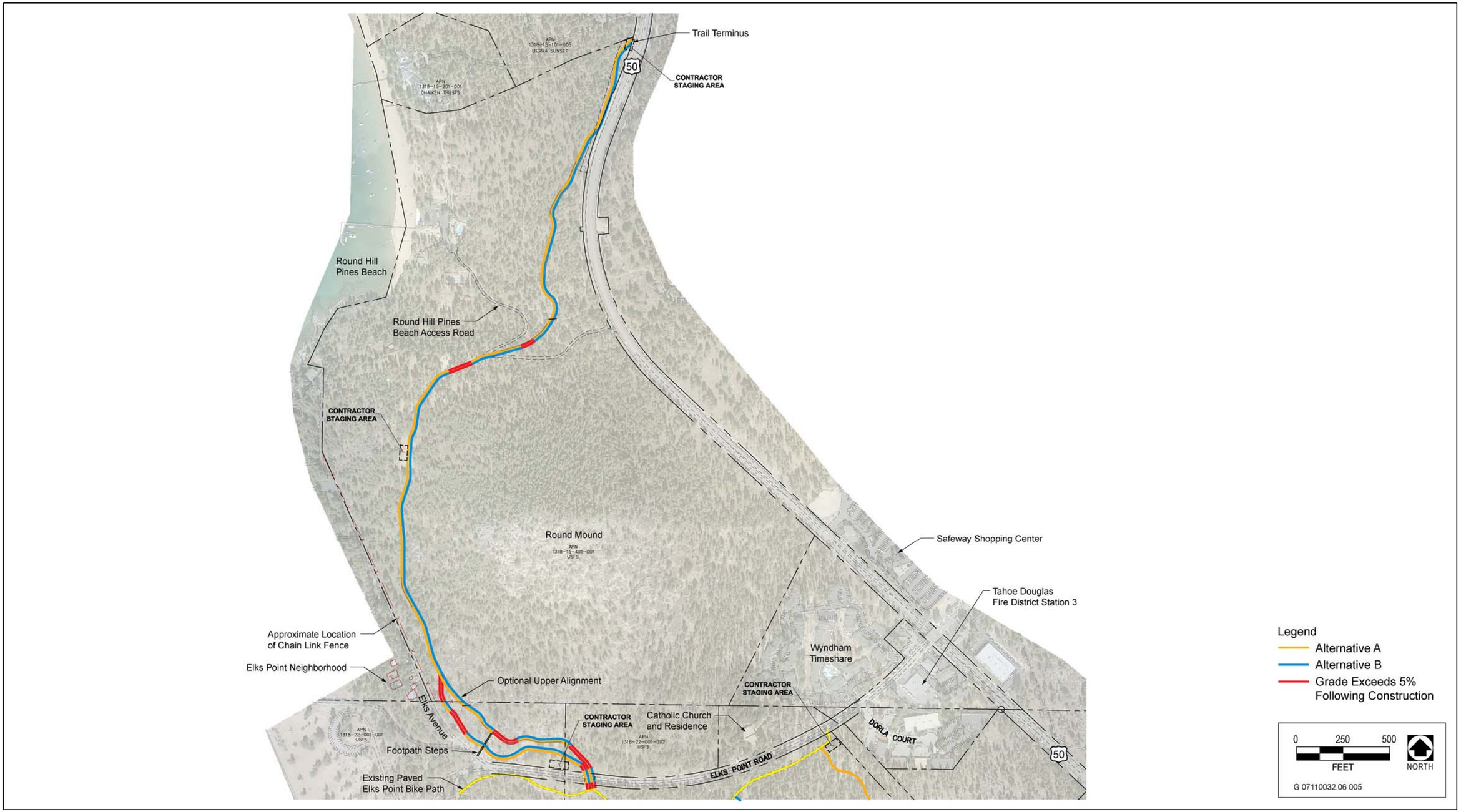
Exhibit 2-3



Source: Lumos & Associates 2010; AECOM 2010

South Demonstration Project – Segment 2

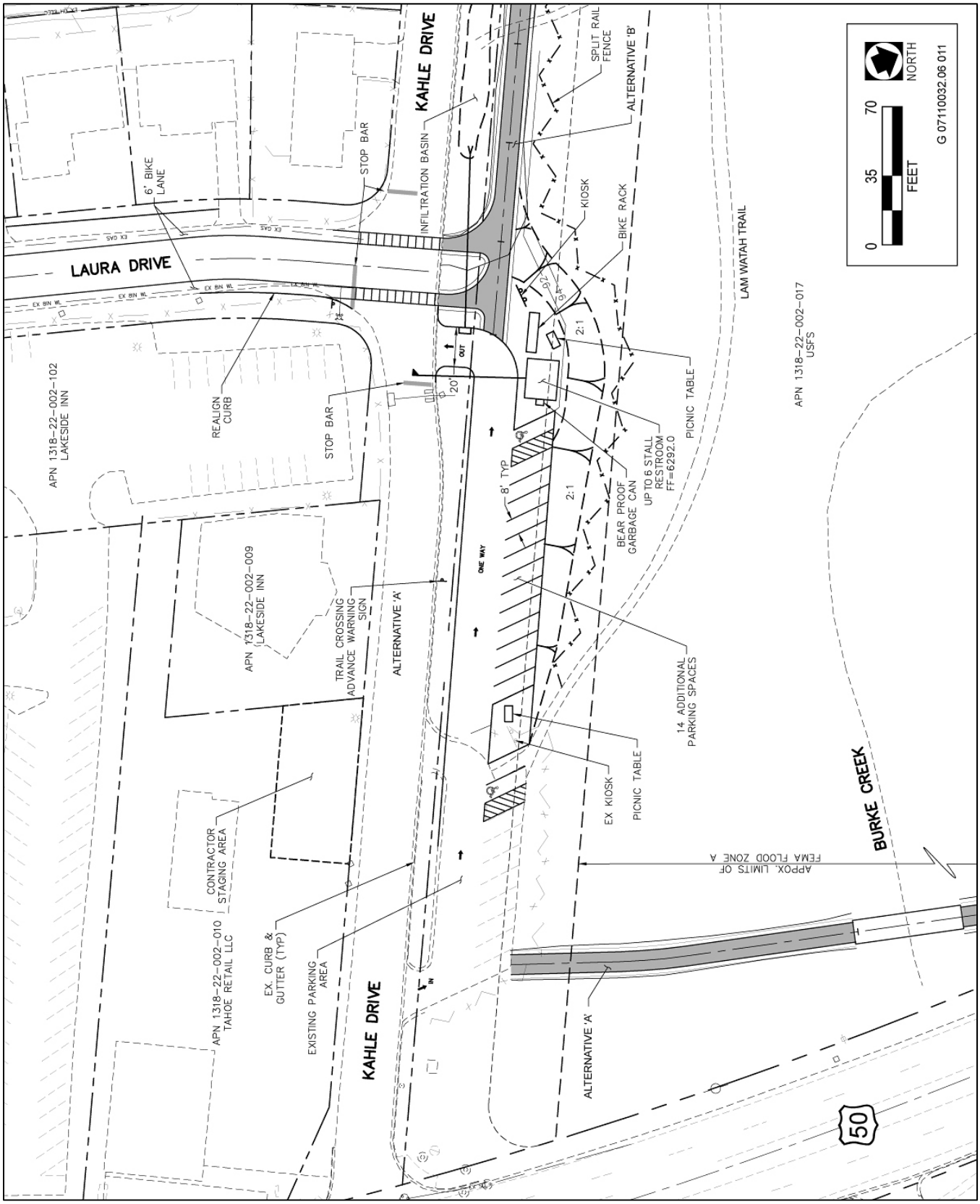
Exhibit 2-4



Source: Lumos & Associates 2010; AECOM 2010

South Demonstration Project – Segment 3

Exhibit 2-5



Source: Lumos & Associates 2010; AECOM 2010

Proposed Parking Lot Expansion at U.S. 50/Kahle Drive Intersection **Exhibit 2-6**

one handicapped space). An informational kiosk is located next to the parking spaces. This parking lot would be expanded to approximately 12,000 square feet (Exhibit 2-6), with 14 additional parking spaces (includes one additional handicapped space). An additional kiosk, two picnic tables, bicycle racks, a bear-proof garbage can, and an up to six-stall restroom building with connections to the Douglas County Sewer Improvement District (DCSID) sanitary sewer lines and Kingsbury General Improvement District (KGID) water lines in Kahle Drive would also be added to the parking lot. Parking for Alternatives A and B would also be available at the Douglas County Transit Center parking structure and at the Kahle Community Center and Park on the east side of U.S. 50.

The southern terminus of the shared-use path would serve as an access point for the casino core. Access to the California Tahoe Conservancy's proposed South Tahoe Greenway shared-use path at Van Sickle CA/NV Bi-State Park on the east side of Lake Parkway at Heavenly Village Way in the near term would be provided by traveling on existing wide shoulders on Lake Parkway/Pine Boulevard and use of the existing signalized crossing at Park Avenue and U.S. 50. The South Tahoe Greenway shared-use path is a proposal to connect Van Sickle CA/NV Bi-State Park with the Sierra Tract residential area west of Al Tahoe Boulevard and continuing to Meyers, California.

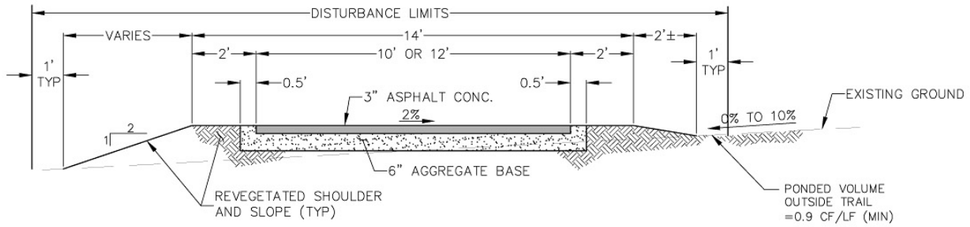
At approximately the center point of the alignment, the proposed shared-use path would merge with and use a portion of the existing Elks Point Bike Path in Segment 2. The Elks Point Bike Path is an approximately 0.5 mile path that parallels Elks Point Road from Dorla Court to Nevada Beach. The Elks Point Bike Path is an extension of the Round Hill Bike Path, which extends from the end of Pine Ridge Drive in the Kingsbury Meadows neighborhood on the east side of U.S. 50 (east of Kahle Park) to Elks Point Road east of U.S. 50. Path users wishing to continue onto the Elks Point Bike Path from the Round Hill Bike Path must cross U.S. 50 using existing bicycle lanes or crosswalks.

There are four other future projects that would improve connectivity in the immediate area that include: bicycle lanes and sidewalks on the east side of Lake Parkway; bicycle lanes on U.S. 50 through the casino core; the Kingsbury Connector that would connect the South Tahoe Greenway shared-use path with Market Street off of State Route (SR) 207 with bicycle route connections to the Round Hill Bike Path; and the Round Hill Bike Path Connector that would connect Kahle Park to the Round Hill Bike Path. These and other potential future bicycle system improvements that would enhance connectivity in the casino core area are mapped and discussed in TRPA's *2010 Lake Tahoe Bicycle and Pedestrian Plan* approved by the TRPA Governing Board at its August 25, 2010 meeting. Use of Pine Boulevard, extending south from the Lake Parkway/Stateline Avenue intersection and an approximately 1,000-foot-long section of U.S. 50 would connect the South Demonstration Project to the existing connector trail along the north side of U.S. 50 that heads west in front of the Tahoe Meadows into South Lake Tahoe.

Although no other formal, intermediate access paths are proposed as part of this project, it is recognized that residents of the surrounding neighborhoods (e.g., Kingsbury Grade area and Elks Point neighborhoods) and visitors to nearby recreation areas (e.g., Nevada Beach and Round Hill Pines Beach) could also gain access to the South Demonstration Project using existing roads or informal paths. In addition, the existing informal access to Nevada Beach would be modified as part of this project to provide signage and more formal access to the beach. Future projects in relation to the broader Nevada Stateline-to-Stateline Bikeway may create additional connections and extend the shared-use path further north; however, these components would be part of separate projects and would be subject to their own independent environmental review and permitting. For the purpose of this EA, future Nevada Stateline-to-Stateline Bikeway elements are considered in the cumulative context in the resource sections of Chapter 3.

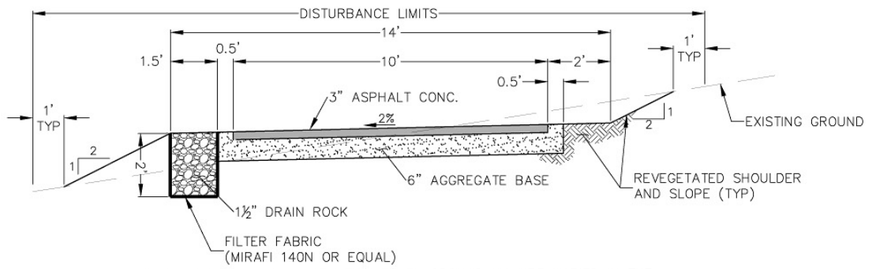
Signage

Signage would also be developed and installed at trailheads, connection points, and in other areas where necessary to alert users of possible obstacles or changes in the shared-use path. Other informational and interpretive/educational/way finding signs may also be installed along the shared-use path to provide background



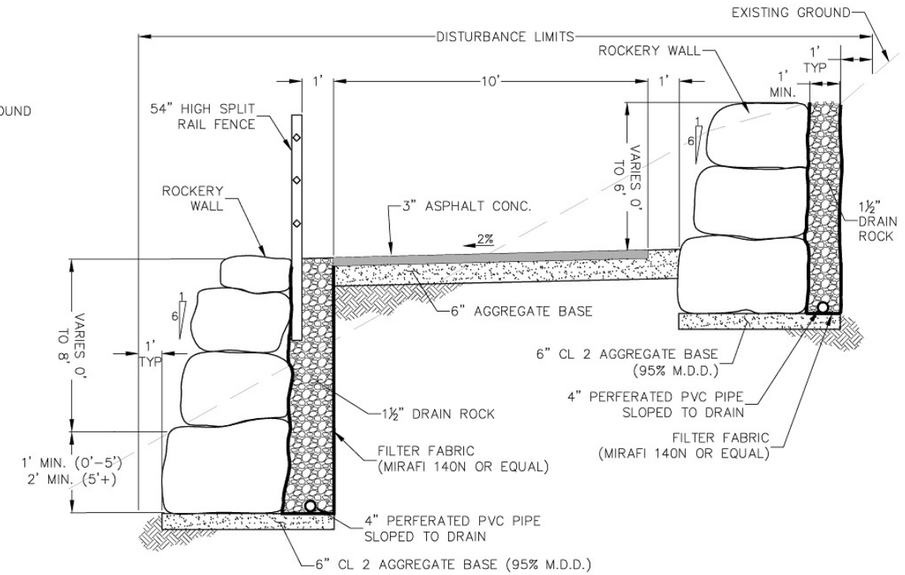
1 D1 TYPICAL TRAIL SECTION A (14 FT TRAIL, 0% TO 10% CROSS SLOPE)
SCALE: N.T.S.

NOTE: ELEVATION OF TRAIL IN RELATION TO EX GROUND MAY BE VARIED IN THE FIELD



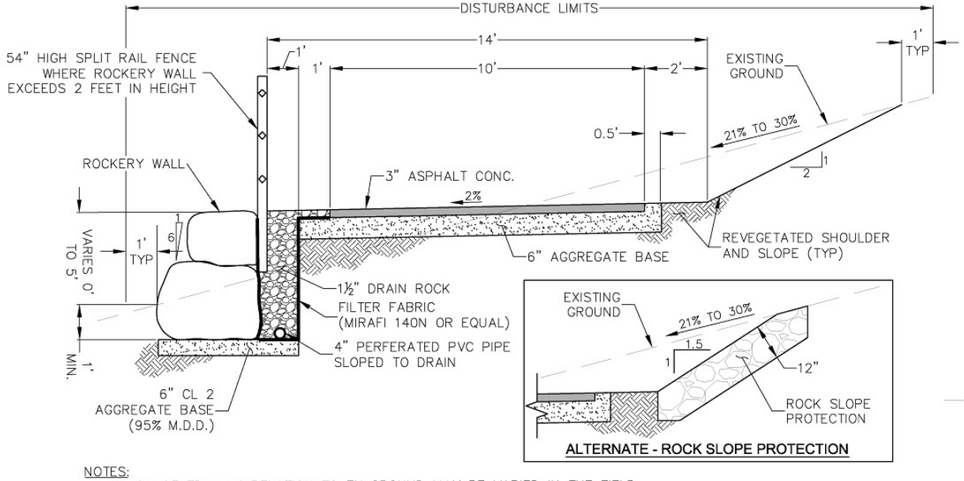
NOTE: ELEVATION OF TRAIL IN RELATION TO EX GROUND MAY BE VARIED IN THE FIELD

2 D1 TYPICAL TRAIL SECTION B (14 FT TRAIL, 11% TO 20% CROSS SLOPE)
SCALE: N.T.S.



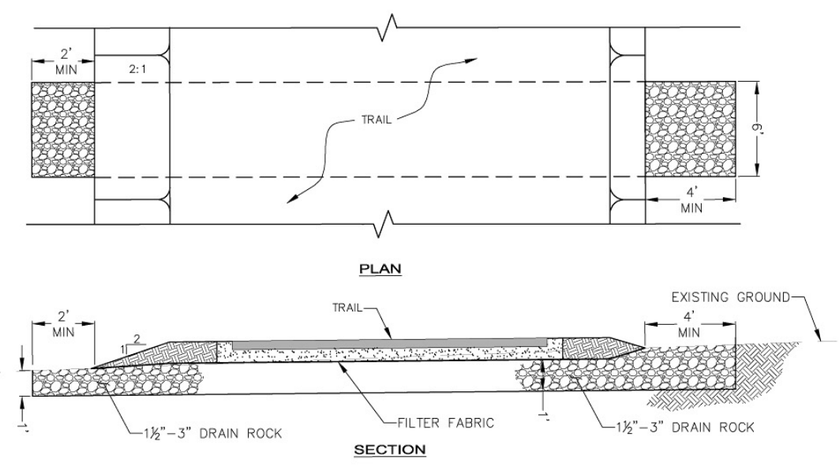
NOTES:
1. ELEVATION OF TRAIL IN RELATION TO EX GROUND MAY BE VARIED IN THE FIELD. SOME LOCATIONS MAY HAVE A WALL ON THE UPHILL OR DOWNHILL SIDE ONLY.
2. A DARKENED TEXTURED CONCRETE OR MECHANICALLY STABILIZED EARTH (MSE) WALL WITH A WEATHERED APPEARANCE MAY BE USED IN LIEU OF A ROCK WALL. FINAL WALL TYPE TO BE DETERMINED DURING FINAL DESIGN.

4 D1 TYPICAL TRAIL SECTION D (12FT TRAIL, 31% TO 50% CROSS SLOPE)
SCALE: N.T.S.



NOTES:
ELEVATION OF TRAIL IN RELATION TO EX GROUND MAY BE VARIED IN THE FIELD.
WALL MAY BE ON UPHILL SIDE OR BOTH SIDES OF TRAIL IN SOME LOCATIONS.

3 D1 TYPICAL TRAIL SECTION C (14 FT. TRAIL, 21% TO 30% CROSS SLOPE)
SCALE: N.T.S.



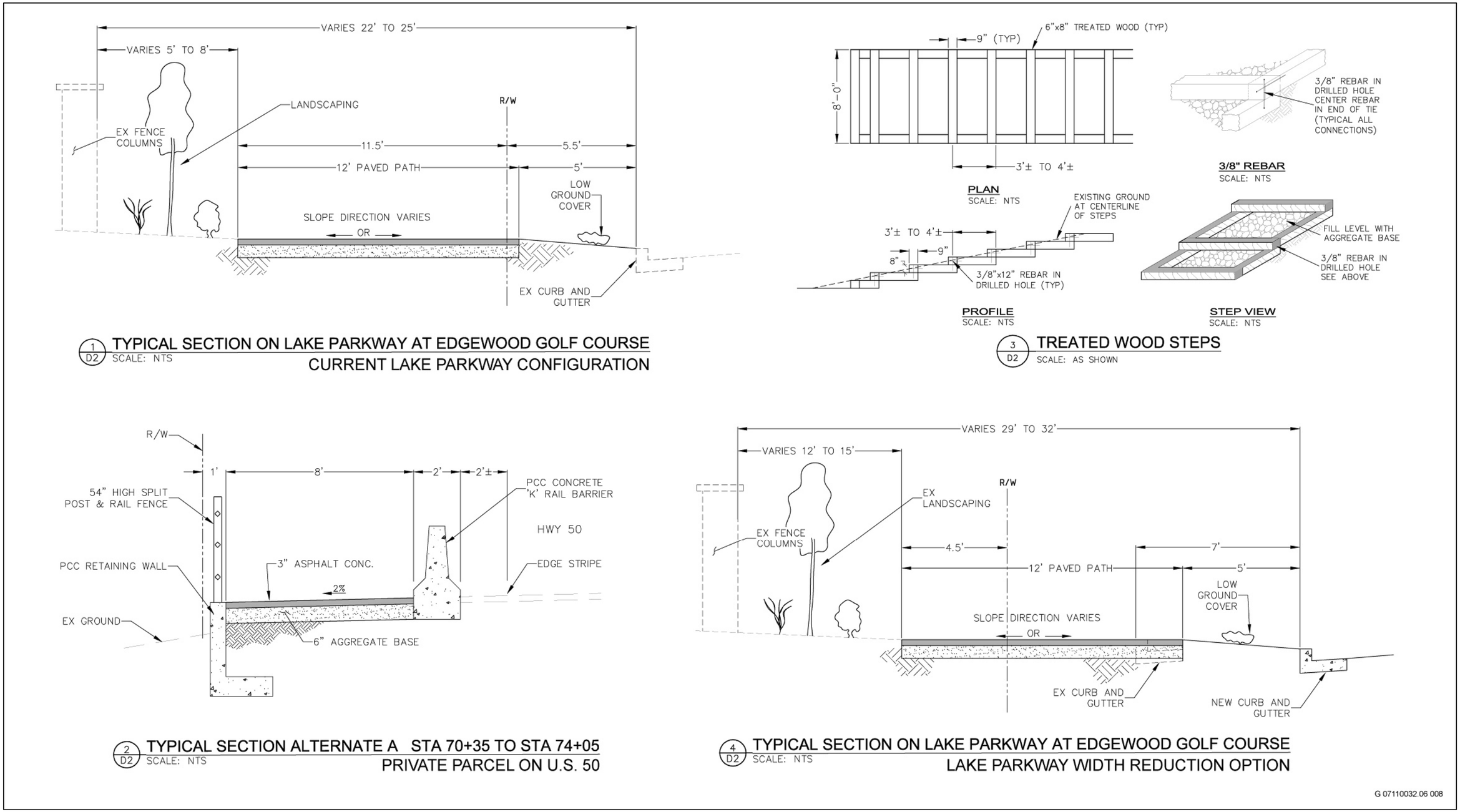
5 D1 DRAIN ROCK CROSS DRAIN DETAIL
SCALE: N.T.S.

G 07110032.06 007

Source: Lumos & Associates 2010; AECOM 2010

South Demonstration Project – Typical Details

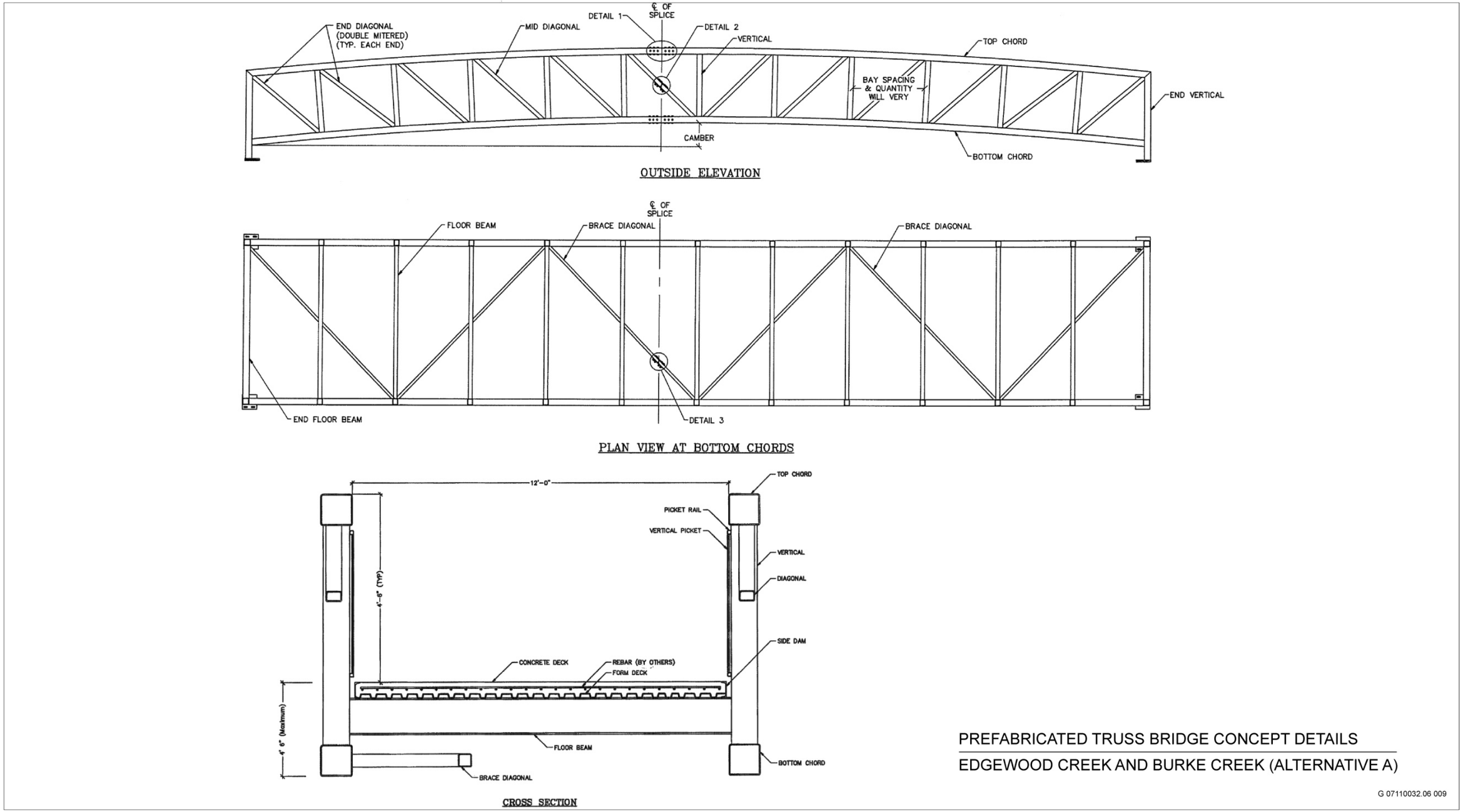
Exhibit 2-7a



Source: Lumos & Associates 2010; AECOM 2010

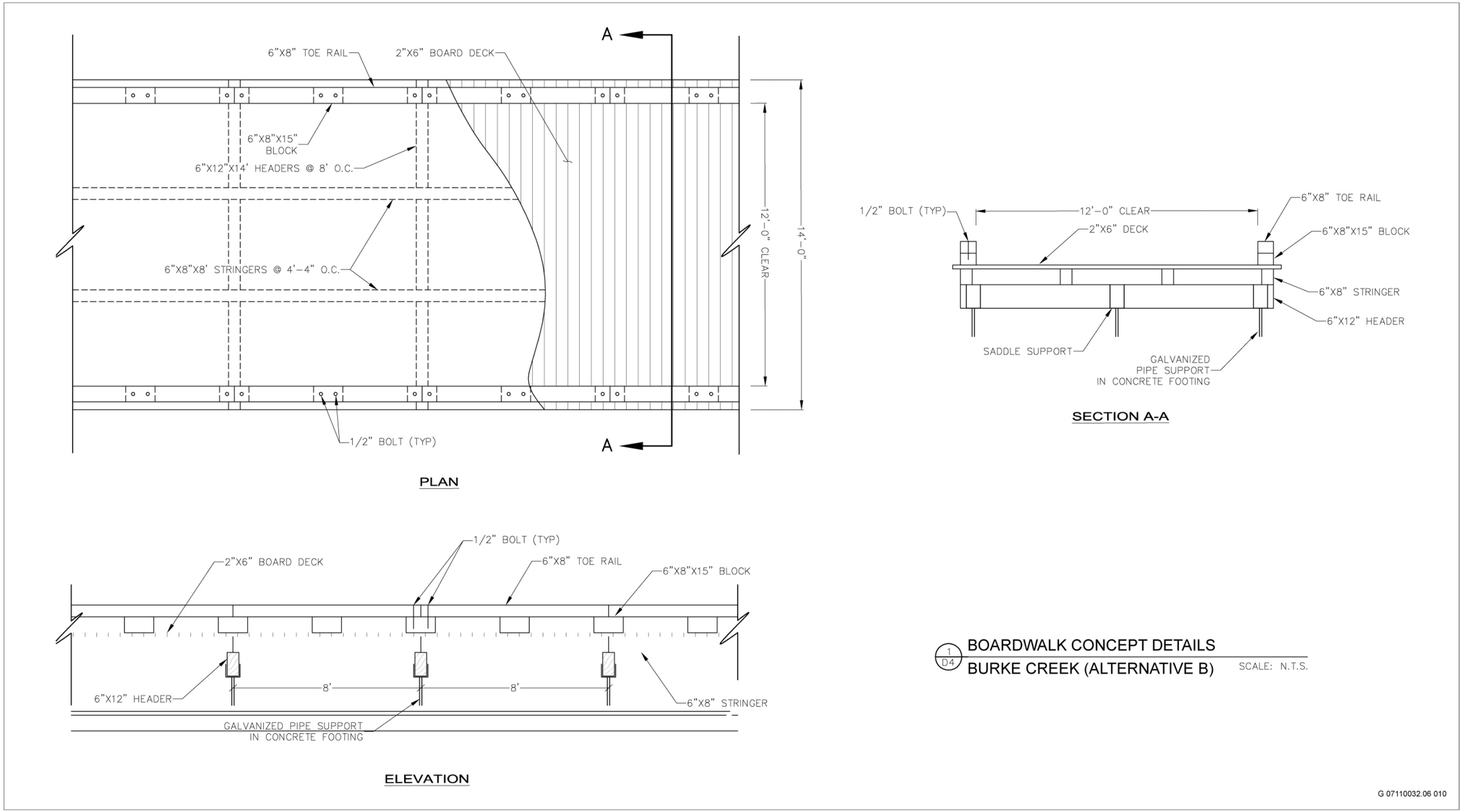
South Demonstration Project – Typical Details

Exhibit 2-7b



Source: Lumos & Associates 2010; AECOM 2010

South Demonstration Project – Prefabricated Bridge Schematic **Exhibit 2-8**



Source: Lumos & Associates 2010; AECOM 2010

South Demonstration Project – Boardwalk Concept Details **Exhibit 2-9**

information regarding points of interest, such as those related to biological or cultural significance. A detailed signage plan would be prepared as part of the final design consistent with the FHWA's MUTCD. For the purpose of this EA, the analysis of signage would be limited to that which is necessary for path safety based on engineering judgment and associated standards. All proposed signage would be subject to LTBMU and TRPA rules and regulations.

Lighting

In Segment 1, under both Alternatives A and B, six existing streetlights along U.S. 50 would be set back from the edge of curb approximately 21 feet and would be located on the west side of the proposed shared-use path. These lights would be placed at 40-foot intervals. The proposed lighting would use LED bulbs and their design would be modeled after more modern light fixtures providing for a more aesthetically pleasing light fixture. A final lighting plan (detailing proposed height, style, and type) would be developed in consultation with and subject to TRPA and NDOT lighting design standards. Aside from exterior lighting for the proposed restroom structure in the expanded parking lot near the northwest corner of U.S. 50 and Kahle Drive, no other new lighting would be added along the length of the shared-use path.

Utilities

Utility modifications would be required in Segments 1 and 2 under both action alternatives (Alternatives A and B). No utility modifications would be required in Segment 3.

In Segment 1, a traffic signal control box would need to be relocated near the corner of Lake Parkway and U.S. 50, in addition to the relocation of the six existing streetlights along U.S. 50 noted above. The option to reduce the width of Lake Parkway by 7 feet would create additional utility modification obligations. For example, the reduced width would require access modifications to existing utility lines (e.g., relocated storm drain inlets and natural gas line access points) located on Lake Parkway.

In Segment 2, with both action alternatives (Alternatives A and B), the proposed restroom facility at Kahle Drive would require connections to existing DCSID and KGID sanitary sewer and water lines in Kahle Drive as described above.

2.2.2 Alternative A – Proposed Action

Shared-Use Path

Segment 1

For Segment 1, the shared-use path would begin at Lake Parkway and the Nevada state line in the casino core and end at the north side of Kahle Drive (Exhibit 2-3). This segment is broken into three sections that generally include Lake Parkway, U.S. 50, and Laura Drive.

Lake Parkway

Approximately 0.9 mile of the proposed shared-use path would cross the Edgewood Tahoe Golf Course property, which would require a deed-restricted easement from the property owner, Edgewood Companies. Preliminary discussions with Edgewood Companies regarding this easement are underway. The extent of the easement and final alignment along Lake Parkway and U.S. 50 are subject to refinement as the design process and easement negotiations progress. This section would also require an encroachment permit and/or new right-of-way from Douglas County along Lake Parkway.

The section along Lake Parkway would deviate from the above-described design standards in that the path would be a 12-foot-wide paved path with 1-foot-wide shoulders on either side. The shared-use path corridor width (14 feet) would be the same as at other locations, but the paved portion is proposed to be wider along this section and the U.S. 50 section to accommodate anticipated higher travel volumes and to reduce conflicts among users (see Section 3.9, "Traffic, Parking, and Transit").

The shared-use path would run parallel to Lake Parkway on the northwest side of the road and would be situated between the existing wrought iron fence and the edge of curb on Lake Parkway. The shared-use path shoulder would be set back 5 feet from the edge of curb. Exhibit 2-7 shows a cross-section of the shared-use path with the current configuration of Lake Parkway. Just before reaching U.S. 50, the alignment would turn north to avoid the existing Edgewood Tahoe Golf Course landscape and signage entry area. The proposed design would require relocating a section of the existing fence.

This section of the shared-use path would include two at-grade roadway crossings, one on Lake Parkway and one at the entrance road to Edgewood Tahoe Golf Course. The Lake Parkway crossing would include a new pedestrian ramp and marked 10-foot-wide crosswalk located just north of the southernmost access driveway to Harvey's casino. This crossing treatment would include advance warning signs consistent with the FHWA's Manual on Uniform Traffic Control Devices (MUTCD) (MUTCD Bicycle/Pedestrian Sign W11-15; FHWA 2009) and stop bars for both north and southbound traffic on Lake Parkway. The crossing at the entrance to Edgewood Tahoe Golf Course would include stop signs on the shared-use path for north and southbound path users, and an advance warning sign (MUTCD Bicycle/Pedestrian Sign W11-15 and Supplemental Plaque W11-15P; FHWA 2009) and stop bar for outgoing traffic from Edgewood Tahoe Golf Course. This crossing treatment would also require reconstructing the southernmost curb of this intersection to a 35-foot radius.

Option: Reduce the Width of Lake Parkway by 7 Feet

Douglas County is considering and has presented to Edgewood Companies an option to reduce the width of Lake Parkway by 7 feet leaving a remaining pavement width of 37 feet (three 11-foot travel lanes, one of which would be a dedicated left turn lane, and two 2-foot paved shoulders). The reconfigured Lake Parkway would be signed for no parking. This optional configuration is being considered to reduce: (1) the required easement width and associated cost, and the extent of encroachment into Edgewood Companies landscaped area on Lake Parkway; and (2) the potential for golfer/path user conflicts. While parking would no longer be permitted along Lake Parkway, Douglas County has expressed the willingness to consider allowing parking during the occasional special event (e.g., Celebrity Golf Championship Tournament) if it could be demonstrated that the parking was necessary and that the parking could be managed safely.

U.S. 50

In addition to requiring a deed-restricted easement from Edgewood Companies, this section would also require an encroachment permit and/or new right-of-way dedication from NDOT.

Similar to the section along Lake Parkway, the section along U.S. 50 would be a 12-foot-wide paved path with 1-foot-wide shoulders on either side. The shared-use path would run parallel to U.S. 50 on the west side and would be situated between the existing iron fence and the edge of curb to a point just south of Edgewood Creek. The shared-use path shoulder would be set back 5 feet from the edge of curb.

From the point just south of Edgewood Creek to the access point on Laura Drive, the existing fence would need to be relocated to the west onto Edgewood Companies property and west of the proposed shared-use path. The shared-use path would cross Edgewood Creek on a 120-foot-long by 12-foot-wide steel truss prefabricated bridge (Exhibit 2-8). The bridge would require the placement of two bridge abutments within the limits of the existing FEMA delineated 100-year floodplain for Edgewood Creek. However, as part of the South Demonstration Project, a FEMA Letter of Map Amendment (LOMA) application would be submitted to FEMA to request a

change to the mapped 100-year floodplain immediately below U.S. 50 where the proposed bridge would span Edgewood Creek. A LOMA establishes a property's location in relation to the special flood hazard area. The purpose of the proposed floodplain revision would be to demonstrate that the proposed bridge and its abutments would be located outside the 100-year floodplain limits of Edgewood Creek.

Near the northwest corner of the golf course property, the shared-use path would pass through an existing stand of trees and connect to Laura Drive at its intersection with the 4-H Camp Road. The alignment is designed to avoid the existing pump house at the northeastern corner of Edgewood Companies property and would include new perimeter fencing around that structure.

4-H Camp Road to Kahle Drive

This portion of the shared-use path would be an on-road segment that would follow Laura Drive to Kahle Drive and would require an encroachment permit and/or right-of-way dedication from the Olive Park GID. Laura Drive would be resurfaced and striped to include 6-foot bicycle lanes, 8-foot wide parking bays on the west side of Laura Drive, signage designating Laura Drive as a bicycle route, and no parking signs on both sides of the road (outside of the bays). The vegetation located in the southeast quadrant of the Kahle Drive/Laura Drive intersection would be removed so that northbound bicycles and westbound traffic would have a clear view of each other when approaching this intersection.

This section would include two at-grade roadway crossings, one at the 4-H Camp Road and one at Kahle Drive. The 4-H Camp Road crossing would include two 6-foot-wide crosswalks leading to and from the bicycle lanes on Laura Drive. This crossing treatment would include an advance warning sign (MUTCD Bicycle/Pedestrian Sign W11-15 with Supplemental Plaque W11-15P; FHWA 2009) and stop bars for both approaches on 4-H Camp Road and southbound traffic on Laura Drive. The Kahle Drive crossing would also include two 6-foot-wide crosswalks leading to and from the bicycle lanes on Laura Drive, advance warning signs for westbound and eastbound traffic on Kahle Drive, and stop bars for approaching vehicles on Kahle Drive and Laura Drive.

Segment 2

This segment of the shared-use path would be a 10-foot-wide paved path with 2-foot-wide shoulders on either side, except where noted below, and would require a Special Use Permit from the LTBMU and an encroachment permit and/or right-of-way dedication from NDOT for a 350-foot-long section along U.S. 50 (described below).

From the north side of Kahle Drive, path users would be directed through the expanded parking lot at Kahle Drive to a shared-use path alignment that parallels U.S. 50 for approximately 0.6 mile (Exhibit 2-4). The shared-use path would cross Burke Creek on a 55-foot-long by 12-foot-wide steel truss prefabricated bridge (Exhibit 2-8).

Approximately 350 feet north of the bridge, the shared-use path would narrow and the next 350 feet would be constructed entirely within the NDOT right-of-way to avoid crossing the private parcel that fronts U.S. 50 (APN 1318-22-002-018). The width of this 350-foot-long section would be reduced to 8 feet with no shoulders to fit within the existing right-of-way. As part of the transition to this narrowed section, a 440-foot-long by 42-inch high concrete barrier/rail would be placed approximately 2 feet from the outside striping on U.S. 50. The west side of this 350-long section would be free of a barrier, except at the culvert crossing near the northern end of the private parcel, where a 54-inch-high post and split rail fence would be required to prevent path users from falling into the culvert. Current design plans show that access to the private parcel would be restricted by the concrete barrier and fencing. With this alignment, it is expected that further discussions with the private parcel owner and NDOT would be required to provide access to the private parcel in latter phases of design.

North of the private parcel, the shared-use path would transition back to a 10-foot-wide path with 2-foot-wide shoulders. Just north of the private parcel, the shared-use path would cross an unnamed drainage and aspen stand

on a 60-foot-long by 12-foot-wide steel truss prefabricated bridge (Exhibit 2-8). The shared-use path through this section would require removing a portion of an existing aspen stand (Exhibit 2-4). From this location, the shared-use path would continue north, following U.S. 50 for another 1,990 feet, at which point it would turn northwest and align with existing dirt trails through a forested area. The shared-use path would then cross through the meadow/forest for approximately 2,700 feet and tie into the 10-foot wide Elks Point Bike Path that runs parallel to the south side of Elks Point Drive.

Segment 3

This segment of the shared-use path would be a 10-foot-wide paved path with 2-foot-wide shoulders on either side, and would require a Special Use Permit from the LTBMU and an encroachment permit and/or right-of-way dedication from NDOT for the Elks Point Road crossing.

Segment 3 would originate south of Elks Point Road at a point on the existing Elks Point Bike Path east of the entrance to Nevada Beach Campground and Day Use Area (Exhibit 2-5). This section would include an at-grade crossing of Elks Point Road that would include a 10-foot-wide crosswalk, and advance warning signs and stop bars for eastbound and westbound vehicles on Elks Point Road. Signage would be provided for users of the South Demonstration Project directing northbound bicyclists wishing to access U.S. 50 northbound to use the existing Elks Point Bike Path trail eastbound to the signal at U.S. 50/Elks Point Road. (Note: the signal at U.S. 50/Elks Point Road is the northernmost protected location for a northbound bicyclist to cross U.S. 50 before the northern terminus of the South Demonstration Project so that they would be on the correct side of the roadway as they continue northbound on U.S. 50.)

From the north side of Elks Point Road, the shared-use path would follow a lower alignment that contours around the west side of Round Mound. The lower alignment would be located within approximately 128 feet of the closest residential structure on the west side of Elks Avenue within the Elks Point Neighborhood, a gated private community. An upper alignment is being considered as an option to distance the shared-use path from existing residences—the upper alignment would move the path to a distance of 190 feet from the closest residence, but would require the removal of rock outcrops protected by TRPA regulations and involve additional locations where the grade would exceed 5%. An existing chain link fence east of Elks Avenue separates the Elks Point Community from the proposed shared-use path.

The shared-use path would then be routed through the abandoned Round Hill Pines Resort, and connect to a segment of the Old Lincoln Highway that runs parallel to and west of U.S. 50. From the access road to Round Hill Pines Beach, the alignment would extend approximately 0.3 miles to the north, following portions of the Old Lincoln Highway, to a point where NFS land meets private property.

Sections of Segment 3 would traverse steep cross slopes that would require retaining walls (Exhibit 2-6). Locations where final grades would exceed AASHTO's 5% slope standard are shown in red on Exhibit 2-5.

This section would also include an at-grade crossing at the Round Hill Pines Beach access road. This crossing would include advance warning signs (MUTCD Bicycle/Pedestrian Sign W11-15 with supplemental Plaque W11-15P; FHWA 2009) and stop bars for inbound and outbound vehicles on the access road. An intersection warning sign (MUTCD Sign W2-1; FHWA 2009) would be placed along the shared-use path at the crossing location of the Round Hill Pines Beach access road.

To minimize the potential for user-created informal trails leaving the established bicycle path, an 8-foot-wide foot path with treated wood steps would be constructed from the Nevada Beach Campground and Day Use Area entrance to the proposed shared-use path alignment (Exhibits 2-4 and 2-7).

Tree Removal

The proposed shared-use path is designed to minimize tree removal. Alternative A would remove an estimated 138 trees that are less than 24 inches dbh, 35 of which are greater than 14 inches dbh. The trees to be removed would primarily include pines and firs. All trees 24 inches dbh or greater would be retained under Alternative A. There is one 30-inch pine tree on the fringe of Edgewood Creek that is located immediately adjacent to the east side of the proposed bridge structure that is not proposed for removal. It is possible that during latter design phases that it may be determined that this tree would require removal, or that the proposed improvements for the bridge (construction near the base of the tree or installation of the prefabricated bridge structure) could affect the root structure or integrity of the tree to the extent that the tree would not survive over the long term. As described in Design Feature BIO-3, every means feasible would be made to retain the integrity of this tree.

Alternative A would result in the removal of portions of existing willow stands and aspen stands concentrated near the Edgewood and Burke Creek crossings and in the aspen stand north of Burke Creek (see Section 3.4, "Biological Resources"). The optional alignments in Segments 1 and 3 would only incrementally affect the number of trees to be removed, but neither option would result in the removal of trees 24 inches dbh or greater.

Land Capability and Coverage

A TRPA land capability verification application was submitted to TRPA for Alternative A in the summer of 2010 and was approved and signed by TRPA on September 8, 2010. Alternative A would cross portions of nearly all of TRPA's Land Capability Districts (LCD), including LCDs 1a, 1b, 1c, 2, 3, 4, 5, and 7. Alternative A would increase land coverage in all of these LCDs relative to existing conditions. Because the South Demonstration Project would be a Linear Public Facility (LPF), per TRPA Code of Ordinances Section 20.3.B (4), the allowable land coverage would be limited to the minimum amount needed. The required land coverage would need to be purchased and transferred to the project area. The amount that would require purchase and transfer would be determined on a parcel-by-parcel basis. Sufficient sources of coverage have been identified by Douglas County from within and outside of the hydrologic transfer area. Before groundbreaking and acknowledgement of the TRPA LPF permit, Douglas County would be required to demonstrate evidence of purchase and transfer of the required coverage. Preliminary land capability and coverage details are provided in Section 3.5, "Earth Resources."

2.2.3 Alternative B

Shared-Use Path

Segment 1

Segment 1 under Alternative B would be the same as described above for Alternative A.

Segment 2

After crossing Kahle Drive at Laura Drive, Segment 2 under Alternative B would turn west and run adjacent to Kahle Drive for approximately 0.3 mile, at which point it would turn north and connect with the Lam Watah Trail. Under Alternative B, Segment 2 would merge with the Lam Watah Trail for a distance of approximately 1,200 linear feet before splitting off to the north and following existing dirt trails to the Elks Point Bike Path on the south side of Elks Point Road.

The approximately 1,200-foot-long section of the shared-use path would require resurfacing and widening of the Lam Watah Trail. In addition, the existing boardwalk over Burke Creek would be removed and a new 210-foot-

long by 12-foot-wide section of boardwalk (Exhibit 2-9) would be constructed just east of the location of the existing boardwalk. The area of the removed boardwalk would be restored to enhance fish passage.

The existing interpretive sign along the shared segment highlighting the Sky Harbor Casino and Airport would be retained and an aggregate pullout would be added to prevent potential conflicts between path users.

Segment 3

Segment 3 under Alternative B would be the same as described above for Alternative A.

Tree Removal

Alternative B would remove an estimated 152 trees that are less than 24 inches in dbh, 47 of which are greater than 14 inches dbh. The trees to be removed would primarily include pines and firs. All trees 24 inches dbh or greater would be retained by Alternative B, except for the potential effects on the single 30-inch pine tree located on the fringe of Edgewood Creek discussed above under Alternative A. Alternative B would not affect willow or aspen stands (see Section 3.4, “Biological Resources”). The optional alignments in Segments 1 and 3 would require removal of a similar number of trees, but neither option would result in the removal of trees 24 inches dbh or greater.

Land Capability and Coverage

The same land capability and coverage discussion that applies to Alternative A would apply to Alternative B, except that Alternative B would not cross or increase land coverage in LCD 3.

2.2.4 Alternative C

Under Alternative C, the shared-use path as proposed under Alternatives A and B would not be constructed. Under this alternative, no bridges, parking areas, or restrooms would be constructed or expanded within the project area. The existing Lam Watah Trail would remain as it is today. Current management plans would continue to guide management of the project area.

2.2.5 Construction Schedule and Activities

Construction of the South Demonstration Project is expected to occur in three distinct phases (or segments), beginning as early as summer 2011. Construction of the three phases could, however, occur simultaneously if adequate funding were available. If construction funding becomes available, and the required permitting, final design, and construction bid documents can be completed in a timely manner, then project construction could be completed by the end of the 2011 construction season. Because of the potential timing of funding, it is more likely that construction of some portions of the project would extend into the 2012 and possibly the 2013 construction seasons.

Construction activities would include demolition of small areas of existing fence, pavement, curb, gutter, and sidewalk, tree removal, clearing and grubbing, grading, retaining wall construction, placement of aggregate base, asphalt concrete, and culverts, and construction of bridges, a boardwalk, a restroom (including utility connections), benches, picnic tables, and signage. Construction would occur 8 hours per day, 5 days per week within the range of hours permitted by TRPA, with approximately 20 workers on-site for each phase or segment.

Construction equipment that would be used during one or more of the construction phases would include the following:

- haul trucks
- backhoes or small excavators
- front loaders
- small grader
- roller compactor
- whacker
- concrete truck
- pumper truck
- small crane
- pavement grinder
- large crane

Low ground pressure equipment would be used for construction at locations between Kahle Drive and Elks Point Road. A maximum of 10 one-way haul truck trips per day is expected in addition to commute trips for construction workers. The maximum acreage that would be disturbed would be less than 10 acres in total, with a maximum of 0.5 acre disturbed per day.

2.2.6 Long-term Operation and Maintenance

Long-term operation and maintenance of the shared-use path would be the responsibility of Douglas County. For the section of the shared-use path that would cross the Edgewood Tahoe Golf Course property, Edgewood Companies has expressed an interest in negotiating the terms and responsibilities of the long-term maintenance plans particularly as it relates to landscaping along Lake Parkway and U.S. 50. The terms of the long-term maintenance agreement with the LTBMU for use of NFS lands would be articulated in the LTBMU SUP.

Generally, the County would be responsible for the following ongoing operation and maintenance tasks:

- monitor security/safety of the path through routine inspections;
- coordinate with other agencies, such as LTBMU and Douglas County Sheriff's Department, to provide regular law enforcement presence along the path;
- provide spokespersons to interact with the public;
- manage contracts and provide oversight for maintenance and improvements, such as
  - sign replacement/repair;
  - pavement marking replacement;
  - vegetation clearing to maintain clearance and visibility;
  - restroom maintenance;
  - pavement sweeping;
  - crack seal and sealing;
  - trash and illegal dumping disposal;
  - fallen trees removal; and
  - graffiti removal.

Vehicles used for maintenance would typically be light trucks with occasional use of heavy dump trucks and tractors as well as emergency vehicles in the event of an emergency. The shared-use path would be designed to accommodate the loads expected with these vehicle types.

The proposed shared-use path would be maintained for non-winter use at all times, and for winter use as Douglas County's maintenance priorities and funding allow. The portion of Segment 1 that extends along U.S. 50 between Lake Parkway and 4-H Camp Road would be cleared of snow consistent with current practices along this stretch, where snow is removed following snow events. Snow is cleared to the west side of the path using a diesel-powered Bobcat. As funding and priorities permit, Douglas County would clear snow along the remainder of the shared-use path in a similar manner.

2.3 Project Design Features

Project design features are elements of the project design that were developed to reduce or avoid negative environmental effects of the action alternatives. These project design features would apply to both Alternatives A and B, except where noted. Many of the design features incorporate context sensitive design elements, monitoring effectiveness, and adaptive management elements to address unanticipated adverse resource effects or effects to sensitive sites. Project design features are listed by resource area.

2.3.1 Soils, Hydrology, and Water Quality

Best Management Practices (BMPs) would be used to treat runoff and to minimize erosion and the transport of sediment and other pollutants of concern to Lake Tahoe. At Lake Tahoe, BMPs are defined as "alternative structural and nonstructural practices proven effective in soil erosion control and management of surface runoff in the Lake Tahoe Region" (TRPA Code of Ordinances Chapter 2.2). Pursuant to Section 25.5.A of the TRPA Code of Ordinances, all property owners in the Tahoe Basin are required to install infiltration facilities designed to accommodate the volume of runoff from a 6-hour storm with a 2-year recurrence probability (or a 20-year/1-hour storm, which is approximately 1 inch of precipitation in an hour). All facilities would be designed to capture and treat this storm event.

BMPs would vary from site-to-site, and include temporary and permanent facilities. Temporary BMPs would be used to keep sediment on-site when an area is disturbed by construction and during the vegetation establishment period (typically a minimum of 2 years following construction.). Permanent BMPs are used to minimize erosion on residential, commercial, and public service properties when they are not disturbed by active construction. A Temporary and Permanent BMP Plan (including maintenance) would be prepared for the proposed project that identifies who would be responsible for ensuring implementation of BMPs and making the necessary updates/modifications.

Temporary BMPs would be implemented during construction of the South Demonstration Project to eliminate or reduce sediment and pollutants in stormwater runoff to a level that meets waste discharge requirements. Generally, earthmoving activities would be limited to May 1 through October 15, unless a grading ordinance exemption is granted by TRPA. Grading activities would be prohibited during winter months, unless approved by TRPA, and exposed graded areas would be protected during winter months using approved methods detailed in a winterization plan. Temporary construction BMPs would include measures equal or superior to the following:

- **BMP-1: Install temporary erosion control facilities.** Temporary erosion control facilities would be installed to prevent the mobilization and transport of earthen materials and other waste off of the property during construction.

- **BMP-2: Install silt fencing and/or sediment rolls along the shared-use path corridor.** Silt fencing or fiber rolls would be installed on contour on the downhill side of the shared-use path and construction access routes. Orange construction limit fencing would be installed on the uphill side of the shared-use path to limit the disturbed corridor.

- **BMP-3: Install sediment rolls or filter fence in ephemeral drainage courses.** Fiber rolls or filter fence would be installed in ephemeral drainage courses downhill of the shared-use path to prevent discharge of earthen materials from the site during periods of precipitation or runoff.

- **BMP-4: Create fueling and concrete washout area.** A fueling and concrete washout area lined with polyethylene sheeting and protected by a silt fence would be installed to minimize contaminants and dust leaving the site. A spill prevention and containment plan would be developed prior to construction and be kept on site by the contractor during the entire construction phase of the project (see Design Feature BMP-12).

- **BMP-5: Use designated contractor staging areas.** Contractor staging areas (Exhibits 2-3, 2-4, and 2-5) for materials and equipment storage would generally be limited to existing disturbed areas outside of SEZ areas (where soils are already compacted and vegetation has been cleared). Designated staging and storage areas would be protected by construction fencing and/or silt barriers, as appropriate. Following project completion, any areas used for staging and not intended for continued vehicular use would be tilled, seeded, and mulched and/or stabilized with a tackifier.

- **BMP-6: Place protection fencing around trees.** Protective fencing would be placed around trees to be retained that could be affected by project construction.

- **BMP-7: Conduct pre-grading inspection of temporary erosion control measures.** A minimum of 48-hours notice would be provided to the appropriate agencies so that a pre-grading inspection could be conducted at the site to ensure proper and adequate installation of the temporary erosion control measures.

- **BMP-8: Minimize ground compaction and disturbance.** Ground compaction and disturbance activities in unpaved areas not subject to construction would be minimized using fencing or other barriers to limit access.

- **BMP-9: Stabilize disturbed areas, eroding areas, and slopes. A**ll disturbed or eroding areas would be stabilized before October 15 of each year. During construction all slopes subject to erosion and flow paths that could receive runoff would be stabilized. At the end of the grading season or before completion of the construction project, all surplus or waste earthen materials from the project site would be removed and disposed of at a TRPA approved disposal site or stabilized on-site in accordance with TRPA regulations.

- **BMP-10: Protect material storage piles.** Rock, soil, and other earthen material, removed during grading operations, may be stockpiled and used for shared-use path construction activities. Measures would be employed that prevent stockpiled material from entering stream channels or otherwise adversely affecting ground water, such as use of coir logs, or covering with tarps.

- **BMP-11: Implement dust control measures.** Transport of fugitive dust off the project site, into any surface water, or into any drainage course would be prevented with dust control measures such as watering exposed soil twice daily, or as needed, to control wind borne dust. All haul/dump truckloads would be covered securely. At a minimum of three times per week, all dirt and mud that has been generated from or deposited by construction equipment going to and from the construction site would be removed from all adjacent streets. On-site vehicle speeds would be limited to 15 miles per hour on unpaved surfaces.

- **BMP-12: Prepare and implement a spill prevention and containment plan.** A spill prevention and containment plan would be prepared and implemented by project contractors for each segment of construction. Project contractors would also be responsible for regularly training on-site construction personnel in spill prevention practices. In contractor staging areas, provide pallets or secondary containment areas for chemicals, drums, or bagged materials and use drip pans or secondary containment measures

beneath vehicles during storage. Immediately clean up and transport to an appropriate disposal site any spilled petroleum products or petroleum-contaminated soils, to the maximum extent possible and to the satisfaction of TRPA and NDEP. Place hazardous waste materials (e.g., grease, oil, transmission fluids, cleaning solutions, batteries, etc.) in proper containers, store the containers in designated areas, and ultimately recycle or properly dispose of the materials in accordance with applicable state and federal laws.

- **BMP-13: Restore areas disturbed during construction.** All areas compacted by construction activities that are not intended to become permanent land coverage would be scarified, ripped, and revegetated with native vegetation. This includes providing protective groundcover or vegetative cover to minimize soil erosion, where necessary.

- **BMP-14: Prepare and implement a Dewatering Plan.** The Dewatering Plan would outline the steps that would be required if groundwater is intercepted during construction. Groundwater could be encountered during construction, if groundwater is encountered and the excavated area requires dewatering to complete the work, TRPA would be notified immediately and a Dewatering Plan would be prepared and submitted for approval by Douglas County and TRPA prior to its implementation. Based on the results of the forthcoming Soils/Hydrology Analysis, TRPA may require that a full Dewatering Plan be prepared and submitted as part of the Storm Water Pollution Prevention Plan (SWPPP) prior to permit acknowledgement. The Project Engineer or an approved representative would take samples at the point(s) of disposal of the dewatering effluent to determine whether the effluent limitations of the NPDES permit and Chapter 81 of TRPA's Code of Ordinances are being met. The construction contractor would provide the Project Engineer with suitable sampling location(s) at the point(s) of disposal of the dewatering effluent.

Permanent site improvements and BMPs would include the following:

- **BMP-15: Design for 20-year, 1-hour storm event.** Improvements would be designed to exceed treatment and infiltration of runoff generated by the 20-year, 1-hour storm event, as required by TRPA Code of Ordinances Section 25.5.A. Where drainage conveyances would be through SEZ areas, the TRPA Code of Ordinances design requirement for a minimum design of the 50-year, 1-hour storm event would be used. This would typically be accomplished by a bioswale on the uphill side of the path in areas of flat topography, or by a linear infiltration trench in areas with pronounced cross slope.

- **BMP-16: Maintain existing drainage pattern.** The existing drainage pattern would be maintained to the greatest extent practicable.

- **BMP-17: Design culverts for the 25-year, 24-hour storm event.** Drainage culverts would be designed for at least the 25-year, 24-hour storm event to be conveyed under the path as required by Douglas County.

- **BMP-18: Design bridges and boardwalks over stream crossings for the 100-year, 24-hour storm event.** Bridges and boardwalks over stream crossings (e.g., Edgewood Creek and Burke Creek) would be designed to pass the 100-year, 24-hour event as required by Douglas County.

- **BMP-19: Revegetate and protect cut and fill slopes.** Permanent cut and fill slopes would be revegetated or protected with a combination of rock-rip rap and revegetation depending on the steepness of the slope.

- **BMP-20: Construct detention basin and pre-treat discharge water from the expanded parking lot at Kahle Drive.** Surface water discharge from the expanded parking lot at Kahle Drive would have pre-treatment before release into a detention basin.

2.3.2 Biological Resources: Wildlife, Fisheries and Aquatic Resources, and Vegetation

The following design features would minimize potential effects on wildlife, aquatic, and vegetation resources:

- **BIO-1: Retain down woody debris levels.** The shared-use path design would consider opportunities for meeting desired down woody material retention levels (guidance provided in Forest Plan practice standards and guidelines for snags and downed woody material and TRPA Code of Ordinances Section78.2D) for the protection of wildlife habitat. For example, where trees are to be felled as part of construction (e.g., hazard trees or those within the footprint), they would be retained on-site as necessary to meet desired down woody debris levels. The average maximum level for the forested portions of the proposed shared-use path is 5 tons of coarse woody debris per acre larger than 20 inches diameter (at the large end) and of variable decay classes.

- **BIO-2: Retain snags.** The shared-use path alignments would consider desired snag retention needs for wildlife (guidance provided in Forest Plan practice standards and guidelines for snags and downed woody material and TRPA Code of Ordinances Section 78.2D). Snags would be retained unless deemed a "hazard tree."

- **BIO-3: Retain trees that are 24 inches dbh or greater.** The shared-use path alignments would be routed to minimize the removal of live trees. No live trees 24 inches dbh or greater would be felled during the construction of the project. However, there is one 30-inch pine tree on the fringe of Edgewood Creek that is located immediately adjacent to the east side of the proposed bridge structure. Every means feasible would be made to retain the integrity of this tree during project planning and construction. If it is determined that this tree would require removal either during latter design phases or as a result of indirect effects of project improvements to the root structure or integrity of the tree such that the tree would not survive in the long term, removal of this tree would occur, as allowable, under circumstances specified in the TRPA Code of Ordinances (Section 71.2.A [6]).[a]

- **BIO-4: Provide notification of seasonal closures, if required.** The project would be designed to avoid or minimize the potential need for seasonal closures to recreational use for protected and/or sensitive wildlife. However, if necessary, seasonal closures, via Forest Order, would be announced with adequate advance posting and be as short as feasible. No seasonal closures are anticipated at this time; however, if protected and/or sensitive wildlife are detected in proximity to the shared-use path in the future, the need for seasonal closures to recreational use would be evaluated in consultation with appropriate resource management agencies (e.g., USFS, TRPA, etc.).

- **BIO-5: Minimize ground and vegetation disturbance, and limit construction and staging footprints.** Ground and vegetation disturbance would be minimized during construction to avoid or minimize loss of native vegetation and disturbance to terrestrial wildlife habitat. Shared-use path construction activities, vehicle use and parking, and placement of equipment and materials generally would be restricted to a 30-foot-wide construction zone along the path (i.e., 15 feet in width from centerline to outer edge of construction zone). The outer boundary of this zone would be flagged or fenced.

[a] TRPA Code of Ordinances Section 71.2.A (6) states that "For activities that are consistent with a TRPA-approved master plan, trees larger than 30 inches dbh in the westside forest types and 24 inches dbh in eastside forest types may be removed when it is demonstrated that the removal is necessary for the activity". Activities associated with the South Demonstration Project are consistent with the bicycle trail network proposed in the 2010 Lake Tahoe Bicycle and Pedestrian Plan (approved by the TRPA Governing Board at its August 25, 2010 meeting).

- **BIO-6: Report and protect sensitive wildlife species in accordance with applicable regulations.** A construction awareness training session regarding federally threatened or endangered, USFS R5 sensitive, or TRPA special interest wildlife species would be provided by a qualified biologist to the construction contractor prior to ground-disturbing activities. Any detection of federally threatened or endangered, LTBMU sensitive, or TRPA special interest wildlife species or of nests, dens, roost sites, or other areas of concentrated use by these species, before or during construction and facilities maintenance activities would be reported to LTBMU and TRPA wildlife biologists and protected as directed in the Forest Plan and TRPA regulations. No construction limited operating periods (LOPs) to protect the breeding or other activities of special-status species from construction-related disturbances are anticipated at this time. However, if active breeding sites or other active core-use areas of these species are located in the future near project construction areas, incidentally or based on future survey data, the need for construction LOPs or other measures would be evaluated in consultation with LTBMU and TRPA.

- **BIO-7: Avoid mature or overmature conifer stands where feasible.** The shared-use path would avoid, where feasible, mature or overmature conifer stands (where the dominant size class is $\geq$ 24 inches dbh) within 0.5-mile of large bodies of water (Lake Tahoe), and with relatively low levels of human disturbance that occur within the project area. No mature or overmature conifer stands occur within the area of ground disturbance associated with the proposed project (i.e., project disturbance area) and very little habitat of this type with relatively low levels of human disturbance exists in the vicinity of the project.

- **BIO-8: Maintain and enhance fish passage.** All stream crossings would be designed to convey the 100-year, 24-hour storm event as required by Douglas County. All perennial stream crossings that are part of the project would be designed to maintain upstream fish passage.

- **BIO-9: Maintain passage for aquatic-dependent species.** Culverts or other stream crossings would not create barriers to upstream or downstream passage for aquatic-dependent species (e.g., bottomless culverts with natural bed material).

- **BIO-10: Minimize effects of water drafting, if required.** If water drafting becomes a necessary component of the proposed project, drafting sites would be planned to avoid adverse effects to in-stream flows and depletion of pool habitat. Screening devices would be used for water drafting pumps, and pumps with low entry velocity would be used to minimize removal of aquatic species, including juvenile fish, amphibian egg masses, and tadpoles, from aquatic habitats.

- **BIO-11: Minimize new and relocated coverage that could result in disturbance to SEZ and other low capability lands, and compensate for disturbances to these lands.** The shared-use path alignments would be developed to minimize riparian effects and effects to low capability lands, including TRPA Habitats of Special Significance (habitats consisting of deciduous trees, wetlands, and meadows). Disturbance to SEZ areas and habitat for aquatic- or riparian-dependent species would be minimized by aligning the shared-use path crossings perpendicular to and in narrow SEZ areas to the extent feasible, and incorporating elevated crossing features such as boardwalks and bridge crossings in sensitive meadows and riparian areas. The amount of new and relocated coverage in SEZ areas and low capability lands would be minimized. Disturbance to LCDs 1a, 1b (SEZ areas), 1c, 2, and 3 would be fully mitigated either through enhancement or restoration to 150% or 1:1.5 ratio of the amount disturbed in accordance with Forest Plan practice standards and guidelines and TRPA Code of Ordinances Sections 20.4.A (3) and 20.4.B (3). The appropriate restoration or enhancement actions, methods, locations, and amount would be developed based on the magnitude of new and relocated coverage in these sensitive lands, as well as site-specific and watershed-level opportunities and constraints for SEZ enhancement. Restoration and enhancement activities could include the following:

  – restoring roads and trails inside or adjacent to SEZ areas and low capability lands;

- re-routing project features to less sensitive area to provide a net benefit to SEZs;
- implementing or upgrading long-term BMPs and re-vegetating disturbed areas within riparian zones;
- controlling conifer encroachment into SEZ areas; and
- restoring stream bed and banks to promote additional riparian habitat establishment and increased hydrologic function.

- **BIO-12: Avoid tree removal that could affect water temperatures.** Avoid tree removal that could reduce shaded areas and increase stream temperatures.

- **BIO-13: Use path design elements to minimize meadow disturbance.** Use signage, fencing, planting, etc, in order to discourage users from leaving the path and entering the meadow; any fencing would be designed to avoid interference with hydrology and wildlife movement. This measure would contribute to minimizing potential impacts to meadows and associated sensitive plant species/communities that occur adjacent to the shared-use path.

- **BIO-14: Install signage that informs the public about protecting sensitive vegetation, and identifies noxious weed and invasive plant species and issues in the project area.** Signage containing information about sensitive plant species in the project area and how to avoid disturbing them while using the path and related facilities, and noxious weed and invasive plant species and how they are spread, would be installed at key trailheads and other locations, as applicable and relevant.

- **BIO-15: Prevent the contamination of construction-related materials by noxious weeds and invasive plant species.** The following actions would ensure that construction-related materials entering or leaving the project area are not potential sources of noxious weed infestations.

  - The construction contractor would 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 would 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 project proponent would ensure that any fill soil, mulch, seeds, and straw materials used during construction and implementation of BMPs are weed-free. Certified weed-free material would be used.
  - All earth-moving equipment, gravel, fill, or other materials would be required to be weed free. Sand, gravel, rock, or organic matter from an approved onsite source would be used when possible. Otherwise, weed-free materials would be obtained from gravel pits and fill sources that have been surveyed and approved by a botanist or ecologist at the LTBMU for NFS lands or a qualified botanist on non-NFS lands.
  - The project proponent would ensure that equipment and vehicles are washed when exiting the perimeters of infested areas before proceeding outside the infested perimeters to un-infested areas.

- **BIO-16: Treat cheatgrass populations in Rabe Meadow before construction.** Beginning one year before path construction through Rabe Meadow, or as soon thereafter as feasible, treatment measures intended to eradicate and control cheatgrass would be implemented in the meadow. For one year before construction, or

as much time as feasible within the year before construction, a 50-foot-wide area, extending 25 feet on either side of the path's centerline, or a 25-foot buffer surrounding all other areas of proposed temporary or permanent ground disturbance associated with the project within Rabe Meadow, would be treated to reduce cheatgrass abundance and to improve conditions for establishment of native perennial plants. Treatments to reduce cheatgrass abundance would include cutting cheatgrass, hand pulling, and if authorized by the LTBMU, applying herbicide. Hand pulling would be restricted to small infestations (i.e., < 10 square feet in area); cutting would occur before seed set; and herbicides would be applied according to the prescriptions in the Terrestrial Invasive Plant Species Treatment Project. Prior to construction, a pre-construction cheatgrass control plan would be developed for Rabe Meadow; the control plan would describe the types of cheatgrass control treatments that would be implemented (as mentioned above), and identify the specific locations, extent, and approximate timing of each cheatgrass control treatment along the share-use path within Rabe Meadow. The control plan would be developed in collaboration with LTBMU and TRPA.

- **BIO-17: 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, would be used when revegetating disturbed areas and for landscaping improvements. This measure would contribute to minimizing impacts to TRPA Habitats of Special Significance (habitats consisting of deciduous trees, wetlands, and meadows) that are temporarily disturbed during project construction.

  Following path construction, vegetation dominated by native perennial herbaceous and shrub species would be established within a 20-foot-wide buffer area (20 feet on each side of the path as measured from the outer edge of the path footprint). Seed of montane meadow grasses, forbs, and shrubs that are native to the Lake Tahoe Basin, would be applied to the 20-foot-wide buffer along the path. All seed would be collected from or near the project site, if practicable, or if local collection is not practicable, seed would originate from east of the Sierra Nevada crest within 50 miles of the Tahoe Basin, and from an elevation within 1,000 feet of the study area (to the extent feasible). Persistent nonnatives such as cultivated timothy (*Phleum pratense*), orchard grass (*Dactylis glomerata*), or ryegrass (*Lolium* spp.) would not be used. The seed mix would be approved by a qualified botanist and be certified weed free. For seed materials, the seed analysis report would be provided before seed application, and seed materials containing invasive plant seed would not be approved for use. A restoration ecologist or qualified botanist would be retained by the project proponent to develop a revegetation plan according to Chapter 77 of the TRPA Code of Ordinances (Section 77.4) and to assist with native plant seed mixture selection and application, and native plant establishment methods, including appropriate, limited use of irrigation, if necessary. Nutrient inputs in the form of fertilizer and organic matter would be minimized or avoided. During revegetation, care would be taken to avoid damaging existing natural vegetation.

  A qualified biologist, botanist, or restoration ecologist or botanist would develop a monitoring plan, success criteria, and adaptive management measures to ensure successful establishment of native plant cover in the 20-foot-wide buffer area along the path in Rabe Meadow. Following path construction, monitoring would be conducted for a minimum of 5 years to determine the site's progress toward attaining the established success criteria. The monitoring would include both quantitative surveys of percent cover of native montane meadow vegetation, and qualitative assessments of overall condition and success of restoration efforts.

- **BIO-18: Develop and implement a monitoring and adaptive management plan for invasive plants and noxious weeds.** An invasive plant/noxious weed species monitoring and adaptive management plan would be developed by a qualified biologist, botanist, or restoration ecologist for control of noxious weeds in the path area. Monitoring would include surveys for cheatgrass and other noxious and invasive weed species three times per year (spring, early-midsummer, and late summer) during and after project construction. Any noxious or invasive weed species found within the 20-foot-wide path buffer would be hand pulled before seed set or treated by other approved means, such as the application of herbicides consistent with the Terrestrial Invasive Plant Species Treatment Project. Invasive plant/noxious weed monitoring and control measures

would continue throughout path construction and for a minimum of 5 consecutive years following completion of the path through Rabe Meadow. This measure would contribute to minimizing impacts of invasive plants and noxious weeds to TRPA Habitats of Special Significance (habitats consisting of deciduous trees, wetlands, and meadows) that occur within and adjacent to the project area.

As part of the adaptive management plan, success criteria for noxious and invasive weed control would be established by a qualified biologist or restoration ecologist in collaboration with the LTBMU botanist. If these success criteria have not been met by the fifth year of monitoring, monitoring and control efforts would continue and remedial actions would be identified and implemented until success criteria are met. For example, based on monitoring results, additional or revised measures may be needed to ensure the introduction and spread of noxious weeds is not promoted by the construction and use of the shared-use path.

Invasive plant/noxious weed species management would include ongoing collaboration with LTBMU botanists and other local experts from agencies and nonprofits, such as the Nevada Land Conservancy, Great Basin Institute, and University of Nevada, Reno, to adapt the invasive plant/noxious weed management plan to the latest methods, seek funding opportunities, share knowledge, and acquire labor resources.

- **BIO-19: Restore rerouted portions of existing dirt trail that could facilitate cheatgrass spread.** Portions of the existing dirt trail that would be abandoned and rerouted as part of the proposed shared-use path alignment would be decommissioned and restored to natural vegetation. This would include a portion of the Alternative B alignment north of the Burke Creek boardwalk that would be rerouted to avoid SEZ and another portion of the trail leading to the existing piece of the Elks Point Bike Path. Revegetation and restoration of these segments of dirt path would occur consistent with measure BIO-17, above.

- **BIO-20: Delineate wetlands that could be affected by project implementation.** Wetlands and other waters of the United States potentially affected by the project would be delineated according to USACE methodology before completion of final project design. The wetland delineation would be submitted to USACE for verification and the final path alignment would be designed to avoid waters of the United States, including wetlands, to the maximum extent feasible.

- **BIO-21: Obtain appropriate permits for and mitigate potential impacts to wetlands.** Where fill of wetlands and other waters of the United States would be unavoidable (e.g., boardwalk and bridge footings), a Clean Water Act (CWA) Section 404 permit would be obtained from USACE and a Section 401 permit from NDEP and all permit conditions would be implemented. A wetland mitigation and monitoring plan would be developed by a qualified wetland ecologist to ensure no net loss of wetlands and other waters of the United States and associated aquatic functions. The mitigation plan would include performance standards and success criteria developed based on the best available science, and corrective measures to be implemented if performance standards are not met. Mitigation would include restoring wetland and other waters of the United States disturbed during project construction to pre-project conditions, including restoration of pre-project topography, vegetation, and soil characteristics in accordance with USACE regulations, except where restoration would not be possible because of permanent structures (e.g., boardwalk and bridge footings). Where it is not possible to restore to pre-project conditions, compensatory mitigation would be provided as part of the wetland mitigation plan. Mitigation for impacts to wetlands would be designed to meet the requirements of design feature BIO-11, which requires that disturbances to SEZs and other low capability lands be fully mitigated either through enhancement or restoration to 150% of the amount disturbed in accordance with TRPA Code of Ordinances Sections 20.4.A (3) and 20.4.B (3).

2.3.3 Scenic Resources

The following design features would minimize scenic resource effects:

- **SCE-1: Restoration enhancements.** Irregularly spaced tree branches and slash would be distributed over the surface of restored trail sections, and areas adjacent to these travel routes to promote the appearance of the natural forest floor.

- **SCE-2: Design applicable structures to be consistent with the USFS Built Environment Image Guide, NDOT, and TRPA design standards.** The proposed restroom in the expanded parking lot at Kahle Drive would be designed to comply with the USFS Built Environment Image Guide and TRPA design standards. The Edgewood Creek bridge would be designed to meet TRPA design standards. If Alternative A is selected and approved, the two Burke Creek bridges, concrete safety barrier, and retaining wall would also be designed to meet the USFS Built Environment Image Guide and TRPA design standards. Because the concrete safety barrier and retaining wall under Alternative A would be within NDOT's right-of-way, these structures would also need to meet NDOT design standards. To comply with the USFS Built Environment Image Guide, structures would be designed to reflect the visual characteristics of line, color, form and texture found in the characteristic landscape.

2.3.4 Recreation

The following design features are elements that would minimize recreation effects:

- **REC-1: Use signage to minimize use conflicts and enhance the recreation experience.** Use conflicts would be reduced or minimized on the shared-use path through use of informational signage installed at trailheads, connection points, and in other areas where necessary to alert users of possible obstacles or changes in the shared-use path. Signage would also be provided that designates the allowed uses. Other informational and interpretive/way finding signs may also be installed along the shared-use path to provide background information regarding points of interest. Trailheads and access points would include interpretive and directional signing as appropriate. A detailed signage plan would be prepared as part of the final design consistent with the FHWA's MUTCD. All proposed signage would be developed in accordance with LTBMU and TRPA design standards and subject to subsequent LTBMU and TRPA review and approval.

- **REC-2: Prepare monitoring plan and monitor bicycle use on Lam Watah Trail.** A monitoring plan subject to Douglas County and LTBMU review would be developed to monitor bicycle use on the Lam Watah Trail if Alternative B is selected and approved. The monitoring plan would specify monitoring locations, periods, survey methods and protocols, and would include a results report submitted to Douglas County and LTBMU. The results report would summarize monitoring results and recommendations for modifications (e.g., signage, restrictions on bicycle use), if warranted. At a minimum, the monitoring plan would include pre-construction monitoring to establish baseline data for comparing pre- and post-project conditions, and monitoring for at least 2 years following shared-use path construction through Rabe Meadow. The monitoring plan would include monitoring during peak and non-peak periods of use, the use of automated trail counters at a minimum of two locations on the Lam Watah Trail (one of which would be used to monitor trail use leading through Nevada Beach Campground), and intercept surveys. The monitoring plan would measure overall user volumes and use types (i.e., bicycles and pedestrians). The monitoring plan and results report would address use conflicts, resource conflicts, and litter. In response to the monitoring results report, adaptive management techniques would be developed as necessary to minimize use conflicts. Adaptive management techniques could include fee for bicycle and pedestrian day users at existing recreational facilities (i.e., Nevada Beach), signage and separation by design, or Forest Orders to restrict bicycle use to paved surfaces in the project area. In addition to this monitoring plan, Douglas County, as part of its maintenance obligation, and LTBMU, as the land manager, would perform regular inspections of the Lam Watah Trail on an on-going basis as part of their routine inspection cycles.

- **REC-3: Locate signage appropriately to minimize visual effects.** Signs would be placed in compliance with adopted Visual Quality Objectives and designed to prevent distraction of views.

- **REC-4: Remove trees that could create hazardous conditions along the shared-use path.** Trees with sufficient height and/or width to reach the shared-use path would be identified and removed as necessary to avoid hazardous conditions.

- **REC-5: Prepare and implement a facilities operations and maintenance plan.** An operations and maintenance plan would be prepared to address regular maintenance and upkeep of the path, trash collection, and servicing of restrooms. The plan would include specifications for signage, maps, and kiosks to inform users of the locations of trash receptacles and restrooms, and to encourage users to pack out their trash.

- **REC-6: Prepare monitoring plan and monitor ancillary facilities (i.e., restroom facilities) at Nevada Beach and Round Hill Pines Beach Day-Use Areas.** A monitoring plan subject to Douglas County and LTBMU review would be developed to monitor restroom use and upkeep in day-use areas at Nevada Beach and Round Hill Pines Beach. The monitoring plan would specify monitoring locations, periods, survey methods and protocols, and would include a results report submitted to Douglas County and LTBMU. The results report would summarize monitoring results and recommendations for modifications, if warranted. At a minimum, the monitoring plan would include pre-construction monitoring to establish baseline data for comparing pre- and post-project conditions, and monitoring for at least 2 years following shared-use path construction. The monitoring plan would include monitoring during peak and non-peak periods of use, measurement of number of facility users, and facility upkeep (e.g., litter and cleanliness of facilities) at a minimum of one restroom facility at both Nevada Beach and Round Hill Pines Beach. The monitoring plan and results report would address potential restroom maintenance and capacity issues. In response to the monitoring results report, adaptive management techniques would be developed as necessary to minimize restroom maintenance and capacity issues. Adaptive management techniques could include modifications to LTBMU maintenance operations or existing facilities. If modifications are recommended, the results report would identify potential funding mechanisms to support the increased costs of maintaining or expanding existing facilities as a result of project implementation. Any expansion of existing facilities would be subject to subsequent NEPA and TRPA environmental review. In addition to this monitoring plan, LTBMU, as the land manager, would perform regular inspections of the facilities on an on-going basis as part of their routine inspection cycles.

2.3.5 Archaeological and Historical Resources

The following design features would minimize potential effects to cultural resources:

- **CUL-1: Flag and avoid known cultural resources.** For any construction activities that would occur within 400 feet of potentially NRHP-eligible Native American sites FS-05-19-143 and FS-05-19-486, these resources would be flagged or fenced-off and all potentially ground-disturbing activities would avoid these areas. An archaeologist would be required to monitor ground disturbing activities within 400 feet of these documented site boundaries.

- **CUL-2: Pre-construction awareness training.** Before breaking ground on construction of the shared-use path, the project proponent and construction contractor(s) would be made aware of the historical significance of the Round Hill Pines Resort and other documented cultural resources in the area, as well as the general sensitivity of the area for containing presently undocumented prehistoric and historic-era sites, features, artifacts, and human remains. A construction awareness training session would be provided by a qualified cultural resources specialist prior to ground-disturbing activities.

- **CUL-3: Use signage at Round Hill Pines Resort to deter access to buildings.** Interpretive signage would be placed at Round Hill Pines Resort to provide information on the historic aspects of the site and to inform the public to stay clear of buildings as they exist in their current condition. Future uses of the resort would be

evaluated for potential opportunities and conflicts. Interpretive signage would include information regarding the penalties for the intentional disturbance or destruction of cultural resources on federal property.

- **CUL-4: Cease work and implement notification procedures for previously undiscovered cultural resources.** In the event that previously undocumented cultural resources or human remains are discovered during any project-related ground-disturbing activities, the construction crew would immediately cease ground-disturbing activities in the vicinity of the find and the procedures of 36 CFR Part 800 would be implemented. A qualified archaeologist approved by LTBMU, TRPA, and Douglas County would be consulted to evaluate the resource in accordance with LTBMU and TRPA guidelines. If the discovered resource is determined to be significant per NRHP and TRPA criteria, mitigation measures consistent with the TRPA Code of Ordinances would be devised and a mitigation plan submitted for approval by the LTBMU and TRPA. Any necessary archaeological excavation and monitoring activities would 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 LTBMU, TRPA and Douglas County would be implemented before ground-disturbing work in the area of the resource find can continue.

  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.

2.3.6 Transportation, Parking, and Circulation

The following design feature would minimize traffic-related safety effects:

- **TRA-1: Incorporate traffic safety measures into project design.** The project would evaluate potential hazards (e.g., roadway crossings) and determine appropriate mitigation (e.g., signage, improved or adequate sight lines, guard rails) during the planning process. Final design of the project would include all safety elements determined necessary by the involved agencies.

- **TRA-2: Prepare and implement a Special Event Traffic Management Plan during special events – applies to reduced width option for Lake Parkway only.** To provide adequate roadway level of service (LOS) on Lake Parkway while accommodating roadside parking during special events (e.g., the Edgewood Tahoe Golf Course – Celebrity Golf Tournament, Tour de Tahoe – Bike Big Blue, and America's Most Beautiful Bike Ride – Lake Tahoe) under an optional configuration where the width of Lake Parkway would be narrowed by 7 feet, traffic control officers would be required at each driveway location on Lake Parkway during event hours that extend between 7:00 a.m. and 1:00 a.m. Prior to allowing parking on Lake Parkway during special events, the event host would be responsible for preparing an event-specific Special Event Traffic Management Plan subject to review and approval by Douglas County. The Special Event Traffic Management Plan would need to include event hours, location and hours of use of traffic control officers, and site layout details (e.g., location of cones, signage, and other traffic control methods).

2.3.7 Noise

The project proponent and its contractor(s) would implement the following measures during project construction to reduce short-term construction noise levels:

- **NOI-1: Noise controls on construction equipment.** Construction equipment would be properly maintained and equipped with noise control, such as mufflers, in accordance with manufacturers' specifications.

- **NOI-2: Construction hour limits.** Construction activities would be limited to the hours between 8:00 a.m. and 6:30 p.m., Monday through Saturday, during which such activities are exempt from noise levels identified in applicable standards. 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, any nearby sensitive receptors (less than 200 feet from those activities) would be given at least one week notice of such activities. Before initiating construction activities during exempted hours, the project proponent would prepare a plan demonstrating how appropriate noise-reducing measures (such as erecting temporary sound barriers) would be implemented to maintain the applicable PAS's maximum Community Noise Equivalent Level (CNEL) standards (TRPA has established CNELs ranging from 50 to 65 dBA for PASs 068, 070A, 070B, 077, and 076). The plan would be submitted to TRPA for review and approval, and would be implemented during all construction activities occurring outside of TRPA's exempted hours.

- **NOI-3: Equipment placement and operation.** Construction equipment would be arranged to minimize travel adjacent to noise-sensitive receptors and turned off during prolonged periods of nonuse. Construction equipment would be staged and construction employee parking would be located in designated areas only. All construction equipment and vehicles used for project construction would be fitted with the factory installed muffling devices and would be maintained in good working order. Should noise complaints be received, Douglas County staff and/or contractor would attempt to respond within one working day and to resolve noise complaints as soon as possible.

- **NOI-4**: **Construction equipment operation distance limits.** Heavy-duty construction equipment would operate at least 25 feet from historical buildings, which would be marked with construction fencing, to prevent structural damage due to heavy equipment vibration levels.

- **NOI-5**: **Heavy-duty construction equipment operational limits.** When construction of the shared-use path segments are conducted within 25 feet of historical buildings, heavy-duty equipment would be replaced with smaller equipment that generate minimal vibration levels, such as a small bulldozer that may be operated within 3 feet of historical structures without exceeding recommended vibration standards.

2.3.8 Public Services and Utilities

The following design feature would minimize potential effects on emergency access during construction:

- **PS&U-1: Prepare a Traffic Control Plan (TCP) for locations that would involve construction in existing roadway rights-of-way.** To minimize effects on emergency vehicle and existing public vehicular access, the project proponent would prepare a traffic control plan (TCP) that would address locations that would involve construction in existing roadway rights-of-way (i.e., Lake Parkway, U.S. 50, 4-H Camp Road, Laura Drive, Kahle Drive, and Elks Point Road). The TCP would be prepared in accordance with professional traffic engineering standards and in compliance with the requirements of the affected agency's encroachment permit requirements (i.e., Douglas County, Oliver Park GID, and NDOT) and would include measures that would provide notification to emergency service providers and adequate circulation around construction sites for

emergency vehicle and existing public vehicular access. The TCP may include, but not be limited to, the following elements:

- Identify specific construction methods to maintain traffic flows on affected streets.
- Maintain the maximum amount of travel lane capacity during non-construction periods and provide flagger control at sensitive sites to manage traffic control and flows.
- Limit the construction work zones to widths that, at a minimum, maintain alternate one-way traffic flow past the construction zones. Access would not be prohibited, at any time, for local residents, school buses, or emergency vehicles.
- Coordinate construction activities (time of year and duration) to minimize traffic disturbances.
- Post advanced warning of construction activities to allow motorists to select alternative routes in advance.
- Prepare appropriate warning signage and lighting for construction zones.
- Identify appropriate and safe detour routes if closure of a roadway is required, and install signage that warns of road closures and detour routes.
- The TCP would be submitted to the Douglas County Sheriff's Department and Tahoe Douglas Fire Protection District (TDFPD) for review and comment.

2.4 Comparison of Alternatives

This section provides a summary of the effects of implementing each alternative. Table 2-1 presents a comparison of the major components of the two action alternatives and the No Project/No Action Alternative (Alternative C), as well as a comparison focused on activities and effects where level of effects or outcomes can be distinguished quantitatively or qualitatively among alternatives.

2.5 Alternatives Considered But Not Studied In Detail

The following alternatives were considered but eliminated from detailed study either because they did not meet the project objectives or purpose and need, were not feasible, or did not reduce adverse environmental effects.

2.5.1 Alignment Around the East Side of Round Mound

Two possible alignment options (an upper and lower alignment) around the east side of Round Mound were considered during initial project concept planning, and were reconsidered in response to public comments received during scoping.

The lengths, grades, number of switchbacks, and ability to meet ADA standards for four alignments around Round Mound (the two on the west side evaluated in detail in the EA, and two on the east side considered and rejected from further evaluation) are summarized in Table 2-2 below. As shown in Table 2-2, the eastern alignments would be at least 740 feet longer than the western alignments, resulting in an additional 7,400 square feet of land coverage. The eastern alignments would result in at least 310 feet of additional path with grades that exceed 5% – at least 4% more than the western alignments. The lower and shorter of the two eastern alignments would not meet ADA standards, and the upper alignment would only meet ADA standards with landings.

Table 2-1
Summary of South Demonstration Project Alternatives

	Alternative A	Alternative B	Alternative C
Approximate Total Length	16,419 lf	15,912 lf	0
Approximate Increase in Coverage:[1]			
Overall Increase	134,790 sf	111,400 sf	0
In LCD 1b (SEZ)	17,380 sf	320 sf	0
Exceeds 5% Grade at Locations	Yes (11 locations)	Yes (10 locations)	NA
Meets AASHTO and ADA Class I Bikeway/ Shared-Use Path Standards	In most areas – major exception for the 350-foot-long section along the private parcel fronting U.S.50	In most areas – no major exceptions	NA
Biological Resource Constraints and Effects[2]	3 stream crossings Permanent SEZ effects (24,262 sf) Permanent wetlands effects (4,280 sf) Permanent aspen stand removal (5,239 sf) Permanent Effects to Other Common Vegetation (169,944 sf)	2 stream crossings Permanent SEZ effects (5,096 sf) Permanent wetlands effects (1,693 sf) Permanent Effects to Other Common Vegetation (166,919 sf)	NA
Approximate Tree Removal:			
Total trees to be removed	138	152	0
Trees 14 to <24-inch dbh	35	47	0
Trees >24-inch dbh	0[3]	0[3]	0
Number of Bridges	3	1 + boardwalk	0
Uses Public Right-of-Way/Roads	Yes	Yes	NA
Crosses Private Land	Yes	Yes	NA
Shared Section with Lam Watah Trail	No	Yes (1,200-foot section)	NA
Potential use conflicts	Yes	Yes	NA
Number of at-grade road crossings	6	6	0

Notes:

[1] Coverage increases in all LCDs are provided in Section 3.5, “Earth Resources.” The coverage numbers presented here reflect the proposed alignments in Segments 1, 2, and 3. Details on coverage changes related to the optional alignments are discussed in Section 3.5, “Earth Resources.” Generally, in Segment 1, the optional alignment to narrow Lake Parkway would reduce overall coverage relative to the proposed alignment. In Segment 3, the optional upper alignment would decrease coverage in LCD 1a, but increase coverage in LCD 1c.

[2] Details are discussed in Section 3.4, “Biological Resources” of this EA.

[3] See discussion under the heading “Tree Removal” for Alternatives A and B above, as well as Section 3.4, ”Biological Resources.”

lf = linear feet

sf = square feet

Source: AECOM 2010

Table 2-2
Comparison of Round Mound Trail Segments

Alignment	Distance From Elks Point Road to Round Hill Pines Beach Access Road (feet)					No. of Switch-backs	ADA Compliant?
	0–5%	5–7%	7–8%	8–9%	Total		
West Alignment, Lower	2,590	170	340		3,100	0	Yes
West Alignment, Upper	2,510	170	370		3,050	0	Yes
East Alignment, Lower	2,990	370	130	350	3,840	1	No, 9% sections are too long
East Alignment, Upper	3,180	960			4,140	3	Yes, with landings

Notes:

[1] The lower west alignment is the most user-friendly. It minimizes grades in excess of 5% and the number of boulders/rock outcrops that would be affected. It would provide an excellent user experience with interesting terrain and views of Lake Tahoe. Except for about 350 feet of trail, it has moderate side slopes, and thus would require the fewest walls. It would be the least costly option to construct around Round Mound.

[2] The upper west alignment is the next most user-friendly. It too would provide an excellent user experience with interesting terrain and views of Lake Tahoe. It has 250 feet of trail more than the lower alignment that is over 5% grade, but the steeper sections are spaced out allowing adequate resting opportunities and meeting ADA requirements. It traverses more boulders, has about 450 feet of steeper side slopes, would require about 100 feet more wall, and would be more costly to construct than the lower west alignment.

[3] The upper east alignment, which goes over the saddle north of the Wyndham Timeshares, would have a 900-foot-long section at 7% grade, which would require landings at 200-foot intervals to meet ADA requirements. It would have no views of Lake Tahoe and north of the saddle it would be close to U.S. 50 and exposed to related traffic noise. It would have about 450 feet of steep side slopes requiring walls. It would require three switchbacks and is the longest of the four alternatives. It would be the most costly to construct.

[4] The lower east alignment would cross Elks Point Road about 500 feet east of the crossing point for the other alignments, thus while the trail length noted in the table above is correct, to get a true comparison of the distance a user would travel from the south shore to Round Hill Pines Beach, 500 feet should be added to the other three alignments. Even with this adjustment, the western alignments are shorter for the user than the eastern alignments. This alignment climbs slowly along the north side of the Wyndham Timeshares, then has to climb more steeply as it approaches and is adjacent to U.S. 50. It would have one switchback and three sections of approximately 110 feet each at 9% grade, which does not comply with ADA requirements. Approximately 1,200 feet of trail would be immediately adjacent to U.S. 50. Approximately 700 feet would be on a steep side-slope and require walls. It would be more costly to construct than either of the western alignments.

[5] All of the alignments would cross the existing access road to Round Hill Pines Beach at the sharp switchback. The reason the eastern alternatives need to cross here is that the terrain between the high point on U.S. 50 and the Round Hill Pines Beach access road, and north of the Round Hill Pines Beach access road adjacent to U.S. 50, is too steep for a more direct route. Both easterly alignments are at 5% from the high point on U.S. 50 to the sharp switchback, thus a more direct route would exceed the desired 5% maximum grade.

[6] The lower and upper west alignments are part of the proposed action and are considered in detail in this EA.

Because of the visibility of the eastern side of Round Mound from U.S. 50 (in a location generally free of manmade features), it is expected that retaining walls in steep cross slope locations would be more visible and would require greater attention to design in latter design phases. In addition, there is no advantage to an east-side alignment with respect to security of private property because an east-side alignment would be in close proximity to privately owned timeshares, a single family residence on Elks Point Road, and a church. Furthermore, an east-side alignment would not provide a better user experience (in terms of views, rideability, and exposure to U.S. 50 traffic noise) than the proposed west-side alignment nor would it reduce environmental effects of the action alternatives since the alignment itself would be longer resulting in additional permanent ground disturbance, land coverage, and related effects.

Therefore, because the eastern alignments would not offer a physical advantage (e.g., length, percentage of trail at grades less than 5%, number of switchbacks) nor reduce environmental effects (e.g., scenic, permanent ground disturbance, land coverage) over the western alignments, the eastern alignments were again eliminated from further consideration.

2.5.2 Alignment Parallel to the West Side of U.S. 50 and East of Round Mound

This alternative would be similar to Alternative A; however, it would continue parallel to U.S. 50 for the entire section between Kahle Drive and Round Hill Pines Beach (Segments 2 and 3). This alignment would include a significant grade change between Rabe Meadow and the approach to Elks Point Road. This alignment would require crossing Elks Point Road including entrances to commercial areas near Elks Point Road. This alignment would also require private property acquisition or easements on both sides of Elks Point Road. While the alignment would provide a relatively direct route between Kahle Drive and Round Hill Pines Beach, given the extent of existing commercial development at the corners of Elks Point Road and U.S. 50 and constraints the shared-use path would place on access to these properties, this alternative was deemed infeasible and rejected from further consideration.

2.5.3 Beachfront Alignment

A possible alignment of the shared-use path through the Edgewood Tahoe Golf Course and parallel to the beach between the golf course and Elks Point Road was considered. This alternative would provide spectacular views of Lake Tahoe and direct bicycle access to Nevada Beach, a popular recreational facility. However, this alignment would require property acquisition or easements from the Edgewood Tahoe Golf Course, the University of Nevada, Reno (4-H Camp), and the Beach Club on Lake Tahoe development. This alternative was dismissed because it would require considerable development within a TRPA waterfowl threshold site and SEZ areas, could affect views from Lake Tahoe, could conflict with golf course operations, and the challenges associated with the proposal to acquire a beach front easement.

2.5.4 Alignment Parallel to the East Side of U.S. 50

This alignment alternative would place the shared-use path on the east side of U.S. 50 between Kahle Drive and Elks Point Road. This alignment would require crossing U.S. 50 at both Kahle Drive and Elks Point Road and would require private property acquisition or easements near Elks Point Road and on either side of Lake Village Drive. This alignment would also require crossing entrances to commercial areas, the Lake Village residential area, and the entrance road to the Round Hill wastewater treatment facility. Additionally, because of the private property constraints adjacent to U.S. 50, this alignment would need to be placed in close proximity to the highway, thereby reducing the recreational experience for shared-use path users. For these reasons, it was determined that this alignment would not meet the project objectives.

2.5.5 Uphill Alignment East of U.S. 50

This alignment would provide an uphill option east of U.S. 50 that would maximize use of an existing paved shared-use path. This alignment would follow the same path as Alternative A to the intersection with U.S. 50 at Lake Parkway. The alignment would then follow Lake Parkway east deviating to the north through private property where the roadway begins to curve south. From there, the shared-use path would proceed north to Kingsbury Grade (SR 207) through an open field, crossing private property and Edgewood Creek, and connecting to a gated and abandoned road on the south side of SR 207 between Deer Run Court and Market Street. An at-grade road crossing would be required at SR 207 to connect to an existing paved trail that extends along the east side of Kahle Park north of SR 207.

North of Kahle Park this alignment would turn east climbing gradually behind an industrial and residential area to connect to the existing Round Hill Bike Path at the north end of Pine Ridge Drive. This existing paved trail varies in width from 6 to 8 feet, with irregular shoulders. The shared-use path would follow the existing trail, which generally follows a contour with gently rolling hills, connecting to Kingsbury Middle School campus (now closed), and picking up again on the northwest side of the campus. The path would then continue as a gently rolling path that descends to connect with Elks Point Road just north of U.S. 50. Portions of this shared-use path exceed ADA slope standards. This alignment would then cross to the west side of U.S. 50, and it would parallel to the entrance to Round Hill Pines Beach.

This alternative was dismissed from further analysis because it does not meet ADA slope requirements, does not offer views of Lake Tahoe, and could require construction in a northern goshawk protected activity center.

3 Affected Environment and Environmental Consequences

3.1 Approach to Environmental Analysis

This chapter summarizes the physical, biological, and social environments of the project area and the potential changes to those environments related to implementation of the alternatives. The resources evaluated in this chapter include all environmental topics originally identified for review in the notice of preparation (NOP) of a joint TRPA EA and NEPA EA released in August 2009, except those issues for which no effects would occur and/or the effects were adequately addressed in the TRPA IEC and Forest Plan consistency matrix (i.e., population and housing, energy, mineral resources, wilderness areas, and range allotments). (Note: copies of the TRPA IEC, Forest Plan consistency matrix, NOP, and Scoping Summary Report are available in the Project Record, which is on file at the LTBMU's offices at 35 College Drive in South Lake Tahoe, California.)

The resource sections herein are prepared in accordance with the TRPA Tahoe Regional Planning Compact, Goals and Policies, Code or Ordinances, and Rules of Procedure, and NEPA and CEQ Regulations implementing NEPA contained in 40 CFR Section 1500. NEPA Regulations contained in 36 CFR 220 establish Forest Service procedures for implementing NEPA and the CEQ regulations. The Forest Service has developed Forest Service Manual (FSM) 1900, Chapter 1950, Environmental Policy and Procedures, and Forest Service Handbook (FSH) 1909.15, NEPA Handbook, that establish specific NEPA requirements for all projects on NFS land managed by the Forest Service. The 1988 Forest Plan and 2004 SNFPA provide guidance for all natural resource management activities and require that all projects and activities be consistent with the Forest Plan. The following describes generally the organization of resource sections and the cumulative context in which environmental effects are assessed.

3.1.1 Organization of Resource Sections

Sections 3.2 through 3.13 of this EA are organized into the following subsections:

- **Scope of the Analysis:** This subsection lists relevant specialist reports and studies completed for the project and a description of the NEPA and TRPA evaluation factors used to assess the environmental consequences for the project alternatives for each resource area.

- **Affected Environment:** This section 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 action alternatives 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:** This section addresses the direct and indirect effects and cumulative effects of the action alternatives followed by the effects of the No Project/No Action alternative. The project area for which environmental effects are assessed is generally defined by the area west of U.S. 50 between the California/Nevada state line on the southern end and the north end of Round Hill Pines Beach where NFS lands meet private land.

  Direct effects are evaluated with respect to areas subject to construction disturbance, including the footprint of the shared-use path, construction access and staging areas, and the outside limits of construction disturbance (approximately 30 feet on either side of the centerline of the shared-use path—this area conservatively

accounts for final adjustments in the path footprint as the design process progresses, and disturbance caused during construction) for the action alternatives and are defined as effects that are caused by the action and occur at the same time and place.

Indirect effects are generally evaluated for the area between the construction disturbance area and the limits of the project area between Lake Tahoe and U.S. 50 and are defined as effects that are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems. For some resource areas (e.g., air quality), the indirect effects discussion extends beyond the project area boundaries and in such cases it is so noted.

A cumulative effect is an effect on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. 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 alternatives and the projects identified in Section 3.1.2, “Related Projects in the South Lake Tahoe and Douglas County Portions of the Tahoe Basin,” below.

Chapter 1, “Introduction,” describes the applicable regulatory framework and planning document context under which the action alternatives would be implemented.

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 by alternative.

This section also cross-references relevant design features (project mitigation) described in Section 2.3 of Chapter 2, “Alternatives,” that were developed to reduce or avoid negative environmental effects of the action alternatives. And finally, the resource sections use the TRPA IEC and the Forest Plan consistency matrix as tools to guide the effects discussion.

3.1.2 Related Projects in the South Lake Tahoe and Douglas County Portions of the Tahoe Basin

NEPA requires that federal agencies consider the cumulative impacts of proposals under their review. The cumulative effects discussion by resource topic provides an analysis of cumulative effects of the Nevada Stateline-to-Stateline Bikeway South Demonstration Project, which are the environmental effects of the project considered together with other past, present, and reasonably foreseeable future projects producing related effects. For the purposes of this analysis, the definition from the CEQ’s NEPA Regulations is used (40 CFR Section 1508.7): “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions. Cumulative effects can result from individually minor, but collectively significant, actions over a period of time.” They differ from indirect impacts of the project.

For this analysis, some types of cumulative effects are localized in character, and should be analyzed at a local scale. For example, project construction noise could combine with noise generated by related projects in the vicinity to result in a localized cumulative increase in construction noise such that the noise levels at a nearby sensitive receptor (e.g., a residence or school) could temporarily exceed established noise thresholds. Other types of cumulative impacts are regional in nature, and should be analyzed at a regional scale. For example, projected increases in regional traffic could cumulatively affect key regional intersections. In these cases, projections of

region-wide traffic, rather than just the traffic effects of certain individual projects, should be used to analyze potential cumulative effects.

The list of past, present, and reasonably foreseeable future projects used for the cumulative effects analysis are those projects that have occurred or are planned to occur on both public and private lands within South Lake Tahoe, California and the Douglas County, Nevada portions of the Tahoe Basin (Table 3.1-1).

Related projects listed in Table 3.1-1 identify development actions of varying type, size, and state of completion. Implementation of each of these projects either has already, or could in the future, contribute to intensification of development in the South Lake Tahoe region and Douglas County, generally. The result of such development may be increased coverage, runoff volume, and runoff pollutant loads; increased vehicle trips and vehicle miles traveled (VMT), related air pollutant emissions, and noise generation; massing and deterioration of scenic quality; habitat removal; and further demand for public services and utilities such as water supply, wastewater conveyance, treatment, and disposal, police and fire protection, schools, and recreation.

In addition to projects listed in Table 3.1-1, there are several regional planning efforts underway that will guide future development in the area. These planning efforts include: TRPA's Regional Plan Update, the Lake Tahoe Region Bicycle and Pedestrian Plan, the Lake Tahoe Regional Transportation Plan, the City of South Lake Tahoe General Plan, and the LTBMU's Forest Plan Revision.

Table 3.1-1
List of Related Projects in the South Lake Tahoe and Douglas County Portions of the Tahoe Basin

Project Name	Project Description	Status
Round Hill Fuels Reduction Project	Vegetation and fuels treatments to reduce stand densities in order to: improve forest health, reduce fire hazards from existing fuels, and modify fire behavior.	Completed
Lam Watah Trail Restoration	Project included restoring and hardening the Lam Watah Trail, a nature and interpretive trail, that extends from a point near the northwest corner of the Kahle Drive/U.S. 50 Intersection through Rabe Meadow to Nevada Beach. The project included relocating and restoring sections of the trail in sensitive areas; replacing the former bridge crossing over Burke Creek with the 165-foot long by 6-foot wide boardwalk crossing that exists today; expanding and hardening the parking lot at Kahle Drive to 4,800-square feet; and implementing BMPs along the restored trail and at the expanded parking lot.	Completed
Aspen Community Restoration Project	The Aspen Community Restoration Project will restore aspen stands that are assessed to be at moderate, high, or highest risk of loss from the landscape on NFS lands within the LTBMU.	Current-ongoing
Terrestrial Invasive Plant Species (TIPS) Treatment Project	This project includes the treatment of known and future Terrestrial Invasive Plant Species (TIPS) on NFS lands managed by the LTBMU in the Lake Tahoe Basin through manual, mechanical, thermal, and chemical treatment.	Completed
Zephyr Cove Corral Upgrade	This project would determine whether and how the existing Zephyr Cove Corral facility and trails should be upgraded to bring the facility into water quality compliance.	Project in early planning phase; no date set for implementation
Zephyr Cove Resort Pier Rehab and Maintenance	Repair, rehab and replace parts of the existing pier in kind as necessary. The footprint will remain the same.	Project in early planning phase; no date set for implementation

Table 3.1-1
List of Related Projects in the South Lake Tahoe and Douglas County Portions of the Tahoe Basin

Project Name	Project Description	Status
South Shore Fuels Reduction and Healthy Forest Restoration Project	Vegetation and fuels treatment in urban defense zones on LTMBU, State of California, and El Dorado County lands extending from Emerald Bay to Stateline, Nevada. Treatments may include thinning of live trees and brush, chipping, mastication, pilling and prescribed burning.	Project in final environmental review phase – NEPA decision expected in early 2011; implementation expected to begin in 2011
Round Hill Pines Resort Facility and BMP Retrofit Project	The project includes NFS lands just north of Round Mound. Major elements of the project include reconfiguring the Round Hill Pines Resort/Beach entry way on U.S. 50 for safety, reconfiguring parking with water quality protection BMPs, and rehabilitating the Round Hill Pines Resort lodge and cabin area.	Project in early planning phase; no date set for implementation
Nevada Beach Campground and Day Use Area BMP Retrofit Project	The proposed action includes the following: • Campsite improvements that include: entrance road improvements to include a pullout and bus stop; relocation of one campsite from lower capability soils to an area of higher capability soils; modifications to existing campsite spurs and sites; replacing and providing accessibility to all restrooms (replacement restrooms to include showers); new platforms at six sites for seasonal yurts or tent-cabins; improvements to roadway circulation resulting in a reduction in impervious coverage; repair and maintenance of onsite structures and utilities; and removal of the abandoned water tank and appurtenant features. • Day use parking area improvements that include: providing surface water treatment for day use parking areas by directing surface flow to centralized points where stormwater catch basins w/ sand-oil separators and/or infiltration basins would treat the water; reconfigured parking areas to optimize capacity—improvements would remain within the existing parking area footprint; development of accessible walkways from the day use parking areas to the beach and accessible picnic areas along these routes; replacing and providing accessibility to all restrooms; water fountain improvements; and relocation of the northernmost day use restroom.	Construction underway in 2010
Burke Creek Restoration Project	Project objectives are to develop conceptual designs for a culvert replacement and stream channel modifications to restore ecological function and connectivity of Burke Creek within the project boundaries.	Project in planning phase; no date set for implementation
U.S. 50 Stateline Corridor Project	Project includes upgrades to existing highway facilities in order to improve traffic flow through the Stateline area, as well as improve conditions along the U.S 50 corridor for bicycles and pedestrians. The goal of this project is to reduce dependency on the automobile by creating ways in which the general public can more effectively use the existing transportation modes. One of the alternatives being considered includes a roundabout at U.S. 50 and Lake Parkway.	Project in planning phase; environmental review to begin shortly; construction target date is 2012

Table 3.1-1
List of Related Projects in the South Lake Tahoe and Douglas County Portions of the Tahoe Basin

Project Name	Project Description	Status
Lake Tahoe Waterborne Transit	Project includes water transit ferry and taxis, piers, and landside terminals at up to 9 locations throughout the Basin, including locations on the south shore.	Project in early planning phase; environmental review to begin in 2011; construction target date is 2015
Van Sickle CA/NV Bi-State Park	Multiple phased project that includes park infrastructure improvements (entrance and access points); public facilities, such as picnic/day use areas, restrooms, parking, interpretive facilities, and interpretive and hiking trails; cultural facility protection and improvements; and enhancement of natural resources (i.e., forest health, SEZ restoration, and wildfire protection) on 570 acres of land on the CA/NV border between the South Shore casino corridor and Heavenly Ski Resort.	Early phases currently under construction
Daggett Summit Trail System Project	The project includes moving 3 miles of the Tahoe Rim Trail from pavement to forest, and adding 13 miles of new trail to the Tahoe Rim Trail system, which includes a connector loop from the Tahoe Rim Trail to Van Sickle CA/NV Bi-State Park.	Construction underway in 2010
Nevada Stateline-to-Stateline Bikeway – Future Phases Connecting Round Hill to Crystal Bay	Project includes a separated shared-use trail that would complete the trail connection between Round Hill and Crystal Bay.	Feasibility study underway; environmental review of other phases to be determined upon completion of the Feasibility Study
Ski Run to El Dorado Beach Bike Trail	Project includes a Class I shared-use trail on the lakeside of U.S. 50 that would connect Ski Run Boulevard to El Dorado Beach.	Environmental review phase
Greenway Shared-Use Trail	Project includes a Class I shared-use trail connecting Meyers, California to Stateline, Nevada at Van Sickle CA/NV Bi-State Park, which will also consolidate informal trails, restore disturbed land, and improve forest health along its length.	Environmental review phase
Beach Club on Lake Tahoe	Project includes redevelopment of an existing mobile home park with residential housing units, a recreational beach and swim club, and a reconstructed pier. The project would also address specific environmental issues by reducing coverage, improving drainage, installing best management practices for water quality, restoring SEZ, and improving flood attenuation.	Environmental review complete; pending financing for construction
Project 3 (Chateau Village at Heavenly Village)	Project includes construction of a 477 room condominium building and accessory facilities, including a spa, a 1.5 acre park, and a collection of shops and restaurants. The project would also include construction of a conference and event center.	Construction initiated and halted; future development timeframe unknown
Sierra Colina Village Project	Development of approximately 50 residential units (40 market-rate units and 10 affordable housing units).	Environmental review complete; pending construction

Table 3.1-1
List of Related Projects in the South Lake Tahoe and Douglas County Portions of the Tahoe Basin

Project Name	Project Description	Status
Gondola Vista Project	Development of 20 affordable housing units on mountainside of Lake Parkway East across from Forest Suites Inn.	Demolition complete; project construction on hold
Edgewood Hotel & Golf Course Realignment Project	Project includes construction of a new hotel complex and accessory uses on approximately 10 acres of high capability lands. The project also includes modifications to the existing golf course and relocation of several existing fairways. The project would involve transfers of development rights from offsite properties; new covered parking and changes to existing surface parking, onsite roads and pathways; improvements to the Stateline Stormwater Treatment System and Edgewood Creek; restoration of wetlands and stream environment zones; scenic improvements; lot line adjustments; tree removal and landscape changes; irrigation and lighting; and new public beach access.	Environmental review phase

Source: List compiled by AECOM 2010, with assistance from TRPA and LTBMU

3.2 Land Use

3.2.1 Scope of the Analysis and Assessment Factors

This section describes the existing land uses and land use plans and land management plans governing land uses in the project area. The recreational land uses proposed under action Alternatives A and B are evaluated for consistency with applicable land use and land management plans as well as potential land use conflicts with existing land uses in the project area. Alternative C is the No Action Alternative; no shared-use path would be constructed, and land uses and land management would continue as they are now.

The three segments of shared-use path proposed under both Alternatives A and B are located entirely within Douglas County, Nevada. The Douglas County Master Plan (DCMP) (Douglas County 2007) provides long-range guidance for numerous programs related to planning activities in the county including: development, open space preservation planning, transportation, flood and drainage, water resources planning and management, and capital improvements planning. The Douglas County Land Use Map designates the project area as part of the Lake Tahoe Planning Area. The Lake Tahoe Planning Area is not included as part of the Land Use Element of the DCMP because the area is within the jurisdiction of TRPA. Goals and Policies of the Land Use Element of the DCMP apply to the Lake Tahoe Planning Area to the extent that they do not conflict with the provisions of plans or regulations adopted by TRPA. Therefore, the scope of this analysis focuses on evaluating the consistency of the action alternatives with TRPA regulations and this evaluation is considered sufficient to satisfy Douglas County requirements. The TRPA plans and regulations relevant to the proposed action alternatives are described in Chapter 1, “Introduction,” Section 1.1.16, “Tahoe Regional Planning Agency.”

In addition to being located in the Lake Tahoe Planning Area governed by TRPA, segments of Alternatives A and B cross NFS lands. As required by United States Code Title 42 Sections 4321-4347 (42 U.S.C. Sections 4321-4347), LTBMU is subject to NEPA when all of the following apply:

(1) LTBMU has a goal and is actively preparing to make a decision on one or more alternative means of accomplishing that goal and the effects can be meaningfully evaluated;

(2) The proposed action is subject to LTBMU control and responsibility;

(3) The proposed action would cause effects on the natural and physical environment and the relationship of people with that environment; and

(4) The proposed action is not statutorily exempt from the NEPA requirements.

Alternatives A and B satisfy all of the above listed requirements and this EA was prepared for that reason. An evaluation of land use consistency is not required under NEPA because consistency or inconsistency with land use goals and policies does not necessarily result in changes to the physical or natural environment, whether adverse or beneficial. While other resource areas in this EA discuss the significance of direct, indirect, and cumulative impacts of the action alternatives in terms of context and intensity (pursuant to Title 36 of the Code of Federal Regulations Section 220.4 [36 CFR §220.4]), this section will not evaluate potential inconsistencies with land use policies in those terms.

The intent of this section is to disclose potential inconsistencies of the proposed recreational land use (i.e., a shared-use path) with land use policies and land use management plans in order to fairly inform decision makers and the public. Not only is it possible for conflicts to occur between the planning policies of one agency with the land management policies of another agency, competing interests and objectives can occur within land use plans of one planning or resource agency. These competing interests can coexist and indeed it falls upon the land use planning agency or resource management agency to consider the merits of the proposal in light of the overall

goals of the agency and decide whether to approve an action alternative or not. The purpose of this evaluation is to provide the information to the decision makers needed to understand the anticipated land use implications of the South Demonstration Project. The adverse environmental effects that could result from implementing one of the alternatives are evaluated in the applicable resource area in the sections following this Land Use section.

3.2.2 Affected Environment

Segment 1

Alternatives A and B are the same for Segment 1. Segment 1 begins at the California/Nevada border on the west side of Lake Parkway. Edgewood Tahoe Golf Course abuts Segment 1 to the west for the segment's entire length. At the state line, Harvey's and Harrah's hotels and casinos are located across Lake Parkway to the east. Segment 1 follows Lake Parkway until it meets U.S. 50, where it extends north and west towards Oliver Park and Laura Drive.

Segment 2

Segment 2 begins at the north end of Laura Drive. There are two alternative alignments for Segment 2, both of which are situated on NFS land. The Alternative A alignment would extend north along the west side of U.S. 50 and terminate at Elks Point Road. Rabe Meadow is located east of the Alternative A alignment.

Alternative B would run west along Kahle Drive and then north-northwest through Rabe Meadow, connecting to the Lam Watah Trail. Like the alignment for Alternative A, the alignment for Alternative B would terminate at Elks Point Road. LTBMU manages this entire area to reduce risks of wild fires in accord with the Lake Tahoe Basin Multi-Jurisdictional Fuel Reduction and Wildfire Prevention Strategy that was issued in December 2007. USFWS closed Rabe Meadow and the woodlands adjacent to Nevada Beach to the public in June 2010 for fuel reduction activities (TDFPD 2010). The community of Elks Point is east of both alignments. The alignment for Alternative A is closer to Elks Point, while the alignment for Alternative B is closer to Nevada Beach and Nevada Beach Campground to the west.

Segment 3

The alignment for Segment 3 is generally the same for Alternatives A and B. Segment 3 extends north from Elks Point Road around the west side of Round Mound to U.S. 50. This segment includes upper and lower optional alignments around the west side of Round Mound (Exhibit 2-5). An upper alignment is being considered to distance the shared-use path from existing residences—the upper alignment would move the path to a distance of 190 feet from the closest residence, but would require the removal of rock outcrops protected by TRPA regulations and involve additional locations where the grade would exceed 5%. The terminus of this segment is approximately a quarter of a mile east of Round Hill Pines Beach. The entire Round Mound area, excluding the community of Elks Point, is NFS land managed by the LTBMU. LTBMU conducted fuels reduction in the Round Mound area at the same time that it was conducting fuels reduction in the Rabe Meadow area (TDFPD 2010).

3.2.3 Environmental Consequences

Consistency with U.S. Forest Service, Lake Tahoe Basin Management Unit Forest Plan

Alternatives A and B

Direct and Indirect Effects

An alternative is considered to have a significant adverse affect if it would conflict with the Forest Plan for the LTBMU. Both Alternatives A and B are located on NFS lands in the Rabe Meadow area and Round Mound area. Neither area is an old forest ecosystem; therefore, neither alternative would interfere with the protection and perpetuation of those ecosystems for native plant and animal species viability. As documented in the LTBMU Forest Plan Consistency Review table (Project Record A-1) and the Forest Plan Consistency Summary (Project Record A-2) letter (dated October 24, 2008), Alternatives A and B would be consistent with the FOREST PLAN for the LTBMU.

Both Alternatives A and B are located in the meadow ecosystem in the location of Rabe Meadow and an aquatic ecosystem in the location of Burke Creek. Both alternatives include design features, described in Section 2.3 of this EA, to provide for the viability of native plant and animals that are associated with these ecosystems. Design Features BIO-1 through BIO-21 are specific features to protect fisheries and wildlife and protect and restore native plant ecosystems. These include, but are not limited to, maintaining downed woody material, retaining trees, implementing a limited operating period, and designing the shared-use path to maintain fish passage, eradication and control of cheatgrass in Rabe Meadow, and planting of locally native shrub species along the shared-use path. Design Features REC-1 through REC-6 are specific features to minimize user conflicts, resource conflicts, and litter.

Both Rabe Meadow and Round Mound are currently managed to reduce the potential for wildfire. As recently as June 2010, LTBMU implemented a fuels reduction project in these areas. Neither Alternative A nor B would interfere with LTBMU participation with the implementation of the Lake Tahoe Basin Multi-Jurisdictional Fuel Reduction and Wildfire Prevention Strategy.

As discussed above, both Alternatives A and B include design features that aim to reverse the spread of noxious weeds. This is specifically the case with measures to eradicate cheatgrass from Rabe Meadow and the perpetual management of this meadow to ensure that it is not reinfested.

Neither Rabe Meadow area nor the Round Mound area is a hardwood forest ecosystem; therefore neither Alternative A nor B would interfere with efforts to maintain and enhance this ecosystem.

Based on the LTBMU Forest Plan Consistency Review table (Project Record A-1) and the Forest Plan Consistency Summary (Project Record A-2) letter (dated October 24, 2008), as well as the design features incorporated under both alternatives (see Section 2.3 of this EA), Alternatives A and B are consistent with the Forest Plan for the LTBMU.

Cumulative Effects

Alternatives A and B would be consistent with the Forest Plan for the LTBMU; therefore, these action alternatives would not contribute to any potential cumulative land use impacts.

Alternative C

Direct, Indirect, and Cumulative Effects

No shared-use path would be constructed under Alternative C; none of the design features would be implemented. While Alternative C would not preclude LTBMU from conducting habitat restoration in Rabe Meadow, it would delay implementation due to funding constraints. Alternative C would not interfere with the existing and ongoing fuels reduction and wildfire protection activities in the Rabe Meadow and Round Mound areas. Alternative C would involve no construction or path operation and would not contribute to any existing inconsistencies with the Forest Plan for the LTBMU. Therefore, Alternative C would not contribute to any potential cumulative land use impacts.

Consistency with Tahoe Regional Planning Agency Goals, Policies, and Ordinances

Alternatives A and B

Direct and Indirect Effects

An alternative would be determined to have a significant impact related to land use if it includes uses that are not listed as permissible uses in the applicable PAS, adopted community plan or master plan, or would expand or intensify an existing nonconforming use. No existing nonconforming uses were identified in or near the alignment of either Alternative A or B.

There are four plan areas that are applicable to the study area: PAS 070A—Edgewood, PAS 077—Oliver Park, PAS 70B—Rabe, and PAS 068—Round Mound. The permissible uses within these plan areas are described in Chapter 1, “Introduction,” Section 1.1.16, “Tahoe Regional Planning Agency.” In all four PASs, a wide range of public services are identified as permissible uses with special use provisions. The PAS for Edgewood requires an evaluation of the consistency of a proposed project with the Stateline Community Plan. That evaluation is addressed in the following impact statement.

Each of the planning areas, PAS 070A—Edgewood, PAS 077—Oliver Park, PAS 70B—Rabe, and PAS 068—Round Mound, identify transportation routes as permissible uses with special use provisions. Class I or better paths are considered transportation routes because they are designed and built to ASHTO and ADA standards, provide a dedicated right-of-way, and are striped. The proposed shared-use path provides the communities of Elks Point and Oliver Park with linkage and connectivity to Stateline, Nevada. In addition to providing a recreational opportunity for local residents, it is anticipated that residents would use the path as a commuter facility. Section 3.9, “Traffic, Parking, and Transit,” provides estimates of the number of users and a discussion of the proposed project’s consistency with the Regional Transportation Plan and the Bicycle and Pedestrian Plan.

Alternatives A and B would be consistent with the applicable Goals and Policies of the TRPA Regional Plan, as presented in the TRPA Land Use Policy Consistency Analysis table (Project Record L-13).

Cumulative Effects

Alternatives A and B would be consistent with applicable land use plans and policies as well as the Goals and Policies of the TRPA Regional Plan. Therefore, Alternatives A and B would not contribute to any potential cumulative land use impacts.

Alternative C

Direct, Indirect, and Cumulative Effects

No shared-use path would be constructed under Alternative C. Because there are no nonconforming uses in any of the PASs, Alternative C would be consistent with TRPA PAS goals, policies, and objectives. Alternative C would not contribute to any potential cumulative land use impacts.

Consistency with Stateline Community Plan

Alternatives A and B

Direct and Indirect Effects

The alignments of Alternative A and B within Segment 1 (which are the same), are located in the PAS for Edgewood, which requires an evaluation of the consistency of a proposed project with the Stateline Community Plan. The Stateline Community Plan Environmental Threshold Goal is to ensure that physical development is consistent with the environment and ecology of the area. With implementation of the design features described in Section 2.3 of this EA, implementation of either Alternative A or B would not result in any significant impact on the environment.

The Traffic Circulation and Parking Goals are to reduce dependency on the automobile and improve the movement of people, goods, and services within Stateline and the Region consistent with the economic and environmental goals of the community plan. The proposed shared-use path would provide linkage and connectivity of outlying communities and recreational opportunities with Stateline, thereby reducing peoples' dependency on the automobile.

The Recreation Goal is to preserve and enhance the high quality recreational experience of Stateline and the Region. The proposed shared-use path could be considered a recreational amenity in addition to it being a transportation route. In addition, it would provide additional access to recreational opportunities, hiking trails, and scenic views.

For the reasons given, implementation of either Alternative A or B would be consistent with the applicable goals in the Stateline Community Plan. Therefore, both alternatives satisfy the special requirements in PAS 070—Edgewood.

Cumulative Effects

Alternatives A and B would be consistent with the applicable goals in the Stateline Community Plan. Therefore, Alternatives A and B would not contribute to any potential cumulative land use impacts.

Alternative C

Direct, Indirect, and Cumulative Effects

No shared-use path would be constructed under Alternative C. Because the Edgewood Tahoe Golf Course is consistent with the Stateline Community Plan goals, Alternative C would be consistent. Alternative C would not contribute to any potential cumulative land use impacts.

Land Use Compatibility

Alternative A

Direct and Indirect Effects

Segment 1:

The alignment of Segment 1 is situated between the Edgewood Tahoe Golf Course and Lake Parkway and U.S. 50 rights-of-way. Dedicated shared-use paths are a compatible use with roads and highways. There is an existing iron fence demarking the Edgewood Tahoe Golf Course. Bicyclists and pedestrians are not expected to be a distraction to golfers on the course and golfers are not expected to bother users of the shared-use path. The public service land use of the path would be a compatible land use with the recreational land use of the golf course.

Segment 2:

The Alternative A alignment in Segment 2 is located along the west side of the U.S. 50 right-of-way and on the east side of Rabe Meadow, then turns northwestward to connect to Elks Point Road. As previously stated, shared-use paths are a compatible land use with highways. Rabe Meadow is considered a recreational area that does not have any formal recreation uses located on it. Because the meadow would be used by few people walking around at a time, a shared-use path is not anticipated to lower the recreational value of the meadow and vice-versa. The segment of forested land that the path would traverse would likewise be a compatible land use with the forested land. The alignment of the shared-use path on Elks Point Road is consistent with TRPA goals and policies for encouraging bicycle use. Because the proposed path along Elks Point Road would be constructed according to current design guidelines, which include warning signage, the proposed alignment would be compatible with cars driving on Elk Point Road.

Segment 3:

Segment 3 would extend north around the west side of Round Mound. Round Mound is LTBMU land that is primarily for recreational use. Similar to Rabe Meadow, Round Mound is used informally as a nature viewing area. The proposed shared-use path would be compatible with the existing land use.

Alternative B

Direct and Indirect Effects

Segment 1:

Land use compatibility under Alternative B would be the same as Alternative A.

Segment 2:

Segment 2, under Alternative B would extend north on the west side of Rabe Meadow. This alignment could increase bicycle traffic on the Lam Watah interpretive trail. The potential for conflicts between cyclists and pedestrians is addressed in Section 3.7, “Recreation,” under “Conflicts with Existing or Proposed Recreation Uses.”

Segment 3:

Land use compatibility under Alternative B would be the same as Alternative A.

Cumulative Effects

The existing land uses in the project area are consistent with the applicable PASs. Therefore, cumulatively land uses are considered to be compatible. The shared-use path proposed in Alternatives A and B is a compatible land use with highways and would be compatible with existing land uses in the project area. The proposed shared-use path would not contribute to cumulative development of incompatible land uses.

Alternative C

Direct, Indirect, and Cumulative Effects

Under Alternative C, no shared-use path would be constructed and no change in existing uses would occur. Existing compatibilities and incompatibilities would continue in their current state. Alternative C would not contribute to any potential cumulative land use impacts.

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3.3 Hydrology and Water Quality

3.3.1 Scope of the Analysis

This section describes the existing hydrology and water quality conditions and potential environmental effects associated with Alternatives A, B, and C on hydrology and water quality. (Note: Section 3.5, "Earth Resources," discusses potential exposure to wave action from seiches. Section 3.12, "Public Services and Utilities," addresses water supply, treatment, and conveyance capacity as well as wastewater treatment and disposal capacity effects related to the expanded parking lot at Kahle Drive.) The analysis in this section is based on consultations with project engineers, preliminary engineering plans, and regulatory information (as provided in Chapter 1 of this EA and the Project Record).

3.3.2 Assessment Factors

NEPA – U.S. Forest Service, Lake Tahoe Basin Management Unit Forest Plan

Based on the LTBMU Forest Plan consistency matrix (Project Record A-1), under NEPA, the context and intensity of an alternative's potential effect on hydrology and water quality were evaluated based on whether an alternative would result in:

- permanent land disturbance and impervious surface coverage exceeding that recommended by the land capability system;
- soil disturbing activities from October 15 to May 1 of each year and no permanent or temporary erosion control measures are in place for the winter season;
- disruption of naturally functioning stream environment zone (SEZ) lands;
- any permanent or long-term degradation of Lake Tahoe water clarity;
- substantial interference with groundwater movement or reduce groundwater infiltration or groundwater quality; or
- substantial alteration of the existing drainage pattern of the site or substantial increase the amount of surface runoff in a manner which would result in flooding on- or off-site.

Tahoe Regional Planning Agency

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

- changes in currents, or the course or direction of water movements;
- 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 flow 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 100-year storm occurrence or seiches; or
- location of the project within 600 feet of a drinking water source.

3.3.3 Affected Environment

Regional Hydrology

The South Demonstration 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 northern portion of the project area is located within the Burke Creek Watershed, and the southern portion (just south of the U.S. 50/SR 207 intersection) is within the Edgewood Creek Watershed. Both are subwatersheds of the Lake Tahoe Hydrologic Unit. Burke and Edgewood Creeks are two of 63 streams that drain to Lake Tahoe.

Local Watersheds

Burke Creek

Burke Creek flows through the project area and discharges to Lake Tahoe. A tributary creek, Folsom Spring, in Rabe Meadow drains to Burke Creek. Historically, the Burke 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. The Burke Creek meadow was used intermittently for cattle grazing until about 1978 when the Federal government acquired the majority of land within the Burke Creek watershed that is now managed by the LTBMU. With the exception of two 1,500-foot-long reaches across private property, Burke Creek now flows across NFS land north of Kahle Drive. In the past, the channel was modified and moved in multiple locations to accommodate land use developments (nhc 2006). Folsom Spring is located on the west side of U.S. 50 in Rabe Meadow at the second bridge crossing along the Alternative A alignment in Segment 2 (Exhibit 2-4). Folsom Spring channel flows through Rabe Meadow to Lake Tahoe. A portion of the existing Burke Creek channel was once a tributary channel originating at Folsom Spring (TRPA 2009:31). Subsequently, a number of restoration projects have been conducted or planned to mitigate the effects of past land uses, including restoration of the channel in the Burke Creek meadow by the LTBMU (nhc 2006).

Edgewood Creek

The Edgewood Creek watershed lies south of Kahle Drive predominantly within Douglas County, Nevada, with a small portion within El Dorado County, California. The watershed drains an area of about 6.6 square miles to Lake Tahoe. The land uses within the watershed include the Stateline casino area, Edgewood Tahoe Golf Course, Heavenly Mountain Resort, state and Federal highways, local roads, utility right-of-way corridors, residential

neighborhoods, and state and Federal public lands. Overall, stream channel banks in the watershed are relatively stable. Edgewood Creek and other streams in the lower watershed have experienced aggradation (i.e., sediment accumulation) and may experience loss of stability if additional aggradation continues. The aggradation is due to excessive erosion in the watershed from upland sources such as roadway drainage, erosion of disturbed surfaces, gully erosion from concentrated flows, and increased flow rates from urbanized areas (NDSL 2003:1).

100-year Floodplain

The project area was reviewed for locations where the project could be constructed within the 100-year floodplain as mapped by FEMA. A review of preliminary engineering plans shows that portions of the shared-use path under both action alternatives would cross the mapped FEMA 100-year floodplain for Edgewood and Burke Creeks. The expanded parking lot at the northwest corner of the intersection of U.S. 50 and Kahle Dive and its ancillary facilities (e.g., bathroom, kiosks, picnic tables) would be outside of the FEMA 100-year floodplain (Project Record L-4 and L-10).

Surface Water Quality

Between 1968 and 1986 the clarity of Lake Tahoe declined, on average, approximately 1 foot per year (Goldman 1988). While lake clarity has improved for brief periods since then, the overall long-term trend has been decline, although Secchi depth measurements made between 2000 and 2007 were deeper than predicted by the long-term trend, suggesting that the decline of clarity in the Lake has slowed (TERC 2008:11.1). The primary direct causes of the decline in Lake Tahoe clarity are believed to be elevated nutrient and sediment inputs to the lake from upland areas (Reuter and Miller 2000:215). Nutrient and sediment sources include soil erosion, fertilizer application, automobile and motorized watercraft operation, application and break down of winter deicers and traction abrasives, and wood burning, as well as others.

Other potential water quality issues include the discharge of chemicals that are potentially toxic to humans and other living organisms. Some of the primary activities that have contributed to water quality degradation at Lake Tahoe area development in the watershed that reduces infiltration and increases runoff velocities and volumes to streams, stream erosion, atmospheric deposition of particulates and other pollutants in the lake, lake dredging, and motorized watercraft activities. Lake Tahoe is on the 303(d) list of impaired waterbodies for nitrogen, pathogens, and phosphorus in California and clarity in Nevada. Edgewood Creek is listed for iron.

Groundwater

The South Demonstration 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 to the South Demonstration Project, other groundwater investigations in the project 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). Typically, in meadow environments groundwater elevations are influenced by a combination of subsurface conditions, such as bedrock or glacial outwash textures and densities, and surface water channels. Deep incised channels can dewater the meadow, lowering local water surface elevations. The groundwater in the project area is also likely influenced by water surface elevations of Lake Tahoe given its close proximity (nhc 2006).

3.3.4 Environmental Consequences

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

Alternatives A and B

Direct and Indirect Effects

Portions of the proposed Alternative A and B alignments would be constructed in existing trail alignments, existing roads or road shoulders, and landscaped golf course areas where there is existing disturbance. Total area that would be disturbed including permanent and temporary disturbance is 372,362 square feet and 356,109 square feet, for Alternatives A and B respectively (see Table 3.4-5). Construction activities would involve vegetation removal, grading, excavation, and temporary stockpiling of soils, all of which could expose soils to erosion and mobilization. In addition, there would be onsite staging of construction equipment and vehicles, as well as construction-related vehicle trips which could cause tracking of sediment on local streets and roads. 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 either action alternative. However, the project proponent and its contractors would be required to incorporate and comply with preventive measures defined in TRPA, NDEP, and Douglas County regulations as described below as well as Design Features BMP-1 through BMP-20 as described in Section 2.3.1, “Soils, Hydrology, and Water Quality.”

A Storm Water Pollution Prevention Plan (SWPPP) would be required as part of the NPDES permit process described in Chapter 1, “Introduction.” 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. BMPs identified in the SWPPP would be implemented during all site development activities. Water quality controls outlined in the SWPPP must be consistent with TRPA and NDEP guidelines, and would be required to ensure that runoff quality meets or surpasses TRPA waste discharge effluent limits and maintains beneficial uses of Lake Tahoe, as defined by NAC 445A.191. Stormwater quality sampling would be described in detail in a Sampling and Analysis Plan that identifies sampling locations, protocols, and reporting mechanisms would be the responsibility of Douglas County. As described in Design Feature BMP-12, 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.

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. Site disturbance, 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. Furthermore, a suite of BMPs have been incorporated into the project design that would minimize soil erosion at all project facilities (Design Features BMP-1 through BMP-20). To the maximum extent possible, permanent BMPs would be installed prior to construction of the shared-use path.

Under Alternatives A and B, bridge and/or boardwalk structures would be used to span creek crossings in Segments 1 and 2 (Exhibits 2-3, 2-4, 2-8, and 2-9). In Segment 1, both alternatives would cross Edgewood Creek on a 120-foot-long by 12-foot-wide prefabricated bridge. In Segment 2, under Alternative A, two bridge structures would be required for the creek crossings over Burke Creek and Folsom Spring. Alternative B would include a single boardwalk crossing over Burke Creek, but because the Segment 2 alignment for this alternative is further to the west, no crossing of Folsom Spring would occur. Short-term minor water quality effects (increased turbidity above background, sedimentation during construction) could occur if, during bridge placement or footing construction at any of these crossings, sediment is inadvertently spilled into receiving waters from grading or placement of footings, or from construction equipment lifting the pre-fabricated bridges into place. With

implementation of the above-mentioned SWPPP, project design features, and compliance with TRPA, NDEP, and Douglas County regulations, the potential to have adverse effects on water quality from soil erosion and sedimentation, or release of pollutants, as a result of Alternatives A and B would be minimal.

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 Volume II 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.

It should also be noted that constructing either Alternative A or B would create connections to existing trails and roads providing access to areas around Round Mound and potentially increasing human intrusion into Rabe Meadow. However, the project area already supports a large number of roads and trails and is subject to high levels of recreation and other use.

Cumulative Effects

The projects in the vicinity (listed in Table 3.1-1) as well as the South Demonstration Project, either Alternative A or B, would be required to: minimize soil erosion and effects to SEZ areas by limiting surface disturbance to between May 1 and Oct 15; include project design features or mitigation measures such as preventing disturbed soil from entering stream channels, using disturbed areas for staging and storage, restoring soil function and organic matter post project implementation; complying with TRPA, NDEP, and Douglas County regulations; developing a spill prevention plan; and implementation of BMPs to avoid and minimize each project's short-term (construction) and long-term (operational) effects related to soil erosion, sedimentation, or release of pollutants. Therefore, the South Demonstration Project and related projects in the South Lake Tahoe and Douglas County portions of the Tahoe Basin (as listed in Table 3.1-1) would not result in adverse cumulative effects related to erosion, sedimentation, and/or release of pollutants to nearby water bodies.

Alternative C

Direct and Indirect Effects

Under Alternative C, no shared-use path would be constructed; therefore, Alternative C would result in no potential effects related to construction-generated or operational erosion, sedimentation or potential release of pollutants from the project.

Cumulative Effects

Under Alternative C, no shared-use path would be constructed; therefore, Alternative C would result in no contribution to potential cumulative effects related to construction-generated or operational erosion, sedimentation or potential release of pollutants.

Impervious Surface Area Runoff

Alternatives A and B

Direct and Indirect Effects

Both action alternatives would result in land coverage increases in the project area. Alternative A would result in approximately 134,790 square feet of coverage over 16,419 linear feet, and coverage under Alternative B would be approximately 111,400 square feet, over 15,912 linear feet, based on a 10-foot-wide path corridor (see Table 2-1). Both action alternatives would alter the course and volume of runoff from the project area during storm events; however, permanent BMPs, including drainage facilities (described in Chapter 2, "Alternatives") would be designed and implemented to accommodate the 20-year, 1-hour storm event pursuant to Subsection 25.5.A of the TRPA Code of Ordinances. Where drainage is conveyed through SEZ, TRPA Code of Ordinances design requires a minimum design for the 50-year, 1-hour storm event (Design Feature BMP-15). Drainage culverts would be designed for at least the 25-year, 24-hour storm event to be conveyed under the trail as required by Douglas County (Design Feature BMP-17). Bridges and boardwalks over stream crossings (e.g., Edgewood Creek and Burke Creek) would be designed to pass the 100-year, 24-hour event as required by Douglas County (Design Feature BMP-18).

Permanent BMPs are used to minimize erosion on residential, commercial, and public service properties when they are not disturbed by active construction. As described in Chapter 2, "Alternatives," a Temporary and Permanent BMP Plan (including maintenance) would be prepared for the proposed project that identifies who would be responsible for ensuring implementation of BMPs and making the necessary updates/modifications.

The BMPs would include features to retain the necessary runoff volume and reduce pollutant loads exported from the existing site, as required by TRPA Code of Ordinances 25.5.A. Runoff from the expanded parking areas, shared-use path, and other improvements would be directed to appropriate infiltration areas. Drain rock crossings (see Exhibit 2.7a) would prevent ponding on the uphill side of the trail and be required to convey runoff as required by TRPA Code of Ordinances 25.5.D. The path would have a 2% cross slope to facilitate sheet flow and would not be crowned. No untreated runoff would drain directly to Lake Tahoe or its tributaries.

The permanent BMP plan would: 1) demonstrate that erosion would be minimized; 2) include permanent BMPs adequate to meet applicable water quality standards; 3) incorporate adequate maintenance activities; and 4) be subject to review and approval by the LTBMU, TRPA, NDEP, and Douglas County. With implementation of the permanent BMP plan effects related to impervious surface area and runoff would result in no substantial short-term or long-term 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.

Stream Environment Zone

Both action alternatives would result in land coverage increases within SEZ. Alternative A would result in approximately 17,380 square feet of coverage in SEZ and coverage under Alternative B would be approximately 320 square feet within SEZ based on a 10-foot-wide path corridor (see Table 2-1). Implementation of both action alternatives would result in considerable SEZ land coverage increases and permanent SEZ effects near Edgewood Creek and in Rabe Meadow (see Section 3.5, "Earth Resources"); these increases would be in accordance with TRPA regulations related to coverage. The permanent effects would primarily involve partial or total conversion

of SEZ vegetation cover to trail or bridge facilities related to the placement of prefabricated bridges (Exhibit 2-8), construction of bridge footings, and construction/removal of boardwalk features in Rabe Meadow (Exhibit 2-9). Because prefabricated bridges and elevated trail designs that minimize effects to meadow vegetation and SEZ function would be used, permanent effects to SEZ hydrologic function would be minimal and consistent with TRPA requirements. In addition, permanent disturbance to SEZ areas would be fully mitigated or restored at ratio of 1.5: 1 or 150% of the amount disturbed (Design Feature BIO-11). The location of this mitigation would be identified prior to project approval.

Cumulative Effects

The related development projects in the South Lake Tahoe and Douglas County portions of the Tahoe Basin (as listed in Table 3.1-1) as well as the South Demonstration Project, either Alternative A or B, have the potential to increase impervious surfaces and associated runoff and would add to that from other projects in the vicinity. However, permanent BMPs, including drainage facilities would be designed and require implementation for all projects to meet all applicable NDEP, TRPA and Douglas County standards and regulations. Therefore, projects in the vicinity (listed in Table 3.1-1) in consideration with the South Demonstration Project would not result in adverse cumulative effects related to increases in impervious surfaces and surface area runoff as all impervious surfaces would capture the runoff before it would enter a stream or Lake Tahoe.

Alternative C

Direct and Indirect Effects

Under Alternative C, no shared-use path would be constructed; therefore, Alternative C would result in no potential effects related to increases in impervious surfaces or changes to surface area runoff.

Cumulative Effects

Under Alternative C, no shared-use path would be constructed; therefore, Alternative C would result in no contribution to potential cumulative effects related to increases in impervious surfaces or changes to surface area runoff.

Interception of Groundwater During Construction

Alternatives A and B

Direct and Indirect Effects

Both action alternatives would require excavation at depths in excess of 5 feet at isolated locations. Excavation below 5 feet would be required for the bridge abutments that would support the prefabricated bridge over Edgewood Creek and at locations around Round Mound where cross slopes exceed 30%. Pursuant to TRPA Code Section 64.7.B(1), a soils/hydrologic study would be prepared that would demonstrate that no interception of groundwater would occur that would adversely affect SEZ vegetation or a dewatering plan would be prepared (per BMP-14 in Section 2.3) that outlines required measures to be implemented if groundwater is intercepted.

Cumulative Effects

The related development projects in the South Lake Tahoe and Douglas County portions of the Tahoe Basin (as listed in Table 3.1-1) as well as the South Demonstration Project, either Alternative A or B, have the potential to result in excavation depths below 5 feet, which could result in the interception of groundwater during construction. However, all related projects would be required to adhere to TRPA Code of Ordinances Chapter 64,

"Grading Standards" to protect against adverse effects from excavation, filling, and clearing, due to such conditions as exposed soils, unstable earthworks, or groundwater interference. In addition, all projects requiring excavation below 5 feet would be required, pursuant to TRPA Code Section 64.7B, to prepare a soils/hydrologic study that demonstrates that there would be no interference or interception of groundwater, that no damage would occur to mature trees, and if groundwater interception or interference would occur, that there would be no adverse SEZ vegetation and no groundwater or subsurface flow would leave the project areas as surface flow. Therefore, related projects listed in Table 3.1-1 as well as the South Demonstration Project would not result in adverse cumulative effects related to groundwater interception as effects would be limited to only the localized area of excavation.

Alternative C

Direct and Indirect Effects

Under Alternative C, no shared-use path would be constructed; therefore, Alternative C would result in no direct or indirect effects related to interception of groundwater.

Cumulative Effects

Under Alternative C, no shared-use path would be constructed; therefore, Alternative C would result in no excavation and would not contribute to cumulative effects related to groundwater interception.

Exposure to Flooding from 100-year Storm Events

Alternatives A and B

Direct and Indirect Effects

As described previously in this section, a review of preliminary engineering plans shows that portions of the shared-use path under both action alternatives would cross the mapped FEMA 100-year floodplain for Edgewood and Burke Creeks. The majority of the shared-use path and the expanded parking lot at the northwest corner of the intersection of U.S. 50 and Kahle Drive and its ancillary facilities (e.g., bathroom, kiosks, picnic tables) would be outside of the FEMA 100-year floodplain (Project Record L-4 and L-10).

The proposed 120-foot-long by 12-foot-wide bridge over Edgewood Creek would span the actual base flood elevation limits in the creek, but the abutments are within the currently designated FEMA flood hazard zone A. Furthermore, the path would cross a designated FEMA flood hazard zone A on Lake Parkway. The path would be no higher than the existing top-of-curb in this location. As described in Sections 1.11.13 and Section 2.2.2 of this EA, a LOMA application would be prepared and submitted to FEMA to request a change to the mapped 100-year floodplain immediately below U.S. 50 where the proposed bridge would span Edgewood Creek. The purpose of the proposed floodplain revision would be to demonstrate that the proposed bridge and its abutments under both action alternatives would be located outside the 100-year floodplain limits of Edgewood Creek. It is expected that a LOMA would be prepared by FEMA for this area.

The FEMA flood hazard zone at Burke Creek is considerably wider than the existing and proposed boardwalks; therefore, the boardwalk would occur within the flood zone. However, it is anticipated that the boardwalk posts and structure would not impact flood flows and that no submittal to FEMA would be required.

All stream and riparian crossings would be designed to accommodate the 100-year storm, 24-hour storm event and would not interfere with existing water regimes in the project area or off site (Design Feature BMP-18). All other facilities outside the 100-year floodplain would be designed to pass the 20-year, 1-hour event (Design

Feature BMP-15), except culverts, which would be designed to pass a 25-year, 24-hour storm event (Design Feature BMP-17). For these reasons, the action alternatives would not be expected to result in an adverse effect resulting in the exposure of people or property to water related hazards associated with flooding.

Cumulative Effects

The related projects listed in Table 3.1-1 as well as well as the South Demonstration Project, either Alternative A or B, have the potential to increase development in the 100-year floodplain. However, any proposed project located within the regulatory floodplain must meet FEMA management and Douglas County floodplain management requirements, have a revised FIRM developed and submitted for approval, and be designed to accommodate the 100-year storm, 24-hour storm event. Specifically, the South Demonstration Project would cross the mapped FEMA 100-year floodplain for Edgewood and Burke Creek. All stream and riparian crossings would be designed to accommodate the 100-year storm, 24-hour storm event and would not interfere with existing water regimes in the project area or off site (Design Feature BMP-18). Therefore, the related projects in the South Lake Tahoe and Douglas County portions of the Tahoe Basin (as listed in Table 3.1-1) as well as the South Demonstration Project would not result in adverse cumulative effects related to the exposure of people or property to water related hazards associated with flooding.

Alternative C

Direct and Indirect Effects

Under Alternative C, no shared-use path would be constructed; therefore, Alternative C would result in no potential effects related to exposure of people or property to water related hazards associated with flooding.

Cumulative Effects

Under Alternative C, no shared-use path would be constructed; therefore, Alternative C would result in no contribution to potential cumulative effects related to exposure of people or property to water related hazards associated with flooding.

Effects on Drinking Water Sources

Alternatives A and B

Direct and Indirect Effects

Projects within 600 feet of a drinking water source identified by TRPA require special consideration in accordance with the TRPA Initial Environmental Checklist. At most locations along their length, Alternatives A and B are set back from the shore of Lake Tahoe at distances far greater than 600 feet from drinking water intake lines that extend into the lake. The alignments for Segment 1, which are the same for both action alternatives, are located within 600 feet of a existing drinking water sources (02903603W11 and 02905101W11, see Exhibit 3.3-1) protected under TRPA's source water protection program (TRPA 2000, Appendix B, pg 107). However, as described in the effects discussion under the heading "Impervious Surface Area Runoff", and in detail in Chapter 2, "Alternatives", through project design features and permanent BMPs incorporated into the project, no untreated runoff would flow to Lake Tahoe as a result of project implementation (TRPA 2000, Appendix B, pg 107). As such, the action alternatives would not result in direct or indirect effects to drinking water sources.

Cumulative Effects

The projects in the vicinity (Table 3.1-1) as well as the South Demonstration Project, either Alternative A or B, have the potential to be located within 600 feet of a drinking water source, which require special consideration in accordance with the TRPA Initial Environmental Checklist. However, any project located within 600 feet of a drinking water source would be required to incorporate project design features, mitigation measures, and or BMPs to ensure that the project does not affect the drinking water source. Furthermore, the South Demonstration Project would not contribute to an adverse affect on drinking water sources. Therefore, the related projects in the South Lake Tahoe and Douglas County portions of the Tahoe Basin (as listed in Table 3.1-1) as well as the South Demonstration Project would not result in adverse cumulative effects to drinking water sources.

Alternative C

Direct and Indirect Effects

Under Alternative C, no shared-use path would be constructed; therefore, Alternative C would result in no direct or indirect effects related to sources of drinking water.

Cumulative Effects

Under Alternative C, no shared-use path would be constructed; therefore, Alternative C would not contribute to potential cumulative effects related to sources of drinking water.

3.3.5 Consequences for TRPA Environmental Threshold Carrying Capacities

This section describes the effects of implementing the different alternatives on the environmental thresholds established for water quality by TRPA. As described in Section 3.3.3 above, seven narrative and numeric standards for the adopted TRPA water quality thresholds have been established by TRPA:

- **WQ-1**, Littoral Lake Tahoe
- **WQ-2**, Pelagic Lake Tahoe, Deep Water Clarity
- **WQ-3**, Pelagic Lake Tahoe, Phytoplankton Primary Productivity
- **WQ-4**, Tributaries
- **WQ-5**, Stormwater Runoff, Surface Water
- **WQ-6**, Stormwater Runoff, Ground water
- **WQ-7**, Other Lakes

As stated earlier, neither of the action alternatives would produce a discernable effect on four of the TRPA water quality thresholds: WQ-1, Shallow Waters of Lake Tahoe (attainment); WQ-2, Deep Waters of Lake Tahoe, Deep Water Clarity (nonattainment); WQ-3, Pelagic Lake Tahoe, Phytoplankton Primary Productivity (nonattainment); or WQ-7, Other Lakes (nonattainment).

Water Quality thresholds are applied basin wide; that is, the entire Tahoe Basin is considered in attainment or in nonattainment. However, spatial data by stream, lake, or other water body is tracked, and local attainment status is reported by TRPA. No spatially discrete targets have been established. The three directly related water quality thresholds all have a “nonattainment” status. As described below, implementing either of the action alternatives would not adversely affect or interfere with attainment of any of TRPA’s water quality thresholds.

Source: TRPA 2000

Well Locations

Exhibit 3.3-1

WQ-4, Tributaries

The concentrations of WQ-4 “Tributaries” threshold parameters nitrogen, phosphorus, iron, and suspended sediment in runoff to Lake Tahoe tributaries (e.g., Edgewood Creek and Burke Creek) would be minimized by the Temporary and Permanent BMP plan (including maintenance) described under the heading “Impervious Surface Area Runoff” above and the project design feature BMPs described in Section 2.3 of Chapter 2, “Alternatives.” Since tributary iron standards are considered to be too low for the iron background in Lake Tahoe watersheds, and iron concentrations therefore have consistently exceeded the existing standards, the iron analysis was dropped from TRPA threshold evaluations for stream samples (TRPA 2007:3-3).

WQ-5, Stormwater Runoff, Surface Water

The concentrations of WQ-5 “Stormwater runoff, surface water” threshold parameters dissolved inorganic nitrogen, dissolved phosphorus, dissolved iron, and suspended sediment would be minimized by the Temporary and Permanent BMP plan (including maintenance) described under the heading “Impervious Surface Area Runoff” above and the project design feature BMPs described in Chapter 2, “Alternatives.” The majority of nitrogen loading to Lake Tahoe appears to be from atmospheric deposition. The majority of the total phosphorus and fine particulate sources appear to be from upland sources of soil erosion including streams and stormwater runoff (TRPA 2007:3-3), which would be minimized by the project design feature BMPs.

WQ-6, Stormwater Runoff, Groundwater

The concentrations of WQ-6 “Stormwater runoff, groundwater” threshold parameters for nitrogen, phosphorus, iron, grease and oil, and turbidity would be minimized by the Temporary and Permanent BMP plan (including maintenance) described under the heading “Impervious Surface Area Runoff” above and the project design feature BMPs in Chapter 2, “Alternatives.” The data for untreated stormwater runoff samples indicate the majority of samples would meet groundwater (or land treatment) infiltration standards. Source control and runoff treatment have been targeted at reducing loads of phosphorus and nitrogen to groundwater (TRPA 2007:3-15).

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3.4 Biological Resources: Fisheries and Aquatic Resources, Vegetation, and Wildlife

3.4.1 Scope of the Analysis

This section describes the existing biological resources in the project area and potential effects of Alternatives A, B, and C on them. This analysis is based primarily on information, detailed analysis, and conclusions presented in the following specialist reports prepared for the project:

- Biological Assessment/Biological Evaluation for Aquatic and Terrestrial Species (hereinafter referred to as "BA/BE");
- Aquatic and Terrestrial Species Impact Analysis Report for the Tahoe Regional Planning Agency (hereinafter referred to as "TRPA Report");
- Management Indicator Species Report (hereinafter referred to as "MIS Report");
- Memorandum with subject titled "Migratory Landbird Conservation on the Proposed Nevada Stateline-to-Stateline Bikeway, South Demonstration Project" (hereinafter referred to as the "Migratory Bird Report");
- Biological Evaluation for Threatened, Endangered, and Sensitive Plants and Fungi (hereinafter referred to as "Plant BE");
- Noxious Weed Risk Assessment; and
- Preliminary Delineation of Waters of the United States, Including Wetlands (hereinafter referred to as "Wetland Delineation").

These documents are hereby incorporated by reference, are part of the Project Record (Folder K), and available for review at the LTBMU Forest Supervisor's office.

3.4.2 Assessment Factors

NEPA – U.S. Forest Service, Lake Tahoe Basin Management Unit Forest Plan

Under NEPA, the context and intensity of an alternative's potential effect on biological resources were evaluated based on whether the project would:

- substantially reduce the size, continuity, or integrity of a plant community through temporary or permanent removal, interruption of natural processes that support it, and/or disturbance that favors the establishment of invasive nonnative species;
- substantially reduce the size, continuity, or integrity of wildlife or fish habitat, or result in unnatural changes in the abundance, diversity, or distribution of wildlife or fish species; substantially affect, either directly or through habitat modifications, any species listed as threatened or endangered under the ESA, or designated as sensitive by the Regional Forester (i.e., "Forest Service sensitive");
- substantially affect the habitat for any Forest Service Management Indicator Species; or

- conflict with the Forest Service's land management practices and requirements provided in the LTBMU Forest Plan, which are summarized in the Forest Plan consistency matrix (Project Record A-1).

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 an alternative would:

- remove native vegetation in excess of the area utilized for the actual development permitted by TRPA's land capability program/Individual Parcel Evaluation System (IPES);
- remove riparian vegetation or other vegetation associated with critical wildlife habitat, through either 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;
- cause a substantial change in the diversity or distribution of species, or the number of any species of plants (including trees, shrubs, grass, crops, microflora, and aquatic plants);
- reduce the numbers of any unique, rare, or endangered species of plants;
- remove streambank and/or backshore vegetation, including woody vegetation such as willows;
- remove any native live, dead, or dying trees 30 inches or greater in diameter at breast height (dbh) within TRPA's Conservation or Recreation land use classifications;
- change the natural functioning of an old-growth ecosystem;
- cause a substantial change in the diversity or distribution of species, or the numbers of any species of animals (birds or land animals including reptiles, insects, mammals, amphibians, or microfauna);
- reduce the number of any unique, rare, or endangered animal species;
- introduce new species of animals into an area, or result in a barrier to the migration or movement of animals; or
- cause the quantity or quality of existing wildlife habitat to deteriorate.

TRPA has established environmental thresholds, goals, and policies for vegetation, wildlife, and fisheries resources in several categories: common vegetation; uncommon plant communities; sensitive plants; late seral/old-growth ecosystems; special-interest, threatened, and endangered wildlife; protected wildlife habitat; and fish habitat. The 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 also used to analyze potential effects of an alternative on biological resources. These goals, policies, and thresholds are discussed in Chapter 1, "Introduction."

3.4.3 Affected Environment

Vegetation Communities and Habitats in the Project Area

The project area is located within a 3-mile-long corridor extending from the California/Nevada state line to just north of Round Hill. Much of the area where Alternatives A and B are proposed is characterized by existing pavement, disturbed land along road shoulders, areas maintained for golf course access and use, or otherwise disturbed or developed land uses. The trail alignment alternatives pass through natural habitats where they traverse Rabe Meadow and forest land north of Rabe Meadow.

From the southern terminus of the proposed alignments to Rabe Meadow, most of the project area is comprised of existing road shoulders. Much of this area is either landscaped, or compacted dirt or gravel with either no vegetation or a sparse cover of ruderal species. Portions of the project area between the south end of Alternatives A and B and Rabe Meadow are part of the eastern edge of the Edgewood Tahoe Golf Course. In this portion of the project area, the existing habitat is heavily managed non native golf course turf grasses.

Rabe Meadow primarily supports dry meadow habitats dominated by a mix of native grass species such as needlegrasses (*Achnatherum* spp.), meadow barley (*Hordeum brachyantherum*), pubescent wheatgrass (*Elytrigia intermedia*), bentgrasses (*Agrostis* spp.), slender wheatgrass (*Elymus trachycaulus*), Kentucky bluegrass (*Poa pratensis*), spike trisetum (*Trisetum spicatum*), and blue wildrye (*Elymus glaucus*). Some wet meadow and riparian scrub vegetation occurs in the project area near Burke Creek and some of the tributary swales in Rabe Meadow. The alignment for Alternative A would pass through the eastern edge of an aspen stand around Folsom Spring in Rabe Meadow.

The National Wetlands Inventory has mapped portions of Rabe Meadow as palustrine emergent wetlands. These are persistent wetlands characterized by erect, rooted, herbaceous hydrophytes and typically dominated by perennial species. Emergent wetlands mapped in the project area are supported by one of three types of water regimes: temporarily flooded (surface water present for brief periods but water table is well below the surface for most of growing season), seasonally flooded/saturated (surface water present for long duration seasonally and substrate remains saturated for much of the growing season), and intermittently exposed (i.e., surface water present throughout the year except in extreme drought). Facultative plant species (i.e., those that grow in both uplands and wetlands) are commonly dominant in the temporarily flooded water regimes whereas obligate or facultative wetland (i.e., those that almost always or usually grow in wetlands) plant species typically dominate in intermittently exposed water regimes. Wetlands with seasonally flooded/saturated water regimes are generally characterized by a mix of facultative, facultative wetland, and obligate wetland plant species. In addition, a portion of the aspen grove at Folsom Spring is mapped in the inventory as palustrine scrub-shrub wetland with a seasonally flooded/saturated water regime.

Burke Creek and Edgewood Creek are perennial streams that provide aquatic habitat within the project area. Burke Creek enters the project area from the east at U.S. 50, across from the UPS store commercial center parcel, and flows west through the project area to Lake Tahoe. Within the project area, Burke Creek flows from the culvert under U.S. 50 through a portion of Rabe Meadow into a small pond (formerly a sedimentation basin from abandoned construction of the Jennings Casino), then west through the remainder of Rabe Meadow to Lake Tahoe. A tributary to Burke Creek that originates at Folsom Spring is also within the project area. Burke Creek has been historically modified and relocated numerous times for development projects, including construction of U.S. 50, the abandoned construction of the Jennings Casino, and commercial developments (Winzler and Kelly et al. 2009: 17-20). Edgewood Creek enters the project area at the eastern edge of the Edgewood Tahoe Golf Course, where it flows out of a culvert under U.S. 50, then flows through a series of artificially-created ponds on the golf course before entering Lake Tahoe west of the project area.

A formal wetland delineation of the shared-use path alignments was conducted by AECOM on July 13 and 14, 2010. Potentially jurisdictional waters of the United States were identified, including montane wet meadow and montane riparian scrub wetland in Rabe Meadow, Burke Creek, Edgewood Creek, and the Folsom Spring tributary. A map of wetland locations is provided in Exhibits 3.4-1 and 3.4-2, below, and is also provided in the Wetland Delineation report prepared for the project (Project Record K-8). It is anticipated that the Wetland Delineation report will be submitted to USACE for concurrence by January 2011 or upon project approval by TRPA.

From the north end of Rabe Meadow to Elks Point Road, the project area includes Jeffrey pine forest and some sagebrush scrub. Much of the forest in this area has received thinning treatments as part of the Round Hill Fuel Reduction Project. Forest stands are mostly dry, with decomposing granitic soil and a shrub-dominated understory. North of Elks Point Road, the project area includes open Jeffrey pine forest with a montane chaparral understory consisting of various shrub species, including green leaf manzanita (*Arctostaphylos patula*), bitterbrush (*Purshia tridentata*), mountain whitethorn (*Ceanothus cordulatus*), Sierra chinquapin (*Chrysolepis sempervirens*), tobacco brush (*Ceanothus velutinus*), mahala mat (*Ceanothus prostratus*), and rabbitbrush (*Chrysothamnus nauseosus*).

North of Round Mound, the proposed shared-use path alignment follows abandoned roads, a portion of the road to Round Hill Pines Beach, and portions of the old Lincoln Highway. In this area the alignment passes through Jeffrey pine forest that has been treated as part of the Round Hill Fuel Reduction Project. The project area and its vicinity have a moderate to high level of development and existing disturbances. Portions of Rabe Meadow and the Jeffrey pine forest within the project area include existing trails and facilities, and support high levels of recreation. A variety of land uses are present within 0.5 mile of the proposed shared-use path alignments. The future Beach Club at Tahoe development, which is currently a mostly-vacant mobile home park, and Edgewood Golf Course are located immediately south; mixed-use development and managed forest lands occur to the east and north; and Lake Tahoe is located to the west of the alternative alignments. Nevada Beach and Nevada Beach Campground are popular recreation destinations that receive high levels of use during non-winter months.

Common Wildlife Resources and Habitat Functions

The mix of forest, meadow, riparian-wetland, and aquatic habitat types in the project area support a variety of native wildlife species. In general, most of the vegetation and aquatic communities likely to be affected by the proposed alternatives can be grouped into the following primary wildlife habitat types: conifer forest (Jeffrey pine), willow-riparian, montane meadow, and stream. The following sections summarize the general conditions and functions of these wildlife habitat types.

Conifer forest in the project area is not considered high-quality wildlife habitat, due to high levels of human disturbance and habitat fragmentation. However, this habitat supports several common wildlife species. Conifer forest supports a variety of birds, such as woodpeckers, nuthatches, and kinglets; it also provides suitable roosting habitat for common bat species. This habitat type provides perch sites for raptors such as red-tailed hawk (*Buteo jamaicensis*) and Cooper's hawk (*Accipiter cooperii*) that use meadow areas for foraging. It also provides foraging and nesting for forest raptors. Cavity-nesting species such as tree swallow (*Tachycineta bicolor*), white-breasted nuthatch (*Sitta carolinensis*), hairy woodpecker (*Picoides villosus*), northern flicker (*Colaptes auratus*), and red-breasted sapsucker (*Sphyrpicus ruber*) may nest in this community. Other common bird species observed or likely to occur (based on habitat conditions of conifer forest in the project area) include mountain chickadee (*Poecile gambeli*), red-breasted nuthatch (*Sitta canadensis*), pygmy nuthatch (*Sitta pygmaea*), American robin (*Turdus migratorius*), yellow-rumped warbler (*Dendroica coronata*), Steller's jay (*Cyanocitta stelleri*), western tanager (*Piranga ludoviciana*), chipping sparrow (*Spizella passerina*), dark-eyed junco (*Junco hyemalis*), Brewer's blackbird (*Euphagus cyanocephalus*), and brown-headed cowbird (*Molothrus ater*).

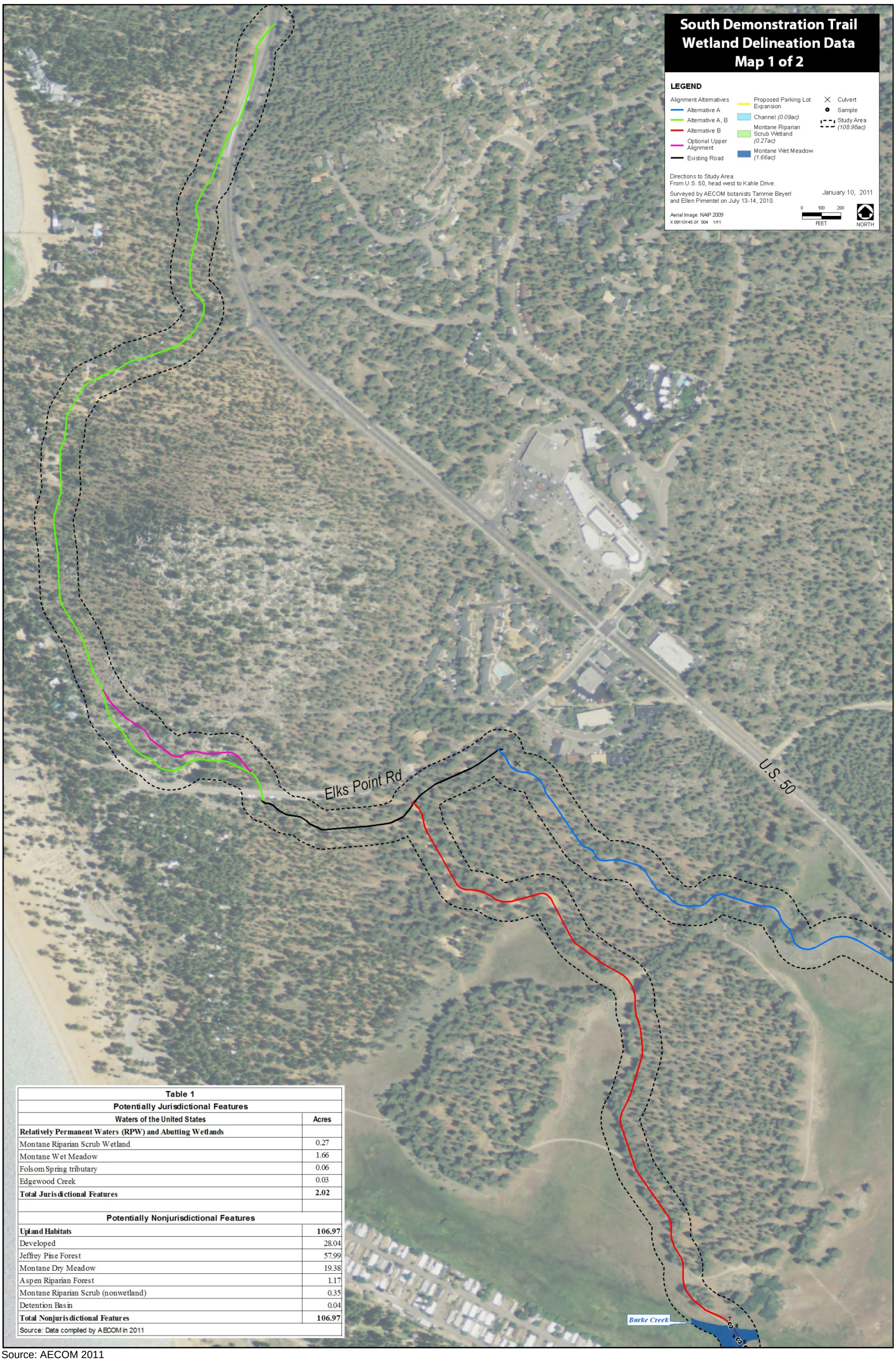
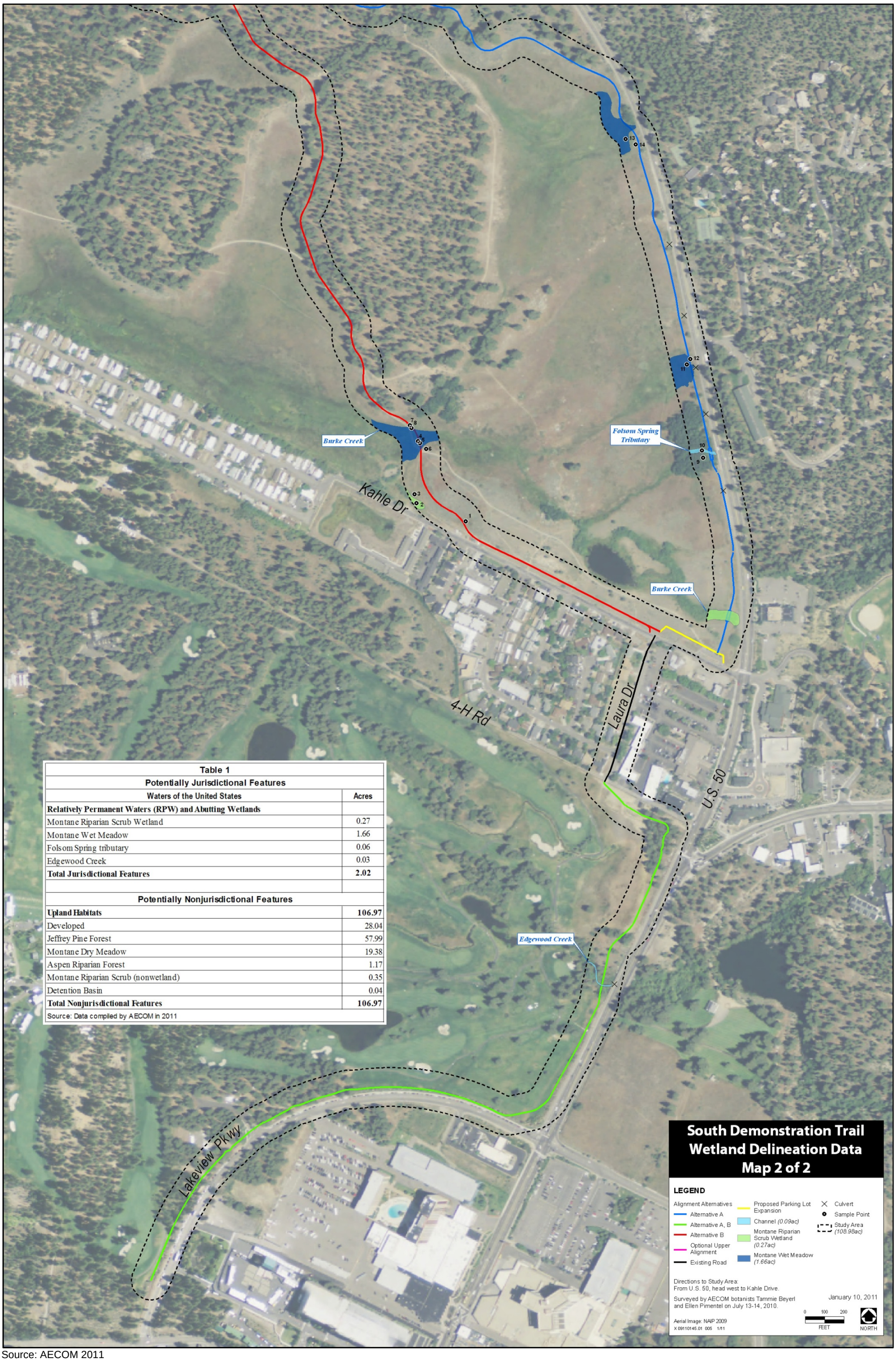


Table 1	
Potentially Jurisdictional Features	
Waters of the United States	Acres
Relatively Permanent Waters (RPW) and Abutting Wetlands	
Montane Riparian Scrub Wetland	0.27
Montane Wet Meadow	1.66
Folsom Spring tributary	0.06
Edgewood Creek	0.03
Total Jurisdictional Features	**2.02**
Potentially Nonjurisdictional Features	
Upland Habitats	**106.97**
Developed	28.04
Jeffrey Pine Forest	57.99
Montane Dry Meadow	19.38
Aspen Riparian Forest	1.17
Montane Riparian Scrub (nonwetland)	0.35
Detention Basin	0.04
Total Nonjurisdictional Features	**106.97**
Source: Data compiled by AECOM in 2011	

Source: AECOM 2011

Wetland Delineation Map (Map 1 of 2) **Exhibit 3.4-1**



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Montane Riparian Scrub (nonwetland)	0.35
Detention Basin	0.04
Total Nonjurisdictional Features	**106.97**
Source: Data compiled by AECOM in 2011	

Source: AECOM 2011

Wetland Delineation Map (Map 2 of 2) **Exhibit 3.4-2**

Common small mammal species observed or likely to occur include golden-mantled ground squirrel (*Spermophilus lateralis*), California ground squirrel (*S. beecheyi*), western gray squirrel (*Sciurus griseus*), Douglas' squirrel (*Tamiasciurus douglasii*), vagrant shrew (*Sorex vagrans*), and yellow-pine chipmunk (*Tamias amoenus*). Conifer forest also provides habitat for larger mammals—raccoon (*Procyon lotor*), coyote (*Canis latrans*), black bear (*Ursus americanus*), and possibly mule deer (*Odocoileus hemionus*). Common amphibians and reptiles likely to inhabit the project area include Pacific tree frog (*Hyla regilla*), sagebrush lizard (*Sceloporus graciosus*), and rubber boa (*Charina bottae*).

Black bears likely use conifer forest within the project area and vicinity, particularly near the Nevada Beach Campground and Day Use area and Round Hill Pines Beach. The summer home range of black bears varies from a few square miles up to around 20 square miles for some males (Zeiner et al. 1988:294–295). Black bears forage on grasses, insects, carrion, and fruits seasonally, and will eat human refuse if available. They use large downed logs, dense vegetation cover, cavities in trees, or other large hiding places for den sites. Sites on densely covered hillsides tend to be preferred (Zeiner et al. 1988:294–295). The project area supports summer bear use and potentially winter hibernation dens, although female winter natal dens may be less likely to be located in the project area due to the relatively high levels of recreational disturbance.

Although the riparian corridor and meadow areas are relatively disturbed and disconnected, many habitat functions and values are provided by the riparian and aquatic habitats present in the project area. Willow-riparian vegetation provides cover and forage for many species of songbirds. In general, this community provides foraging and nesting habitat for flycatchers, warblers, and sparrows. Riparian-associated species documented or likely to occur in the project area during the breeding season include song sparrow (*Melospiza melodia*), red-winged blackbird (*Agelaius phoeniceus*), spotted sandpiper (*Actitis macularius*), warbling vireo (*Vireo gilvus*), black-headed grosbeak (*Pheucticus melanocephalus*), and waterfowl species. Other avian species primarily associated with conifer forest habitats, such as mountain chickadee, western wood-pewee (*Contopus sordidulus*), and yellow-rumped warbler, use willow-dominated communities as foraging habitat. Common amphibian and reptile species known to occur nearby and likely to use riparian and aquatic communities in the project area are Pacific tree frog (*Hyla regilla*), western terrestrial garter snake (*Thamnophis elegans*), common garter snake (*T. sirtalis*), and Sierra (western aquatic) garter snake (*T. couchii*). Several bat species have been detected in wetland areas near the project area (e.g., Upper Truckee Marsh) and likely forage in the willow scrub–wet meadow communities: hoary bat (*Lasiurus cinereus*), long-eared myotis (*Myotis evotis*), little brown bat (*M. lucifigus*), and Mexican free-tailed bat (*Tadarida brasiliensis*) (Borgmann and Morrison 2004).

Montane meadows provide habitat for species of ground-nesting birds, support populations of small mammals, and provide foraging opportunities for raptors. Different species use different aspects of these meadows as habitat. Water level modifies this meadow habitat; some species prefer drier areas, and others require moister conditions. Several mammal species could use montane meadow habitat in the project area: long-tailed vole (*Microtus longicauses*), shrew (*Sorex* spp.), deer mouse (*Peromyscus maniculatus*), western jumping mouse (*Zapus princes*), California ground squirrel, coyote, and black bear. Amphibian species such as Pacific tree frog and long-toed salamander (*Ambystoma macrodactylum*) may breed in montane meadow habitats when conditions are wet enough to maintain ponded areas for eggs to develop and metamorphose.

Federally Threatened and Endangered, Forest Service Sensitive, and TRPA Special-Interest Species

Fish and Wildlife

The BA/BE prepared for this project (Project Record K-1) evaluated 12 Forest Service sensitive aquatic and terrestrial animal species, and nine animal species listed or candidates for listing under the federal ESA. Tables 3.4-1 and 3.4-2 list the species evaluated and those species considered but not further evaluated in the BA/BE. Table 3.4-2 also includes the rationale for species elimination from analysis. The TRPA Report evaluated eight

Table 3.4-1
Species Evaluated in the Biological Assessment/Biological Evaluation

Species	Regulatory Status[1]
Birds	
Bald eagle (*Haliaeetus leucocephalus*)	FSS
Invertebrates	
Great Basin ram's horn (*Helisoma [Carninifex] newberryi*)	FSS

[1] FSS–Designated as sensitive by USFS
Source: AECOM 2010

Table 3.4-2
Species Considered but Not Further Evaluated

Species	Regulatory Status[1]	Rationale for Elimination
Birds		
California spotted owl (*Strix occidentalis occidentalis*)	FSS	No documented occurrences or suitable late-successional forest habitat within the project vicinity.
Northern goshawk (*Accipiter gentilis*)	FSS	Northern goshawk has not been documented in the action area in over 17 years, and no suitable breeding habitat or closed canopy forest habitat is present in or adjacent to the action area. Protocol surveys conducted in 2006, 2007, and 2008 east of U.S. 50 for a different project, adjacent to the action area, did not detect goshawks (Wildlife Resource Consultants 2006a, 2006b, 2007, 2008). A historic goshawk territory (Roundhill/Burke Creek territory) is located east of the project site; four historic nest sites associated with this territory are located between 0.49–0.72 miles east of the action area. Although a goshawk was detected in this territory in 2005, nesting within the territory has not been documented since 1992 (Young and Morrison 2007). Goshawk could occasionally forage or perch within, or otherwise move through, the action area; however, goshawk use of the action area is not expected due to marginal forest conditions and high disturbance levels.
Great gray owl (*Strix nebulosa*)	FSS	Habitat with some biophysical attributes considered suitable for great gray owl (e.g., meadows bordered by large trees) occurs within the action area. However, the area experiences high disturbance levels; and the historic or present occurrence of great gray owl in the Tahoe Basin has not been confirmed.
Willow flycatcher (*Empidonax traillii*)	FSS	Riparian scrub and floodplain hydrology in the action area (including Rabe Meadow) does not provide suitable breeding habitat for willow flycatcher. The LTBMU conducted surveys for willow flycatcher in the southwest corner of Rabe Meadow in 2005. No willow flycatchers were detected. LTBMU determined that the habitat was of marginal quality due to a presence of domestic predators, very limited area and height of willow habitat, and limited extent of suitable hydrologic conditions (Lyon, pers. comm., 2010). Surveys were suspended until habitat conditions improve, or there is a sighting in the vicinity.
Mammals		
Townsend's big-eared bat (*Corynorhinus townsendii*)	FSS	Suitable habitat is not present in the action area. Until 2007, no occurrences of Townsend's big-eared bat in the Tahoe Basin were documented (Schlesinger and Romsos 2000: G-9-G-11). However, this species was detected in Blackwood Canyon and Cookhouse Meadow in 2007 (Roth, pers. comm., 2008).
California wolverine (*Gulo gulo luteus*)	FSS	Suitable habitat not present in the action area. Very few documented occurrences in the region.
American marten (*Martes americana*)	FSS	No suitable late-successional forest found within the action area.

Table 3.4-2
Species Considered but Not Further Evaluated

Species	Regulatory Status[1]	Rationale for Elimination
Pacific fisher (*Martes pennanti*)	C	No suitable habitat present. Species is considered extirpated from the Lake Tahoe Basin.
Sierra Nevada red fox (*Vulpes vulpes necator*)	FSS	Suitable habitat not present in the action area. Very few documented occurrences in the region. Presumed extirpated from the Tahoe Basin (Schlesinger and Romsos 2000).
Amphibians		
Sierra Nevada yellow-legged frog (*Rana sierrae*)	C	The only known population in the Tahoe Basin occurs at Hell Hole bog, approximately 10 miles S-SW of the action area. Some suitable aquatic habitat present for seasonal or migratory use, although quality is low due to presence of nonnative predators. Species not expected to occur in the action area or vicinity.
Northern leopard frog (*Rana pipiens*)	FSS	Presumed extirpated from the Tahoe Basin (Schlesinger and Romsos 2000: G-12).
Yosemite toad (*Bufo canorus*)	C	Outside of the known range for the species.
California red-legged frog (*Rana aurora draytonii*)	FT	Outside of the known range for the species.
Fish		
Lahontan Lake tui chub (*Gila bicolor pectinifer*)	FSS	No suitable aquatic habitat is present. Found in Lake Tahoe, spawns in shallow near-shore environments with aquatic vegetation.
Lahontan cutthroat trout (*Oncorhynchus (=salmo) clarki henshawi*)	FT	Species is currently being stocked in a number of Tahoe Basin lakes and rivers, but is otherwise absent from its former range. Burke Creek does not provide suitable habitat for this species due to limited habitat, potential barriers to movement, and presence of introduced species.
Delta smelt (*Hypomesus transpacificus*)	FT	Outside of the known range for the species.
Central Valley steelhead (*Oncorhynchus mykiss*)	FT	Outside of the known range for the species.
Central Valley spring-run Chinook salmon (*Oncorhynchus tshawytscha*)	FT	Outside of the known range for the species.
Sacramento River winter-run Chinook salmon (*Oncorhynchus tshawytscha*)	FE	Outside of the known range for the species.

[1] FSS–Designated as sensitive by USFS
FT–Listed as threatened under the federal Endangered Species Act
FE–Listed as endangered under the federal Endangered Species Act
C–Candidate for listing under the federal Endangered Species Act
Source: AECOM 2010

TRPA special-interest fish and wildlife species. Based on these analyses, no federally listed species occur within the action area. One TRPA special-interest species group (waterfowl) occurs in the project area. Two Forest Service sensitive species (bald eagle [*Haliaeetus leucocephalus*]) and Great Basin ram's horn *[Helisoma (Carninifex) newberryi]*) and three TRPA special-interest species (osprey [*Pandion haliaetus*], mule deer [*Odocoileus hemionus*], and bald eagle [also a Forest Service sensitive species]) have potential to occur in the project area. The BA/BE and TRPA Report describe the habitat associations, regulatory status, and potential for occurrence of these species in the project area.

Plants

The Plant BE (Project Record K-6) evaluated 24 Forest Service sensitive plant species, one of which is also a candidate for listing under the federal ESA and four that are also TRPA species of special-interest (Table 3.4-3).

The following 17 Forest Service sensitive plant species, including one candidate for listing under the ESA and one TRPA special-interest species, are known or have potential to occur in the project area and were further evaluated in the Plant BE:

- *Botrychium ascendens* (upswept moonwort)
- *Botrychium crenulatum* (scalloped moonwort)
- *Botrychium lineare* (slender moonwort)
- *Botrychium lunaria* (common moonwort)
- *Botrychium minganense* (Mingan moonwort)
- *Botrychium montanum* (western goblin)
- *Bruchia bolanderi* (Bolander's candle moss)
- *Epilobium howellii* (subalpine fireweed)
- *Erigeron miser* (starved daisy)
- *Helodium blandowii* (Blandow's bog moss)
- *Hulsea brevifolia* (short-leaved hulsea)
- *Lewisia kelloggii* ssp. *kelloggii* (Kellogg's lewisia)
- *Lewisia kelloggii* ssp. *hutchisonii* (Kellogg's lewisia)
- *Meesia triquetra* (three-ranked hump-moss)
- *Meesia uliginosa* (broad-nerved hump-moss)
- *Peltigera hydrothyria* (veined water lichen)
- *Rorippa subumbellata* (Tahoe yellow cress)

These 17 potentially occurring Forest Service sensitive plant species are described in detail in the Plant BE.

The Plant BE determined there are no federally-listed plant species with potential to occur in the project area. However, a federal candidate species, Tahoe yellow cress (*Rorippa subumbellata*), is known to occur in the project area on Nevada Beach and Edgewood Beach but not in the project footprint nor within 100 feet of the project footprint (i.e., area that would be disturbed by the project) (Table 3.4-3).

The remaining seven sensitive plant species evaluated in the Plant BE were eliminated from further consideration either because there are no suitable habitat types present in the project area (Table 3.4-3), general habitat types are present but specific microhabitat conditions, such as particular soil types or moisture regimes, are lacking, or because the shared-use path alignments are outside the species' known elevation range.

Management Indicator Species

The MIS Report (Project Record K-4) prepared for the project evaluated habitat for 10 MIS species/species groups required for consideration on national forest lands in the Lake Tahoe Basin. The MIS report concluded that habitat for the following five MIS species is present in the project area: aquatic macroinvertebrates (lacustrine/riverine habitat), yellow warbler (*Dendroica petechia*; riparian habitat), Pacific tree frog (wet meadow habitat), mountain quail (*Oreortyx pictus;* early- and mid-seral coniferous forest), and hairy woodpecker (*Picoides villosus*; snags in green forest) (Table 3.4-4).

Table 3.4-3
Documented or Potential Presence in the Project Area of Candidate and Sensitive Plant and Fungi Species Known or with Potential Habitat on the LTBMU

Species	Status [1]	Known to Occur in Project Area	Potential Habitat in Project Area	No Habitat in Project Area	Habitat Description
Arabis rigidissima var. *demota* Galena Creek rock cress	S			X	Species is found in open, rocky areas along forest edges of conifer and/or aspen stands. Usually found on northerly aspects above 7,500 feet (ft). The elevation is too low in the project area for suitable habitat.
Arabis tiehmii Tiehm's rock cress	S			X	Species is known from open rocky soils in the Mt. Rose Wilderness. The elevation is too low in the project area.
Botrychium ascendens Upswept moonwort	S		X		*Botrychium* species share similar preferences in habitat, i.e., wet or moist soils such as marshes, meadows, and along the edges of lakes and streams at elevations between 4,700 and 9,000 ft. They generally occur with mosses, grasses, sedges, rushes, and other riparian vegetation.
Botrychium crenulatum Scalloped moonwort	S		X		See *Botrychium ascendens*, above.
Botrychium lineare Slender moonwort	S		X		See *Botrychium ascendens*, above.
Botrychium lunaria Common moonwort	S		X		See *Botrychium ascendens*, above.
Botrychium minganense Mingan moonwort	S		X		See *Botrychium ascendens*, above.
Botrychium montanum Western goblin	S		X		See *Botrychium ascendens*, above.
Bruchia bolanderi Bolander's candle moss	S		X		Montane meadows and stream banks are favored habitat. This moss tends to grow on bare, slightly eroding soil where there is little competition from other vegetation.
Dendrocollybia racemosa Branched collybia	S			X	This species is a mycoparasite growing on old decayed or blackened mushrooms or occasionally in coniferous duff, usually within old growth stands. Suitable old growth is absent in the project area.
Draba asterophora var. *asterophora* Tahoe draba	S, SI			X	Species is found in rock crevices and open granite talus slopes at high elevations between 8,000 to 10,200 ft on north-east facing slopes. The elevation is too low in the project area for suitable habitat.
Draba asterophora var. *macrocarpa* Cup Lake draba	S, SI			X	This species is found on steep, gravelly or rocky slopes at elevations of 8,400 to 9,235 ft. The elevation is too low in the project area for suitable habitat.

Table 3.4-3
Documented or Potential Presence in the Project Area of Candidate and Sensitive Plant and Fungi Species Known or with Potential Habitat on the LTBMU

Species	Status [1]	Known to Occur in Project Area	Potential Habitat in Project Area	No Habitat in Project Area	Habitat Description
Epilobium howellii Subalpine fireweed	S		X		Plants are known from wet meadows and mossy seeps at 6,500 to 9,000 ft in subalpine coniferous forest.
Erigeron miser Starved daisy	S		X		Plants are known from high elevation granitic rock outcrops above 6,000 ft.
Eriogonum umbellatum var. *torreyanum* Torrey's or Donner Pass buckwheat	S			X	This species grows in dry gravelly or stony sites, often on harsh exposures such as ridge tops or steep slopes. There are no harsh exposed ridge tops in the project area.
Helodium blandowii Blandow's bog-moss	S		X		Habitat for this moss is in subalpine coniferous forests in bogs and fens, wet meadows, and along streams under willows. The elevational range of the plant is between 6,560 to 8,860 ft.
Hulsea brevifolia Short-leaved hulsea	S		X		This species is known primarily from red fir forests, but has also been found in mixed conifer forests. The elevational range of the plant is between 4,920 to 8,860 ft.
Lewisia kelloggii ssp. *hutchisonii* Kellogg's lewisia	S		X		Habitat for this plant occurs on ridge tops or flat open spaces with widely spaced trees and sandy granitic to erosive volcanic soil from about 5,000 to 7,000 ft.
Lewisia kelloggii ssp. *kelloggii* Kellogg's lewisia	S		X		See *Lewisia kelloggii* ssp. *hutchinsonii*, described above.
Lewisia longipetala Long-petaled lewisia	S, SI			X	This species occurs on northerly exposures of slopes and ridge tops at elevations between 8,000 and 12,500 ft where snow banks persist throughout the summer. The plants are often found near the margins of the snow banks in wet soils. The project area does not contain suitable habitat because the elevation is too low and there are no persistent snow banks.
Meesia triquetra Three-ranked hump-moss	S		X		This moss prefers bogs and fen habitats, but is also found in very wet meadows.
Meesia uliginosa Broad-nerved hump-moss	S		X		This moss prefers bogs and fen habitats, but is also found in very wet meadows.
Peltigera hydrothyria Veined water lichen	S		X		This species is found in cold, unpolluted streams in mixed conifer forests.

Table 3.4-3
Documented or Potential Presence in the Project Area of Candidate and Sensitive Plant and Fungi Species Known or with Potential Habitat on the LTBMU

Species	Status [1]	Known to Occur in Project Area	Potential Habitat in Project Area	No Habitat in Project Area	Habitat Description
Rorippa subumbellata Tahoe yellow cress	C, S, SI	X			This species is endemic to the shore zone around Lake Tahoe in California and Nevada. Typically found in back beach areas between elevations of 6,223 and 6,230 ft. This species is known to occur on Nevada Beach and Edgewood Beach within the defined project area,. However, the portions of the project area in or within 100 feet of the project footprint (i.e., area of disturbance associated with proposed project alternatives) is not in the shorezone and does not occur within habitat suitable for Tahoe yellow cress.

[1] Status explanations
C = USFWS Candidate species for listing as threatened or endangered under ESA
SC = USFWS Species of Concern
S = USFS LTBMU Sensitive Species, Regional Forester's Sensitive Species List, Amended 2006
SI = TRPA Special Interest Species, Regional Plan for the LTBMU: Goals and Policies (2004a) and Code of Ordinances (2004b).
No species in LTBMU are currently listed as "Endangered" by USFWS under ESA
No federally-listed threatened or endangered plant species are known to occur or have the potential to occur in the LTBMU.

Table 3.4-4
LTBMU Management Indicator Species and Selection of MIS for Project-Level Analysis for the Proposed South Demonstration Project

Habitat or Ecosystem Component	CWHR Type(s) Defining the Habitat or Ecosystem Component [1]	Management Indicator Species	Category for Project Analysis[2]
Riverine & Lacustrine	lacustrine (LAC) and riverine (RIV)	aquatic macroinvertebrates	**3**
Riparian	montane riparian (MRI), valley foothill riparian (VRI)	yellow warbler *(Dendroica petechia)*	**3**
Wet Meadow	Wet meadow (WTM), freshwater emergent wetland (FEW)	Pacific tree frog *(Pseudacris regilla)*	**3**
Early Seral Coniferous Forest	ponderosa pine (PPN), Sierran mixed conifer (SMC), white fir (WFR), red fir (RFR), eastside pine (EPN), tree sizes 1, 2, and 3, all canopy closures	Mountain quail *(Oreortyx pictus)*	**3**

Table 3.4-4
LTBMU Management Indicator Species and Selection of MIS for Project-Level Analysis for the Proposed South Demonstration Project

Habitat or Ecosystem Component	CWHR Type(s) Defining the Habitat or Ecosystem Component [1]	Management Indicator Species	Category for Project Analysis[2]
Mid Seral Coniferous Forest	ponderosa pine (PPN), Sierran mixed conifer (SMC), white fir (WFR), red fir (RFR), eastside pine (EPN), tree size 4, all canopy closures	Mountain quail *(Oreortyx pictus)*	**3**
Late Seral Open Canopy Coniferous Forest	ponderosa pine (PPN), Sierran mixed conifer (SMC), white fir (WFR), red fir (RFR), eastside pine (EPN), tree size 5, canopy closures S and P	Sooty (blue) grouse *(Dendragapus obscures)*	1
Late Seral Closed Canopy Coniferous Forest	ponderosa pine (PPN), Sierran mixed conifer (SMC), white fir (WFR), red fir (RFR), tree size 5 (canopy closures M and D), and tree size 6.	California spotted owl *(Strix occidentalis occidentalis)* American marten *(Martes Americana)* northern flying squirrel *(Glaucomys sabrinus)*	1
Snags in Green Forest	Medium and large snags in green forest	hairy woodpecker *(Picoides villosus)*	**3**
Snags in Burned Forest	Medium and large snags in burned forest (stand-replacing fire)	black-backed woodpecker *(Picoides arcticus)*	1

[1] All CWHR size classes and canopy closures are included unless otherwise specified; **dbh** = diameter at breast height;

Canopy Closure classifications:

S = Sparse Cover (10–24% canopy closure)
P = Open cover (25–39% canopy closure)
M = Moderate cover (40–59% canopy closure)
D = Dense cover (60–100% canopy closure)

Tree size classes:

1 (Seedling)(<1" dbh)
2 (Sapling)(1"–5.9" dbh)
3 (Pole)(6"–10.9" dbh)
4 (Small tree)(11"–23.9" dbh)
5 (Medium/Large tree)(>24" dbh
6 (Multi-layered Tree)

[In PPN and SMC] (Mayer and Laudenslayer 1988).

[2] **Category 1:** MIS whose habitat is not in or adjacent to the project area and would not be affected by the project.
Category 2: MIS whose habitat is in or adjacent to project area, but would not be either directly or indirectly affected by the project.
Category 3: MIS whose habitat would be either directly or indirectly affected by the project.

3.4.4 Environmental Consequences

Fisheries and Aquatic Resources

Alternatives A and B

Direct and Indirect Effects

None of the alternatives would directly or indirectly affect threatened, endangered, Forest Service sensitive, or TRPA special-interest fish species; none of these species are present in the project area (see the BA/BE, Project Record K-1, and TRPA Report, Project Record K-7). Great Basin ram's horn, which is an aquatic snail, is designated as sensitive by the Forest Service. This species is not known to occur in the project area; however, the Rabe Meadow pond and the outflow from Folsom Spring could potentially provide habitat for Great Basin ram's horn – although the quality or suitability of this habitat is not known. Under Alternative A, no construction is planned within aquatic habitat. Prefabricated, free-spanning bridges would be installed at stream crossings thereby eliminating the need to construct bridge footings, abutments, or other structures within stream channels, resulting in no permanent effect on Edgewood Creek, Burke Creek, or Folsom Spring. Under Alternative B, the crossing at Edgewood Creek would be the same as in Alternative A (i.e., prefabricated free-spanning bridge); however, Folsom Spring would not be crossed, and a raised boardwalk would cross Burke Creek downstream of where the bridge would cross Burke Creek in Alternative A. Where the raised boardwalk would cross Burke Creek in Alternative B, the stream channel is not well-defined (particularly at high flow) and not very distinct from surrounding montane wet meadow. Design Features BIO-8 through BIO-11 and BMP-17, as described in Section 2.3 of this EA, are incorporated into both action alternatives and would ensure that these crossings would be designed to accommodate the 100-year, 24-hour storm event and not interfere with existing water regimes; maintain fish passage; would not create barriers to upstream or downstream passage for aquatic-dependent species; and would cross perpendicular to streams in areas where the riparian zone is narrow to avoid effects to riparian habitat. Short-term minor water quality impacts (increased turbidity, sedimentation) and effects on aquatic habitat could occur if, during bridge placement or footing construction, sediment is inadvertently spilled into aquatic habitats from grading or placement of footings, or from construction equipment lifting the pre-fabricated bridges into place. The placement of boardwalk footings at Burke Creek in Alternative B could also result in short-term minor water quality impacts. However, Design Features BMP-1 through BMP-19 incorporated into the project (see Section 2.3 of this EA) would minimize or avoid potential construction-related effects on water quality, and any potential short-term residual effects are expected to be minor and of limited duration. Because any potential effects associated with bridge or boardwalk construction under Alternative A or B would be short term and minor, and design features incorporated into the project would minimize or avoid effects, potential effects of implementing Alternative A or B on aquatic species would not be substantial. Effects determinations for threatened, endangered, and Forest Service sensitive fish and aquatic species are summarized under the "Wildlife" Section below, and are also provided in the BA/BE (Project Record K-1).

Cumulative Effects

With the design features incorporated into the project, implementation of the South Demonstration Project, either Alternative A or B, in combination with other related projects in the vicinity (see Table 3.1-1 for a complete list of projects considered in this analysis), is not expected to result in adverse cumulative effects to the composition, structure, or abundance of suitable habitat for any fish or aquatic resources. Related projects in the vicinity that would potentially result in impacts to fisheries and aquatic resources that are similar in nature to those described for the South Demonstration Project (Alternative A or B) include projects such as the Burke Creek Restoration Project and the Edgewood Hotel and Golf Course Realignment Project; these projects would potentially result in short-term impacts on those streams, but would have long-term beneficial effects to habitat and ecological functions because they are intended to restore aquatic ecosystem functions. Additionally these related projects, as well as the South Demonstration Project (Alternatives A or B) would individually be required to avoid, minimize,

and/or compensate for impacts to fisheries and aquatic resources. In particular the South Demonstration Project would be require to: minimize soil erosion and effects to streams and other wetland areas by minimizing ground and vegetation disturbances; limit surface disturbance to between May 1 and Oct 15; include project design features or mitigation measures such as preventing stockpiles from entering stream channels, using disturbed areas for staging and storage; design stream crossings to maintain passage for aquatic-dependent species; minimize the effects of water drafting (if necessary) by locating drafting sites in areas that would minimize impacts to in-stream flows and depletion of pool habitat, using low entry velocity pumps, and including screening devices on pumps to minimize removal of aquatic species; avoid tree removal that would reduce in-stream shade and increase water temperatures; comply with TRPA, NDEP, and Douglas County regulations; develop a spill prevention plan; and implement BMPs that are expected to offset each project's short-term (construction) and long-term (operational) effects related to soil erosion, sedimentation, or release of pollutants into aquatic systems. Therefore, the South Demonstration Project would not result in adverse cumulative effects related to fisheries and aquatic resources.

Consequences for TRPA Environmental Threshold Carrying Capacities

This section summarizes the effects of implementing each of the action alternatives on the environmental thresholds established by TRPA for fish habitat. As described in the TRPA Report prepared for the project (Project Record K-7), four fish habitat thresholds have been established by TRPA:

- F-1, Lake Habitat;
- F-2, Stream Habitat;
- F-3, Instream Flow; and
- F-4, Lahontan Cutthroat Trout.

Attainment Status of TRPA Fisheries Resource Thresholds	
TRPA Threshold	2006 Attainment Status
F-1—Lake Habitat	Non Attainment, but Near Attainment
F-2—Stream Habitat	Unknown
F-3—Instream Flow	Attainment
F-4—Lahontan Cutthroat Trout	Attainment
Source: TRPA 2007	

F-1, Lake Habitat

The F-1 threshold is to apply a nondegradation 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 threshold is nonattainment. Implementing Alternative A or B would not change fish habitat conditions in Lake Tahoe; therefore, implementing either action alternative would not affect the F-1 threshold.

F-2, Stream Habitat

The F-2 threshold is to "maintain 75 miles of excellent, 105 miles of good, and 38 miles of marginal stream habitat," as indicated by the map on page 76 of the EIS for the Establishment of Environmental Thresholds. The current status of this threshold is unknown because of a lack of data (TRPA 2007). Edgewood Creek, Burke Creek, and the outflow from Folsom Spring could be temporarily affected by the construction of bridges associated with Alternatives A and B and the boardwalk in Alternative B. Design Features BIO-8 through BIO-

11, incorporated into the proposed project alternatives, would ensure that these crossings would be designed to accommodate the 100-year, 24-hour storm event and not interfere with existing water regimes; maintain fish passage; would not create barriers to upstream or downstream passage for aquatic-dependent species; and would cross perpendicular to streams in areas where the riparian zone is narrow to avoid effects to riparian habitat. Short-term minor water quality effects (increased turbidity, sedimentation) could occur during bridge and boardwalk construction. However, Design Features BMP-1 through BMP-19 incorporated into the project (see Section 2.3 of this EA) would minimize or avoid potential construction-related effects on water quality, and any potential short-term residual effects are expected to be minor and of limited duration. Because any potential effects associated with bridge construction would be short term and minor, and design features incorporated into the project would minimize or avoid effects, Alternative A or B would not affect attainment of the F-2 threshold.

F-3, Instream Flow

The F-3 threshold states that “until instream flow standards are established in the Regional Plan to protect fishery values, a nondegradation standard shall apply to instream flows.” The current status of the threshold is attainment. Implementing either of the project alternatives would not change instream flows. Therefore, project implementation would not affect attainment of the F-3 threshold.

F-4, Lahontan Cutthroat Trout

The F-4 threshold 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. Lahontan cutthroat trout is currently being stocked in a number of Lake Tahoe Basin lakes and rivers, but is otherwise absent from its former range. Burke and Edgewood Creeks do not provide suitable habitat for this species due to limited habitat, barriers to movement, and presence of introduced species. Implementing Alternative A or B would not change habitat conditions for Lahontan cutthroat trout in the project area; therefore, implementing either alternative would not affect attainment of the F-4 threshold.

Alternative C

Direct and Indirect Effects

Under Alternative C, the shared-use path as described under Alternatives A and B would not be constructed. Under this alternative, no bridges, expanded parking areas, or restrooms would be constructed within the project area. Therefore, under Alternative C, there would be no change in existing aquatic resources conditions within the project area. Alternative C would have no effects on fisheries or other aquatic resources since it would not change aquatic habitat in the project area in any way.

Cumulative Effects

Alternative C would not contribute to cumulative effects on fisheries or other aquatic resources since it would not cause any change in aquatic habitat conditions.

Consequences for TRPA Environmental Threshold Carrying Capacities

Alternative C would not affect attainment of environmental thresholds established by TRPA for fish habitat, since it would not cause any change in aquatic habitat conditions.

Vegetation

Alternatives A and B

Direct and Indirect Effects

Common Vegetation

Alternatives A and B would have minimal direct and indirect effects on common vegetation because the majority of the shared-used path would be constructed in existing trails, existing roads or road shoulders, and landscaped golf course areas that do not currently support native vegetation. However, portions of each alternative alignment would be constructed through areas supporting Jeffrey pine forest, riparian scrub, and montane meadow communities. As noted in Section 2.3 of this EA, Design Feature BIO-3 would ensure that alignments under each alternative would minimize removal of live trees to the extent practicable and prohibit removing trees greater than or equal to 24 inches dbh. In addition, Design Feature BIO-5 minimizes ground and vegetation disturbance to avoid loss of native vegetation.

Table 3.4-5 summarizes permanent and temporary effects on common vegetation for each action alternative. Permanent effect is based on the assumed 14-foot-wide trail corridor that would remain following project completion. Permanent effects would primarily involve conversion of common vegetation to trail/boardwalk or bridge facilities. Additional temporary effect is the maximum amount, in addition to what would remain as a permanent footprint following project construction, assumed for temporary construction. This is based on assuming a 30-foot-wide construction corridor along the entire shared-use path alignment, minus the 14-foot-wide portion that would permanently remain as trail following project construction. However, because the construction corridor would likely be reduced in sensitive areas (e.g., riparian areas, aspen stands) and in locations such as along the shoulder of U.S. 50 under Alternative A, the values presented here are considered a maximum and overestimate temporary effects. Jeffrey pine forest, aspen forest, upland montane riparian scrub, montane riparian scrub wetland, montane dry meadow, and montane wet meadow communities would be directly removed or temporarily disturbed as a result of constructing Alternative A; total area of habitat directly removed or temporarily disturbed is displayed in Table 3.4-5. Under Alternative B, Jeffrey pine forest, upland montane riparian scrub, montane dry meadow, and montane wet meadow would be directly removed or temporarily disturbed (Table 3.4-5); however, the shared-use path would be routed away from areas supporting montane riparian scrub wetland and aspen forest vegetation at Rabe Meadow, and would cross Burke Creek at the existing Lam Watah Trail crossing site, so neither of these vegetation types would be removed under this alternative.

Although tree removal would occur under Alternatives A and B (discussed below under “Tree Removal”), the effect areas for forest vegetation types (Jeffrey pine and aspen) summarized in Table 3.4-5 do not indicate the amount of forest overstory/canopy removed or converted; the values in Table 3.4-5 represent temporary and permanent effect areas within the forest understory as a result of shared-use path 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 the path between or around individual trees where feasible, the loss or conversion of forest canopy would be substantially less than the understory disturbance values depicted in Table 3.4-5.

Constructing either shared-use path alignment would create connections to existing trails and roads providing access to areas near Round Mound and potentially increasing human intrusion into Rabe Meadow. Potential indirect effects on vegetation from increased access and use include trampling, soil compaction, and introduction and spread of noxious weeds. However, the project area already supports a large number of roads and trails and is subject to high levels of recreation and other use. Therefore, the proposed shared-use path is not expected to substantially increase disturbance levels in the project area above existing levels, except possibly in the area of Round Mound. Design features such as signage, fencing, and plantings would be incorporated to discourage users from leaving the shared-use path and disturbing vegetation (Design Features BIO-13 and BIO-14).

Table 3.4-5
Effects on Common Vegetation for Alternatives A and B

Alternative	Permanent Effect[1] (sq. ft.)						Additional Temporary Effect[2] (sq. ft.)					
	Jeffrey Pine	Aspen	Upland Montane Riparian Scrub	Montane Riparian Scrub Wetland	Montane Dry Meadow	Montane Wet Meadow	Jeffrey Pine	Aspen	Upland Montane Riparian Scrub	Montane Riparian Scrub Wetland	Montane Dry Meadow	Montane Wet Meadow
Alternative A												
Segment 1	24,032	--	1,704	--	--	--	27,520	--	1,950	--	--	--
Segment 2	29,737	5,239	--	1,331	44,451	2,540	34,155	5,677	--	834	50,385	2,491
Segment 3	66,149	--	--	--	--	--	74,167	--	--	--	--	--
Total	**119,918**	**5,239**	**1,704**	**1,331**	**44,451**	**2,540**	**135,842**	**5,677**	**1,950**	**834**	**50,385**	**2,491**
Alternative B												
Segment 1	24,032	--	1,704	--	--	--	27,520	--	1,950	--	--	--
Segment 2	45,901	--	--	--	27,440	1,693	52,336	--	--	--	31,262	1,955
Segment 3	66,149	--	--	--	--	--	74,167	--	--	--	--	--
Total	**136,082**	**--**	**1,704**	--	**27,440**	**1,693**	**154,023**	--	**1,950**	--	**31,262**	**1,955**

Notes:

Segment 1: The California/Nevada state line to the north side of Kahle Drive

Segment 2: Kahle Drive to the existing shared-use path on the south side of Elks Point Road

Segment 3: Elks Point Road to Round Hill Pines Beach

* Optional "Upper" alignment in Segment 3 would increase the amount of permanent effects on Jeffrey pine forest by 1,364 sq. ft., and temporary effects by 1,817 sq. ft.

[1] Permanent effect is based on the assumed 14-foot-wide trail corridor that would remain following project completion. Permanent effects would primarily involve conversion of common vegetation to trail/boardwalk or bridge facilities. Although tree removal would occur under Alternative A or B, the effect areas for forest vegetation types (Jeffrey pine and aspen) summarized in this table do not indicate the amount of forest overstory/canopy removed or converted; the values in the table represent temporary and permanent effect areas within the forest understory as a result of trail 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 the path between or around individual trees where feasible, the loss or conversion of forest canopy would be substantially less than the understory disturbance values depicted here.

[2] Additional temporary effect is the maximum amount, in addition to what would remain as a permanent footprint following project construction, assumed for temporary construction. This is based on assuming a 30-foot-wide construction corridor along the entire shared-use path alignment, minus the 14-foot-wide portion that would permanently remain as path following project construction. However, because the construction corridor would likely be reduced in sensitive areas (e.g., riparian areas, aspen stands), the values presented here are considered a maximum and overestimate of temporary effects.

Source: AECOM 2010

Design features to control the introduction and spread of noxious weeds are also included in the project design and are discussed below, and some existing trails would be decommissioned (Design Features BIO-15 through BIO-19). With implementation of the design features, indirect effects on common vegetation are expected to be minimal.

Loss of montane meadow and riparian vegetation would be minimal because project design features include restoring native perennial grasses and shrubs within a 40-foot-wide corridor along the shared-use path through Rabe Meadow and restoring vegetation within all riparian habitats disturbed by trail construction (Design Features BIO-11 and BIO-17). Construction activities would be restricted to a 30-foot-wide corridor along the shared-use path and vegetation outside this disturbance zone would be flagged or fenced to prevent construction disturbance (Design Feature BIO-5). While the 14-foot-wide shared-use path would permanently affect montane meadow and riparian vegetation (see Table 3.4-5), construction-related effects on vegetation in the rest of the project area would be minimized by implementing project design features. Therefore, common vegetation would not be substantially degraded and implementing the project would not substantially reduce the size, continuity, or integrity of any plant community or interrupt the natural processes that support plant communities in the project area.

Tree Removal

Implementing Alternative A would result in the removal of an estimated 138 Jeffrey pine and white fir trees larger than 6 inches dbh, consisting of 35 trees measuring greater than or equal to 14 inches dbh. A total of 95 of the pine and fir trees proposed for removal under Alternative A are greater than or equal to 10 inches dbh[1]. Additional aspen and willow trees would be removed under Alternative A; however, removal of these trees has not been quantified. Under Alternative B, a total of 152 Jeffrey pine and white fir trees would be removed, including 47 trees with a dbh greater than or equal to 14 inches. A total of 109 of these trees have a dbh greater than or equal to 10 inches[1]. With the Segment 3 upper alignment (either Alternative A or B) the number of live trees removed would be reduced by a total of 5 trees less than 24 inches dbh, and with Segment 1 option to narrow Lake Parkway (either Alternative A or B), the number of live trees removed would be additionally reduced by 11 trees less than 24 inches dbh. Live trees measuring 24 inches dbh or greater would not be removed under either alternative (Design Feature BIO-3). However, there is one 30-inch pine tree on the fringe of Edgewood Creek that is located immediately adjacent to the east side of the proposed bridge structure that is not proposed for removal. It is possible that during latter design phases that it may be determined that this tree would require removal, or that the proposed improvements for the bridge (construction near the base of the tree or installation of the prefabricated bridge structure) could affect the root structure or integrity of the tree to the extent that the tree would not survive over the long term. As described in Design Feature BIO-3, every means feasible would be made to retain the integrity of this tree. However, if this tree is to be removed as a result of the proposed project, removal would be allowable under stated exceptions within the TRPA Code of Ordinances for Tree Removal (Section 71.2.A [6]); removal of this tree would be covered as part of an activity (i.e., South Demonstration Project) that is consistent with the 2010 Lake Tahoe Bicycle and Pedestrian Plan (approved by the TRPA Governing Board at its August 25, 2010 meeting). The vast majority of trees that would be removed are Jeffrey pines and their removal would not result in substantial changes in stand structure or composition or in the distribution of plant communities in the project area. Up to approximately 4,550 sq. ft. of an aspen stand could be affected under Alternative A where the shared-use path would pass along the outer edge of the stand along U.S. 50 in Rabe Meadow.

Removal of aspen trees would be avoided to the extent feasible; however, it may not be possible to avoid all aspen trees and meet the trail design specifications, especially since a 12-foot-wide bridge would be constructed across a tributary to Burke Creek originating from Folsom Spring within this aspen grove. Tree removal would be

[1] dbh measurements for trees to be removed were to the nearest even number of inches (e.g., 2, 4, 6, etc.); therefore, tree removal tallies reported in this document by size class may slightly overestimate total tree removal resulting from construction of the project.

minimized and would not result in a substantial change in the size, continuity, or integrity of the aspen stand in the project area. Alternative B would not affect the aspen stand in Rabe Meadow.

Stream Environment Zones and Potential Waters of the United States

In the summer of 2010, field verification and mapping for TRPA's Land Capability Verification (LCV) for the project area was conducted by TRPA and Lumos and Associates staff. As part of the LCV, SEZ boundaries in relation to each shared-use path alignment were determined and mapped. Based on the LCV, approved and signed by TRPA on September 8, 2010, the estimated area of SEZ affected by shared-use path construction was calculated using the initial field-based SEZ boundaries. Quantification of SEZ effects may be further refined as the project design is further developed and the SEZ delineation and shared-use path alignment are finalized.

Table 3.4-6 summarizes estimated permanent and temporary effects on SEZs for each action alternative. Permanent effect is based on the assumed 14-foot-wide shared-use path corridor that would remain following project completion. Permanent effects would primarily involve conversion of common vegetation to trail/boardwalk or bridge facilities. Additional temporary effect is the maximum amount, in addition to what would remain as a permanent footprint following project construction, assumed for temporary construction. This is based on assuming a 30-foot-wide construction corridor along the entire shared-use path alignment, minus the 14-foot-wide portion that would permanently remain as a path following project construction. However, because the construction corridor would likely be reduced in sensitive areas (e.g., riparian areas, aspen stands), the values presented here are considered a maximum and overestimate of temporary effects.

Table 3.4-6
Summary of Estimated SEZ Effects for Alternatives A and B

Alternative	Permanent Effect (Square Feet)[1]	Additional Temporary Effect (Square Feet)[2]
A	24,262	Up to 27,728
B	5,096	Up to 5,824

Notes:
[1] Permanent effect is based on the assumed 14-foot-wide shared-use path corridor that would remain following project completion. Permanent effects would primarily involve conversion of SEZ vegetation cover to trail/boardwalk or bridge facilities. Because elevated shared-use path designs that minimize effects to meadow vegetation and SEZ function would be used, permanent effects to SEZ hydrologic function would be minimal. The effects presented here differ from the values presented in the land coverage chapter because the land coverage calculation differs in that only the paved portion of the trail would count as coverage, not the shoulders which would be designed to infiltrate stormwater. Although coverage would not increase outside of the paved path, it is assumed that SEZ biological functions would be affected for the entire width of the path and shoulder.
[2] Additional temporary effect is the maximum amount, in addition to what would remain as a permanent footprint following project construction, assumed for temporary construction. This is based on assuming a 30-foot-wide construction corridor along the entire shared-use path, minus the 14-foot-wide portion that would permanently remain as path following project construction. However, because the construction corridor would likely be reduced in sensitive areas (e.g., SEZs), the values presented here are considered a maximum and overestimate of temporary effects to SEZs.
Source: AECOM 2010

Both alternatives would cross Edgewood Creek and would result in installation of a 120-foot-long, 12-foot-wide steel truss prefabricated bridge at this crossing. Alternative A would also involve installing a 55-foot-long, 12-foot-wide prefabricated bridge over Burke Creek in Rabe Meadow and another prefabricated 60-foot by 12-foot bridge across Folsom Spring. At each of these bridge crossings, SEZs would be affected by removal of montane riparian and aspen forest habitat within the SEZ, as described previously. Under Alternative B, the shared-use path would cross Burke Creek at the existing Lam Watah Trail crossing, but would involve removing the existing boardwalk and constructing a new 220-foot-long boardwalk just east of the existing boardwalk location. Design features require minimizing effects to SEZs by crossing perpendicular to SEZs at narrow points in the SEZ

(Design Feature BIO-11), elevating trails (i.e., boardwalk crossing over Burke Creek for Alternative B – Design Feature BMP-17), and implementing BMPs (Design Features BMP-1 through BMP-19). Equipment and materials storage and staging for construction of the crossings would be restricted to previously disturbed areas outside of the SEZs (Design Feature BMP-5). Riparian/stream/SEZ and soil restoration actions would be developed as mitigation for potential effects on SEZs, where appropriate (Design Feature BIO-11). These actions could include restoring roads and trails inside or adjacent to SEZs, and rerouting these features to less sensitive areas to provide a net benefit to SEZs; implementing or upgrading long-term BMPs and revegetating disturbed areas within riparian zones; controlling conifer encroachment into SEZs; and restoring stream beds and banks to promote additional riparian habitat establishment and increased hydrologic function. Appropriate restoration actions, methods, locations, and amount would be developed based on the types and magnitude of project effects on SEZs, as well as site-specific and watershed-level opportunities and constraints for SEZ enhancement. Disturbance to SEZs would be fully mitigated or restored at 150% of the amount disturbed (Design Feature BIO-11).

Table 3.4-7 summarizes estimated permanent and temporary effects on potential jurisdictional waters of the U.S. (including wetlands) for each action alternative, based on the preliminary Wetland Delineation conducted for the project (Project Record K-8). A map of potential jurisdictional waters of the U.S. for each action alternative is shown in Exhibits 3.4-1 and 3.4-2, above. Because not all lands designated as SEZ by TRPA meet the USACE criteria for jurisdictional waters of the U.S., the values shown for waters of the U.S. (Table 3.4-7) are less than those presented above for SEZs (Table 3.4-6).

Table 3.4-7
Summary of Estimated Effects on Potential Jurisdictional Waters of the U.S. (Including Wetlands) for Alternatives A and B

	Permanent Effect (Square Feet)[1]	Additional Temporary Effect (Square Feet)[2]	Total Effect (Square Feet)
Alternative A			
Montane Riparian Scrub Wetland	1,331	834	2,165
Folsom Spring	409	280	689
Montane Wet Meadow	2,540	2,491	5,031
Edgewood Creek	0	0	0
Burke Creek	0	0	0
Total	**4,280**	**3,605**	**7,885**
Alternative B			
Montane Wet Meadow[3]	1,693	1,955	3,648
Edgewood Creek	0	0	0
Burke Creek[3]	--	--	--
Total	**1,693**	**1,955**	**3,648**

Notes:

[1] Permanent effect is based on the assumed 14-foot-wide shared-use path corridor that would remain following project completion. Permanent effects would primarily involve conversion of wetlands to trail/boardwalk or bridge facilities.

[2] Additional temporary effect is the maximum amount, in addition to what would remain as a permanent footprint following project construction, assumed for temporary construction. This is based on assuming a 30-foot-wide construction corridor along the entire shared-use path alignment, minus the 14-foot-wide portion that would permanently remain as path following project construction. However, because the construction corridor would likely be reduced in sensitive areas (e.g., wetlands), the values presented here are considered a maximum and overestimate of temporary effects to wetlands.

[3] Where the proposed raised boardwalk in Alternative B would cross Burke Creek, the stream channel is not well-defined (particularly at high flow) and not very distinct from surrounding montane wet meadow. Therefore, for Alternative B, potential effects of boardwalk construction on Burke Creek were not separated from effects on montane wet meadow (i.e., the values shown in Table 3.4-7 for montane wet meadow under Alternative B include potential effects on Burke Creek).

Source: AECOM 2010

Under Alternative A, to minimize loss of waters of the United States, prefabricated, free-spanning bridges would be installed at stream crossings thereby eliminating the need to construct bridge footings, abutments, or other structures within stream channels, resulting in no permanent effect on Edgewood Creek, Burke Creek, or Folsom Spring. Under Alternative B, the crossing at Edgewood Creek would be the same as in Alternative A (i.e., prefabricated free-spanning bridge); however, Folsom Spring would not be crossed, and a raised boardwalk would cross Burke Creek downstream of where the bridge would cross Burke Creek in Alternative A. Where the raised boardwalk would cross Burke Creek in Alternative B, the stream channel is not well-defined (particularly at high flow) and not very distinct from surrounding montane wet meadow. All new bridge and boardwalk stream crossings would be designed to pass the 100-year, 24-hour event and would not interfere with existing water regimes in the project area or off site (Design Feature BMP-17). In order to ensure there is no net loss of wetland habitats or waters of the United States, the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region* (USACE 2008) were used to delineate wetlands that are potentially subject to USACE jurisdiction under Section 404 of the CWA prior to final project design. The wetland delineation will be submitted to USACE for verification and the final shared-use path would be designed to avoid waters of the United States, including wetlands, to the maximum extent practicable (Design Features BIO-20 and BIO-21). If unavoidable effects on waters of the United States would result, an application for a CWA Section 404 permit would be submitted and a mitigation plan would be developed to ensure no net loss of wetland acreage and function. The project proponent would comply with all conditions of the Section 404 permit. Any disturbed areas within wetland habitats or other waters of the United States would be restored to pre-project conditions following construction, except where permanent structures (e.g., boardwalk and bridge footings) preclude such restoration (Design Feature BIO-21).

With implementation of the design features outlined in Chapter 2, “Alternatives,” project implementation would not substantially affect SEZs or potential waters of the United States. Additionally, effects to SEZs and potential waters of the United States would be mitigated through the CWA permitting process and enhancing or restoring SEZ habitat as needed.

Threatened, Endangered, and Forest Service Sensitive Plant Species

No federally threatened or endangered species are known or have potential to occur in the project area. Seventeen Forest Service sensitive plant species are known or have the potential to occur in the project area. One of these species, Tahoe yellow cress, is also a candidate for listing under the ESA. Tahoe yellow cress is also a TRPA species of special interest. Table 3.4-8, below, lists the effects determinations for threatened, endangered, and Forest Service sensitive plant species, as summarized in the Plant BE (Project Record K-6). Most of these sensitive plant species are associated with moist habitats such as wet meadows, marshes, bogs and fens, and stream banks. The species associated with mesic habitats include several moonworts and mosses, as well as subalpine fireweed. Potentially suitable habitat for these species is present in the project area SEZs, particularly in wetter portions of Rabe Meadow along Burke Creek and its tributaries and swales. Veined water lichen, a species that grows in cold, unpolluted streams, could potentially occur in Burke Creek, Edgewood Creek, or Folsom Spring. Four Forest Service sensitive species associated with conifer forest habitats could occur in the Jeffrey pine forest in the project area. Three of these species, starved daisy, Kellogg’s lewisia, and long-petaled lewisia, are typically found in sandy or rocky soils in granitic outcrops and have low potential to be found in the project area in the vicinity of Round Hill. Short-leaved hulsea could occur in any of the Jeffrey pine forested portions of the project area. Tahoe yellow cress occupies shoreline habitat in the Lake Tahoe Basin, and is known to occur in the project area on Nevada Beach and Edgewood Beach.

Focused surveys for all potentially occurring sensitive plant species were conducted along the shared-use path alignments on August 13, 2010. No sensitive plant species were observed (see Plant BE, Project Record K-6). Because sensitive plant species are not present along the shared-use path alignments and in construction areas, project implementation would not directly affect these species.

Table 3.4-8
Candidate and Sensitive Plant and Fungi Species for the LTBMU, and Effects Determinations for Project Level Analysis for the Proposed South Demonstration Project[a]

Species	Status[1]	Known to Occur in Project Area	Potential Habitat in Project Area	No Habitat in Project Area	Determination
Arabis rigidissima var. *demota* Galena Creek rock cress	S			X	Will not affect individuals or occupied habitat
Arabis tiehmii Tiehm's rock cress	S			X	Will not affect individuals or occupied habitat
Botrychium ascendens Upswept moonwort	S		X		Not likely to result in a trend toward Federal listing or loss of viability
Botrychium crenulatum Scalloped moonwort	S		X		Not likely to result in a trend toward Federal listing or loss of viability
Botrychium lineare Slender moonwort	S		X		Not likely to result in a trend toward Federal listing or loss of viability
Botrychium lunaria Common moonwort	S		X		Not likely to result in a trend toward Federal listing or loss of viability
Botrychium minganense Mingan moonwort	S		X		Not likely to result in a trend toward Federal listing or loss of viability
Botrychium montanum Western goblin	S		X		Not likely to result in a trend toward Federal listing or loss of viability
Bruchia bolanderi Bolander's candle moss	S		X		Not likely to result in a trend toward Federal listing or loss of viability
Dendrocollybia racemosa Branched collybia	S			X	Will not affect individuals or occupied habitat
Draba asterophora var. *asterophora* Tahoe draba	S, SI			X	Will not affect individuals or occupied habitat
Draba asterophora var. *macrocarpa* Cup Lake draba	S, SI			X	Will not affect individuals or occupied habitat
Epilobium howellii Subalpine fireweed	S		X		Not likely to result in a trend toward Federal listing or loss of viability
Erigeron miser Starved daisy	S		X		Not likely to result in a trend toward Federal listing or loss of viability
Eriogonum umbellatum var. *torreyanum* Torrey's or Donner Pass buckwheat	S			X	Will not affect individuals or occupied habitat
Helodium blandowii Blandow's bog-moss	S		X		Not likely to result in a trend toward Federal listing or loss of viability
Hulsea brevifolia Short-leaved hulsea	S		X		Not likely to result in a trend toward Federal listing or loss of viability

Table 3.4-8
Candidate and Sensitive Plant and Fungi Species for the LTBMU, and Effects Determinations for Project Level Analysis for the Proposed South Demonstration Project[a]

Species	Status[1]	Known to Occur in Project Area	Potential Habitat in Project Area	No Habitat in Project Area	Determination
Lewisia kelloggii ssp. *hutchisonii* Kellogg's lewisia	S		X		Not likely to result in a trend toward Federal listing or loss of viability
Lewisia kelloggii ssp. *kelloggii* Kellogg's lewisia	S		X		Not likely to result in a trend toward Federal listing or loss of viability
Lewisia longipetala Long-petaled lewisia	S, SI			X	Will not affect individuals or occupied habitat
Meesia triquetra Three-ranked hump-moss	S		X		Not likely to result in a trend toward Federal listing or loss of viability
Meesia uliginosa Broad-nerved hump-moss	S		X		Not likely to result in a trend toward Federal listing or loss of viability
Peltigera hydrothyria Veined water lichen	S		X		Not likely to result in a trend toward Federal listing or loss of viability
Rorippa subumbellata Tahoe yellow cress	C, S, SI	X[2]			Will not affect individuals or occupied habitat

[1] Status explanations
C = USFWS Candidate species for listing as threatened or endangered under ESA
SC = USFWS Species of Concern
S = USFS LTBMU Sensitive Species, Regional Forester's Sensitive Species List, Amended 2006
SI = TRPA Special Interest Species, Regional Plan for the LTBMU: Goals and Policies (2004a) and Code of Ordinances (2004b).
No species in LTBMU are currently listed as "Endangered" by USFWS under ESA
No federally-listed threatened or endangered plant species are known to occur or have the potential to occur in the LTBMU.
[2] The portion of the project area in or within 100 feet of the project footprint (i.e., area that will be disturbed by proposed project alternatives) does not occur in the shorezone or in suitable habitat for Tahoe yellow cress.

Although shared-use path construction would provide increased access to portions of the project area, most of the project area already receives high levels of human use and the proposed shared-use path is not expected to substantially increase disturbance levels above existing conditions. To discourage users from leaving the shared-use path or otherwise entering areas where they could potentially disturb native vegetation and sensitive plants, fencing, signs, and plantings would be incorporated where appropriate, including signage explaining the significance of sensitive plants and how to avoid them while using the path and related facilities (Design Features BIO-13 and BIO-14). Design features to substantially reduce the introduction and spread of noxious weeds that could threaten sensitive plant populations in the area have also been incorporated into the project. Design features incorporated into the project that would avoid, minimize, and compensate for indirect effects on sensitive plants include measures to discourage users from disturbing suitable habitat for sensitive plants (Design Features BIO-13 and BIO-14), prevent increased risk of the spread of invasive plants (Design Features BIO-15 through BIO-19), minimize disturbance of natural vegetation in the project area in general (Design Features BIO-5 and BIO-11), and fully mitigate the loss of SEZ and riparian habitats (Design Feature BIO-11). Consequently, implementation of Alternative A or B would not result in substantial indirect effects on sensitive plant species.

Although Tahoe yellow cress populations occur in the project area on Nevada Beach and Edgewood Beach, and the new shared-use path could facilitate some additional use of Nevada Beach, indirect effects of project

implementation on Tahoe yellow cress are not expected to be substantial relative to existing conditions. Existing levels of recreation use and related disturbances on Nevada Beach are high; and implementing either Alternative A or B, which include Design Features BIO-11and BIO-14 to better inform the public of sensitive plants in the area and how to protect them, is not expected to create a new disturbance source or measurably change the pattern, timing, and intensity of beach use relative to existing conditions, or cause an increased risk of disturbance to Tahoe yellow cress populations.

Noxious Weeds

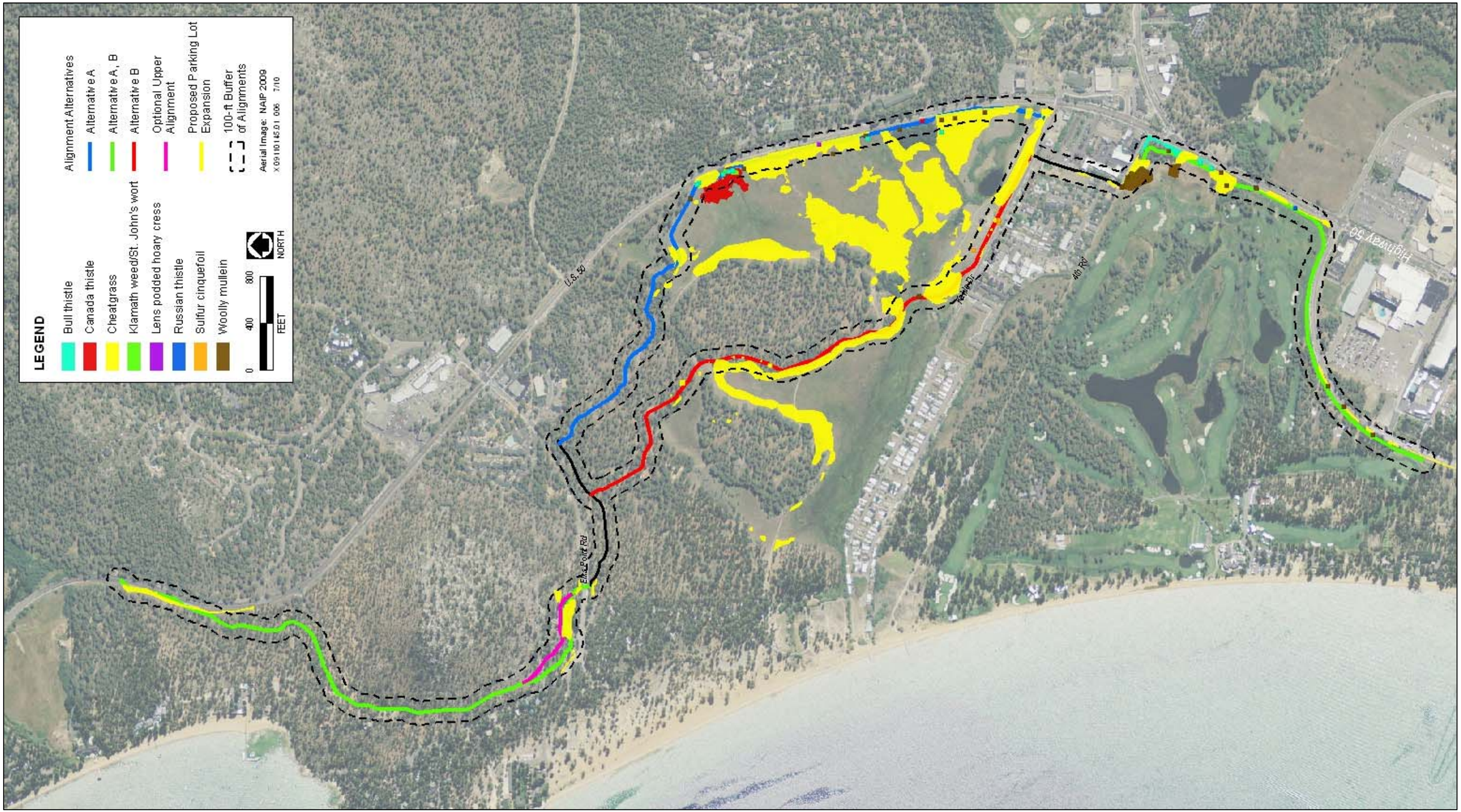
Several noxious weed species are known to occur in the project area including cheatgrass, sulphur cinquefoil, bull thistle, Canada thistle, Russian thistle, Klamath weed, lens-podded hoary cress, and woolly mullein (Exhibits 3.4-3 and 3.4-4). Populations of cheatgrass, bull thistle, Canada thistle, woolly mullein, and sulphur cinquefoil are already well established in Rabe Meadow and cheatgrass is a particular problem there. Construction of a new shared-use path could create a new pathway for the introduction and spread of noxious weeds into areas that are not presently infested. Bicyclists and walkers using the shared-use path could inadvertently pick up noxious weed seeds (particularly cheatgrass and thistles) as they pass through Rabe Meadow and transport them to areas further north along the shared-use path that are not currently infested with these species. This direction of noxious weed movement already exists, but the creation of a new corridor has the potential to increase the effects of this vector.

Alternative A would result in a smaller increase in this vector than Alternative B, because it closely follows U.S. 50, which is already a vector and a corridor for seed dispersal from the heavily infested Rabe Meadow northward.

Design features have been incorporated to substantially reduce the potential adverse effects of noxious weeds and are discussed in detail in the Noxious Weed Risk Assessment (Project Record K-5) and in Chapter 2, “Alternatives,” of this EA (Design Features BIO-15 through BIO-19). Design features include general measures to control the introduction and spread of noxious weed and invasive plant species during construction as well as detailed plans to control cheatgrass in Rabe Meadow and restore native vegetation in areas disturbed by construction. Project design features require development of an invasive plant/noxious weed monitoring and adaptive management plan that would be implemented for a minimum of 5 years following construction of the shared-use path. In addition, unauthorized trails on NFS lands currently infested with cheatgrass would be decommissioned as part of the project to reduce noxious weed vectors through the project area. Implementing these design features would eliminate or substantially reduce the potential to introduce and spread noxious weeds and invasive plant species as a result of project implementation.

Cumulative Effects

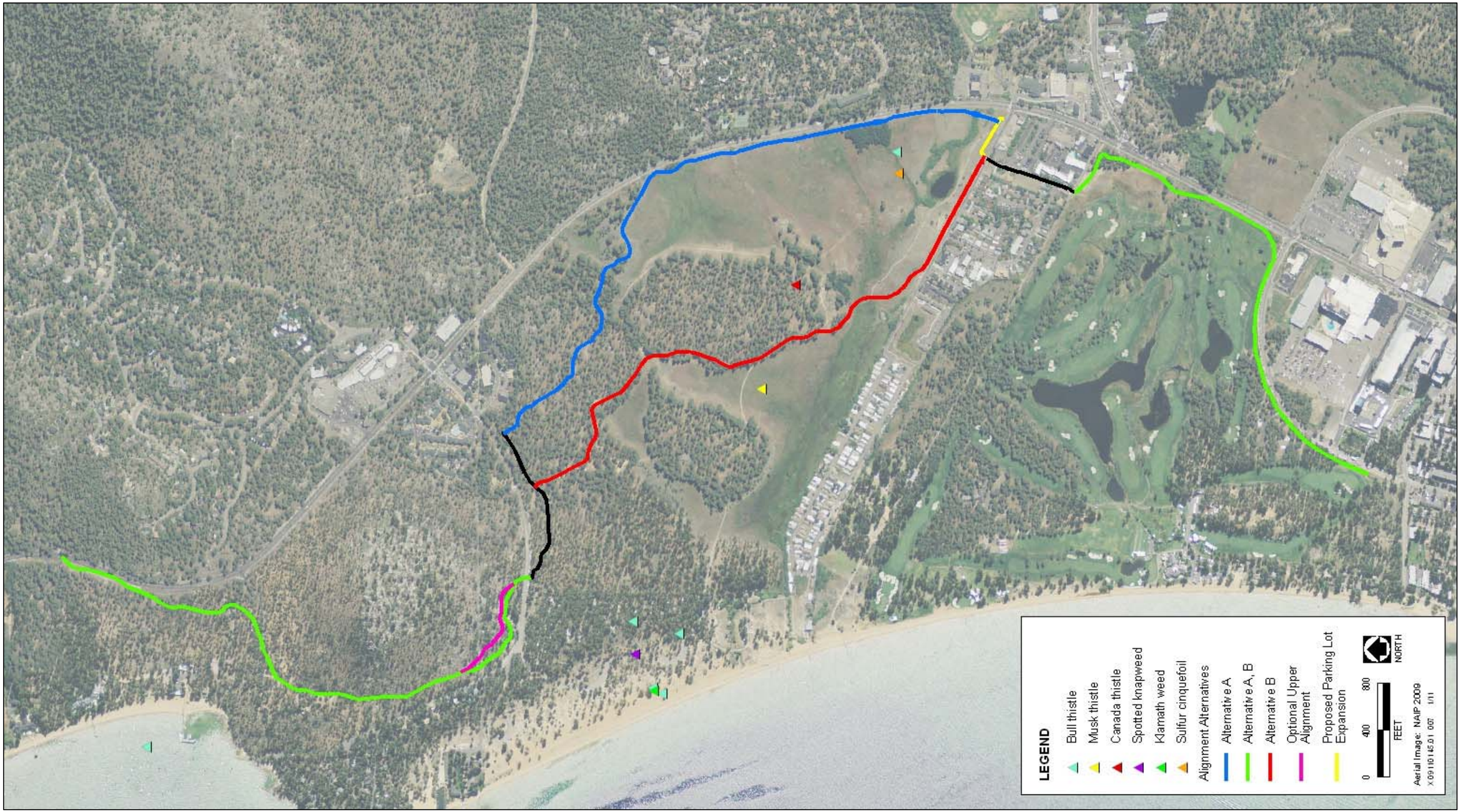
With the resource-protection design features incorporated into the project, implementation of the South Demonstration Project, either Alternative A or B, in combination with other related projects in the vicinity (see Table 3.1-1 for a complete list of projects considered in this analysis), would not result in adverse cumulative effects on native vegetation communities, SEZs, wetland habitats and waters of the United States, sensitive plant species, or noxious weeds. Related projects that would potentially result in impacts to native vegetation communities, SEZs, wetland habitats and potential waters of the United States that are similar to those described for the proposed project (Alternative A or B) include projects such as the Terrestrial Invasive Plant Species (TIPS) Project, Burke Creek Restoration, Edgewood, Beach Club, and Sierra Colina. Additionally, all related projects listed in Table 3.1-1, with the probable exception of Zephyr Cove Resort Pier Rehab and Maintenance Project, and BMP Retrofit projects (Round Hill Pines Resort and Nevada Beach Campground and Day Use Area Projects) would potentially result in impacts to sensitive plant species or noxious weeds that are similar in nature to the proposed project (Alternative A or B). However, these related projects, as well as the South Demonstration Project (Alternative A or B) would individually be required to avoid, minimize, and/or compensate for impacts to vegetation communities, including SEZs, wetlands, sensitive species or noxious weeds. In particular the South



Source: AECOM 2010

Noxious Weed Occurrences Mapped by AECOM

Exhibit 3.4-3



Source: AECOM 2010

Noxious Weed Locations Documented by the LTBMU

Exhibit 3.4-4

Demonstration Project would be required to: minimize the loss of native vegetation by restricting ground and vegetation disturbances to within a 30-foot wide construction path, revegetating with appropriate native planting mixes, and retaining live trees greater than or equal to 24 inches dbh; minimize impacts to rare or sensitive plant communities, where feasible, by avoiding path alignments in mature and overmature conifer stands within 0.5 miles of large water bodies, minimizing path alignments in SEZs and other low capability lands, and installing design features (e.g., signs, fences, etc.) that discourage users from leaving the path in areas adjacent to meadows; minimize the potential for the spread of invasive weeds by eliminating unauthorized trails in cheat-grass infected areas, treating cheat-grass population in Rabe meadow prior to project construction, and implementing standard weed-free construction BMPs (e.g., use of certified weed-free materials, equipment washing, etc.). Therefore, the South Demonstration Project would not result in adverse cumulative effects on vegetation communities and related resources.

Consequences for TRPA Environmental Threshold Carrying Capacities

Attainment Status of TRPA Vegetation Thresholds	
TRPA Threshold	2006 Attainment Status
V-1 Common Vegetation	Nonattainment
V-2 Uncommon Plant Communities	Attainment
V-3 Sensitive Plants	Attainment
V-4 Late Seral/Old-Growth Ecosystems	Nonattainment
Source: TRPA 2007	

V-1, Common Vegetation

The V-1 threshold is to increase plant and structural diversity of forest communities through appropriate management practices as measured by diversity indices of species richness, relative abundance, and pattern. The V-1 threshold includes separate standards for diversity and pattern of vegetation types and relative abundance for conifer forest types, meadow and wetland vegetation types, and deciduous riparian vegetation types that are applied basinwide.

Implementing Alternative A or B would not result in a change in the species richness, relative abundance, or pattern of vegetation types. Construction-related effects would be avoided or substantially reduced by implementing design features incorporated into the project and meeting the terms and conditions of any required permits (e.g., CWA Section 404 permit). Loss of montane meadow, riparian vegetation, and wetland vegetation within the 14-foot-wide corridor would be relatively small and would not change species richness, relative abundance, pattern, or the natural qualities of these communities. As described above and in Section 2.3 of this EA, project design features include restoring native perennial grasses and shrubs within a 30-foot-wide corridor along the trail alignment through Rabe Meadow, restoring vegetation within all riparian habitats disturbed by trail construction, and fully mitigating disturbances to SEZs and other low capability lands through enhancement or restoration to 150% of the amount disturbed. Although tree removal would occur in Jeffrey pine forest, the number, distribution, and sizes of trees removed would not affect overall canopy cover or reduce the abundance of this vegetation type on the landscape. Therefore, implementing Alternative A or B would not contribute to nonattainment of the V-1 threshold.

V-2, Uncommon Plant Communities

The V-2 threshold is to maintain and not degrade the natural qualities of any plant community that is uncommon in the Tahoe Basin or is of exceptional scientific, ecological, or scenic quality. The project area does not include

any TRPA-defined uncommon plant communities. Therefore, uncommon plant communities would not be degraded, and none of the alternatives would contribute to nonattainment of this threshold.

V-3, Sensitive Plants

The V-3 threshold 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).

None of these sensitive plant species are expected to occur along the shared-use path alignments because suitable habitat is not present or the shared-use path alignments are below the known elevation range of the species (see Plant BE, Project Record K-6). The Lake Tahoe shorezone delimits the western edge of the project area, and populations of Tahoe yellow cress occur in the project area on Nevada Beach and Edgewood Beach. Trail construction would not directly affect beaches or habitat for Tahoe yellow cress because the proposed trail alignment and construction footprint under each alternative would be located away from the shorezone. Although the new shared-use path could facilitate some additional use of Nevada Beach, indirect effects of project implementation on Tahoe yellow cress are not expected to be substantial. Existing levels of recreation use and related disturbances on Nevada Beach are high; and implementing Alternative A or B (which include Design Features BIO-13 and BIO-14 to increase public awareness of sensitive plant species) is not expected to create a new disturbance source or measurably change the pattern, timing, and intensity of beach use relative to existing conditions, or cause an increased risk of disturbance to Tahoe yellow cress populations. Because Alternative A or B would not reduce the number of populations of TRPA special-interest plant species, implementing either action alternative would not affect attainment of the V-3 threshold.

V-4, Late Seral/Old Growth Ecosystems

The study area does not contain any late seral/old growth forest. Implementing any of the alternatives would not affect the attainment status of this threshold. Because of the long period over which late seral/old growth ecosystems develop, implementing any of the alternatives also would not contribute to attainment of the V-4 threshold during the next 50 years.

Alternative C

Direct and Indirect Effects

Under Alternative C, the shared-use path as described under Alternatives A and B would not be constructed. Under this alternative, no bridges, expanded parking areas, or restrooms would be constructed within the project area. Therefore, under Alternative C, there would be no change in existing vegetation conditions within the project area. Alternative C would have no effects on common vegetation, sensitive plant species, SEZs and wetlands, or noxious weeds, since it would not change habitats in the project area in any way.

Cumulative Effects

Alternative C would not contribute to cumulative effects on vegetation resources since it would not cause any change in terrestrial or aquatic habitat conditions.

Consequences for TRPA Environmental Threshold Carrying Capacities

Alternative C would not affect attainment of environmental thresholds established by TRPA for vegetation, since it would not cause any change in terrestrial or aquatic habitat conditions.

Wildlife

Alternatives A and B

Direct and Indirect Effects

Common Wildlife Resources

Several common resident and migratory wildlife species use habitats in the project area for foraging, shelter, and breeding. Effects of each alternative on vegetation communities and associated wildlife habitats are quantified and discussed in "Vegetation," "Direct and Indirect Effects," above. Some regionally and locally common wildlife species would be subject to direct effects including construction disturbance and a minor loss and fragmentation of habitat, and indirect effects such as increased recreation disturbance. Other local wildlife populations that are not sensitive to human disturbance or that benefit from increased habitat edges created by fragmentation could increase.

Regionally and locally common wildlife species could be disturbed over the long term by operation and use of the shared-use path and related facilities, through increased and regular human intrusion in portions of Rabe Meadow and forest lands north of the meadow where trails and roads do not presently exist. Increased recreational use of these areas would further reduce the habitat value for wildlife. Because Alternative A would avoid the interior of Rabe Meadow and follow the U.S. 50 corridor, the magnitude of direct and indirect effects on Rabe Meadow under Alternative A would generally be less than Alternative B. However, Alternative A would be constructed near and potentially disturb wildlife associated with the aspen stand along U.S. 50, whereas Alternative B would avoid this stand.

Most of the shared-use path and associated facilities under Alternative A or B would be located within areas that presently support roads or trails, high levels of recreation and other use, and otherwise disturbed or degraded habitats. Therefore, the new trail is not expected to substantially increase disturbance levels in the project area above existing levels. However, the new shared-use path's connection to existing trails, roads, and other facilities could facilitate increased access to Rabe Meadow, nearby beaches, and the area west of Round Mound, which would affect common wildlife species using these areas. These common species are relatively abundant locally and regionally, and are not limited by the availability of habitat in the region. Also, habitat throughout the project area is presently degraded and experiences relatively high levels of disturbance from use of existing trails by bicyclists, pedestrians, and pets, edge effects from adjacent commercial development, fragmentation by roads and facilities, and high levels of use of other recreation facilities (e.g., Nevada Beach, Nevada Beach Campground, Round Hill Pines Beach, and surrounding areas). Habitat in the project area is not considered critical or limiting to the presence or viability of common wildlife populations in the region. Implementing Alternative A or B would not cause wildlife populations to decrease below self-sustaining levels, or result in a change in species diversity.

Threatened, Endangered, and Forest Service Sensitive Species

The BA/BE analyzed potential effects of project implementation on threatened, endangered, and Forest Service sensitive species (Project Record K-1). None of the alternatives would directly or indirectly affect threatened or endangered terrestrial wildlife species. One Forest Service sensitive terrestrial wildlife species—bald eagle—could be affected by project implementation, as discussed below. Table 3.4-9, below, lists the effects determinations for threatened, endangered, and Forest Service sensitive species, as presented in the BA/BE (Project Record K-1).

Bald eagle does not nest in or near the project area, and the project area is not located within a TRPA-designated bald eagle threshold site or non-disturbance zone. Nesting or foraging habitat for bald eagle, including TRPA-designated or other perch sites, would not be removed or altered as a result of implementing Alternative A or B.

Table 3.4-9
Threatened, Endangered, and Sensitive Species for the LTBMU, and Effect Determinations for Project Level Analysis for the Proposed South Demonstration Project

Species	Special Status	Known to Occur in the Action area	Suitable Habitat in the Action area	*Determination
Birds				
Bald Eagle (*Haliaeetus leucocephlus*)	De-listed; Forest Sensitive Species	Yes	Perching or foraging only	MANL
California Spotted Owl (*Strix occidentalis occidentalis*)	Forest Sensitive Species	No	No	NE
Northern Goshawk (*Accipiter gentiles*)	Forest Sensitive Species	No	No	NE
Willow Flycatcher (*Empidonax traillii adastus*)	Forest Sensitive Species	No	No	NE
Great Gray Owl (*Strix nebulosa*)	Forest Sensitive Species	No	Yes	NE
Mammals				
Sierra Nevada red fox (*Vulpes vulpes necator*)	Forest Sensitive Species	No	No	NE
American marten (*Martes americana*)	Forest Sensitive Species	No	No	NE
California wolverine (*Gulo gulo luteus*)	Forest Sensitive Species	No	No	NE
Townsend's big-eared bat (*Corynorhinus townsendii*)	Forest Sensitive Species	No	No	NE
Pacific fisher (*Martes pennanti*)	Candidate for Federal Listing	No	No	NA
Amphibians				
Sierra Nevada yellow-legged frog (*Rana muscosa*)	Candidate for Federal Listing; Forest Sensitive Species	No	Yes	NE
Yosemite toad (*Bufo canorus*)	Candidate for Federal Listing	No	Yes	NA
California red-legged frog (*Rana aurora draytonii*)	Federally Threatened	No	No	NA
Northern leopard frog (*Rana pipiens*)	Forest Sensitive Species	No	Yes	NE
Fish				
Lahontan cutthroat trout (*Oncorhynchus clarkii henshawi*)	Federally Threatened	No	No	NA
Lahontan Lake tui chub (*Gila bicolor pectinifer*)	Forest Sensitive Species	No	No	NE
Delta smelt (*Hypomesus transpacificus*)	Federally Threatened	No	No	NA

Table 3.4-9
Threatened, Endangered, and Sensitive Species for the LTBMU, and Effect Determinations for Project Level Analysis for the Proposed South Demonstration Project

Central Valley steelhead (*Oncorhynchus mykiss*)	Federally Threatened	No	No	NA
Central Valley spring-run Chinook salmon (*Oncorhynchus tshawytscha*)	Federally Threatened	No	No	NA
Sacramento River winter-run Chinook salmon (*Oncorhynchus tshawytscha*)	Federally Endangered	No	No	NA
Invertebrates				
Great Basin rams-horn (*Helisoma newberryi newberryi*)	Forest Sensitive Species	No	Yes	MANL

Notes:
* Federally Listed Species
NA – Will not affect the species or its designated critical habitat.
NLAA – May Affect Not Likely to Adversely Affect the species or its designated critical habitat.
LAA – May affect and is likely to adversely affect the [name of species] or its designated critical habitat
Sensitive Species
NE – Will not affect the species.
MANL – May affect individuals, but is not likely to result in a trend toward Federal listing or loss of viability.
MALT – May affect individuals, and is likely to result in a trend toward Federal listing or loss of viability.
Source: LTBMU 2010, AECOM 2010

Therefore, project implementation would not affect the composition, structure, or abundance of bald eagle foraging or nesting habitat. Design Features BIO-2 and BIO-3 are incorporated into the project and would protect snags and large trees to avoid potential project-related disturbances to potential perch site and foraging locations. Foraging bald eagles that perch near Nevada Beach could be temporarily disturbed by noise from vehicles or other construction-related activities, and possibly by increased recreation use associated with the proposed shared-use path over the long term. Any construction-related effects would be short-term and within the range of existing disturbance levels in the vicinity of the project area, and construction activities are not expected to substantially affect bald eagle foraging patterns. Also, these short-term activities and long-term project-related increases in recreation use in the vicinity would not cause injury or mortality to individuals, disrupt breeding attempts, or affect the population size or viability of bald eagle.

TRPA Special-Interest Species

The TRPA Report analyzed potential effects of project implementation on TRPA special-interest wildlife species (Project Record K-7). In addition to bald eagle, which is also designated as sensitive by the Forest Service and is discussed above under “Threatened, Endangered, and Forest Service Sensitive Species,” three TRPA special-interest wildlife species—osprey, waterfowl, and mule deer—could be affected by project implementation under Alternative A or B, as discussed below. A summary of the potential for project effects to result in impacts to TRPA special-interest species threshold standards is shown in Table 3.4-10, below.

Table 3.4-10
W-1 Standard Threshold for Wildlife (Special Interest Species)

Species	Population Sites[1]	Disturbance Zone (mi.)	Potential to Impact Threshold Standard? Y/N
Northern goshawk (*Accipiter gentilis*)	12	0.50	N
Osprey (*Pandion haliaetus*)	4	0.25	N
Bald eagle (winter) (*Haliaeetus leucocephalus*)	2	Mapped	N
Bald eagle (nesting)	1	0.50	N
Golden eagle (*Aquila chrysaetos*)	4	0.25	N
Peregrine falcon (*Falco peregrinus anatum*)	2	0.25	N
Waterfowl	18	Mapped	N
Mule deer (*Odocoileus hemionus*)	Critical fawning habitat	Meadows-Critical fawning habitat is mapped	N

Note:
[1] Based on the Threshold Evaluation by TRPA (2002), many of the population site goals have not been attained, and may never be realized for species like the golden eagle and peregrine falcon considering the Lake Tahoe basin has historically been considered suboptimal nesting habitat for both of these species. The northern goshawk threshold standard has a low likelihood of attainment by 2006 due to habitat fragmentation attributed to recreation encroachment nesting areas. The mule deer threshold is not likely to be realized due to recreational encroachment into meadows during fawning season.
Source: TRPA 2002

As discussed in the TRPA Report and BA/BE, and summarized in Table 3.4-10 (above), implementation of Alternative A or B is not expected to affect northern goshawk. However, because a small segment of Alternative A passes just within 0.5 mile of a historic goshawk nest (and just within a TRPA-designated goshawk habitat non-degradation zone), northern goshawk is also discussed below.

Osprey

The project area is not located within a TRPA-designated osprey threshold site or non-disturbance zone. The project area includes potentially suitable nest sites and perch trees for osprey; however, this species does not presently nest in the project area. Habitat for osprey would not be removed or altered as a result of implementing Alternative A or B. Ospreys likely forage in Lake Tahoe in the vicinity of the project area, and may use trees in the project area for perching. Design Features BIO-2 and BIO-3 incorporated into the project would protect snags and large trees to avoid potential project-related disturbances to potential perch sites and foraging locations. Foraging ospreys that perch near Nevada Beach could be temporarily disturbed by noise from vehicles or other construction-related activities, and possibly by increased recreation use associated with the proposed shared-use path over the long term. Any construction-related effects would be short-term and within the range of existing disturbance levels in the vicinity of the project area, and are not expected to substantially affect osprey foraging patterns. Because the project area does not currently support breeding osprey, and implementation of the project would not affect the composition, structure, or abundance of potential osprey foraging or nesting habitat, short-term construction activities and long-term project-related increases in recreation use in the vicinity would not cause injury or mortality to individuals, disrupt breeding attempts, or affect the population size or viability of osprey.

Waterfowl

Most of the project area is not within a TRPA-designated waterfowl threshold site; however, Edgewood Tahoe Golf Course is designated as a waterfowl threshold site, and a portion of the shared-use path under Alternatives A and B would pass along the eastern edge of the golf course along Lake Parkway and U.S. 50. Much of this area is either landscaped or compacted dirt or gravel with either no vegetation or a sparse cover of ruderal species. Additional areas of the golf course that could be affected include heavily managed non-native golf course turf grasses. The waterfowl threshold site at Edgewood Golf Course is well-recognized as being artificial and highly degraded and altered by intensive golf course operations and use, including hazing of Canada geese by dogs. The artificial ponds on the golf course support considerable numbers of waterfowl, which is presumably why the site was designated as a threshold area. Neither the roadside habitat nor managed golf course habitat where Segment 1 of Alternatives A and B would be constructed would support nesting or resting waterfowl. Construction of either action alternative would not degrade or reduce the habitat value of the waterfowl threshold area beyond existing conditions.

In the Lake Tahoe Basin, wetlands provide nesting, resting, and foraging habitat for waterfowl. Important areas for waterfowl include Pope Marsh, Truckee Marsh, Taylor Creek Marsh, Grass Lake, and Spooner Lake (TRPA 2002). Waterfowl occur within the project vicinity along the Lake Tahoe shoreline and within riparian and aquatic habitat associated with Burke Creek, Edgewood Creek, and the pond in Rabe Meadow. These habitats are presently affected by high levels of human disturbance, and provide relatively low-quality breeding habitat for waterfowl species. These areas provide a limited amount of foraging habitat for waterfowl. Neither Alternative A nor Alternative B would be constructed within breeding habitat for waterfowl, and neither would affect the composition, structure, or abundance of potential waterfowl foraging or resting habitat. Any construction-related disturbances to waterfowl would be minor and short-term, and would not cause injury or mortality to individuals, disrupt breeding attempts, or affect the population size or viability of any waterfowl species.

Mule Deer

The project area is at the edge of the range for the Loyalton-Truckee and Carson River mule deer herds. Deer are not expected to regularly use the project area due to high disturbance levels and lack of high-quality forage and cover. Mule deer may occasionally migrate through or forage in the project area; if so, short-term construction and increased recreation levels associated with Alternative A or B could infrequently disturb individuals. Deer are not expected to fawn within the project vicinity due to human disturbance levels and isolation of the habitat due to commercial development and major roads. Because the project area would not support fawning mule deer and does not provide important foraging or migratory habitat, and Alternative A or B would not substantially affect the composition, structure, or abundance of potential mule deer foraging or migratory habitat, any potential effects of Alternative A or B on mule deer individuals would be minor.

Northern Goshawk

Northern goshawk has not been documented in the project area in more than 17 years, and no suitable breeding habitat is present in or adjacent to the area. A goshawk detection from 1993 was mapped in the interior of Rabe Meadow (Forest Service data). (However, the accuracy of this detection is questionable, or it represents a flyover observation, because it is mapped within open meadow habitat without tree cover.) The project area and adjacent lands do not contain suitable forest conditions that would support nesting northern goshawk. Protocol surveys conducted in 2006, 2007, and 2008 east of U.S. U.S. 50 for a different project, adjacent to the project area, did not detect goshawks (Wildlife Resource Consultants 2006a, 2006b, 2007, 2008). A historic goshawk territory (Roundhill/Burke Creek territory) is located east of the project area; four historic nest sites associated with this territory are located between 0.49–0.72 mile east of the project area. Although a goshawk was detected in this territory in 2005, nesting within the territory has not been documented since 1992 (Young and Morrison 2007).

The majority of the South Demonstration Project area is not within a northern goshawk 0.5-mile non-disturbance zone; however, a segment (approximately 1,100 feet) of Alternative A along U.S. 50 passes just within 0.5 mile of a historic goshawk nest associated with the Roundhill/Burke Creek territory. This segment is located approximately 0.49 mile from the nearest historic nest site, on the opposite (west) side of U.S. 50 from the nest site. The segment is within Rabe Meadow and along the highway edge, and does not intersect suitable habitat for northern goshawk.

Although a segment of Alternative A is located just within a 0.5-mile non-disturbance area, it is not located within or adjacent to suitable habitat for northern goshawk or near any known active goshawk nests. Also, construction and operation of this alternative would not bring pedestrians, bicyclists, or other potential disturbance sources in closer contact to the Roundhill/Burke Creek historic nests. Due to the existing heavy vehicle traffic, recreation use, and commercial development along U.S. 50 in this area, locating a new bicycle facility adjacent to and on the west side of U.S. 50 would not degrade habitat in the non-disturbance zone above existing levels. Additionally, construction and operation of Alternative A or B would not disturb any known active goshawk territories or nests.

Goshawk could occasionally forage or perch within, or otherwise move through, the project area; however, goshawk use of the project area is not expected due to marginal forest conditions and high disturbance levels. Because the project area does not support breeding habitat for northern goshawk, and implementation of the South Demonstration Project would not affect the composition, structure, or abundance of potential northern goshawk habitat or degrade any non-disturbance zone above existing levels, project implementation would not directly, indirectly, or cumulatively affect habitat or TRPA threshold attainment for northern goshawk.

Forest Service Management Indicator Species

This section provides a brief summary of potential effects of project implementation on Forest Service MIS, based on the full analysis and discussion provided in the MIS Report (Project Record K-4).

Aquatic Macroinvertebrates

The loss of woody vegetation and potential short-term minor increases in sedimentation and turbidity during construction of the bridges across Edgewood Creek (Alternatives A and B), Burke Creek (Alternative A), and Folsom Spring (Alternative A), and the boardwalk across Burke Creek (Alternative B), could result in temporary degradation of habitat for aquatic macroinvertebrates. Overall, this effect would be minor in relation to the total available habitat present within the project area and vicinity, would be minimized or avoided by temporary construction BMPs (BMP-1 through BMP-13 described in Section 2.3 of this EA), and would potentially be offset in the long term by water quality improvements that are expected to occur as part of other projects in the surrounding area. Also, Design Features BIO-8 through BIO-11 and BMP-17, as described in Section 2.3 of this EA, are incorporated into both action alternatives and would ensure that bridge and boardwalk crossings would be designed to accommodate the 100-year, 24-hour storm event and not interfere with existing water regimes; maintain fish passage; would not create barriers to upstream or downstream passage for aquatic-dependent species; and would cross perpendicular to streams in areas where the riparian zone is narrow to avoid effects to riparian habitat.

Yellow Warbler

Alternative A would result in the permanent loss of 3,035 square feet of montane riparian scrub habitat (upland montane riparian scrub and montane riparian scrub wetland combined), and additional short-term construction disturbance of up to 2,784 square feet of montane riparian habitat (see Table 3.4-5 above). Alternative B would result in the permanent loss of 1,704 square feet of upland montane riparian scrub habitat, and additional short-term construction disturbance of up to 1,950 square feet of upland montane riparian scrub habitat. Because the habitat loss would be relatively small, and due to potential increases in suitable habitat in the vicinity through

other projects, neither Alternative A nor B would alter existing trends in riparian habitat, nor would construction of either alternative lead to a change in distribution of yellow warbler across the Sierra Nevada bioregion. Additionally, Design Features BIO-11 and BIO-21 would minimize impacts to riparian habitats and require compensatory mitigation for disturbance and loss of wetlands and SEZs (including riparian habitats), including restoring or enhancing SEZs at 150% of the amount disturbed or removed.

Pacific Tree Frog

No loss or disturbance of freshwater emergent wetland would result from Alternative A or B; however, implementation of Alternative A or B would result in some loss or disturbance of montane wet meadow (Table 3.4-5). Because the habitat loss would be relatively small, neither Alternative A nor B would alter existing trends in wet meadow habitat, nor would it lead to a change in distribution of Pacific tree frog across the Sierra Nevada bioregion. Additionally, Design Features BIO-11 and BIO-21 would minimize impacts to wetland habitats and require compensatory mitigation for disturbance and loss of wetlands and SEZs, including restoring or enhancing SEZs at 150% of the amount disturbed or removed.

Mountain Quail

Implementation of Alternative A and B would result in the permanent loss or disturbance of up to 119,918 and 136,082 square feet, respectively, of early to mid-seral Jeffrey pine forest. Because the habitat loss or disturbance is relatively small, and due to the abundance of similar habitat in the vicinity of the project, the project would not alter existing trends in early to mid-seral forest habitat, nor would it lead to a change in distribution of mountain quail across the Sierra Nevada bioregion.

Hairy Woodpecker

Per Design Feature BIO-2 (see Section 2.3 of this EA), snags would be retained unless they are within the project footprint or deemed a “hazard tree.” Therefore, very few, if any, medium- to large-sized snags would be removed as a result of project implementation. Due to the abundance of forest habitat in the project area and vicinity, Alternatives A and B would not alter the existing trend in snag density, nor would it lead to a change in the distribution of hairy woodpecker across the Sierra Nevada bioregion.

Migratory Birds

The Migratory Bird Report describes likely impacts of project implementation on habitats and select migratory landbird populations (Project Record K-3). Two migratory landbirds—yellow warbler and mountain quail—could be affected by project implementation under Alternative A or B. Habitat loss would occur for both of these species as a result of project implementation, and has been previously discussed under “Forest Service Management Indicatory Species”, above. However, the amount of habitat loss is not expected to substantially contribute to changes in habitat structure or composition for either species in the project vicinity. Additionally short-term, direct effects as a result of construction activities associated with Alternative A and B could include temporary disturbances to foraging, movement, and reproductive activities, and temporary displacement of yellow warbler and mountain quail, if present.

Cumulative Effects

With the resource-protection design features incorporated into the project, implementation of the South Demonstration Project, either Alternative A or B, in combination with other related projects in the vicinity (see Table 3.1-1 for a complete list of projects considered in this analysis) is not expected to result in adverse cumulative effects on the composition, structure, or abundance of suitable habitat for common, threatened, endangered, Forest Service Sensitive, or TRPA special-interest wildlife species. Potential direct or indirect effects

resulting from implementation of Alternative A or B, as discussed above, are expected to be minor and not likely to affect the viability of any species. Additionally, the design features described in Chapter 2, "Alternatives," would be implemented to reduce or avoid potential construction-related disturbances to species most likely to be affected by these activities; these measures are specifically referenced in the above discussions of direct and indirect effects of Alternative A and B on wildlife. Related projects that could cumulatively impact wildlife resources affected by the proposed project (e.g., all fuels reduction, restoration, trails, and development projects) would be required to avoid, minimize, and/or compensate for adverse impacts to wildlife resources. Therefore, the project is not expected to result in adverse cumulative effects on wildlife resources.

Consequences for TRPA Environmental Threshold Carrying Capacities

This section summarizes the effects of each alternative on the environmental thresholds established by TRPA for wildlife habitat. Two wildlife habitat thresholds have been established by TRPA:

- W-1, Wildlife Species of Special-Interest, and
- W-2, Habitats of Special Significance.

Attainment Status of TRPA Wildlife Thresholds

TRPA Threshold	2006 Attainment Status
W-1 Special-Interest Species—Northern Goshawk	Nonattainment, Near Attainment
W-1 Special-Interest Species—Osprey	Attainment
W-1 Special-Interest Species—Bald Eagle–Nesting	Nonattainment
W-1 Special-Interest Species—Bald Eagle–Wintering	Nonattainment, Near Attainment
W-1 Special-Interest Species—Golden Eagle	Unknown
W-1 Special-Interest Species—Peregrine Falcon	Unknown
W-1 Special-Interest Species—Waterfowl	Nonattainment
W-1 Special-Interest Species—Deer	Nonattainment
W-2 Habitats of Special Significance	Nonattainment

Source: TRPA 2007

W-1, Wildlife Species of Special-interest

The W-1 threshold is to provide a minimum number of population sites for six TRPA special interest wildlife taxa: northern goshawk (12 sites), osprey (four sites), bald eagle (two winter sites and one nesting site), golden eagle (four sites), peregrine falcon (two sites), and waterfowl (18 sites). Mule deer is also a special interest species; however, no threshold site number for deer has been specified.

Edgewood Tahoe Golf Course is designated as a waterfowl threshold site, and a portion of the shared-use path within Segment 1 of both Alternatives A and B would pass along the eastern edge of the golf course along Lake Parkway and U.S. 50. Much of this area is either landscaped or compacted dirt or gravel with either no vegetation or a sparse cover of ruderal species. Additional areas of the golf course that could be affected include heavily managed non-native golf course turf grasses. The waterfowl threshold site at Edgewood Golf Course is well-recognized as being artificial and highly degraded and altered by intensive golf course operations and use, including hazing of Canada geese by dogs. The artificial ponds on the golf course support considerable numbers of waterfowl, which is presumably why the site was designated as a threshold area. Neither the roadside habitat nor managed golf course habitat where Alternative A or B would be constructed support nesting or resting waterfowl. Construction of either alternative would not degrade or reduce the habitat value of the waterfowl threshold area beyond existing conditions. None of the project alternatives would affect threshold areas or

breeding sites of other special interest species. Therefore, implementing any of these alternatives would not affect attainment of the W-1 threshold.

W-2, Habitats of Special Significance

The W-2 threshold is to apply a nondegradation 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% of the SEZ lands that have been identified as disturbed, developed, or subdivided, to attain a 5% total increase in the naturally functioning SEZ land.

As discussed above under “Environmental Consequences” “Vegetation, Alternatives A and B, Direct and Indirect Effects, Stream Environment Zones and Potential Waters of the U.S.,” Alternatives A and B would result in permanent effects to approximately 24,262 and 5,096 sq. ft. of SEZ, respectively (see Table 3.4-6). Under both alternatives, approximately 320 sq. ft. of this total occurs near Edgewood Creek; the remainder is associated with Rabe Meadow. These permanent effects would primarily involve partial or total conversion of SEZ vegetation cover to shared-use path or bridge facilities, and occur during bridge placement, construction of bridge footings, and construction/removal of boardwalk features in Rabe Meadow. Because elevated shared-use path designs that minimize effects to meadow vegetation and SEZ function would be used, permanent effects to SEZ hydrologic function would be minimal. Under Alternative A, approximately 4,550 sq. ft. of the 24,262 total sq. ft. of SEZ permanently affected is located within an aspen stand along U.S. 50. The number and sizes of aspen trees that would be removed under Alternative A have not been quantified; however, aspen tree removal would be minimized to the maximum extent practicable.

During construction, Alternatives A and B could result in up to 27,728 and 5,824, respectively, of additional temporary disturbance to SEZ habitat. The additional temporary effect is the amount, in addition to what would remain as a permanent footprint following project construction, assumed for temporary construction. Temporary effects were calculated based on assuming a 30-foot-wide construction corridor along the entire shared-use path alignments, minus the 14-foot-wide portion that would permanently remain as path following project construction. However, because the construction corridor would likely be reduced in sensitive areas (e.g., SEZs), the values presented in Table 3.4-7 are considered maximums and overestimates of temporary effects to SEZs. Temporary construction areas would be restored and revegetated with native species.

Design features incorporated into the project would limit long-term effects on SEZs by using prefabricated, free-spanning bridges that span Edgewood Creek, Burke Creek, and Folsom Spring, by using a raised boardwalk that would minimize alteration to meadow hydrology in Rabe Meadow (BMP-17 and Design Feature BIO-11), and through native plant revegetation (BMP-13 and Design Features BIO-11 and BIO-17). In addition, all stream and riparian crossings would be designed to accommodate the 100-year, 24-hour storm event and not interfere with existing water regimes; maintain fish passage; and would not create barriers to upstream or downstream passage for aquatic-dependent species (e.g., bottomless culverts with natural bed material) (Design Features BIO-8 through BIO-12 and BMP-17).

Although effects to SEZs would be minimized by several of the project design features, permanent loss of SEZ vegetation and habitat function as a result of project implementation and operation would conflict with attainment of the W-2 threshold. Therefore, the design features also include compensatory measures to mitigate the loss of SEZ habitat. Design Features BIO-11 and BIO-21 require compensatory mitigation for disturbance and loss of wetlands and SEZs, including restoring or enhancing SEZs at 150% of the amount disturbed or removed. Implementation of these design features would mitigate a potentially significant effect to SEZs and avoid contributing to nonattainment of the W-2 threshold.

Implementation of the proposed project, with the design features proposed, would not conflict with the numerical and management standard to maintain TRPA habitats of special significance.

Alternative C

Direct and Indirect Effects

Under Alternative C, the shared-use path as described under Alternatives A and B would not be constructed. Under this alternative, no bridges, expanded parking areas, or restrooms would be constructed within the project area. Therefore, under Alternative C, there would be no change in existing wildlife habitat conditions within the project area. Alternative C would have no effects on wildlife resources, since it would not change habitats in the project area in any way.

Cumulative Effects

Alternative C would not contribute to cumulative effects on wildlife resources since it would not cause any change in terrestrial or aquatic habitat conditions.

Consequences for TRPA Environmental Threshold Carrying Capacities

Alternative C would not affect attainment of environmental thresholds established by TRPA for wildlife, since it would not cause any change in terrestrial or aquatic habitat conditions.

3.5 Earth Resources

3.5.1 Scope of the Analysis

This section evaluates potential adverse environmental effects related to geology, soils, and land capability and coverage associated with implementation of the project. Included in this analysis is a description of existing conditions, followed by a discussion of any changes in or to geologic conditions, relevant soil properties as they relate to geotechnical issues, and associated elements of land capability and coverage. Existing conditions and potential environmental effects related to water quality resulting from soil erosion and other stormwater issues are addressed in Section 3.3, "Hydrology and Water Quality."

The examination of geology, soils, and land capability and coverage is based on information from: (1) a review of academic research and available information published by local, state, and federal agencies; and (2) a review of preliminary project information prepared by project engineers.

3.5.2 Assessment Factors

NEPA – U.S. Forest Service, Lake Tahoe Basin Management Unit Forest Plan

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. Under NEPA, the significance of an effect is used solely to determine whether an EIS must be prepared. The LTBMU's land management practices and requirements provided in the LTBMU's Forest Plan, as amended by the SNFPA, which are summarized in the Forest Plan consistency matrix (Project Record A-1), are used to evaluate an action's effect on earth resources. Section 43, "Soil Resource," of the Forest Plan includes the following directives:

- Maintain surface litter, duff, and adequate coarse woody debris to maintain organic matter reserves and recycle nutrients.
- Maintain protective groundcover (litter, duff, or slash) or vegetative cover to minimize soil erosion. Areas in which the soil resource is continuously impacted by recreation use will be considered an ongoing priority.
- Minimize soil displacement when grading slopes or when piling brush or slash.
- Where past management activities have reduced soil productivity, improve soil productivity by respreading displaced topsoil, by using tillage to increase porosity, by increasing nutrient supplies through the addition of fertilizer (utilizing the TRPA guidelines for fertilizer use), or by increasing nutrient holding capacity through the addition of organic matter.
- Where soils are susceptible to compaction and puddling, minimize the area covered by heavy equipment or operate when soils are least susceptible to damage.
- Design projects to reduce potential soil erosion and the loss of soil productivity caused by loss of vegetation and ground cover. Examples are activities that would: (1) provide for adequate soil cover in the short term; (2) accelerate the dispersal of coarse woody debris; (3) reduce the potential impacts of the fire on water quality; and (4) carefully plan restoration/salvage activities to minimize additional short-term effects.
- Recommend restoration practices in: (1) areas with compaction in excess of soil quality standards, (2) areas with lowered water tables, or (3) areas that are either actively down cutting or that have historic gullies.

Identify other management practices, for example, road building, recreational use, grazing, and timber harvests, that may be contributing to the observed degradation.

Tahoe Regional Planning Agency

The TRPA Land Classification System (described in Chapter 1, "Introduction") has been used to analyze potential effects to sensitive slopes, soils, and drainage conditions. The TRPA Land Classification system and coverage regulations were considered as criteria against which the project was evaluated. Based on TRPA's Initial Environmental Checklist, an action's effect on geology, soils, and land coverage would be considered adverse in terms of its context and intensity if it would:

- 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 TRPA Code Section 64.7.B, in which case such grading is permissible;
- Continue or increase wind or water erosion of soils;
- Result in changes in siltation, deposition, or erosion that could modify the channel of a river or stream or the bed of a lake;
- Result in unstable soil conditions; or
- Expose people or property to geologic hazards such as earthquakes, landslides, avalanches, or similar hazards.

Geologic hazards, as defined in this section, relate to seismic activity and may include surface fault rupture, strong seismic ground shaking, liquefaction, subsidence, landslides, tsunami, and seiche potential. Non-seismic geologic hazards are discussed with regard to potential effects on the alteration of the land surface (naturally or through human actions), including grading, deposition or erosion, landslides, avalanches, or any effects that are because of or that may alter soil properties or geotechnical issues. Although landslides, avalanches, and other geomorphological events can be triggered by seismic activity, these events are not necessarily a prerequisite. Therefore, they are addressed separately unless site-specific conditions warrant otherwise.

3.5.3 Affected Environment

Geology

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. The Sierra Nevada is the most prominent mountain range in California, and in conjunction with the Central Basin, forms part of the Sierra Nevada microplate, an element of the broad Pacific–North American plate boundary (Argus and Gordon 1991). Before becoming part of the transform plate margin, the Sierra Nevada was the site of a Cenozoic volcanic arc, with related deposits draping over pre-Cenozoic metamorphic and plutonic rocks (Wakabayashi and Sawyer 2000). The general asymmetry of the Sierra Nevada reflects uplift and gentle westward tilting, evidenced by the mountain range sloping gently westward and abruptly eastward from its crest.

The Lake Tahoe Basin was formed over 2 million years ago by a combination of faulting and volcanism. As a result, the Lake Tahoe Basin contains a combination of granitic, metamorphic, and volcanic rock. The predominant bedrock in the 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.

A review of the *Geologic Map of the Lake Tahoe Basin* (Saucedo 2005) indicates that project facilities would be located within Holocene floodplain deposits, Pleistocene lacustrine terrace deposits, and Cretaceous granodiorite of East Peak.

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, problems 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 re-vegetation, can degrade the aesthetic value of the natural environment and can also represent hazards to the land itself.

The project site is located on the South Lake Tahoe, California 7.5 minute USGS quadrangle map. The topography of the project site slopes gently downward toward the west (toward Lake Tahoe). Elevations range from approximately 6,240 to 6,360 feet above mean sea level (amsl) at the locations of proposed project facilities.

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.

The *Preliminary Map of Pleistocene to Holocene Faults in the Lake Tahoe Basin, California and Nevada* (Schweickert et al. 2000) shows that locally, several faults have been mapped near the project area, some of which are shown to cut Holocene or Pleistocene deposits and therefore may be active or potentially active. These include the Genoa Fault and Tahoe Valley Fault. The Genoa Fault is located approximately 6 miles east of the project area and is estimated to be capable of generating an earthquake of moment magnitude 7.4 (dePolo 1997). The Tahoe Valley Fault is located approximately 3.5 miles southwest of the project area (data pertaining to the estimated moment magnitude for this fault was not available).

The North Tahoe Fault, located beneath the lake, is a northeast-southwest trending fault, approximately 7.0 miles long. It is estimated to be capable of generating an earthquake of magnitude 7.0; however, it has been inactive for at least 10,000 years (Jennings 1994). The northeast-southwest trending Incline Village fault zone appears to be the landward extension of the submerged North Tahoe Fault and also trends northeast towards the Truckee Meadows Fault (TMF). All three of these faults may be part of a system of normal faults that rupture together.

The north-south trending West Tahoe-Dollar Point fault zone is another prominent normal slip fault zone in the Tahoe Basin. The West Tahoe Fault is submerged from Emerald Bay to McKinney Bay. The Dollar Point Fault is the northern continuation of the West Tahoe Fault northward from McKinney Bay. Both of these faults are likely to rupture together (Ichinose et al. 1999).

According to the *Earthquake Shaking Potential Map for Portions of Eastern California and Western Nevada*, the South Lake Tahoe area is considered to have a moderate potential for shaking caused by seismic-related activity (California Geological Survey [CGS] 2005). The Nevada Seismological Laboratory catalog lists eight earthquakes with Richter magnitudes (M) of 4.2 or greater that have occurred since 1950 within approximately 18 miles of the center of Lake Tahoe (Smith et al. 2004). These include an approximately M 4.5 earthquake (at Tahoe Vista, approximately 40 miles northwest of the project area) on June 3, 2004. The 2004 event has been attributed to an increase in upper crustal seismicity following a deep dike swarm of 1,611 earthquakes in the Tahoe Vista area at the site of a deep magma injection event beneath Lake Tahoe (Smith et al. 2004). Recent seismic research in the Lake Tahoe Basin suggests that the potential for strong seismic shaking in the area may be greater than had been previously thought.

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. Ichinose et al. (1999) 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.

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 (as described in Chapter 1, “Introduction”). Table 3.5-1, which is based on Natural Resources Conservation Service (NRCS) soil survey data (Web Soil Survey 2009), lists the soil types and soil characteristics present where project facilities would be constructed. Exhibit 3.5-1 shows the location of project facilities in relation to the soil types.

Land Capability and Coverage

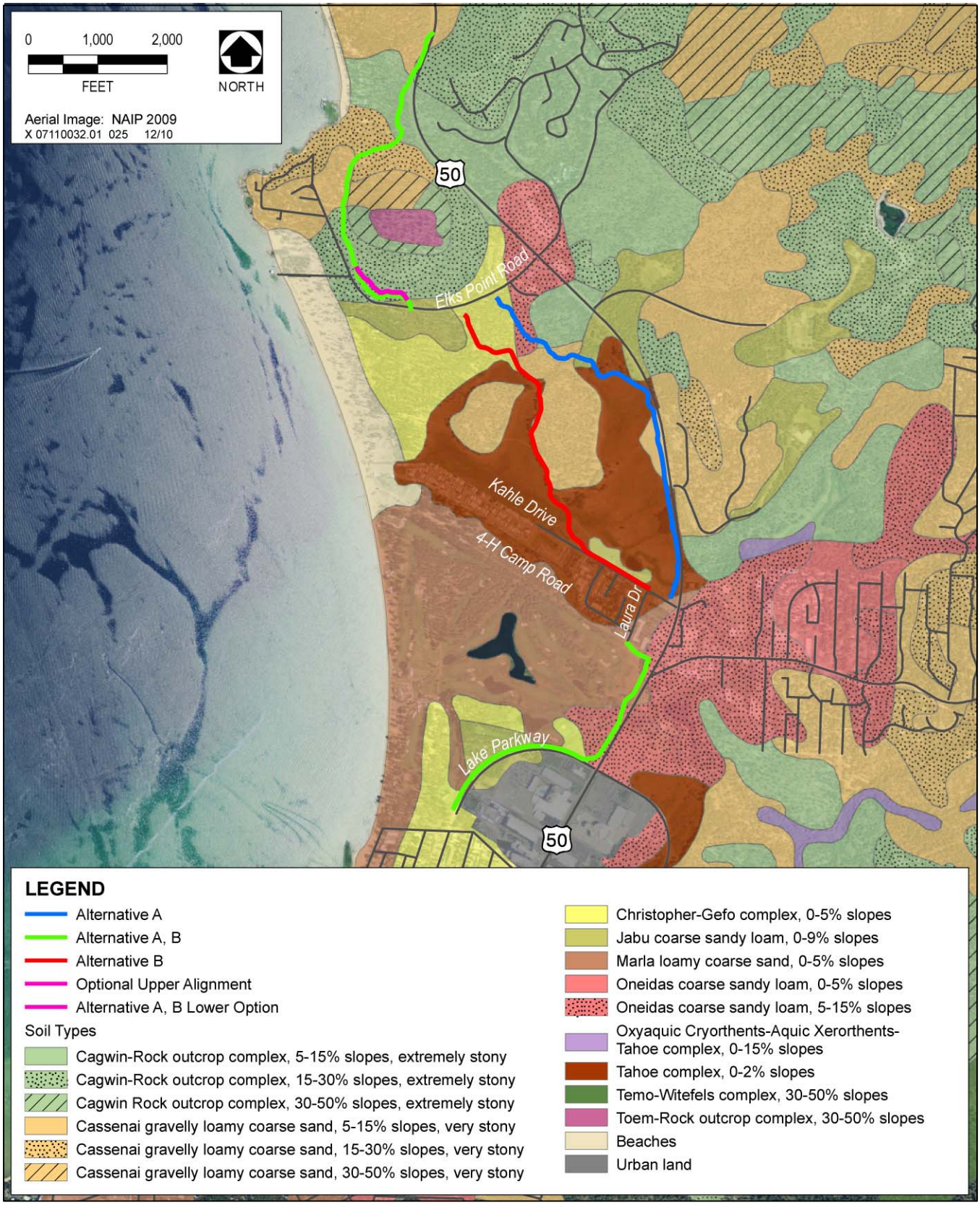
SEZs are present near Edgewood and Burke Creeks, and the outflow of Folsom Spring in Rabe Meadow. A discussion of effects to SEZ habitat is found in Section 3.4, “Biological Resources,” and is also discussed below in relation to coverage.

The project area includes LCDs 1a, 1b, 1c, 2, 3, 4, 5, and 7. A formal TRPA land capability verification confirming these LCDs was signed by TRPA on September 8, 2010. Existing coverage within the project area includes dirt roads, road shoulders, and trails. A formal TRPA land coverage verification to establish the extent of legally existing coverage for the affected parcels has not yet been completed.

Table 3.5-1
Soil Characteristics

Soil Map Unit Name	Shrink Swell Potential[1]	Permeability[2]	Water Erosion Hazard[3]	Wind Erosion Hazard[4]	Drainage	Concrete Corrosivity
Cagwin-rock outcrop complex 5–15% slopes	Low	High	Low	2	Somewhat excessively drained	Low
Cagwin-rock outcrop complex 15–20% slopes	Low	High	Low	2	Somewhat excessively drained	Low
Cassenai gravelly loamy coarse sand 5–15% slopes very stony	Low	High	Low	2	Somewhat excessively drained	Moderate
Cassenai gravelly loamy coarse sand 15–30% slopes very stony	Low	High	Low	2	Somewhat excessively drained	Moderate
Christopher-Gefo complex 0–5% slopes	Low	Very High	Low	2	Somewhat excessively drained	Moderate
Jabu coarse sandy loam 0–9% slopes	Low	High	Low	3	Well drained	Moderate
Marla loamy coarse sand 0–5% slopes	Low	Very High	Low	2	Poorly drained	Moderate
Oneidas coarse sandy loam 5–15% slopes	Low	Very High	Moderate	3	Poorly drained	High
Tahoe complex 0–2% slopes	Low	High	Moderate	3	Very poorly drained	High
Urban land[5]	--	--	--	--	--	--

Notes:
[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.
[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.
[3] Based on the erosion factor “Kw whole soil,” which is a measurement of relative soil susceptibility to sheet and rill erosion by water.
[4] The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible.
[5] Urban land is defined as areas so altered or obstructed by urban works or structures that identification of soils is not feasible.
Source: NRCS 2009



Source: SSURGO 2006

Project Soil Types **Exhibit 3.5-1**

3.5.4 Environmental Consequences

Land Capability and Coverage

Alternatives A and B

Direct and Indirect Effects

Design features incorporated into the project design would limit effects to sensitive land capability districts such as SEZs through elevated shared-use path design and restoration elements (Design Feature BIO-11) as noted in Section 2.3 of this EA.

Both of the shared-use path action alternatives (Alternatives A and B) would involve removing, relocating, and adding coverage to the affected parcels in accordance with TRPA's land coverage regulations and land capability system. For both action alternatives additional coverage would be located in TRPA LCDs 1a, 1b, 1c, 2, 4, 5, and 7; Alternative A would also add coverage in LCD 3. Table 3.5-2 provides a preliminary summary of coverage increases by LCD and segment, including optional alignments under consideration, for Alternatives A and B. Table 3.5-3 expands on the information provided in Table 3.5-2 by providing the preliminary coverage increases by affected parcel and right-of-way. Table 3.5-3 shows the net increase or decrease in coverage in each LCD. Existing compacted dirt roads, road shoulders, and trails are counted as existing coverage, although these areas have not yet been officially verified by TRPA as legally existing coverage. Shared-use path shoulders would be constructed of a material that would be revegetated and/or allow infiltration of water in accordance with TRPA specifications as a constructed BMP, and as such are not counted as coverage. The preliminary coverage numbers presented in Tables 3.5-2 and 3.5-3 would be refined as the design process progresses. While the alignments are designed to maximize the use of existing coverage as described in Chapter 2, "Alternatives," implementation of either action alternative would result in increased coverage.

As shown in Tables 3.5-2 and 3.5-3 Alternative A would result in overall coverage increases, and increases in coverage in the most sensitive LCDs, that are greater than Alternative B. Alternative A would result in overall coverage increases that are 23,390 square feet greater than Alternative B. Increases in coverage in SEZ areas (LCD 1b) in Alternative A would be 13,690 square feet greater than Alternative B.

In Segment 1, from Lake Parkway to Kahle Drive, the proposed shared-use path would be primarily within LCDs 4, 5, and 7 with a small amount of coverage in LCD 1b where the shared-use path would cross Edgewood Creek. In Segment 2, from Kahle Drive to Elks Point Road, both shared-use path alternatives cross through Rabe Meadow, within LCDs 1b, 2, 5, and 7; Alternative A would also cross through LCDs 1c and 3. In Segment 3, north of Elks Point Road, the shared-use path would cross through LCDs 1a, 1c, 2, 4, and 5.

The Segment 1 and 3 optional alignments (the same for both action alternatives) would also result in notable coverage changes from the proposed alignments in those segments. For Segment 1, the option to narrow Lake Parkway by 7 feet would reduce overall coverage increases by 16,680 square feet from the proposed alignment. For Segment 3, the optional upper alignment would increase coverage in LCD 1c by 4,420 square feet thereby increasing the extent of potential bedrock and rock outcrop removal relative to the proposed lower alignment.

The base allowable land coverage standards by LCD presented in Chapter 1, "Introduction," normally limit the amount of coverage permitted for a project on a parcel-by-parcel basis (TRPA Code of Ordinances 20.3.A). However, because the South Demonstration Project would be a linear public facility (LPF), per TRPA Code of Ordinances Section 20.3.B (4), the allowable land coverage would be limited to the minimum amount needed to achieve its public purpose. Land coverage is a development right, and the increase in coverage resulting from project implementation would require that Douglas County purchase and transfer the required coverage from off-site parcel owners ("sending parcels") in accordance with TRPA Code of Ordinances Chapter 20, "Land Coverage

Table 3.5-2
Summary of Preliminary Land Coverage Increases by Segment and LCD for Alternatives A and B

		Square Feet (sf) by LCD								
		1a	1c (Rocks)	1b	2	3	4	5	7	Total (sf)[1]
Segment/Alternative										
Alternative A										
Segment 1	Proposed Alignment	-	-	320	-	-	8,080	20,800	4,100	33,300
	Optional Narrowing of Lake Pkwy	-	-	320	-	-	8,080	7,200	1,020	16,620
Segment 2	Proposed Alignment	-	150	17,060	5,800	4,250	-	9,400	29,870	66,530
Segment 3	Proposed Alignment	13,550	1,600	-	1,500	-	17,800	510	-	34,960
	Optional Upper Alignment	11,650	6,020	-	1,500	-	15,200	510	-	34,880
Alternative A Totals - Segments 1 through 3, with Segment Options										
	Proposed Alignment	13,550	1,750	17,380	7,300	4,250	25,880	30,710	33,970	**134,790**
	Proposed w/ Segment 1 Optional Alignment Only	13,550	1,750	17,380	7,300	4,250	25,880	17,110	30,890	118,110
	Proposed w/ Segment 3 Optional Alignment Only	11,650	6,170	17,380	7,300	4,250	23,280	30,710	33,970	134,710
	Proposed w/ Segment 1 and 3 Optional Alignments	11,650	6,170	17,380	7,300	4,250	23,280	17,110	30,890	118,030
Alternative B										
Segment 1	Proposed Alignment	-	-	320	-	-	8,080	20,800	4,100	33,300
	Optional Narrowing of Lake Pkwy	-	-	320	-	-	8,080	7,200	1,020	16,620
Segment 2	Proposed Alignment	-	-	3,370	12,930	-	-	14,100	12,740	43,140
Segment 3	Proposed Alignment	13,550	1,600	-	1,500	-	17,800	510	-	34,960
	Optional Upper Alignment	11,650	6,020	-	1,500	-	15,200	510	-	34,880
Alternative B Totals - Segments 1 through 3, with Segment Options										
	Proposed Alignment	13,550	1,600	3,690	14,430	-	25,880	35,410	16,840	**111,400**
	Proposed w/ Segment 1 Optional Alignment Only	13,550	1,600	3,690	14,430	-	25,880	21,810	13,760	94,720
	Proposed w/ Segment 3 Optional Alignment Only	11,650	6,020	3,690	14,430	-	23,280	35,410	16,840	111,320
	Proposed w/ Segment 1 and 3 Optional Alignments	11,650	6,020	3,690	14,430	-	23,280	21,810	13,760	94,640

[1] Bolded numbers in this column correspond with those shown for Alternatives A and B in Table 2-1 in Chapter 2, "Alternatives."

Notes: Paved path would be 12-feet-wide along Lake Parkway and U.S. 50 to 4-H Camp Road. Paved path would be 10 feet wide from Kahle Drive to the north end of the project. Table shows net increase or decrease in coverage. Existing compacted dirt roads, road shoulders, and trails are counted as existing coverage.

Source: Lumos & Associates 2010; Adapted by AECOM in 2010

Table 3.5-3
Preliminary Land Coverage Increases by Segment, Parcel, and LCD for Alternatives A and B

Parcel #[1]		Square Feet (sf) by LCD								Total (sf)
		1a	1c	1b	2	3	4	5	7	
Segment 1 – CA/NV State Line on Lake Parkway to North Side of Kahle Drive										
Alternatives A and B (coverage increases in this segment are the same for both action alternatives)										
1318-27-001-001	Edgewood Tahoe Golf Course @ Lake Pkwy	0	0	0	0	0	0	12,030	0	12,030
	Edgewood Tahoe Golf Course, Excluding Lake Pkwy	0	0	320	0	0	8,080	11,360	0	19,760
1318-27-001-004	Edgewood Tahoe Golf Course @ Lake Pkwy	0	0	0	0	0	0	7,950	5,280	13,230
R/W	Lake Pkwy	0	0	0	0	0	0	-7,840	-1,680	-9,520
R/W	U.S. 50 (Lake Pkwy to 4-H Camp Road)	0	0	0	0	0	0	-2,700	0	-2,700
R/W	Laura Drive	0	0	0	0	0	0	0	0	0
R/W	Kahle Drive	0	0	0	0	0	0	0	500	500
	Subtotal	0	0	320	0	0	8,080	20,800	4,100	33,300
Optional Lake Pkwy Configuration – Option to Narrow by 7 feet										
1318-27-001-001	Edgewood Tahoe Golf Course @ Lake Pkwy	0	0	0	0	0	0	4,010	0	4,010
	Edgewood Tahoe Golf Course, Excluding Lake Pkwy	0	0	320	0	0	8,080	11,360	0	19,760
1318-27-001-004	Edgewood Tahoe Golf Course @ Lake Pkwy	0	0	0	0	0	0	2,990	1,980	4,970
R/W	Lake Pkwy	0	0	0	0	0	0	-8,460	-1,460	-9,920
R/W	U.S. 50 (Lake Pkwy to 4-H Camp Road)	0	0	0	0	0	0	-2,700	0	-2,700
R/W	Laura Drive	0	0	0	0	0	0	0	0	0
R/W	Kahle Drive	0	0	0	0	0	0	0	500	500
	Subtotal	0	0	320	0	0	8,080	7,200	1,020	16,620
Segment 2 – North Side of Kahle Drive to Elks Point Bike Path (South Side of Elks Point Road)										
Alternative A										
1318-22-002-017	LTBMU	0	0	4,060	0	0	0	0	10,440	14,500
1318-22-001-009	LTBMU	0	150	13,000	5,800	4,250	0	9,400	17,280	49,880
R/W	U.S. 50	0	0	0	0	0	0	0	2,150	2,150
	Subtotal	0	150	17,060	5,800	4,250	0	9,400	29,870	66,530

Table 3.5-3 (con't.)
Land Coverage Increases by Segment, Parcel, and LCD for Alternatives A and B

Parcel # [1]		Square Feet (sf) by LCD								Total (sf)
		1a	1c	1b	2	3	4	5	7	
Alternative B										
1318-22-002-017	LTBMU	0	0	0	0	0	0	11,300	10,240	21,540
1318-22-001-009	LTBMU	0	0	3,370	12,930	0	0	2,800	2,500	21,600
	Subtotal	0	0	3,370	12,930	0	0	14,100	12,740	43,140
Segment 3 – Elks Point Bike Path (South Side of Elks Point Road) to North End of Path										
Alternatives A and B (coverage increases in this segment are the same for both action alternatives)										
R/W	Elks Point Road	0	0	0	0	0	0	270	0	270
1318-22-001-002	LTBMU	0	0	0	0	0	1,500	240	0	1,740
1318-22-001-001	LTBMU	1,820	1,600	0	0	0	4,300	0	0	7,720
1318-15-401-001	LTBMU (Extent that parallels optional alignment)	2,080	0	0	0	0	0	0	0	2,080
	LTBMU (Round Mound to U.S. 50)	9,650	0	0	1,500	0	12,000	0	0	23,150
R/W	U.S. 50 (at N. End of Project)	0	0	0	0	0	0	0	0	0
	Subtotal	13,550	1,600	0	1,500	0	17,800	510	0	34,960
Optional Upper Alignment around Round Mound										
R/W	Elks Point Road	0	0	0	0	0	0	270	0	270
1318-22-001-002	LTBMU	0	0	0	0	0	1,900	240	0	2,140
1318-22-001-001	LTBMU	0	5,070	0	0	0	1,300	0	0	6,370
1318-15-401-001	LTBMU (Extent of optional alignment)	2,000	950	0	0	0	0	0	0	2,950
	LTBMU (Round Mound to U.S. 50)	9,650	0	0	1,500	0	12,000	0	0	23,150
R/W	U.S. 50 (at N. End of Project)	0	0	0	0	0	0	0	0	0
	Subtotal	11,650	6,020	0	1,500	0	15,200	510	0	34,880

Notes: Paved path would be 12-feet-wide along Lake Parkway and U.S. 50 to 4-H Camp Road. Paved path would be 10 feet wide from Kahle Drive to the north end of the project. Table shows net increase or decrease in coverage. Existing compacted dirt roads, road shoulders, and trails are counted as existing coverage.

[1] Parcel #s correspond to those shown on Exhibits 2-3, 2-4, and 2-5. R/W indicates sections of the shared-use path that would be constructed in a public right-of-way belonging to Douglas County, Oliver Park GID, or NDOT.

Source: Lumos & Associates 2010; Adapted by AECOM in 2010

Standards." The amount of coverage that would be required to be purchased and transferred would be determined on a parcel-by-parcel basis and would be a function of: (1) the extent of TRPA-verified legally existing coverage; (2) the land capability and base allowable coverage; (3) the type of agreement between Douglas County and the affected parcel owners (such as a recorded deed-restricted easement, or right-of-way dedication); and (4) the size of the affected parcel, or width of the recorded easement. These details are unknown at this time as negotiations with property owners are still in their infancy and dependent on the selection of the proposed alignment.

Douglas County has engaged in discussions with owners of potential sending parcels and the Nevada Division of State Lands (NDSL) land bank, and has determined that there are sufficient sources of land coverage available for purchase and transfer from locations within the South Stateline hydrologic transfer area. According to County representatives, the County has also identified parcel owners outside the hydrologic transfer area that may be willing to donate coverage or offer it at a below market rate. This information is considered proprietary and therefore is not included in this EA. Regardless, before groundbreaking and acknowledgement of the TRPA LPF permit, Douglas County would be required to demonstrate evidence of purchase and transfer of the required coverage, and restoration of any relocated coverage, in accordance with TRPA regulations. Because the coverage increases associated with the action alternatives would occur in accordance with TRPA regulations, the action alternatives would not result in an adverse effect as it relates to coverage.

Cumulative Effects

The related on the ground development projects in the South Lake Tahoe and Douglas County portions of the Tahoe Basin (as listed in Table 3.1-1) as well as the South Demonstration Project, either Alternative A or B, have the potential to increase coverage in the Basin. However, all these projects are required to adhere to TRPA Code of Ordinances Chapter 20, "Land Coverage Standards," which sets forth regulations for the permissible amount of land coverage in the Region, including LCDs, prohibition of additional land coverage in certain land capability districts, and transfer and mitigation of land coverage. Therefore, the South Demonstration Project, as described above, and all related projects that result in additional coverage in Table 3.1-1 would be limited to the percent coverage allowed for each LCD set forth in TRPA Code of Ordinances Section 20.3 or would be required to mitigate coverage in excess of the base allowable by identifying, purchasing, and transferring coverage from off-site parcels in accordance with TRPA Code of Ordinances Chapter 20 so as not to increase the total coverage in the Tahoe Basin. Therefore, related projects listed in Table 3.1-1 as well as the South Demonstration Project would not result in adverse cumulative effects related to increases in coverage.

Alternative C

Direct and Indirect Effects

Under Alternative C, the shared-use path as described under Alternatives A and B would not be constructed; there would be no relocation, removal, or addition of coverage to any project parcels. Therefore, under Alternative C, there would be no change in land coverage within the project area attributed to the proposed project.

Cumulative Effects

Under Alternative C, no shared-use path would be constructed; therefore, Alternative C would result in no contribution to potential cumulative effects related to increases in coverage.

Although the related projects listed in Table 3.1-1 would result in cumulative changes in land coverage in the project vicinity, Alternative C would not contribute to cumulative land coverage effects because this alternative would not result in any project-related relocation, removal, or addition of coverage.

Grading and Soil Erosion

Alternatives A and B

Direct and Indirect Effects

The proposed shared-use path action alternatives would generally follow the natural contours of the existing topography, and project facilities would not change the topographic features such that they would be inconsistent with the natural surrounding conditions. Cut and fill quantities would be balanced to the maximum extent practicable as to minimize the need to import and/or export earthen material. Construction activities would result in the temporary disturbance of soil and would expose disturbed areas to 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 events. Furthermore, the proposed shared-use path would entail crossing SEZs.

Design features incorporated into the project would minimize soil erosion and effects to SEZ areas by limiting surface disturbance to between May 1 and Oct 15, would require implementation of temporary and permanent water quality BMPs, would develop a spill prevention plan, would require restoration and design elements (e.g., boardwalk/bridges) in sensitive areas, would prevent stockpiles from entering stream channels, would use existing disturbed areas for staging and storage, would restore soil function and organic matter post project implementation, and would restore protective ground and vegetative cover (see Design Features BMP-1 through BMP-19 and BIO-11 as described in Chapter 2).

The TRPA Code of Ordinances prohibits excavation deeper than 5 feet below ground surface because of the potential for groundwater interception or interference, except under certain defined and permitted conditions (TRPA Code of Ordinances Section 64.7.B). Construction of the shared-use path for both action alternatives would require excavation below 5 feet in isolated locations. Excavation below 5 feet would be required for the bridge abutments that would support the prefabricated bridge over Edgewood Creek and at locations around Round Mound where cross slopes exceed 30%. As described in Section 3.3, “Hydrology and Water Quality,” a soils/hydrologic study pursuant to TRPA Code Section 64.7.B(1) is being prepared as part of the TRPA Project Permit application for a Linear Public Facility, which will provide more detailed information on soils and depths to groundwater. Design Feature BMP-14 includes a dewatering plan for locations where groundwater may be encountered. The dewatering plan would include measures to be taken in the event that groundwater is encountered as a result of excavation below 5 feet such that there would not be an adverse effect on SEZ vegetation or groundwater.

The successful implementation of the above-described project design features and adherence to TRPA grading regulations and Douglas County Site Improvement Permit conditions would minimize potential effects from grading and in relation to soil erosion.

Cumulative Effects

The related projects listed in Table 3.1-1 as well as the South Demonstration Project, either Alternative A or B, would be required to: minimize soil erosion and effects to SEZ areas by limiting surface disturbance to between May 1 and Oct 15; include project design features or mitigation measures such as preventing stockpiles from entering stream channels, using disturbed areas for staging and storage, restoring soil function and organic matter post project implementation; comply with TRPA, NDEP, and Douglas County regulations; develop a spill prevention plan; and implement BMPs that are expected to offset each project’s short-term (construction) and long-term (operational) effects related to soil erosion, sedimentation, or release of pollutants. Furthermore, all related projects would be required to adhere to TRPA Code of Ordinances Chapter 64, “Grading Standards” to protect against adverse effects from excavation, filling, and clearing, due to such conditions as exposed soils,

unstable earthworks, or groundwater interference. Therefore, the South Demonstration Project and related projects in the South Lake Tahoe and Douglas County portions of the Tahoe Basin (as listed in Table 3.1-1) would not result in adverse cumulative effects related to grading and soil erosion.

Alternative C

Direct and Indirect Effects

Under Alternative C, the shared-use path as described under Alternatives A and B would not be constructed; therefore, this alternative would not contribute to soil erosion or exceed designated grading regulations. Therefore, under Alternative C, there would be no project-related effects to soils within the project area.

Cumulative Effects

Under Alternative C, no shared-use path would be constructed; therefore, Alternative C would result in no grading and would not contribute to potential cumulative effects related to grading or soil erosion.

Seismic and Geologic Hazards

Alternatives A and B

Direct and Indirect Effects

Potentially active faults that are closest to the proposed shared-use path alternatives include the Genoa Fault and the Tahoe Valley Fault. The Genoa Fault is located approximately 6 miles east of the proposed shared-use path alternatives, and is capable of generating an earthquake of moment magnitude 7.4. The Tahoe Valley Fault is located approximately 3 miles southwest of the proposed shared-use path alternatives. Other fault zones in the Basin, including the North Tahoe and West Tahoe-Dollar Point, also may pose a hazard for strong seismic ground shaking in the project vicinity. The action alternatives would include construction of a shared-use path, an expanded parking lot, a restroom, and structures over creek crossings. The project does not include any buildings intended for human occupation. The project components would be designed and constructed in accordance with Douglas County's seismic standards designed to reduce the risk of injury or property damage from seismic hazards, including strong ground shaking.

The proposed shared-use path alternatives would be constructed in soil types composed of silty sands and weathered granite, which have an extremely low shrink/swell potential. No previous landslides have been mapped in the location of planned project facilities. The elevation along the shared-use path and at the proposed restroom facilities/expanded parking lot is nearly level, except in the vicinity of Round Mound where there would be a gradual increase and decrease of approximately 50 feet. The shared-use path would be constructed around (rather than over) Round Mound, which rises to an elevation that is approximately 400 feet above lake level. Because the project facilities would be constructed to follow the existing natural contours to the extent feasible, project construction would not result in the creation of unstable slopes that would subject recreational users to an increased hazard.

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. Based on a review of soil types associated with project facilities, it is possible that liquefaction could occur in the event of a large magnitude earthquake on one of the potentially active

faults in the Lake Tahoe Basin. However, the project components would be designed and constructed in accordance with Douglas County design requirements (as required by law) that are intended to reduce the risk of injury or property damage from seismic hazards, including strong ground shaking.

Ichinose et al. (1999) 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. However, the project facilities would be constructed in an area that already has urban development and recreational facilities, including residential housing and a golf course, and users of the path are expected to be people who already reside or recreate in the Tahoe Basin; therefore, construction of the proposed improvements would not create a situation that exposes additional people to tsunami hazards. Furthermore, there is no way of knowing whether or not a tsunami with enough force to damage project improvements or to present a safety hazard to recreational users would ever be generated during the lifetime of the project facilities.

Cumulative Effects

The related projects listed in Table 3.1-1 as well as the South Demonstration Project, either Alternative A or B, would be required to be designed and constructed in accordance with Douglas County's seismic standards, which are designed to reduce the risk of injury or property damage from seismic hazards, including strong ground shaking. Douglas County has adopted standards set forth in the International Building Code (IBC). In addition, related projects would be required to implement seismic design recommendations contained in project-specific geotechnical reports. Therefore, the South Demonstration Project and related projects in the South Lake Tahoe and Douglas County portions of the Tahoe Basin (as listed in Table 3.1-1) would not result in adverse cumulative effects related to seismic or geologic hazards.

Alternative C

Direct and Indirect Effects

Under Alternative C, the shared-use path as described under Alternatives A and B would not be constructed; therefore, this alternative would not result in increased risk of injury or property damage from strong seismic ground shaking, landslides, or associated geologic hazards. Therefore, under Alternative C, there would be no project-related effects to geologic hazards within the project area.

Cumulative Effects

Under Alternative C, no shared-use path would be constructed; therefore, Alternative C would result in no new structures and would not contribute to cumulative effects related to seismic or geologic hazards.

3.5.5 Consequences for TRPA Environmental Threshold Carrying Capacities

This section describes the effects of implementing the action alternatives on the thresholds established for soil conservation by TRPA. Two soil conservation thresholds have been established by TRPA:

- SC-1, Land Coverage (Impervious Cover), and
- SC-2, Stream Environment Zone.

The Lake Tahoe Basin's status in 2006 was nonattainment for both SC-1 and SC-2. However, the 2006 Threshold Evaluation Report states, "There has been significant progress and an upward trend in the area of Soil Conservation" (TRPA 2007:9). The report indicates that the key cause for the nonattainment determination for SC-1 is unmitigated excess coverage associated with pre-1987 development (i.e., development that occurred

before adoption of the 1987 Regional Plan). New projects must comply with TRPA's land capability classification requirements; therefore, the Lake Tahoe Basin may be better described as being in "partial attainment" of SC-1 (TRPA 2007:9).

SC-1, Land Coverage (Impervious Cover)

TRPA regulations allow linear public facilities (such as the proposed shared-use path alternatives) the minimum amount of coverage needed to achieve their public purpose (TPRA Code of Ordinances Section 20.3.B [4]). The proposed shared-use path alternatives would result in increases in land coverage within parcels traversed by the proposed shared-use path (Table 3.5-2). In this case, the minimum coverage needed to construct the LPF meeting stated goals and AASHTO and ADA standards would be the proposed coverage changes described above. Design features built into the project would minimize coverage effects to sensitive land coverage types such as SEZs (discussed above and in Section 3.4, "Biological Resources"). Because implementing either of the action alternatives would result in coverage increases that are consistent with TRPA regulations, the action alternatives would be consistent with the threshold for land coverage.

SC-2, Stream Environment Zone

Attainment of the SEZ threshold is tracked basin wide and tracked for three categories: naturally functioning SEZs; SEZs in undeveloped, unsubdivided lands; and SEZs in disturbed, developed, or subdivided areas. The SEZ threshold has a "nonattainment" status.

Design features incorporated into the project would minimize soil erosion and effects to SEZ areas by limiting surface disturbance to between May 1 and Oct 15, would require implementation of temporary and permanent water quality BMPs, would develop a spill prevention plan, would require restoration and design elements (e.g., boardwalk/bridges) in sensitive areas, would prevent stockpiles from entering stream channels, would use existing disturbed areas for staging and storage, would restore soil function and organic matter following project implementation, and would restore protective ground and vegetative cover (Design Features BMP-1 through BMP-19, and BIO-11). Because protective measures are incorporated into the design of the action alternatives that protect SEZ areas and coverage increases in SEZ areas would occur consistent with TRPA regulations, the action alternatives would not be expected to impede or degrade the attainment of the SEZ threshold.

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3.6 Scenic Resources

3.6.1 Scope of the Analysis

This section describes the visual setting in the project area and the potential effects of Alternatives A, B, and C on scenic resources. The analysis in this section is based on an evaluation conducted by Tom Packard & Associates for the South Demonstration Project.

3.6.2 Assessment Factors

NEPA – U.S. Forest Service, Lake Tahoe Basin Management Unit Forest Plan

The LTBMU Forest Plan, as amended by the SNFPA, was used as the basis for evaluating the project's impact on scenic resources under NEPA. Directions described in the Forest Plan pertaining to scenic resources, including visual quality restoration and improvement, were considered as criteria against which the project was evaluated. The context and intensity of an alternative's potential impact to scenic resources were evaluated based on whether the project would:

- meet adopted Visual Quality Objectives (VQO);
- increase opportunities to view Lake Tahoe or other scenic attractions;
- include design features rectifying scenic issues for any project-related activities where the activity would alter the landscape beyond the adopted VQOs; and
- provide an aesthetically pleasant experience of moving through the basin that includes opportunities to appreciate the lake as a focal point, and emphasizes the natural rather than the human-made environment.
- To manage scenic quality, LTBMU has identified VQOs for the NFS lands under its jurisdiction. As defined in the SNFPA, Preservation represents the highest degree of scenic quality protection (i.e., unaltered scenic quality) with incrementally less protection afforded by the categories of Retention (i.e., appearing unaltered), Partial Retention (i.e., appearing slightly altered), Modification (i.e., moderately altered), and Maximum Modification (i.e., heavily altered) (USFS 2001). The NFS land in the vicinity of the South Demonstration Project is designated for either Retention or Partial Retention of scenic qualities.

Tahoe Regional Planning Agency

The TRPA Initial Environmental Checklist was used for evaluating the project's impact on scenic resources under TRPA regulations. Items on the checklist pertaining to scenic resources were considered as criteria against which the project was evaluated. The context and intensity of an alternative's potential to adversely affect scenic resources were evaluated based on whether the project 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; and

- be inconsistent with the TRPA Scenic Quality Improvement Program (SQIP) or Design Review Guidelines.

3.6.3 Affected Environment

Visual Character of the Project Area and Surrounding Environment

The South Demonstration Project extends for approximately 3.2 miles from the California/Nevada border at the south shore casino area to approximately 0.3 miles north of the entrance to Round Hill Pines Beach north of Round Mound at the boundary between NFS land and private property (Exhibits 2-1 and 2-2). Approximately 2.2 miles of the shared-use path are proposed on NFS lands.

The southern portion of the project area from the state line to Kahle Drive is occupied by urban development with primarily commercial, golf, or residential uses. The landscape appearance is, therefore, mostly urban in character. Topography in this area is relatively flat. Prominent land uses include the Edgewood Tahoe Golf Course, adjacent casinos, commercial businesses near Kingsbury Grade (SR 207) and U.S. 50, and residences.

The northern portion of the project area from Kahle Drive to Round Hill Pines Beach is mostly undeveloped and has a rural and natural-appearing character. This portion is dominated by naturally occurring vegetation including a large meadow and forest stands. The topography is varied with Round Mound being the most prominent topographic feature. Developed public recreation facilities exist at Nevada Beach and Round Hill Pines Beach. Several trails are located in the Rabe Meadow area. A gated, private residential development (Elks Point Neighborhood) is located in the area immediately north of Nevada Beach and west of Round Mound.

The project is partially within TRPA Roadway Travel Unit 30D, Round Hill; Roadway Travel Unit 31, Meadow; and Roadway Travel Unit 32, Casino Area. The project is partially within the grounds of Nevada Beach, a TRPA-listed public recreation area identified in the 1993 Lake Tahoe Basin Scenic Resource Evaluation. The TRPA threshold composite ratings for the Roadway Travel Units near the South Demonstration Project are as follows (TRPA 2007): 19 for Roadway Travel Unit 30D, Round Hill; 17.5 for Roadway Travel Unit 31, Meadow; and 13.5 for Roadway Travel Unit 32, Casino Area. Roadway Travel Unit 30D and Roadway Travel Unit 31, Meadow are in attainment while Roadway Travel Unit 32 is not.

The LTBMU employs a systematic approach known as the Visual Management System to manage scenic quality on federal lands within the Lake Tahoe Basin. The landscape has been mapped with various Scenic Classes as part of the Visual Management System. Scenic Classes measure the relative importance, or value, of discrete landscape areas having similar characteristics of scenic attractiveness and landscape visibility and are used in the forest planning process to compare the value of scenery to other resource values. Scenic Classes 1 and 2 have high public value while Classes 3, 4, and 5 have moderate value and Classes 6 and 7 have low value. The LTBMU Scenic Class of the NFS lands through which the South Demonstration Project traverses is either Scenic Class 1 or 2.

Visibility of the Project

The following describes the visual characteristics of each of the shared-use path alignments being considered. Views of the shared-use path would be available from many places along these routes, including from U.S. 50 and SR 207. No portion of the shared-use path would be visible from Lake Tahoe or any portion of the shoreline due to its distance from the shoreline or because of screening by trees, topography, and existing structures in areas where it would be relatively close to the lake. This finding is based on direct observations made in the field and a study of photographs taken from the lake looking toward the shore.

Under Alternative A, the shared-use path would begin at Lake Parkway and the state line in the casino core. It would run parallel to Lake Parkway on the west side of the road along the frontage of the Edgewood Tahoe Golf Course property. It would be visible from Lake Parkway and nearby portions of the golf course. Upon reaching U.S. 50, the alignment would turn north and continue along the Edgewood Tahoe Golf Course property paralleling U.S. 50. At Edgewood Creek, a 120-foot-long by 12-foot-wide prefabricated steel truss bridge would be installed across the creek. This segment of the shared-use path would be visible from U.S. 50. Near the northwest corner of the golf course property, the shared-use path would angle northwest and pass through an existing stand of trees and would join Laura Drive at its intersection with 4-H Camp Road. At this point the shared-use path would be an on-road facility that would follow Laura Drive to Kahle Drive and would not be seen from U.S. 50. North of Kahle Drive, the shared-use path would enter NFS lands. The area from the state line up to this point is Segment 1 of the project (Exhibit 2-3).

The shared-use path alignment for Alternative A would proceed east along the north side of Kahle Drive toward U.S. 50. The shared-use path along with the expanded parking area, new restroom facility, and information kiosk would be in view from Laura Drive and Kahle Drive, nearby apartments and single-family residences, and the existing parking area on NFS lands at the corner of Kahle Drive and U.S. 50. At this point the shared-use path would turn north to parallel the west side of U.S. 50 for approximately 0.6 mile. A 55-foot-long by 12-foot-wide prefabricated bridge would be installed across Burke Creek near U.S. 50. Approximately 350 feet north of the bridge, the path would narrow to 8 feet with no shoulders and the next 350 feet would be located entirely within the NDOT right-of-way. Along this narrow segment of the shared-use path, a concrete barrier with a 42-inch-high safety railing would be required between the path and the highway for a distance of about 440 feet. A short distance north of this location a 60-foot-long by 12-foot-wide, prefabricated bridge would be installed to span a tributary of Burke Creek. The shared-use path would continue north adjacent to the west side of U.S. 50 for another 1,990 feet. The shared-use path, associated bridges, and roadside safety barrier would be visible from U.S. 50 along this stretch. At this point it would turn northwest and connect with existing dirt trails where it would cross through meadow and forest. It would not be visible from U.S. 50 once it enters the forest in this area. It would join the existing Elks Point Bike Path along the south side of Elks Point Drive. This is Segment 2 of the project (Exhibits 2-4 and 2-6).

From this point the shared-use path would follow the existing Elks Point Bike Path a short distance westward toward Nevada Beach. It would cross Elks Point Road just before the entrance to the Nevada Beach Campground and Day Use Area. Views of the shared-use path in this area would be available from Elks Point Road and the existing bicycle path on this road. From the north side of Elks Point Road, the shared-use path would follow the contours on NFS land around the west side of Round Mound. Views of the shared-use path and retaining walls in this area would occur from Elks Avenue/Hill Street, a private street that extends from the end of Elks Point Road. Similarly, the shared-use path would be visible from private properties along the west side of Elks Avenue/Hill Street. The shared-use path would pass through the Round Hill Pines Resort, cross the Round Hill Pines Beach entrance road, and connect to a segment of Old Lincoln Highway that runs parallel to and west of U.S. 50. Views of the shared-use path would occur where it would cross the beach entrance road. The alignment would generally follow the Old Lincoln Highway alignment northward for approximately 0.3 mile. It would terminate at U.S. 50. The termination point would be in view from U.S. 50 at this location. This portion of the project comprises Segment 3 (Exhibit 2-5).

Segments 1 and 3 of Alternative B would be the same as described above for Alternative A. Within Segment 2, Alternative B would turn west toward the lake after crossing Kahle Drive at Laura Drive and run adjacent to Kahle Drive for approximately 0.3 mile at which point it would turn north to connect with the Lam Watah Trail. The existing boardwalk over Burke Creek would be removed and a new shared-use, low level (less than 30 inches off the ground) boardwalk would be constructed. Segment 2 of Alternative B would follow the Lam Watah Trail, and then split off to the north to follow existing dirt trails to the existing Elks Point Bike Path on the south side of Elks Point Road. Views of Segment 2 of Alternative B would occur from existing trails within the meadow and adjoining forest (Exhibits 2-4 and 2-6).

3.6.4 Environmental Consequences

Effects on Scenic Resources

The proposed shared-use path is a linear facility. It would consist primarily of a paved surface at ground level. The shared-use path would have few structures or other elements extending above ground level. Structures would include bridges crossing small streams, a proposed new restroom facility, information kiosks, retaining walls in some locations with steeper terrain, and for Alternative A, a concrete traffic barrier along a short section of the path (Exhibits 2-7 through 2-9). Scenic effects could result from the addition of visible path and structural elements in the landscape and alteration of the landscape through grading and/or vegetation removal.

Alternative A

Direct and Indirect Effects

Although the shared-use path would be visible, it would be generally unobtrusive because it lies directly on the ground. An exception to this would be a prefabricated steel truss bridge that would be installed across Edgewood Creek on the west side of U.S. 50. The deck of this bridge would be 120 feet long and 12 feet wide and would be cambered to have a gentle crown making it slightly higher at its midpoint. It would have 54-inch high steel side rails. The steel bridge would be constructed of Corten steel providing a weathered surface with a dark brown, rust-like color. At present there is a black vinyl-clad chain-link fence approximately 6 feet high along the west side of U.S. 50 where the creek crosses the highway. The fence is mounted atop a concrete parapet that extends approximately 18 inches above the adjoining ground surface. The fence would remain in place and the shared-use path and bridge would be behind the fence. Specimen trees in and near the creek channel and between the proposed bridge and the highway would not be removed. The trees, the chain-link fence, and shrubby plants in the creek channel would partially screen views of the bridge from the highway. The proposed bridge would come into view from U.S. 50 as motorists approach it. At the posted speed limit of 35 MPH, the bridge may be seen for approximately 10 to 15 seconds as motorists approach and pass it.

The shared-use path would include new landscaping in Segment 1 in front of the Edgewood Tahoe Golf Course along Lake Parkway and U.S. 50. For the six relocated light poles along U.S. 50, a final lighting plan (detailing proposed height, style, and type) would be developed in consultation with and subject to TRPA, Douglas County, and NDOT design standards. The landscaping would be designed in accordance with TRPA guidelines and is intended to visually enhance the setting by adding seasonal color and a variety of vegetative forms, heights, and textures along the roadside. The roadside landscaping would include plant materials that include herbaceous groundcover, aspen and pine trees, and shrubs. The landscaping would not affect views of the lake because topography and trees form a screen in this area when looking west across the golf course from Lake Parkway and U.S. 50. Alternative A would not cause adverse visual effects in Segment 1.

The existing parking lot on NFS land near the corner of Kahle Drive and U.S. 50 would be expanded westward by adding 14 parking spaces to the existing 9 spaces. An up to 6-stall public restroom facility would also be constructed. Two picnic tables, bicycle racks, and a kiosk would also be added (Exhibit 2-6). The restroom building would be typical of those facilities recently constructed by the LTBMU in the Lake Tahoe Basin. Its design would conform to the USFS's Built Environment Image Guide and TRPA design guidelines and height limitations (Design Feature SCE-2). The existing split-rail fence along the north side of the parking lot would be extended along the length of the expanded lot. The proposed improvements, particularly the addition of the restroom building, would create a noticeable change in the visual character of the existing parking facility.

The VQO adopted in the current Forest Plan for Rabe Meadow, including the parking area, is Retention (i.e., to retain existing scenic qualities). Under the Retention VQO, management activities may repeat form, line, color, and texture which are frequently found in the characteristic landscape. The proposed restroom facility would be

consistent with the Retention VQO. The structure would utilize the visual characteristics of line, color, form and texture found in the characteristic landscape and would comply with the USFS Built Environment Image Guide. While the new restroom would not be seen from trails within the meadow due to topography and screening vegetation along Burke Creek, it would be visible from U.S. 50, for a stretch of about 400 feet from south of Burke Creek to north of the Stateline Center at the southwest corner of U.S. 50 and Kahle Drive. While the restroom building would be visually apparent it would not dominate the view nor change the character of the setting. The structure would be located adjacent to a public roadway and across the street from private development. Willows along Burke Creek would screen views of the restroom building from points on U.S. 50 north of the creek, while the existing buildings at the Stateline Center would screen views from points to the south.

Within Segment 2, Alternative A would be aligned along U.S. 50 for a distance of approximately 0.6 miles as it heads northward from the parking lot on Kahle Drive near U.S. 50. The shared-use path would cross Burke Creek and a tributary of Burke Creek within this stretch. Both creek crossings would require bridges. The bridges would be the same style and material as the bridge planned for Edgewood Creek described above and both would have 54-inch high steel side rails. The bridge at Burke Creek would be 55 feet long. Approximately 350 feet north of Burke Creek the shared-use path would be aligned immediately next to U.S. 50 where it passes in front of a private parcel in Rabe Meadow. Because it would be immediately adjacent to the highway, a concrete vehicle barrier with 42-inch-high metal railing would be required between the southbound shoulder of U.S. 50 and the shared-use path. The concrete barrier would extend for a distance of about 440 feet. A retaining wall would be needed within this same section at the point where an existing culvert would be extended to pass underneath the shared-use path. The top of the retaining wall would be level with the surface of the shared-use path and would thus require a 54-inch-high safety railing mounted on top of it. The second bridge in Segment 2 would be just beyond the north end of the concrete barrier. This bridge would be 60 feet long. North of the bridge, the shared-use path would be aligned parallel to the highway but just beyond (outside) the highway right-of-way. The setback between the highway and the shared-use path would be sufficient so that no concrete safety barrier would be required along the roadway.

The two bridges, concrete safety barrier with metal railing, and railing along the top of a retaining wall would be conspicuous, new, human-made features in this setting. These features would be in full view from U.S. 50 since they would be immediately at the roadside or close to it in foreground views. These structures would be designed so as to reflect the visual characteristics of line, color, form and texture found in the characteristic landscape and would comply with the USFS Built Environment Image Guide (Design Feature SCE-2). They would be consistent with the VQO of Retention that applies to the meadow. Most motorists would be able to see over the solid portion of the safety barrier and through the metal rail. These features would affect views of the meadow from the highway for 440 feet directly in the near foreground of the motorist’s view, but would not significantly alter the visual character of the overall setting. The west side of the highway in this area is now free of human-made features except for a few highway information signs and one electronic changeable message sign and related control boxes. The presence of the two bridges and roadside safety barrier would have an incremental visual effect detracting from the naturally appearing landscape.

The remaining portion of the shared-use path in Segment 2 would turn west away from the highway and be aligned along existing dirt trails through a stand of trees on NFS lands to where it would join the existing Elks Point Bike Path adjacent to Elks Point Road. The adopted VQO for this area is Partial Retention, which allows for minor alteration of scenic qualities. The shared-use path would be unobtrusive in this area and would meet the VQO of Partial Retention. It would not have an adverse visual effect.

In Segment 3, Alternative A would cross Elks Point Road near the entrance to Nevada Beach. The adopted VQO on NFS land north of Elks Point Road is Partial Retention. Along the north side of Elks Point Road, the shared-use path would require a retaining wall. The wall would vary from 0 to 8 feet tall, would be approximately 290 feet long, and would be constructed on the downhill side of the shared-use path. It would have a natural stone or

textured concrete façade that would be treated to give it a darkened, weathered appearance. A 54-inch-high split rail fence would be installed along the edge of the shared-use path at the top of the retaining wall. The wall would end at the northeast corner of Elks Point Road and Elks Avenue/Hill Street, just before the entrance to Nevada Beach, where a set of stairs would lead from the shared-use path to Elks Point Road. The stairs would be constructed of timber and would be visible from the west end of Elks Point Road and the south end of Elks Avenue/Hill Street. Their material and color would have a low level of visual contrast with the immediate surrounding area. Heading north from this point, the shared-use path would be located on NFS land near the base of the west side of Round Mound. The shared-use path would be visible in this area from Elks Avenue/Hill Street and private properties along the west side of the street. Two stone retaining walls with split rail fencing would be required along this stretch. The walls would be constructed on the downhill side of the shared-use path and would vary from 0 to 8 feet tall. One would be about 170 feet long and the other about 190 feet long.

While the shared-use path itself would be unobtrusive in this Round Mound area of Segment 3, the retaining walls would be visible from the end of Elks Point Road and from Elks Avenue/Hill Street but not from the lake or Nevada Beach. The weathered stone material and split rail fencing would be visually compatible with the surrounding landscape and have minimal contrast. The walls would be consistent with the VQO of Partial Retention established by the LTBMU for this area. Their visual impact would be low, because of their materials and minimal visual contrast with the surrounding landscape.

In the portion of Segment 3 north of Round Mound, the shared-use path would pass through the un-used portion of Round Hill Pines Resort, cross the Round Hill Pines Beach entrance road, and connect to a segment of Old Lincoln Highway west of U.S. 50. Two stone retaining walls with split rail fencing would be required in the area just north of the entrance road. The shared-use path and retaining walls would be visible from the entrance road. The shared-use path would generally follow Old Lincoln Highway northward and terminate at U.S. 50. The termination point would be momentarily in view from U.S. 50 but would be unobtrusive. The shared-use path would be consistent with the Partial Retention VQO established for this area and would not create an adverse visual effect.

For most of its alignment, Alternative A would increase opportunities for views of scenic attractions and would provide an aesthetically pleasant experience of moving through the project area that includes an emphasis on the natural rather than the human-made environment. The section of Segment 2 adjacent to U.S. 50 would diminish the scenic attraction of the shared-use path, because of the close proximity to a four-lane highway with substantial vehicular traffic.

No portion of Alternative A would be visible from Lake Tahoe or from any TRPA-listed recreation area since it would be screened by trees, topography, and existing structures. Alternative A would not block or modify an existing view of Lake Tahoe. Alternative A would be consistent with the SQIP and the Design Review Guidelines.

Cumulative Effects

Alternative A would result in incremental visual effects along U.S. 50 north of Kahle Drive. Bridge structures and a concrete safety barrier along the edge of the highway would be new, human-made features in this otherwise natural-appearing setting, but would be designed to be consistent with the USFS Built Environment Image Guide, and applicable NDOT and TRPA design standards, and would not significantly alter the overall visual character of this landscape. Other related projects (see Table 3.1-1), such as Beach Club on Lake Tahoe and Sierra Colina Village, would also result in man-made features visible along the same portion of U.S. 50 (Roadway Travel Unit 31). However, these projects would comply with, SQIP, Design Review Guidelines, and policies in the applicable Plan Area Statements, which are designed to preserve scenic integrity, and these projects would not result in cumulative adverse visual effects.

Alternative B

Direct and Indirect Effects

The effect of Alternative B within Segment 1 would be the same as that described for Alternative A. Within Segment 2, Alternative B would be aligned through Rabe Meadow and the adjoining forest. Segment 2 of Alternative B would include the proposed parking lot expansion and new restroom building. From Laura Drive the shared-use path would be on the north side of Kahle Drive extending west (toward the lake) from the west end of the expanded parking lot past Michelle Drive. Similar to Alternative A, the LTBMU-adopted VQO of Retention adopted for Rabe Meadow would be met through the Built Environment Image Guide-compliant facility design at the Kahle Drive parking area (Design Feature SCE-2). About 300 feet past Michelle Drive the shared-use path would turn north into the meadow. It would cross Burke Creek on a new boardwalk that would replace the existing boardwalk just east of its current location and connect with the Lam Watah Trail. The new boardwalk would be designed to have the same visual character and appearance as the existing boardwalk but would meet the project's width requirements. Safety rails would not be required on the boardwalk since it would be less than 30 inches off the ground. The shared-use path would follow the Lam Watah Trail northward for a short distance, and then split off to follow existing dirt trails to where it would join the existing Elks Point Bike Path on the south side of Elks Point Road. The shared-use path would be seen from existing trails within the meadow and adjoining forest, but not from U.S. 50, the Nevada Beach campground, or shoreline area. It would be unobtrusive and consistent with the existing setting of the meadow and forest. The section of Segment 2 aligned through the meadow and forest would also be consistent with the LTBMU's VQO of Retention for the meadow area, because of its unobtrusive character.

The effect of Alternative B within Segment 3 would be the same as that described for Alternative A.

Alternative B would increase opportunities for views of scenic attractions and would provide an aesthetically pleasant experience of moving through the project area that includes an emphasis on the natural rather than the human-made environment.

No portion of Alternative B would be visible from Lake Tahoe or from any TRPA-listed recreation area since it would be screened by trees, topography, and existing structures. Alternative B would not block or modify an existing view of Lake Tahoe. Alternative B would be consistent with the SQIP and the Design Review Guidelines.

Cumulative Effects

Alternative B would have no adverse visual effects. It would be unobtrusive in views from U.S. 50 and would improve the appearance of the roadside with new landscaping. No aspect of the project would be seen from Lake Tahoe. The visual effect of the restroom building is very localized and would be consistent with the USFS Built Environment Image Guide and TRPA design standards. It is not expected to combine with other known landscape changes expected in the area. Other related projects (see Table 3.1-1), such as Beach Club on Lake Tahoe and Sierra Colina Village, would also result in man-made features visible along the same portion of U.S. 50 (Roadway Travel Unit 31). However, these projects would comply with SQIP, Design Review Guidelines, and policies in the applicable Plan Area Statements, which are designed to preserve scenic integrity, and these projects would not result in adverse visual effects. The related projects and South Demonstration Project Alternative B would, therefore, not result in an adverse cumulative effect to scenic resources.

Alternative C

Direct and Indirect Effects

Under Alternative C, the shared-use path described under Alternatives A and B would not be constructed. Under this alternative, no bridges, expanded parking areas, or restrooms would be constructed within the project area. Therefore, under Alternative C, there would be no change in existing visual conditions within the project area. Alternative C would have no visual effects because it would not change the appearance of the project area in any way.

Cumulative Effects

Under Alternative C, no shared-use path would be constructed; therefore, Alternative C would result in no contribution to potential cumulative effects related to scenic resources.

3.6.5 Consequences for TRPA Environmental Threshold Carrying Capacities

This section describes the effects of the two project alternatives on TRPA environmental thresholds for scenic resources. Four scenic thresholds have been established by the TRPA:

- SR-1, Travel Route Ratings;
- SR-2, Scenic Quality Ratings;
- SR-3, Public Recreation Area Scenic Quality Thresholds; and
- SR-4, Community Design.

SR-1, Travel Route Ratings

The South Demonstration Project would be partially within TRPA Roadway Travel Unit 30D, Round Hill; Roadway Travel Unit 31, Meadow; and Roadway Travel Unit 32, Casino Area. No portion of the project would be visible from any Shoreline Travel Unit since it would be screened by trees, topography, and existing structures. The project would be unobtrusive within Roadway Travel Unit 30D, Round Hill. The project would be visible, but would be visually compatible with the setting and character within Roadway Travel Unit 32, Casino Area. That is because Roadway Travel Unit 32 has an urbanized character and human-made features are visually prevalent. However, Segment 2 of Alternative A would introduce new human-made features including two bridges and a concrete safety barrier with metal railing along the roadside of U.S. 50. They would be within the foreground of the view toward Rabe Meadow within Roadway Travel Unit 31, Meadow. TRPA's 2006 Threshold Evaluation Report shows that Roadway Travel Unit 31, Meadow is in attainment with a 2006 Threshold Composite Rating of 17.5. The 1982 rating for this unit was 14 (below the attainment threshold of 15). The addition of proposed human-made features associated with Alternative A would adversely affect the Man-made Features subcomponent score of the Travel Route Rating. This would cause a decrease in the Threshold Composite Rating, although not to extent that the rating would drop below the attainment threshold of 15.

The alignment of Segment 2 of Alternative B would be through the interior of the meadow rather than along U.S. 50 and thus would not include the roadside barrier and bridges needed for Alternative A described above. Segment 2 of Alternative B would be unseen from the highway. Thus Alternative B would not adversely affect SR-1, Travel Route Ratings.

SR-2, Scenic Quality Ratings

SR-2, Scenic Quality Ratings within Roadway Travel Unit 30D, Round Hill and Roadway Travel Unit 32, Casino Area would not be adversely affected by implementing either of the project action alternatives. However, implementing Segment 2 of Alternative A would have an adverse effect on Scenic Quality Ratings within Roadway Travel Unit 31, Meadow. Views from the highway in this area include Scenic Resource 31.1 (views of the lake) and Scenic Resource 31.2 (the open view of Rabe Meadow). The two bridges and concrete safety barrier with metal railing along U.S. 50 would hamper or disrupt views of these scenic resources and would affect their subcomponent scores for Intactness. The 1982 composite rating for Scenic Resource 31.1 was 8. This rating increased to 10 in 2001. Project features in Segment 2 of Alternative A would cause a decrease in the Threshold Composite Rating of Scenic Resource 31.1, although not to extent that it would drop be below the 1982 score. The resource would therefore remain in attainment. The 1982 composite rating for Scenic Resource 31.2 was 11 and has not changed since then. Project features in Segment 2 of Alternative A would cause a decrease in this rating. Any decrease would mean the resource would no longer be in attainment since the rating would be below the 1982 score.

Implementing Alternative B, including within Segment 2, would not adversely affect SR-2, Scenic Quality Ratings.

SR-3, Public Recreation Area Scenic Quality Thresholds

No portion of any project alternative would be visible from any TRPA-listed recreation area. A portion of Segment 3 of Alternatives A and B would be near the vehicular entrance to Nevada Beach and would be seen from Elks Point Road but not from the interior of the recreation area. Therefore, neither project alternative would adversely affect SR-3, Public Recreation Area Scenic Quality Thresholds.

SR-4, Community Design

The community design threshold is a policy statement that applies to the built environment and is not restricted to roadways or shoreline units. Design standards and guidelines found in the TRPA Code of Ordinances, the SQIP, Plan Area Statements, and in the adopted Community Plans provide specific implementation direction. Alternatives A and B propose a new restroom facility at the parking area and trailhead on Kahle Drive. The restroom facility would be a small building, designed with natural colors to blend in with the surrounding landscape, and constructed of non-reflective materials. It would have exterior lighting for safety purposes. The design and exterior lighting would comply with TRPA’s Design Review Guidelines and the USFS’s Built Environment Image Guide. Implementation of either project alternative would not adversely affect the SR-4 Community Design Threshold.

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3.7 Recreation

3.7.1 Scope of Analysis

This section describes existing recreational facilities in the project vicinity, and presents an analysis of potential effects resulting from implementation of Alternatives A through C.

3.7.2 Assessment Factors

NEPA – U.S. Forest Service, Lake Tahoe Basin Management Unit Forest Plan

Under NEPA, the context and intensity of an alternative's potential effect on recreation were evaluated based on whether the effect would conflict with the LTBMU's land management practices and requirements provided in the LTBMU Forest Plan, which are summarized in the Forest Plan consistency matrix (Project Record A-1). The Forest Plan consistency matrix includes a section on recreation, which addresses both developed and dispersed recreation facilities. The recreation section of the matrix addresses the topics discussed below under "Environmental Consequences," in addition to several other topics. Both of the action alternatives were found to be consistent with the Forest Plan with implementation of applicable design features (see Section 2.3 of this EA).

Tahoe Regional Planning Agency

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

- create substantial, unmet additional demand for recreation facilities;
- result in conflicts between recreation 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.

For the purposes of this analysis, a recreation effect may also be considered adverse if implementation of the South Demonstration Project would be inconsistent with the Lake Tahoe Regional Bicycle and Pedestrian Plan (TRPA and Tahoe Metropolitan Planning Organization [TMPO] 2010), described in Chapter 1.

3.7.3 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, boating, personal watercraft use, and fishing), shoreline (e.g., sunbathing, camping, bicycling, and sightseeing), and the terrain surrounding the lake (e.g., hiking, mountain biking, skiing, and snowboarding). The following describes existing recreation opportunities within the project vicinity.

Round Hill Pines Beach and Marina

Round Hill Pines Beach and Marina is north of Round Mound and on the shore of Lake Tahoe. It is located on NFS land managed by the LTBMU but operated by a concessionaire under 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 year round, with the peak season July through August (Becker, pers. comm., 2010). Round Hill Pines Beach and Marina offers a boat launch, jet ski rentals, kayak rentals, parasailing, yacht tours, tennis, a swimming pool, snack bar/restaurant, one restroom facility, and events accommodations. Visitors are charged a fee for parking and day

use. According to the LTBMU (Becker, pers. comm., 2010), the design capacity of the beach is 350 persons at one time (PAOT). The LTBMU estimates annual use at 30,000 persons with approximately 180 persons per day visiting the facility during the peak season. It is also estimated that approximately 300 bicyclists access the Round Hill Pines Beach facility annually from U.S. 50 (Becker, pers. comm., 2010).

Nevada Beach Campground and Day-Use Area

Nevada Beach Campground is located at the west end of Elks Point Road in the project area with Rabe Meadow to the east. The campground and day-use area are located on NFS land managed by the LTBMU. The campground is operated by a private concessionaire and is open annually from May 15th to October 15th. Users are charged a fee for parking and day use. Although the campground and day-use area are closed the remainder of the year, these areas are heavily used by the public throughout the year (Becker, pers. comm., 2010). The Nevada Beach Campground and Day-Use Area is approximately 125 acres and contains 54 camping sites and 25 picnic sites with standing barbeques and fire rings at all sites. Pets are allowed on a leash in the campground area but not in the picnic area or on the beach, except in the southernmost beach area south of the campground. According to the LTBMU, the design capacity of the campground and day-use area is 270 and 1,485 PAOT, respectively (Becker, pers. comm., 2010). Approximately 15,000 people use the campground on an annual basis and estimated annual day use is 120,000 people. This total includes 15,000 people who visit the beach on the 4th of July for an annual fireworks show and approximately 18,000 people who visit the site during the winter months (Becker, pers. comm., 2010).

Bicycle and Pedestrian Trails

Bicycle and pedestrian facilities similar to the proposed project are limited in the area. Highways provide the only access to much of the area. Paved off-highway parking is also limited. The absence of a bicycle facility along the east shore is considered a missing element of the Basin's bicycle network.

The AASHTO Guide for the Development of Bicycle Facilities (AASHTO 1999) classifies bicycle facilities in three categories:

- Shared-Use Path – Provides a completely separated right-of-way for the exclusive use of bicycles and pedestrians with cross-flow minimized.
- Bicycle Lane – Provides a striped lane for one-way bicycle travel on a street or highway.
- Bicycle Route – Provides for shared use with bicycle or motor vehicle traffic on streets and highways.

Elks Point Bike Path

The Elks Point Bike Path is an existing shared-use path that connects Nevada Beach to SR 207, mostly on the east side of U.S. 50. A small portion of this path includes a bicycle lane that extends from Elks Point Road across U.S. 50. The portion of path that extends from Dorla Court west to the campground and beach is a separated shared-use path. The Nevada Beach Campground and Day-Use Area is also accessible via the Lam Watah Trail from a small parking lot off of Kahle Drive. Path users entering Nevada Beach are not charged a fee for parking and day use.

Rabe Meadow and Lam Watah Trail

Rabe Meadow is located on NFS land managed by the LTBMU and generally extends from U.S. 50 west to the border of Nevada Beach Campground and includes several unpaved pedestrian/bicycle paths including the Lam Watah Trail. The Lam Watah Trail winds through the meadow and across Burke Creek, terminating at the Nevada

Beach Campground and Day-Use Area. The 5-foot-wide trail is an improved path with an aggregate base and a 154-foot-long boardwalk constructed by the LTBMU in 2007. The trail is very popular with walkers, runners, dog walkers, and casual bicyclists (Becker, pers. comm., 2010). Existing parking (9 spaces) is located at the trailhead at the corner of Kahle Drive and U.S. 50. According to the LTBMU, approximately 26,000 persons per year use the Lam Watah Trail, with peak use in the summer of approximately 150 persons per day (Becker, pers. comm., 2010).

In the summer of 2010, directional and interpretive signage was added to the Lam Watah Trail. At the trailheads located at the entrances from the existing parking lot at Kahle Drive and from Nevada Beach Campground signs were posted to highlight the significance of the Lam Watah Trail. Interpretive signs highlighting historic aspects of the trail were added along its length, including signs describing the Hobart Logging Camp, the Sky Harbor Airport and Casino, the Washoe Tribe at summer camp, historic transportation modes (wagon, horse, and automobile), and details regarding former plans to construct a casino prior to LTBMU acquisition of the land. Signage was added at the western end of the trail that directs trail users to either the campground or the beach.

Unimproved trails and dirt roads are located within and around the boundaries of the forested areas on the north side of Rabe Meadow. Several managed native surface roads are closed to public motorized use but open to non-motorized use. This unauthorized trail network on NFS lands provides looped connections between the Lam Watah Trail, managed native surface roads, the Nevada Beach Campground and Day-Use Area, and the Elks Point Bike Path. These trails are popular for those users that are looking for loop trail experiences in a forest ecosystem.

Other Recreation Facilities

East of the project site is Kahle Park and Community Recreation Center, owned and operated by Douglas County. The 19-acre park includes a recreation center (with multi-purpose gym, kitchen and meeting rooms), baseball/softball field, two soccer fields, two playground areas, outdoor basketball hoops, a pedestrian/bicycle path, and a concession/restroom building.

Nevada State 4-H Camp, located on Nevada State Lands, encompasses 33 acres and is located south of Nevada Beach Campground and Day-Use Area. This facility is a quasi-public facility in that access is restricted to state affiliates and large group events. To the south of the 4-H Camp are the privately owned Edgewood Tahoe Golf Course and the casino core of the Stateline/South Lake Tahoe area. It’s worth noting that as part of a planned larger hotel project (Table 3.1-1), Edgewood Companies proposes to establish a new public beach area on the west end of the golf course property within walking distance of the casino core.

3.7.4 Environmental Consequences

Increase in Use of Existing Recreation Facilities

Alternatives A and B

Direct and Indirect Effects

Implementation of either action alternative would result in changes to both existing public access and to recreation use within the study area. The shared-use path would provide additional bicycle and pedestrian connectivity/access to recreation areas to the north of the Stateline casino core, including the Nevada Beach and Round Hill Pines Beach day-use areas and the Lam Watah Trail. These existing recreational facilities currently experience peak demand during holidays and weekends from late June through early September.

Because of its connectivity to other trails, as well as publication on trail maps, both action alternatives would increase use of these facilities and potentially create demand for additional ancillary facilities and could result in site management issues. Table 3.7-1 shows shared-use path use estimates over the course of a busy summer day at various crossing locations along the path. Because Alternative A would be visible from U.S. 50 in Segment 2, it could attract more visitors than Alternative B in that segment. However, because the shared-use path would be similar in character with either action alternative, predicted use levels are generally expect to be similar for both alternatives. Similarly, the optional alignments in Segments 1 and 3 described in Chapter 2 of this EA are not expected to result in changes in predicted use.

Table 3.7-1
South Demonstration Project Shared-Use Path Daily Use Estimates

Use Type	Daily Trips (Peak Trips/Peak Users)			
	U.S. 50 north of Lake Parkway	Laura Drive	Elks Point Road	Round Hill Pines Beach Access Road
Bicycle	1,677/838	1,629/814	1,305/652	922/461
Pedestrian	355/178	310/155	169/84	108/54
Total	**2,032/1,016**	**1,939/969**	**1,474/736**	**1,030/515**

Source: LSC Transportation Consultants, Inc. 2010

Since use of the shared-use path is expected to be primarily casual day use within or to and from the project area from nearby communities, the peak number of trips shown above was divided by two to estimate the number of individual users, as indicated to the right of each trip value.

As indicated in Table 3.7-1, the action alternatives would result in an estimated peak of 1,677 bicycle trips and 178 pedestrian trips per day at the busiest location on the shared-use path corridor. To obtain an estimate of shared-use path users that could access existing LTBMU facilities, assumptions have been made based on existing use characteristics in the area (LSC Transportation Consultants, Inc. 2010).

Of the path users at the Laura Drive crossing (the closest modeled location to the Lam Watah Trail access point) it is assumed a substantial proportion of the pedestrians would also use the portion of the Lam Watah Trail that extends west of the shared-use path towards Nevada Beach (Exhibit 2-4), as part of a recreational trip. For purposes of this analysis it is assumed that 40% of pedestrians and 10% of bicyclists using the shared-use path would access the Lam Watah Trail. This assumed usage yields an estimated total increase of 143 persons per peak summer day on the Lam Watah Trail (LSC Transportation, Inc. 2010). This increase is in relation to the current estimated use of 150 persons per day noted above (Becker, pers. comm., 2010).

At Elks Point Road it is assumed that 60% of pedestrians and 40% of bicyclists would access Nevada Beach (it is expected a good proportion of total bicyclists would be making utility trips between the Round Hill Square/Safeway area and South Stateline). This assumed usage yields an estimated total increase of 312 persons on a peak summer day accessing Nevada Beach (LSC Transportation Consultants, Inc. 2010). As noted above, the campground and day-use area are designed for a total capacity of 1,755 people at one time, while accommodating more than 15,000 people for special events such as the 4th of July fireworks show (Becker, pers. comm., 2010). Existing average day-use is approximately 573 persons per day (this excludes the 4th of July holiday and winter use). An increase of 312 persons would result in a total of 885 visitors per day, which is well below the day-use PAOT of 1,485.

At Round Hill Pines Beach it is assumed that relatively few users of the shared-use path would head beyond U.S. 50 to the north (particularly pedestrians). Some would simply turn around as part of a recreation/fitness trip,

but many would head down to the beach as an attractive destination. It is assumed 70% of pedestrians and 50% of bicyclists at this location would access Round Hill Pines Beach. This assumed usage yields an estimated total increase of 268 persons on a peak summer day accessing Round Hill Pines Resort (LSC Transportation Consultants, Inc. 2010). Combined with the existing use of 180 visitors per day, there would be an estimated total of 448 persons visiting this facility per day during the peak season, which would not exceed the design capacity of this facility of 350 PAOT since visits would be distributed throughout the day (Becker, pers. comm., 2010).

Both action alternatives would include expansion of the existing parking area at the northwest corner of the Kahle Drive/U.S. 50 intersection on NFS land managed by the LTBMU. The existing parking area includes a one-way paved surface with nine parking spaces (including one handicapped space) and an existing informational kiosk. The following amenities would be added to the expanded parking lot: 14 additional parking spaces (including one handicapped space), an up to 6-stall restroom building, two picnic tables, a bicycle rack, bear proof garbage cans, and an additional informational kiosk.

The potential increase in demand at existing recreational facilities could require additional staffing, cleaning, and maintenance. Douglas County would be responsible for all long-term maintenance and upkeep of the shared-use path and the parking lot facilities. As part of Design Feature REC-5 incorporated into the action alternatives, and also required as part of the special use permit, an operations and maintenance plan would be prepared to address regular maintenance and upkeep of the shared-use path, trash collection, and servicing of the restrooms (see Section 2.3 of this EA). The plan would include specifications for signage, maps, and kiosks to inform users of the locations of trash receptacles and restrooms, and to encourage users to pack out their trash.

Design Feature REC-6 establishes a monitoring and reporting plan to evaluate project effects on ancillary facilities (i.e., restrooms) at Nevada Beach and Round Hill Pines Beach Day-Use Areas. If it is determined through the monitoring program that the increased demand at existing LTBMU facilities would require expansion or additional maintenance of existing ancillary facilities to accommodate increased use, Douglas County and LTBMU would coordinate to determine if design or facility modifications are feasible and would resolve the issue of increased demand at existing facilities at the Nevada Beach and Day-Use Area or Round Hill Pines Beach and Marina, if modification of County maintenance operations would be needed, or if a funding mechanism would be needed to support increased costs of maintaining or expanding existing facilities as a result of project implementation. With implementation of this and other design features, and construction of the new restroom at the Kahle parking lot, the adverse effects of increased use of existing recreation facilities resulting from the proposed project would be adequately resolved.

Cumulative Effects

The following related projects in the vicinity of the South Demonstration Project (Table 3.1-1) would affect shared-use path use:

- Nevada Stateline-to-Stateline Bikeway – Future Phases Connecting Round Hill to Crystal Bay
- Beach Club on Lake Tahoe
- Project 3 Redevelopment
- Sierra Colina Village Project
- Gondola Vista Project
- Round Hill Pines Resort Facility and BMP Retrofit Project
- Lake Tahoe Waterborne Transit
- Edgewood Hotel and Golf Course Realignment Project

Implementation of either action alternative would increase use/demand at existing recreational facilities by providing additional access. The projects listed above would also increase use of the proposed shared-use path

and the associated demand at existing recreational facilities such as the Lam Watah Trail, Nevada Beach and Round Hill Pines Beach day-use areas, and the Nevada Beach campground. It is likely that visitors accessing these recreational facilities by way of the shared-use path would stay for shorter periods of time than visitors arriving by automobile. As was noted above, the overall increase in the number of people using the day-use areas would not result in a use level that exceeds the PAOT and the quality of the user experience would not be diminished. It is possible that the increase in visitors to Nevada Beach could result in an increase in pedestrian traffic in the campground. Implementation of Design Feature REC-1 would provide signage to direct visitors away from the campground so as not to affect the quality of the campers' experience. Visitors using the Lam Watah Trail would encounter a higher number of other trail users; however, the total number of trail users would not be so high as to diminish the quality of the users' experience. With implementation of Design Features REC-2 and REC-5, and construction of the restroom at the Kahle parking lot, the project's contribution to the cumulative demand would be minimized such that there would not be a residual adverse affect on existing recreational facilities. Therefore, the project is not expected to contribute to cumulative effects on existing recreational facilities.

Alternative C

Direct and Indirect Effects

Under Alternative C, no shared-use path would be constructed. Therefore, the use of existing recreation facilities would remain unchanged from existing conditions.

Cumulative Effects

Under Alternative C, no shared-use path would be constructed and use of existing recreation facilities would remain unchanged from existing conditions. Therefore, Alternative C would not contribute to any cumulative increases in use of existing recreation facilities.

Increased Recreational Opportunities

Alternatives A and B

Direct and Indirect Effects

Separated bicycle facilities are not available along most of the Nevada side of Lake Tahoe. Implementation of either action alternative would result in the creation of an approximately 3.2-mile-long shared-use path extending from the south shore casino area. One of the main purposes of the South Demonstration Project, and broader Nevada Stateline-to-Stateline Bikeway project, is to provide a recreation opportunity to link public beaches and coves along the east shore. These recreation areas along the east shore are generally accessed by automobile.

The South Demonstration Project is envisioned to eventually connect with other segments of the Nevada Stateline-to-Stateline Bikeway project to form a continuous bikeway along the east side of Lake Tahoe. As proposed, formal access to the South Demonstration Project shared-use path would be provided from the casino core, with primary access off of Lake Parkway, and at the corner of Kahle Drive and U.S. 50. The proposed path also merges with the existing Elks Point Bike Path, which originates at the end of Pine Ridge Drive in the Kingsbury Meadows neighborhood east of U.S. 50 and north of SR 207, which provides an additional access point. The shared-use path would provide non-motorized access to Nevada Beach, Round Hill Pines Beach, the commercial center at U.S. 50, the Tahoe Transportation Center, the Lake Tahoe South Shore Visitor Center, Kahle Park and Community Center, and the south shore casino core area. It would also be an added amenity to the Nevada Beach Campground and Day-Use area. The shared-use path would also provide connections to designated scenic natural areas within the Zephyr Cove (066) and Edgewood (070A) PASs.

The proposed shared-use path would support Douglas County's Recreation Goals and Policies, TRPA's Goals and Policies from the Recreation Element related to increased recreational access, as well as support the Bicycle and Pedestrian Plan.

Therefore, both action alternatives would result in a beneficial effect related to increased recreational opportunities.

Cumulative Effects

The following related projects in the vicinity of the South Demonstration Project (Table 3.1-1) would expand and/or enhance recreational opportunities in the immediate project vicinity and in the Lake Tahoe Basin:

- Nevada Stateline-to-Stateline Bikeway – Future Phases Connecting Round Hill to Crystal Bay
- Van Sickle CA/NV Bi-State Park
- Daggett Summit Trail System Project
- Ski Run to El Dorado Beach Bike Trail
- Greenway Shared-Use Trail
- Edgewood Hotel and Golf Course Realignment Project

Because implementation of either action alternative would result in the construction of a shared-use path that contributes to the network of recreational opportunities, it would be expected to contribute to a cumulative beneficial recreation effect.

Alternative C

Direct and Indirect Effects

Under Alternative C, no paved bikeway or shared-use path would be constructed. Therefore, the inventory of existing recreation facilities would remain unchanged from existing conditions.

Cumulative Effects

Under Alternative C, no paved bikeway or shared-use path would be constructed. As such, Alternative C would not increase or enhance the inventory of existing recreation facilities and would not contribute to any cumulative recreation effects.

Conflicts with Existing or Proposed Recreation Uses

Alternative A

Direct and Indirect Effects

Alternative A would not result in substantial conflicts with any existing or planned recreation facilities or any known planned bicycle/pedestrian trails, including those identified in the Bicycle and Pedestrian Plan and the DCMP Comprehensive Trails plan. Both the Bicycle and Pedestrian Plan and the DCMP Comprehensive Trails Plan contain the same goal of having a public-access shared-use path between Stateline and Round Hill. The Bicycle and Pedestrian Plan shows proposed bicycle lanes that encircle Lake Tahoe and include U.S. 50 and SR 28 on the Nevada side of Lake Tahoe. The DCMP Comprehensive Trails Plan also specifies bicycle lanes extending along U.S. 50, well beyond the Stateline/Round Hill area.

Mixing recreation uses on a single path could create use conflicts. Alternative A separates uses from the shared-use path and the Lam Watah Trail and further separates the shared-use path from Nevada Beach Campground. Nevada Beach Campground users would be screened by intervening topography and trees from the Alternative A alignment between Kahle Drive and Elks Point Road, except that portion of the path that would share the existing Elks Point Bike Path. At this location, the path runs parallel to Elks Point Road and is already located in immediate vicinity of the campground. The Elks Point Bike Path is separated from the campground by topography and a split rail fence. The Lam Watah Trail would share the same trailhead as the Alternative A alignment at Kahle Drive, but would otherwise be separate and distinct from the Alternative A alignment.

Within Segment 1, the potential exists for conflicts between shared-use path users and golf play at the Edgewood Golf Course. The Alternative A alignment is adjacent to the golf course along Lake Parkway, U.S. 50, and 4-H Camp Road. There is an existing sidewalk on Lake Parkway that would be replaced by the shared-use path. The path would be slightly closer to the golf course, unless the option to narrow Lake Parkway was chosen. Moving the shared-use path closer to golf play and increasing the number of users on the path over existing conditions would create a slightly higher risk of a path user being struck by an errant golf ball; however, the increase in risk would be small because the path would be only a few feet closer to play than the existing sidewalk.

Along U.S. 50, there is an existing sidewalk outside the fence of the golf course that would be replaced by the proposed shared-use path. There is one tee box located approximately 100 feet from the proposed Alternative A alignment that faces away from U.S. 50. Given the existing pedestrian traffic on the sidewalk and vehicle traffic on U.S. 50, it is unlikely that the increased use generated by the shared-use path would result in an increase in conflict with golf along U.S. 50.

The portion of the shared-use path between U.S. 50 and Laura Drive would be inside the existing golf course fence along 4-H Camp Road. Users on this part of the path would be exposed to a slightly higher risk of injury from errant golf balls than persons using 4-H Camp Road. The Alternative A alignment would be approximately 130 feet from the edge of the golf hole at the closest point, approximately 20 feet closer than the intersection of 4-H Camp Road and Laura Drive. The golf hole in this location parallels 4-H Camp Road for approximately 1,000 feet and then curves away from the road. Golfers would be aiming away from the path in the vicinity of Laura Drive. Overall the risk of injury from errant golf balls would be low due to the distance of the trail from the fairway, intervening topography, and the direction of play. Implementation of Design Features REC-1 and REC-3 would provide signage to warn path users of the presence of the golf course in this area, further minimizing the risk of injury.

Use conflicts would be minimized on trails through a combination of routing and the use of informational signage that designates allowed uses (Design Features REC-1 through REC-3) to meet existing recreation facility objectives. Signage would be developed and installed at trailheads, connection points, and in other areas where necessary to alert users of possible obstacles or changes in the shared-use path in order to provide clear direction for all users.

The project’s goal is to construct a separated, shared-use path designed to meet ADA and AASHTO standards in order to serve a broad spectrum of users. In addition, the South Demonstration Project is being designed to meet 15 design principles established by the 10 partnering agencies that are overseeing project planning, design, and environmental review in full recognition of the existing recreational uses in the project area.

Based on measures being incorporated into the project design to minimize and monitor potential use conflicts and the adherence to AASHTO design standards that account for a mix of users, Alternative A would not be expected to conflict with existing or proposed recreation uses.

Cumulative Effects

The projects in Table 3.1-1 would not be expected to contribute to use conflicts on the Lam Watah Trail or at Nevada Beach Campground. By routing the shared-use path to simultaneously meet trail objectives and recreation site objectives and providing appropriate signage (Design Features REC-1 through REC-3), potential use conflicts under Alternative A that could contribute to a cumulative adverse condition would be minimized. For these reasons, Alternative A would not be anticipated to result in any cumulatively considerable use conflicts on the proposed shared-use path or existing recreation facilities, including the Edgewood Tahoe Golf Course.

Alternative B

Direct and Indirect Effects

The effects of Alternative B in Segments 1 and 3 would be the same as those described for Alternative A.

In Segment 2, Alternative B would share the Lam Watah Trail for approximately 1,200 feet before splitting off to the north and following existing dirt trails to the existing shared-use path (Elks Point Bike Path) on the south side of Elks Point Road. This section of path would require resurfacing and widening of the Lam Watah Trail, and removing the existing bridge structure and constructing a new, wider crossing just east of the existing bridge over Burke Creek. Approximately 20% of the length of the Lam Watah Trail would be resurfaced and directly affected by the Alternative B alignment. The types of users (bicycles, pedestrian, and dog walkers) would be the same on the shared-use path as the Lam Watah Trail. The user experience on the Lam Watah Trail today is characterized by occasional encounters with other trail users. The primary difference in the user experience related to the shared portion of the path under Alternative B would be an increase in the number of encounters with other trail users and an increase in the number of bicyclists on the trail. Use of the Lam Watah Trail is forecast to double as a result of the project, and the paved portion of the path would experience even heavier use. The location of the shared section would not interrupt existing interpretive locations along the Lam Watah Trail described above.

Similar to Alternative A, Nevada Beach Campground users would be screened by intervening topography and vegetation from the Alternative B alignment between Kahle Drive and Elks Point Road, except that portion of the path that would share the existing Elks Point Bike Path.

As described above, the Alternative B alignment would be expected to yield an estimated total increase of 143 persons per peak summer day (82 pedestrians, and 62 bicyclists) on the Lam Watah Trail (LSC Transportation, Inc. 2010), thereby doubling person volumes on this trail.

Use conflicts would be reduced or minimized on trails through a combination of routing and the use of informational signage that designates allowed uses (Design Features REC-1 through REC-3) to meet existing recreation facility objectives. Signage would be developed and installed at trailheads, connection points, and in other areas where necessary to alert users of possible obstacles or changes in the shared-use path in order to provide clear direction for all users. Also, Design Feature REC-2 would ensure the monitoring of bicycle use on the Lam Watah Trail, and adaptive management measures would be implemented, if necessary, to regulate use of the Lam Watah Trail between the shared-use path and Nevada Beach Campground and Day-Use area.

In addition, the South Demonstration Project is being designed to meet 15 design principles established by the 10 partnering agencies that are overseeing project planning, design, and environmental review. These principles include developing a path system that serves both recreation and commuter needs. Therefore, Alternative B is not expected to result in substantial conflicts with any existing or planned recreation facilities or any known planned bicycle/pedestrian trails, including those indicated in the Bicycle and Pedestrian Plan and the DCMP Comprehensive Trails Plan.

Based on measures being incorporated in the project design to minimize and monitor potential use conflicts and the adherence to design standards that account for a mix of uses, Alternative B would not be expected to conflict with existing or proposed recreation uses.

Cumulative Effects

Recreation site objectives would be maintained through a combination of trail routing, signage, and monitoring (Design Features REC-1 through REC-3). Potential use conflicts under Alternative B would be minimized and Alternative B would not be anticipated to result in any cumulatively considerable use conflicts on the proposed shared-use path or existing recreation facilities, including the Edgewood Tahoe Golf Course.

Alternative C

Direct and Indirect Effects

Under Alternative C, no shared-use path would be constructed. Therefore, there would be no conflicts on the proposed shared-use path, nor would there be conflicts with existing recreation facility uses.

Cumulative Effects

Under Alternative C, no shared-use path would be constructed. Therefore, there would be no increased shared-use path usage and use of existing recreation facilities would remain unchanged from existing conditions. Therefore, Alternative C would not contribute to any cumulative increases in use conflicts.

3.7.5 Consequences for TRPA Environmental Threshold Carrying Capacities

This section summarizes the effects of implementing each of the action alternatives on the environmental thresholds established by TRPA for recreation. Two recreation thresholds have been established by TRPA:

- R-1, High Quality Recreational Experience & Access, and
- R-2, Capacity Available to the General Public.

The R-1 threshold is intended to preserve and enhance the high-quality recreational experience by preserving high-quality, undeveloped shorezone and other natural areas. The R-2 threshold ensures that a fair share of the Tahoe Basin's capacity for outdoor recreation is available to the general public. TRPA's 2006 Threshold Evaluation Report concluded that the R-1 and R-2 thresholds are considered to be in attainment (TRPA 2006:10-3, 10-8).

R-1, High Quality Recreational Experience & Access

The South Demonstration Project is planned to eventually connect with other segments of the Nevada Stateline-to-Stateline Bikeway Project to form a continuous trail around the east side of Lake Tahoe. Alternatives A and B would provide a recreation opportunity to link the southernmost public beaches and coves along the east shore. These recreation areas along the east shore are generally only accessed by automobile, and therefore, the proposed project would improve accessibility to recreational areas. Although beach use would be increased, the use would remain below the design capacity (PAOT) and the beach user experience would not be diminished. In addition, the alternatives would support Douglas County's Recreation Goals and Policies, TRPA's Goals and Policies from the Recreation Element related to increased recreational access, as well as support the Bicycle and Pedestrian Plan. The action alternatives would contribute positively towards attainment of TRPA's Recreation Threshold Indicator R-1, which is currently in attainment.

Under Alternative C, existing recreational opportunities or capacities would not change. Therefore, implementing Alternative C would not cause any changes to the existing threshold attainment status.

R-2, Capacity Available to the General Public

As stated above, dispersed recreation, such as trail systems and the proposed shared-use path, are not assigned PAOTs. Currently, no PAOTs are assigned to the trail facilities within the study area. Therefore, the project would not require the assignment of PAOTs from TRPA. Both action alternatives would enhance outdoor recreation opportunities available to the general public. Therefore, the action alternatives would contribute positively towards attainment of TRPA's Recreation Threshold Indicator R-2, which is currently in attainment.

Under Alternative C, existing recreational opportunities or capacities would not change. Therefore, implementing Alternative C would not cause any changes to the existing threshold attainment status.

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3.8 Archaeological and Historical Resources

3.8.1 Scope of the Analysis

This section describes the cultural resources setting in the project area and the potential effects of Alternatives A, B, and C on cultural resources. The analysis in this section is based on previous investigations conducted within the immediate area and studies conducted in association with the South Demonstration Project.

3.8.2 Assessment Factors

NEPA – U.S. Forest Service, Lake Tahoe Basin Management Unit Forest Plan

The LTBMU Forest Plan was used as the basis for evaluating the South Demonstration Project's effect on cultural resources under NEPA. The following directives from the LTBMU Forest Plan consistency matrix apply to this project:

- Conduct surveys and inventories to identify the presence or absence of archaeological, historic, or other cultural resource properties, giving priority to planned activity areas, in a manner consistent with the National Historic Preservation Act. Prepare written reports documenting survey coverage, methods, and recordation using guidelines from the State Historic Preservation Officer (SHPO), the Forest Service, and the Advisory Council on Historic Preservation (ACHP).

- Evaluate properties to assess their scientific, ethnic, or historic significance by applying the National Register of Historic Places (NRHP) criteria of eligibility. Assess the effects of each undertaking on significant historic properties. In consultation with the SHPO and the ACHP if necessary, develop mitigation measures to alleviate adverse impacts on significant properties.

- Protect all identified cultural properties until they are evaluated, with all unevaluated properties being treated as eligible for nomination to the NRHP and afforded the same consideration as National Register properties. Evaluate the historical an architectural significance of all buildings scheduled for removal.

- Conduct compliance inspections of special use operations and project activities with stipulations or conditions regarding known cultural resources. Ensure confidentiality of most site locations to minimize threat of thefts and vandalism. Prevent natural physical deterioration where possible.

- Enhance cultural resources through scientific study and interpretation of their significant values, for increased public education and enjoyment. Avoid and/or protect Native American religious or burial sites; and encourage the reestablishment of traditional ties to Lake Tahoe by the Washoe Tribe through such means as the construction of a cultural center near Taylor Creek. Rehabilitate or restore historic structures for interpretive or other purposes.

Tahoe Regional Planning Agency

The TRPA Initial Environmental Checklist was used to guide evaluation of the project's effects on cultural resources under TRPA regulations. Items on the checklist pertaining to cultural resources were considered as criteria against which the project was evaluated. The context and intensity of an alternative's potential to adversely affect cultural 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 within the potential impact area?

3.8.3 Affected Environment

Background and Setting

The Nevada Stateline-to-Stateline Bikeway: South Demonstration Project Douglas County, Nevada Cultural Resources Inventory and Evaluation (Project Record K-2) provides detailed information on the prehistory of the Northern Sierra Nevada, which includes the Lake Tahoe Basin, the ethnohistory of the project area (the Washoe Tribe), the Euro-American history of the project area.

Existing Cultural Resources

Prior to commencing cultural resource field investigations, AECOM conducted a records search and historic map review at the Nevada State Museum in Carson City. The research indicated that 12 previous cultural resources surveys had been conducted in, and within, 0.5 mile of the project site (Table 3.8-1). These studies resulted in the identification of 27 prehistoric and historic-era cultural resources (Table 3.8-2).

Native American Consultation

Consultation with the Washoe Tribe of Nevada and California (Tribe) was initiated for the South Demonstration Project in a letter to the Tribe dated April 9, 2007. The Tribe was provided with maps of the project site and asked to provide comments expressing their concerns and comments regarding the proposed project. The Tribe responded with a letter stating the following concerns for the project site:

- Lands within the South Demonstration Project are considered to be sensitive for the resources of natural and cultural value to the Washoe.
- Several known nesting sites of several species of hawk are located within or near the project site and further development encroachment could threaten their survival in the Lake Tahoe area.
- The Tribe recommends that the shared-use path be confined within previously-disturbed areas (e.g., the existing right-of-way of U.S. 50)

Additional consultation relevant to the South Demonstration Project was conducted during August and September 2008. Following a letter from AECOM to Mr. Darrel Cruz (the Washoe Tribal Historic Preservation Officer [THPO] at the time), Mr. Cruz arranged a meeting with the Tribal Advisory Council on September 2, 2008. Mr. Cruz presented the project to the Council, followed by a discussion between the Council members and representatives of AECOM, TRPA, and consultant Karen Mullen-Ehly. Although the Council did not express specific concerns regarding the proposed project, they did request to be consulted regarding any future cultural resources surveys that may be required, the results of these investigations, and potential adverse effects to Native

Table 3.8-1
Cultural Resources Investigations within the Project Site and Vicinity

Report Title	Author	Date
Cultural Resource Inventory for the Roundhill Fuel Reduction Project on the East Shore of Lake Tahoe, Douglas County - Surveying, Monitoring and Site Recordation. *Cultural Resources Inventory and Evaluation Report: Proposed Sierra Colina Village, Douglas County, NV.*	K. Berlin, S. Smith Pacific Legacy	2007 2006a
Letter from Michael Taggart to Theresa Avance regarding Supplemental Cultural Resources Documentation for the Sierra Colina Village EIS (TRPA File Number 2006-0695).	Pacific Legacy	2006b
A Class III Cultural Resource Inventory of Approximately Four Acres for the Round Hill GID Project	J. Northrop	2004
An Intensive Inventory of Historic Properties Located in Parcel 07-050-05, Douglas County, Nevada	C. Zeier	1998
Urban Fringe Management Project (Nevada Portion)	S. Dexter	1995
Rabe Interpretive Trail	H. Davis	1993
Burke Creek Rediversion/Restoration Project	J. Perrochet	1992
Addendum to Cultural Resources Inventory of a Proposed 120 KV Transmission Line, Round Hill Substation to Stateline Substation, El Dorado County, California, and Douglas County Nevada	B. Young	1987
Cultural Resources Inventory of a Proposed 120KV Transmission Line, Round Hill Substation to Stateline Substation, El Dorado County, California, and Douglas County, Nevada	B. Young	1987
District II Betterment. O.O. 20727 Widening of U.S. 50 for Left Turn Lane. From M.P. DO 1.12 to 1.28	M. Metcalf	1980
Archaeological Reconnaissance Report 5-19-44: Jennings Property Lake Tahoe Basin Management Unit, South Lake Tahoe	P. Smith	1980

Source: NVCRIS 2007; compiled by AECOM 2010

American sites. The Tribe, through the THPO, has also been consulted in conjunction with the Working Group for the South Demonstration Project during the planning process.

Field Investigations

The intensive and reconnaissance surveys of the project site identified, documented, and evaluated for significance one previously unrecorded cultural resource (temporary resource number RM-1 [Table 3.8-2]). This consisted of two fence lines and the remains of a corral near U.S. 50 that are probably associated with the ranching activities of either the Parks family or Christopher Rabe. The corral was constructed using a mix of milled lumber, recycled railroad ties, and rails made from cut cedar saplings. Based on the hardware, milled lumber, and creosote-treated railroad ties used in the corral construction, and the overall condition of many of the wood components, the corral may date to as late as the mid 20th century and may have been constructed for Christopher Rabe's ranching operation. A fence line extends from the southwest corner of the corral to the south for approximately 500 feet. An additional fence line extends from a wooded area adjacent to the south-bound lanes of U.S. 50 to another wooded area approximately 1,000 feet to west where it ends. Based on the condition of the fence posts and the barbed wire, it appears the lines may have been constructed in the early decades of the 20th century with the corral possibly dating to a later period.

Table 3.8-2
Cultural Resources Previously Identified within the Project Vicinity

Resource #	Association	Type	Location	Reference	NRHP Eligibility
26-Do-4	prehistoric	bedrock mortars	Edgewood Tahoe Golf Course	Heizer, 1953	unevaluated
26-Do-451	historic-era	Lincoln Highway segments	adjacent to U.S. 50	n/a	unevaluated
26-Do-806	prehistoric	bedrock mortars	east of U.S. 50	n/a	unevaluated
FS-05-19-143	prehistoric-ethnographic	ethnographic village site of *llamw O'tha*	Rabe Meadow	n/a	unevaluated
FS-05-19-332	prehistoric	bedrock mortars	Round Hill area	Lindström 1989	eligible
FS-05-19-357	historic-era	refuse scatter	Round Hill area	Burke 1991	not eligible
FS-05-19-358	prehistoric	milling feature	Round Hill area	Valentine 1991	not eligible
FS-05-19-359	historic-era	refuse scatter	Round Hill area	Burke 1991	not eligible
FS-05-19-360	historic-era	trail/road segment	Round Hill area	Burke 1991	not eligible
FS-05-19-361	historic –era	refuse scatter	Round Hill area	Valentine 1991	not eligible
FS-05-19-362	historic-era	refuse scatter	Round Hill area	Valentine 1991	not eligible
FS-05-19-363	historic-era	refuse scatter	Round Hill area	Burke 1991	not eligible
FS-05-19-364	historic-era	Round Hill Pines Resort	Round Hill area	Burke 1991	eligible
FS-05-19-366	historic-era	rock alignment	Round Hill area	Burke 1991	not eligible
FS-05-19-367	historic-era	cedar stumps, logs	Round Hill area	Burke 1991	not eligible
FS-05-19-368	historic-era	refuse scatter	Round Hill area	Burke 1991	not eligible
FS-05-19-395	historic-era	refuse scatter	east of U.S. 50	Berlin & Smith 2007	not eligible
FS-05-19-399	historic-era	unpaved road	east of U.S. 50	Berlin & Smith 2007	not eligible
FS-05-19-486	prehistoric	bedrock mortar	Rabe Meadow	Davis 1993	unevaluated
FS-05-19-492	historic-era	unpaved road, ditch, poss. log chute	east of U.S. 50	Berlin & Smith 2007	unevaluated
SCT-1	prehistoric	bedrock mortar	east of U.S. 50	Taggart et al. 2006	not eligible
SCT-2	prehistoric	bedrock mortar	east of U.S. 50	Taggart et al. 2006	not eligible
ISO-1	historic-era	ca. 1890 bottle	east of U.S. 50	Taggart et al. 2006	not eligible
ISO-2	prehistoric	pestle fragment	east of U.S. 50	Taggart et al. 2006	not eligible
ISO-3	historic-era	ditch segment	east of U.S. 50	Taggart et al. 2006	not eligible
RH2006-001	historic-era	fence line	east of U.S. 50	Berlin & Smith 2007	unevaluated
RM-1	historic-era	corral and fences	Rabe Meadow	AECOM 2009	not eligible

Source: NVCRIS 2007, AECOM 2010

Seven of the 27 documented cultural resources have not been formally evaluated for NRHP inclusion (26-Do-4, 26-Do-451, 26-Do-806, 05-19-143, 05-19-486, 05-19-492, and temporary resource number RM-1). At least one of these resources, FS-05-19-143 can be assumed eligible to the NRHP because this ethnographic village site (*llamw O'tha*) is a particularly important location not only as an archaeological site but also for the present-day Washoe people. The site was long occupied by the Washoe and played an important role in their regional subsistence and land-use patterns. Due to the likelihood that important scientific information is present in subsurface contexts and the prominence of the site in present-day Washoe culture and world-view, *llamw O'tha* should be considered eligible to the NRHP for planning and design purposes. While it is less clear that other unevaluated resources meet NRHP eligibility criteria, all unevaluated resources are treated as potentially eligible for management purposes pending consultation between the LTBMU and SHPO.

Other prehistoric sites within or near the project site consist of 26-Do-4, 26-Do-806, FS-05-19-332, FS-05-19-358, FS-05-19-486, SCT-1, SCT-2, and ISO-1. With the exception of ISO-1, all of these early Native American cultural resources consist of bedrock mortars or other similar milling features. To date, only one of these sites, FS-05-19-332, has been recommended eligible for NRHP listing (Lindström 1989) due to its potential to retain important scientific data in subsurface contexts. The other prehistoric resources have either been already recommended not eligible to the NRHP (FS-05-19-358, SCT-1, SCT-2, and ISO-2) due to a lack of data potential or remain formally unevaluated.

None of the identified historic-era sites, with the exception of FS-05-19-364 (the Round Hill Pines Resort) have been recommended eligible to the NRHP (Berlin and Smith 2007). The first Tahoe resorts and summer retreats were established at the lake in the 1860s and included establishments such as the Lake House at Al Tahoe, Rubicon Point Lodge, the Grand Hotel in Tahoe City and the Bellevue Hotel at Sugar Pine Point. Some of these resorts and summer homes were noted as being quite extravagant in their day, including the Norman DeVaux estate constructed at Round Hill in the early 1900s. Expanded and eventually converted to a commercial resort later in the 20th century, 14 of the existing buildings are considered eligible for NRHP listing 1986 as outstanding examples of a distinctive style of early 20th century Lake Tahoe estate and resort architecture (Kovel 1991). The U.S. Forest Service acquired the property in the late 1970s and currently manages these lands. Stabilization and preservation plans for the Resort have not been completed nor has funding been obtained to restore this early recreational complex. In 2006-2007 the University of Nevada placed the Round Hill Pines Resort on its Eleven Most Endangered Historic Places in the state. Segment 3 of Alternatives A and B of the South Demonstration Project passes through this historic resort property.

Although 26-Do-451 has not been evaluated for its significance, this resource represents two small fragments of the original alignment of present-day U.S. 50: the Lincoln Highway. Although these two small segments of the route present near the project site likely also represent an even earlier roadway, they no longer convey their original design or feeling and lack physical integrity. While these portions of the Lincoln Highway remain unevaluated, it is unlikely that they are eligible for NRHP listing.

The other historic-era resources documented within and in the vicinity of the project site consist mostly of refuse scatters, although several other features are also present; a rock alignment, a trail or road segment, an isolated glass bottle, and a corral and fence lines located in Rabe Meadow. Previous research indicates that the refuse scatters, the trail/road segment, and the rock alignment are likely associated with primarily early 20th century logging, ranching, or recreational activities. The Rabe Meadow corral and fences documented by AECOM in 2009, although associated with one of two notable area ranching families and individuals (the Parks family or Christopher Rabe), are not outstanding examples of their kind and the corral in particular is in fairly poor condition, consequently lacking historical integrity. Although logging, ranching, and recreation played major roles in the historic-era development of the region, none of the documented historic-era resources appear to be directly associated with specific important historic persons or events related to those or other important regional themes. Also, these resources are not the earliest or best examples of their kind in the region nor are they the work of any recognized master. Lastly, none appear to possess the kind of data potential that could be used in

addressing important area research topics. Consequently, the recommendation is that these presently unevaluated historic-era resources are not eligible to the NRHP. USFS has submitted the Cultural Resources Inventory and Evaluation (Project Record K-2) to SHPO with the recommendation that these resources are not eligible for the NRHP. USFS will not finalize the EA nor issue a Record of Decision until determination by SHPO of the eligibility of these resources.

3.8.4 Environmental Consequences

Disturbance to Potentially Significant Documented Cultural Resources

Alternatives A and B

Direct and Indirect Effects

Of the 27 prehistoric and historic-era cultural resources documented within and in the vicinity (0.5 mile) of the project site, five are located either directly within or immediately adjacent to at least one of the shared-use path alignments. These consist of prehistoric sites 26-Do-806 and FS-05-19-143, and historic-era resources FS-05-19-364, 26-DO-451, and RM-1. There are no documented cultural resources within Segment 1 of either action alternative.

Within Segment 2, the only documented resource in proximity to Alternative A is site RM-1, which consists of the remains of some historic ranching activities. This resource does not appear to be eligible for inclusion in the NRHP and is not within the shared-use path alignment.

Within Segment 2 of Alternative B, two prehistoric cultural resources (FS-05-19-143 and FS-05-19-486) are situated within several hundred feet of the shared-use path alignment. Site FS-05-19-143 consists of a bedrock mortar spatially associated with FS-05-19-486, the prehistoric/ethnographic Washoe village site of llamw O'tha. Such sites are rare in the Lake Tahoe area and are of scientific interest and of great cultural importance to the Washoe people. Although the site is of importance to the Tribe, it is not considered a sacred or religious property and the project would not restrict such Native American cultural uses nor would such uses be affected elsewhere within or near the project site. In addition, no other ethnic cultural values, prehistoric, or historic-era have been identified within or in the immediate vicinity of the project that would be affected by project construction or future use. Although neither FS-05-19-143 nor FS-05-19-486 has been formally assessed or evaluated for NRHP/TRPA significance, for management purposes both sites are assumed to be eligible for NRHP listing. While neither of these resources would be directly affected by project activities, it is possible that inadvertent damage could occur if construction activities were not confined to the current alignment of Alternative B. Design Feature CUL-1 (see Section 2.3 of this EA) would require an archaeologist to monitor ground disturbing activities within 400 feet of documented site boundaries along the construction limits of Alternative B. Design Feature CUL-2 (see Section 2.3 of this EA) requires awareness training of construction personnel to emphasize the need to protect cultural resources. Design Feature CUL-4 (see Section 2.3 of this EA) requires construction crews to immediately cease ground-disturbing activities and implement notification procedures (36 CFR Part 800) in the event that previously undocumented cultural resources or human remains are discovered during any project-related ground-disturbing activities. Additional recreational use of the Rabe Meadow area following construction of the shared-use path could lead to inadvertent or intentional disturbance of these resources by the public. Design Features CUL-1, CUL-2 and CUL-4, which require monitoring of ground disturbing activities, training of construction personnel, and procedures for the discovery of previously undocumented cultural resources or human remains (respectively) as described in Section 2.3 of this EA, would be implemented as part of both action alternatives and would minimize the potential for adverse effects to occur in relation to prehistoric/ethnographic sites FS-05-19-143 and FS-05-19-486.

The alignment of the shared-use path within Segment 3 of both action Alternatives A and B passes through a portion of the NRHP-eligible Round Hill Pines Resort. Fourteen of the existing buildings have been recommended eligible to the NRHP as contributing elements to a historic district. Both action alternatives have the potential to adversely affect the setting and historical integrity of these buildings. The shared-use path would not detract significantly from the setting and feeling of the resort which contains many paved pathways, driveways, and walkways that facilitate travel within and outside of the resort area. The path would not physically affect any of the NRHP-eligible buildings as currently designed and no adverse effects to this resource would occur. However, to address the potential for inadvertent damage or vandalism, during or after construction, Design Features CUL-2 and CUL-3 would be implemented. Design Feature CUL-2 requires awareness training for construction personnel, with an emphasis on the historical significance of the Round Hill Pines Resort. Design Feature CUL-3 requires the development and installation of interpretive signage in proximity to this resource to help inform the public of the need to respect and protect this resource.

Cumulative Effects

Research conducted for the South Demonstration Project indicates that the project area and vicinity contain a number of cultural resources that are considered significant per Section 106 and TRPA criteria. However, the related projects listed in Table 3.1-1 as well as the South Demonstration Project, either Alternative A or B, would include project design features or mitigation measures such as having an archaeologist monitor ground disturbing activities within 400 feet of documented site boundaries, training construction personnel on the need to protect cultural resources, and immediately ceasing ground-disturbing activities and implementing notification procedures in the event that previously undocumented cultural resources or human remains are discovered during ground-disturbing activities. Such measures would reduce or avoid potential construction-related disturbances to documented cultural resources. Therefore, the South Demonstration Project and related projects in the South Lake Tahoe and Douglas County portions of the Tahoe Basin (as listed in Table 3.1-1) would not result in adverse cumulative effects related to documented cultural resources.

Alternative C

Direct and Indirect Effects

Under Alternative C, the shared-use path would not be constructed and there would be no effect to the current condition of documented cultural resources.

Cumulative Effects

Under Alternative C, no shared-use path would be constructed; therefore, Alternative C would result in no contribution to potential cumulative effects related to documented cultural resources.

Effects on Previously Undiscovered Cultural Resources and Human Remains

Alternatives A and B

Direct and Indirect Effects

Archival research, Native American consultation, and intensive field survey conducted on the project site identified 27 prehistoric and historic-era cultural resources within or in the vicinity of the shared-use path alignments for Alternatives A and B. This indicates the area is highly sensitive and may contain similar resources that may be buried or otherwise not visible on the ground surface. Consequently, the potential exists for undocumented cultural resources or human remains to be unearthed during project construction. Design

Feature CUL-4 would be implemented as part of both action alternatives and would minimize the potential for adverse effects on previously undocumented cultural resources and human remains.

Cumulative Effects

Research conducted for the South Demonstration Project indicates that the project area and vicinity contain a number of cultural resources that are considered significant per Section 106 and TRPA criteria. However, the related projects listed in Table 3.1-1 as well as the South Demonstration Project, either Alternative A or B, would include project design features or mitigation measures such as having an archaeologist monitor ground disturbing activities within 400 feet of documented site boundaries, training construction personnel on the need to protect cultural resources, and immediately ceasing ground-disturbing activities and implementing notification procedures in the event that previously undocumented cultural resources or human remains are discovered during ground-disturbing activities. Such measures would reduce or avoid potential construction-related disturbances to cultural resources and human remains that could be affected by project activities. Therefore, the South Demonstration Project and related projects in the South Lake Tahoe and Douglas County portions of the Tahoe Basin (as listed in Table 3.1-1) would not result in adverse cumulative effects related to previously undiscovered cultural resources or human remains.

Alternative C

Direct and Indirect Effects

Under Alternative C, the shared-use path would not be constructed and there would be no project-related effects to presently unknown cultural resources or undocumented human remains within the project area.

Cumulative Effects

Under Alternative C, no shared-use path would be constructed; therefore, Alternative C would result in no contribution to potential cumulative effects related to undiscovered cultural resources or human remains.

Effects on Paleontological Resources

Alternatives A and B

Direct and Indirect Effects

Geologic mapping indicates that the project site is located within an area of Pleistocene-age lacustrine terrace deposits on the western part of the site, and within Cretaceous-age granodiorite of the Kingsbury Grade on the remainder of the site. While the lacustrine terrace deposits on the western part of the site may contain marine invertebrate fossils, these types of fossils are common and generally not considered to be unique paleontological resources and they do not represent specimens that contribute particular knowledge or understanding of early cultural and biological developments that are not already well documented. The University of California Museum of Paleontology (UCMP) database indicates that there are no recorded fossil sites in the vicinity of the project. Therefore, project-related construction (ground-disturbing) activities would have no effect on unique or scientifically important paleontological resources.

Cumulative Effects

No unique paleontological resources are known to be present within the project area or vicinity and the existing predominant geological deposits are not known to contain such resources. Therefore, the South Demonstration

Project and related projects in the South Lake Tahoe and Douglas County portions of the Tahoe Basin (as listed in Table 3.1-1) would not result in adverse cumulative effects related to unique paleontological resources.

Alternative C

Direct and Indirect Effects

Under Alternative C, the shared-use path as described under Alternatives A and B would not be constructed and there would no effect on unique paleontological resources within the project area.

Cumulative Effects

Under Alternative C, no shared-use path would be constructed; therefore, Alternative C would result in no contribution to potential cumulative effects related to unique paleontological resources.

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3.9 Traffic, Parking, and Transit

3.9.1 Scope of the Analysis

This section describes the existing roadway network, intersection conditions, pedestrian and bicycle facilities, parking facilities, and traffic volumes on roadways in the project area and analysis of potential adverse effects resulting from Alternatives A through C on traffic, parking, and transit. The analysis in this section is based on: the *Lake Tahoe Region Bicycle Pedestrian Use Model*, traffic engineering guidelines, and bicycle facility and sight distance guidelines specified in AASHTO's *A Policy on Geometric Design of Highways and Streets* (AASHTO 2001).

3.9.2 Assessment Factors

NEPA – U.S. Forest Service, Lake Tahoe Basin Management Unit Forest Plan

The following directives from the LTBMU Forest Plan consistency matrix apply to this section of the EA:

- Prepare a traffic analysis for each new recreation site which would produce more than 200 trips per day. Prepare a traffic analysis when existing sites that produce substantial traffic are proposed for reconstruction. TRPA criteria for a traffic analysis will be used including modeling that estimates the effects of the project upon level of service at key intersections, effects upon air quality, and effects upon traffic flow. Plan offsetting mitigation measures for the impacts.

- Design facilities for service by transit operation. Those facilities that are near the lake shore should also be serviceable by shuttle type boats.

- Integrate parking facilities with a road system at wilderness and other trailheads, viewpoints, special attractions, and recreation sites.

Tahoe Regional Planning Agency

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

- generate 100 or more new Daily Vehicle Trip Ends (DVTE);

- change existing parking facilities, or demand for new parking;

- cause a substantial impact 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.

3.9.3 Affected Environment

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. These roadways are shown on Exhibits 2-2 through 2-6 in Chapter 2, "Alternatives."

- **U.S. 50** connects the City of South Lake Tahoe over Echo Summit with Sacramento to the west and over Spooner Summit with Carson City to the east. U.S. 50 runs north-south within the study area. Within the vicinity of the project, U.S. 50 provides two through lanes in each direction and exclusive left-turn lanes at major intersections. A center two-way left-turn lane is provided from Kingsbury Grade (SR 207) to north of Kahle Drive. The posted speed limit from Kingsbury Grade to north of Kahle Drive is 35 miles per hour. The speed limit increases to 45 miles per hour at a point north of Kahle Drive.

- **Lake Parkway** is a loop roadway that provides access to the Edgewood Tahoe Golf Course and to the casino properties on both sides of U.S. 50. West of U.S. 50, Lake Parkway has a three-lane cross section with one through lane for each direction of travel and a center two-way left-turn lane between U.S. 50 and the California/Nevada state line. At the California/Nevada state line, Lake Parkway is continuous with Pine Boulevard, which intersects Park Avenue to complete the loop. East of U.S. 50, Lake Parkway has a two-lane cross section with striped left-turn lanes at the casino access points. At the California/Nevada state line, Lake Parkway is continuous with Montreal Road, which intersects Heavenly Village Way to complete the loop.

- **Kahle Drive** is a two-lane roadway that runs in an east-west direction. On the east side of U.S. 50, Kahle Drive provides access to the County Administrative Complex and to Kahle Community Park. The western leg of Kahle Drive provides access to commercial and residential land uses, as well as the project site. The roadway consists of a single through travel lane in each direction and is signalized at its intersection with U.S. 50. The speed limit on the western leg of Kahle Drive is 25 miles per hour.

- **Elks Point Road** is a two-lane roadway that runs in an east-west direction. Elks Point Road provides access to commercial, office, park, and residential land uses. The speed limit is posted at 25 miles per hour to the east of U.S. 50, and 35 miles per hour to the west of U.S. 50. The roadway consists of a single through travel lane in each direction, with additional turn lanes at the U.S. 50 intersection, which is controlled by a traffic signal.

- **Laura Drive** is a local roadway with single family homes on the west side and accesses to commercial offices and lodging properties on the east side. There are four single family homes with access points located along the west side of Laura Drive and two wide driveways for commercial access along the east side of Laura Drive. Laura Drive has a pavement width of 36 feet. There is no posted speed limit; however, a regulatory sign posted on Kahle Drive specifies "25 mph [on] all streets in this area." Irwin Drive intersects Laura Drive at a T-intersection approximately 150 feet north of 4-H Camp Road. The Irwin Drive approach is stop-controlled.

- The **Edgewood Tahoe Golf Course access drive** forms a T-intersection with Lake Parkway. This intersection is controlled by a stop sign on the Edgewood access approach only. The distance across the access roadway is 88 feet, spanning two travel lanes separated by a wide median entrance monument for Edgewood.

Intersection Configuration

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

- The **U.S. 50/Kahle Drive** intersection is a four-way signalized intersection. The U.S. 50 approaches contain an exclusive left-turn lane, one through lane, and a shared through/right-turn lane. The westbound approach contains a left-turn lane and a shared through/right-turn lane. The eastbound approach contains one wide lane from which all through and turning movements are made.

- The **U.S. 50/Elks Point Road** intersection is a four-way signalized intersection. The traffic signal is actuated, with vehicles being detected by the signal hardware and appropriate time given to clear the queue waiting for the green signal. The U.S. 50 approaches contain an exclusive left-turn lane, one through lane, and a shared through/right-turn lane. The east and west approaches each contain a shared left/through lane and an exclusive right-turn lane.

- **Laura Drive/Kahle Drive** is a T-intersection. The Laura Drive approach is controlled by a stop sign, while the Kahle Drive approaches are uncontrolled. The pavement width on Kahle Drive is 30 feet. As mentioned above, the posted speed limit on Kahle Drive is 25 mph. Kahle Drive provides access to residential and commercial land uses. Kahle Drive intersects U.S. 50 at a signalized intersection and therefore serves a significant amount of local traffic.

- **Laura Drive/4H-Camp Road** is a T-intersection. The Laura Drive approach is controlled by a stop sign, while the 4-H Camp Road approaches are uncontrolled. 4-H Camp Road is a narrow alleyway. It is mostly used as a loading zone for deliveries, which sometimes block the roadway entirely. There is no posted speed limit on 4H-Camp Road; however, the geometry of the roadway limits vehicle speeds to approximately 15 mph. This intersection has a low traffic volume.

Ground-Transit Services and Facilities

The South Shore area of Lake Tahoe (including both California and Nevada portions) is served by the BlueGO transit program operated by the South Tahoe Area Transit Authority. All BlueGO buses and vans are equipped with bicycle racks. At present operating conditions, the South Demonstration Project would be served at the following locations:

- In the **Stateline** area, the primary stop is the Stateline Transit Center near Heavenly Village and approximately 0.4 miles from the southern terminus of the South Demonstration Project. All routes serve this Transit Center, except Routes 30, 52 and 55. In addition, Route 53 (serving the Pioneer Trail/Bijou Area) as well as the routes serving the Nevada side of the area (Route 20X to Minden/Gardnerville, Route 21X to Carson City, and Route 23 serving Kingsbury Grade) all serve a stop at Harvey's that is more convenient to the proposed shared-use path.

- In the **Kingsbury** area, the primary stop is the Kingsbury Transit Center just to the southeast of the U.S. 50/Kahle Drive intersection. This stop is served by Route 50 (the primary route serving the U.S. 50 corridor through South Lake Tahoe), as well as Routes 20X, 21X, 23, 53, and 54. It is approximately 290 yards between this transit center and the closest point on the South Demonstration Project (at the Laura Drive/Kahle Drive intersection), and crossing of U.S. 50 is aided by the signal at the Kahle/US 50 intersection.

- Route 21X also serve **Elks Point Road** and **Round Hill Pines Beach** on request as part of the overall route between Kingsbury Transit Center and Carson City. In peak summer, this service is available 8 times per day in each direction on Route 21X limited to 5:40 a.m. to 10:15 a.m., and from 2:35 p.m. to 7:15 p.m. Shared-use

path users could potentially ask for deviations on these routes and have direct access to the South Demonstration Project at the crossings with either Elks Point Road or Round Hill Pines Beach Access Road.

It should be noted that plans are currently being developed that would reduce the BlueGO program to address funding shortfalls. However, current concepts would retain service on all corridors presently serving the South Demonstration Project area. Service along the Kingsbury Grade corridor as well as the U.S. 50 corridor between the Kingsbury Transit Center and the South Shore "Y" area would maintain a good level of transit service.

Overall, the best transit access to the South Demonstration Project would be provided by the Kingsbury Transit Center stop, both in terms of the level of transit service and the ease of access from the transit stop to the shared-use path.

Pedestrian and Bicycle Facilities

Within the area of the proposed project, sidewalks are found along one or both sides of U.S. 50 and along the northwest side of Lake Parkway West. Protected pedestrian crossing of U.S. 50 is provided at the traffic signals in the study area. Along other streets, sidewalks are limited. During the winter months, snow and ice removal occurs infrequently outside of the developed commercial areas. Even in the area of the proposed project, the use of sidewalks in winter can be problematic due to snow and ice. All other pedestrian facilities are unpaved or are limited to the frontage of individual, non-contiguous, parcels.

There are numerous, discontinuous bicycle facilities throughout the Lake Tahoe Basin. Few bicycle facilities exist in the study area, although bicycle lanes exist along Elks Point Road. The existing unpaved Lam Watah Trail is located in the meadow area west of U.S. 50, between Kahle Drive and Elks Point Road. This trail is primarily used for recreation purposes and has low usage by through pedestrians.

Parking Facilities

Parking in the vicinity of the proposed South Demonstration Project is available at the following locations:

- Horizon Casino rear surface parking lot.
- Douglas County parking structure at the Kingsbury Transportation Center, located off of Kahle Drive, east of U.S. 50. The parking structure contains 193 parking spaces.
- The existing parking lot for the Lam Watah Trail, located on Kahle Drive, just west of U.S. 50. This lot provides 9 parking spaces.
- Parking is available along the shoulder of Elks Point Road.
- Limited shoulder parking is available along U.S. 50 near the Round Hill Pines Beach access road and near the proposed northern terminus of the South Demonstration Project.

Roadway Traffic Volumes

The existing peak hour and Average Daily Traffic (ADT) traffic volumes for study area roadways are presented in Table 3.9-1.

Table 3.9-1
Existing Traffic Volumes

Roadway	Peak Direction Peak Hour Traffic Volume	2-Way Peak Hour Traffic Volume	Summer Average Daily Traffic Volumes
Lake Parkway	174	318	3,000
Edgewood Access	75	135	2,100
Kahle Drive	135	243	2,400
Elks Point Road	165	255	2,100
U.S, 50, North of Round Hill Pines Beach access road	987	1,932	18,400

Source: LSC Transportation Consultants, Inc. 2010

Intersection Level of Service

A level of service analysis is not applicable for existing conditions, as the proposed crossing locations do not presently exist.

3.9.4 Environmental Consequences

Forecast of Shared-Use Path Use

Alternatives A and B

Direct and Indirect Effects

LSC Transportation Consultants, Inc. applied the *Lake Tahoe Region Bicycle and Pedestrian Corridor Use Model* (LSC Transportation Consultants, Inc. 2009) to estimate the user demand for the proposed South Demonstration Project. This model is based upon observed facility use levels in the Lake Tahoe Region, data regarding the characteristics of individual facility users, as well as demographic and travel data for the Lake Tahoe Region. The full usage analysis for the South Demonstration Project is provided in the *Nevada Stateline-to-Stateline South Demonstration Project Use Forecasts Memorandum* (LSC Transportation Consultants, Inc. 2010). Because the shared-use path would be similar in character under either action alternative, the model outputs reflect usage levels for either alternative if it were implemented. The analysis estimates the number of shared-use path users in the following categories:

- residents biking to the shared-use path from home,
- visitors biking to the shared-use path from lodging,
- residents or visitors driving to the shared-use path to bicycle,
- residents walking to the shared-use path from home,
- visitors walking to the shared-use path from lodging, and
- residents or visitors driving to the shared-use path to walk.

Shared-use path usage estimations are provided for daily, peak hour, and annual time periods, for the location of peak usage and for the South Demonstration Project shared-use path in its entirety.

Shared-use path usage estimations are based on a "maximum feasible demand" figure based on regional path use and demographic data, which is then reduced based on specific path characteristics in the following categories:

- facility class,
- grade,
- facility continuity,
- maintenance,
- recreational value, and
- path congestion.

The result of applying the reduction factors to the maximum feasible demand is the estimated daily usage at the location of peak demand along the South Demonstration Project. The demand estimate calculations are provided in Table 3.9-2. The point of the shared-use path with the highest forecast usage is the stretch along U.S. 50 immediately north of Lake Parkway. The estimated daily use at this location is 1,677 one-way bicycle trips and 355 one-way pedestrian trips. The estimated peak hour one-way use at this location is 257 bicycle trips and 54 pedestrian trips. The total estimated annual peak usage of the South Demonstration Project along this stretch is 298,000 one-way trips (total of bicyclists and pedestrians).

Not all shared-use path users would pass the location of peak usage, resulting in figures for the total number of persons using the shared-use path that are higher than the figures at the location of peak usage. Applying the formula (LSC Transportation Consultants, Inc. 2010) to calculate usage along the entire corridor yields 1,733 daily one-way bicycle trips, 494 daily one-way pedestrian trips, 265 peak hour one-way bicycle trips, and 76 peak hour one-way pedestrian trips.

While there is no established LTBMU or TRPA criteria for determining whether the estimated bicycle and pedestrian use levels alone would result in adverse effects, the following discussions of traffic, parking, and VMT effects are directly influenced by the demand and use levels associated with the proposed South Demonstration Project.

Cumulative Effects

The following related projects in the vicinity of the South Demonstration Project (Table 3.1-1) could affect shared-use path use:

- Nevada Stateline-to-Stateline Bikeway – Future Phases Connecting Round Hill to Crystal Bay
- Beach Club on Lake Tahoe
- Project 3 Redevelopment
- Sierra Colina Village Project
- Edgewood Hotel and Golf Course Realignment Project
- Gondola Vista Project
- Round Hill Pines Resort Facility and BMP Retrofit Project
- Lake Tahoe Waterborne Transit

Other potential bicycle facility projects in the project vicinity include the Greenway Shared-Use Trail extending southwestward from the Stateline area and the Ski Run to El Dorado Beach Bike Trail (Table 3.1-1). However, access to both bicycle facilities from the South Demonstration Project would require negotiating a substantial "gap" between these facilities. In addition, the provision of additional Class I/shared-use paths within close proximity of Stateline's concentration of lodging would tend to spread the innate demand for recreational bicycling or walking trips across the various facilities, reducing demand on the South Demonstration Project

Table 3.9-2
Tahoe Regional Bicycle and Pedestrian Corridor Use Model Applied to the South Demonstration Project
(at Location of Peak Demand in Corridor)

Corridor	Maximum Feasible Demand	Use Factor – Reduction from Maximum[5]							Daily Use Est.	Peak Hour Factor[6]	Peak Hour Use Estimate	Annual/ Daily Factor[7]	Annual Use Estimate
		Class	Grade	Continuity	Maintenance	Recreational Value	Congestion	Multi-plicative Total					
Bicyclists													
Resident Bike to Facility	880[1]	0.02	0.05	0.00	0.00	0.21	0.40	0.56	389				
Visitor Bike to Facility	2,750[1]	0.03	0.15	0.00	0.00	0.33	0.19	0.55	1,246				
Bicyclists Drive to Facility	240[2]	0.04	0.15	0.00	0.00	0.75	0.15	0.83	42				
Total – Best Estimate									1,677	0.153	257	146.5	246,000
High End of Estimate Range									2,096		321		307,500
Low End of Estimate Range									1,258		192		184,500
Pedestrians													
Resident Walk to Facility	170[3]	0.04	0.05	0.00	0.00	0.15	0.30	0.46	92				
Visitor Walk to Facility	530[3]	0.06	0.15	0.0	0.00	0.36	0.08	0.53	249				
Pedestrians Drive to Facility	41[4]	0.08	0.15	0.00	0.00	0.51	0.08	0.65	14				

Table 3.9-2 (cont'd.)
Tahoe Regional Bicycle and Pedestrian Corridor Use Model Applied to the South Demonstration Project
(at Location of Peak Demand in Corridor)

Corridor	Maximum Feasible Demand	Use Factor – Reduction from Maximum[5]							Daily Use Est.	Peak Hour Factor[6]	Peak Hour Use Estimate	Annual/ Daily Factor[7]	Annual Use Estimate
		Class	Grade	Continuity	Maintenance	Recreational Value	Congestion	Multi-plicative Total					
Total – Best Estimate									355	0.153	54	146.5	52,000
High End of Estimate Range									533		81		78,000
Low End of Estimate Range									178		27		26,000
Total – Best Estimate									**2,032**		**311**		**298,000**
High End of Estimate Range									2,629		402		385,500
Low End of Estimate Range									1,435		220		210,500

Notes:
[1] Refer to the Lake Tahoe Region Bicycle and Pedestrian Use Model Memorandum, Table G.
[2] 480 for corridors with an existing Class I facility, 240 for corridors without an existing Class I facility. (Note: Class I facility is used synonymously with the term shared-use path facility in this EA.)
[3] Refer to the Lake Tahoe Region Bicycle and Pedestrian Use Model Memorandum, Table J.
[4] 135 for corridors with an existing Class I facility, 41 for corridors without an existing Class I facility.
[5] Refer to the Lake Tahoe Region Bicycle and Pedestrian Use Model Memorandum, Table E.
[6] 0.153 for Class I facility, 0.096 for Class II facility.
[7] 172.8 for facilities maintained year-round, 146.5 for facilities without snow removal.
Source: LSC Transportation Consultants, Inc. 2010

shared-use path. Overall, no net increase in South Demonstration Project path usage would be expected from these other bicycle facilities.

The *Lake Tahoe Region Bicycle and Pedestrian Corridor Use Model* was modified to include the person-trip generating characteristics of the above-listed development projects. The estimated daily use level under cumulative conditions at the location of peak demand along the South Demonstration Project is 2,010 one-way bicycle trips and 384 one-way pedestrian trips. The estimated peak hour one-way use at this location is 308 bicycle trips and 59 pedestrian trips. The total estimated annual usage of the South Demonstration Project under cumulative conditions is 350,000 one-way trips. These estimates indicate that this facility would be the most well used multipurpose path in the Tahoe Basin. In comparison with the total daily volumes of 2,394 for the South Demonstration Project (at the location of peak demand), the Incline Village Lakeshore Path is observed to carry 1,856 person-trips per day, the Camp Richardson trail carries 1,685 person-trips per day, and the Truckee River Trail west of Tahoe City carries 1,246 person-trips per day (TRPA 2010).

Alternative C

Direct and Indirect Effects

Under Alternative C, no paved bikeway or shared-use path would be constructed. Therefore, there would be no increased shared-use path usage; bicycle and pedestrian activity in the study area would remain unchanged from existing conditions.

Cumulative Effects

The increase in demand for bicycle/pedestrian facilities under Alternative C would be identical to that described under Alternatives A and B. However, as no new bicycle/pedestrian facilities would be constructed under this alternative, bicycle and pedestrian activity in the study area would remain unchanged from existing conditions and the demand for the type of facility proposed by the South Demonstration Project would be unmet at this time.

Traffic Conditions – Roadway Level of Service and Traffic Safety

Alternatives A and B

Direct and Indirect Effects

Preliminary engineering plans for the South Demonstration Project were reviewed for consistency with AASHTO guidance documents *A Guide for the Development of Bicycle Facilities* (AASHTO 1999) and *A Policy on Geometric Design of Highways and Streets* (AASHTO 2001), both of which are incorporated by reference in NDOT's *Roadway Design Guide* (NDOT 2010) as they relate to at-grade crossings. The proposed at-grade crossings (including driver sight distances given posted speed limits and curvature requirements) at the six at-grade crossings (Lake Parkway, Edgewood Tahoe Golf Course, 4-H Camp Road, Kahle Drive, Elks Point Road, and the Round Hill Pines Beach Access Road) for Alternatives A and B were evaluated for safety and consistency with these guidelines. At this preliminary design phase, the details on crossing treatments are limited to approximate locations of marked crosswalks, advance warning signs, and stop bars for on-coming vehicle traffic, as described in TRA-1 in Section 2.3 of this EA, "Project Design Features." The specific details of crossings treatments would be developed further in the subsequent design phases, and would be designed to conform to applicable AASHTO, NDOT, TRPA, FHWA, and Douglas County design standards. Because at-grade crossing locations are consistent with the current guiding documents intended to maintain safety at at-grade roadways crossings, the proposed at-grade crossings would not create adverse conditions regarding traffic safety between motor vehicles, bicyclists, and pedestrians.

Traffic conditions at at-grade roadway crossing locations are evaluated by considering the effect that shared-use path users blocking traffic movements would have on the capacity of the travel lanes, and comparing it with the traffic volumes to identify the volume/capacity ratio and associated LOS. The shared-use path use estimates and at-grade roadway crossing locations would be the same for Alternatives A and B, and as such the analysis below applies to both alternatives. This analysis is presented in Table 3.9-3 and consists of the following steps:

Table 3.9-3
Evaluation of Peak Hour At-Grade Roadway Crossing Auto LOS

	Crossing Location					
	Lake Parkway (S. Terminus of Path)	Edgewood Access Road	4H-Camp Road	Kahle Drive	Elks Point Road	Round Hill Pines Beach Access Road
Number of Shared-Use Path Users per Hour	185	311	297	297	226	158
Average Shared-Use Path Users per Crossing Group	2	2	2	2	2	2
Crossing Groups per Hour	93	155	148	148	113	79
Crossing Distance - 1/2 of Roadway Width + 4 (feet)	30	48	12.5	19	22	32
Average Crossing Speed (feet per second)	4.0	4.0	4.0	4.0	4.0	4.0
Time Required per Crossing (seconds)	7.5	12	3.125	4.75	5.5	8
Total Time per Hour Auto Traffic Blocked (seconds)	694	1,865	464	705	620	630
Percent of Hour that Auto Traffic is Blocked	19%	52%	13%	20%	17%	18%
Base Roadway Capacity (vehicles per hour per direction)	1,600	1,600	1,600	1,600	1,600	1,600
Roadway Capacity with Crossings (vehicles per hour)	1,296	768	1,392	1,280	1,328	1,312
Hourly Peak Direction Traffic Volume	174	75	100	135	165	50
Volume/Capacity Ratio	13%	10%	7%	11%	12%	4%
Crossing LOS	A	A	A	A	A	A

Source: LSC Transportation Consultants, Inc. 2010

- The forecast number of path users in the peak hour is divided by an estimated average number of persons crossing at the same time (2 persons) to identify the number of crossing events per hour that would require drivers to stop.

- Section 484B.283 of the Nevada Revised Statutes states that “When official traffic-control devices are not in place or not in operation the driver of a vehicle shall yield the right-of-way, slowing down or stopping if need be so to yield, to a pedestrian crossing the highway within a crosswalk when the pedestrian is upon the half of the highway upon which the vehicle is traveling, or when the pedestrian is approaching so closely from the opposite half of the highway as to be in danger.” Based on this, it is assumed that drivers would need to stop for the time required for a path user to cross half of the roadway plus 4 feet. This distance was divided by a typical walking speed of 4 feet per second to identify the time that each crossing event stops traffic.

- The stop time per crossing event is multiplied by the number of crossing events per hour to identify the total time in the peak hour that traffic is stopped. Dividing by the total number of seconds per hour (3,600) yields the proportion of the total hour in which traffic is stopped.

- The capacity of a travel lane under ideal low-speed conditions is 1,600 vehicles per hour. Multiplying by the proportion of the total hour that traffic is *not* stopped yields the roadway capacity reflecting path crossing activity.

- The peak-direction volume is divided by the capacity to identify the vehicle/capacity ratio. A volume/capacity ratio less than 0.5 indicates a LOS of A.

Table 3.9-3 presents a summary of traffic conditions including LOS at all proposed shared-use path crossing locations. The roadway LOS at all path crossing locations would be LOS A for both action alternatives. Because the proposed South Demonstration Project would not cause roadway LOS to degrade to levels below LOS standards established by TRPA and Douglas County for the area, there would not be an adverse effect on roadway LOS.

Cumulative Effects

The following related projects in the vicinity of the South Demonstration Project would affect traffic volumes at at-grade roadway crossing locations:

- Beach Club on Lake Tahoe
- Edgewood Hotel and Golf Course Realignment Project

The additional traffic generated by these projects at the path crossing locations combined with additional usage generated by the projects listed in the preceding section of this document would not degrade LOS at the at-grade roadway crossing locations. The LOS A at all locations where the shared-use path would cross local roadways would be maintained when considered with these other projects, and there would not be an adverse cumulative effect on roadway LOS. (Note: there are other projects in the site vicinity [such as Sierra Colina Village Project] that could add to traffic on U.S. 50, but not to the potential at-grade roadway crossing locations shown in Table 3.9-3.)

Segment 1 Optional Alignment – Narrow Lake Parkway west of U.S. 50 by 7 feet

With Alternatives A and B, one option for Segment 1 of the shared-use path includes reducing the width of Lake Parkway by 7 feet. The existing three travel lanes would be reduced to 11 feet in width, and paved shoulders would be reduced to 2 feet in width. The reduction itself would not result in any adverse effects on traffic operations (LOS) or safety impacts.

However, with this optional configuration of Lake Parkway, “No Parking” signs would be placed on both sides of Lake Parkway. The present practice of allowing shoulder parking on Lake Parkway for special events (e.g., the Edgewood Tahoe Golf Course – Celebrity Golf Tournament, Tour de Tahoe – Bike Big Blue, and America’s Most Beautiful Bike Ride – Lake Tahoe) would not be feasible with the reduction in roadway width, except if a through travel lane were to be coned off for parking and the center two-way left turn lane coned and signed for through traffic (starting from a point sufficiently distant from U.S. 50 to provide turning lane queue space). Under this configuration, left turns into the Horizon, Harvey’s, Edgewood Tahoe Golf Course, or Wells Fargo Bank driveways would block through movements, which would result in very poor roadway LOS (LOS F). To provide adequate LOS, the use of Traffic Control Officers would be needed (except during periods of very light traffic activity, such as from 1:00 a.m. to 7:00 a.m.) to direct traffic at these driveways. As described in Design Feature TRA-2 in Section 2.3 of this EA, event traffic and parking management details would be specified in a Special

Event Traffic Management Plan subject to review and approval by Douglas County prior to allowing parking on Lake Parkway during any such events.

Alternative C

Direct and Indirect Effects

Under Alternative C, the South Demonstration Project shared-use path would not be constructed. Therefore, no shared-use path crossing locations would be constructed and there would be no roadway level of service or traffic safety effects associated with a shared-use path.

Cumulative Effects

Under Alternative C, the South Demonstration Project would not be constructed. Therefore, no shared-use path crossing locations would be constructed and there would be no cumulative effect on roadway level of service or traffic safety effects associated with a shared-use path.

Parking

Alternatives A and B

Direct and Indirect Effects

Parking demand at points along the South Demonstration Project was estimated based on the calculated demand for drive-to-path users. The shared-use path use estimates and parking demands would be the same for Alternatives A and B, and as such the analysis below applies to both alternatives. The application of the Lake Tahoe Region Bicycle and Pedestrian Use Model for the South Demonstration Project indicates that the daily drive-to-path demand is 42 for bicycles and 14 for pedestrians. Surveys of existing bicycle/pedestrian facilities in the Lake Tahoe Region provides that drive-to-bicycle path users would have an average vehicle occupancy of 2.2 persons per vehicle and that drive-to-walk path users would have an average vehicle occupancy of 1.4. Applying the vehicle occupancy factors to the drive-to-path demand calculations yields a total of 29 vehicles parking at a path access location over the course of a typical day. A peak-hour-to-day factor of one third is assumed for this analysis (based on observed turnover of trailhead parking at similar existing Class I/shared-use path facilities in the Lake Tahoe Region), resulting in a peak hour parking demand of 10 vehicles. The parking demand is distributed to the following four locations along the South Demonstration Project, based on the distribution of resident and visitor population that would access the area via U.S. 50 to the south, Kingsbury Drive (SR 207) to the east, and U.S. 50 to the north as well as the relative attractiveness of the shared-use path sections to recreational uses:

- Casino parking lots along Lake Parkway
- Kahle Drive
- Elks Point Road
- North terminus of South Demonstration Project, near Round Hill Pines Beach access road

The parking distribution and peak-hour parking demand at each location are provided in Table 3.9-4. As shown, at peak times approximately one vehicle would be parked in the casino area and at the north terminus, two vehicles on Elks Point Road, and six at Kahle Drive.

More than adequate unused parking is available in the casino core area for the single additional parked car. In addition, at the Round Hill Pines Beach access road there is adequate shoulder parking available.

Table 3.9-4
South Demonstration Project – Share-Use Path Parking Demand

	Daily Demand [1]	Average Vehicle Occupancy [2]	Parking Demand
Drive-to-Bicycle Path Users	42	2.2	19
Drive-to-Walk Path Users	14	1.4	10
Total			**29**
Peak-Hour-to-Day Factor			0.333
Peak Hour Parking Demand			10
Location	Distribution	Peak Hour Parking Demand	
Casino Parking Lots on Lake Parkway	10%	1	
Kahle Drive	60%	6	
Elks Point Road	20%	2	
Northern End of Path	10%	1	

Notes:
[1] Calculation from application of Lake Tahoe Region Bicycle and Pedestrian Use Model for the South Demonstration Project.
[2] From TCORP 2007 surveys of users of Tahoe recreational trails.
Source: LSC Transportation Consultants, Inc. 2010

At the Kahle Drive location, shared-use path users could park in the existing parking lot, though at peak times there are currently no spaces left unused by the nature trail users. Under Alternatives A and B, the existing Kahle Drive parking lot would be expanded to add an additional 14 parking spaces at this location, which would more than offset the increase in parking demand at this location generated by the South Demonstration Project.

On Elks Point Road near the proposed at-grade crossing of the shared-use path, Nevada Beach users already generate substantial parking demand along the roadway shoulder. While the analysis summarized in Table 3.9-4 identifies two additional vehicles associated with drivers parking to use the proposed shared-use path, it does not reflect that some existing beach goers currently driving to the site would instead use the proposed shared-use path to bicycle or walk to the beach. Given that the shared-use path would increase the attractiveness of these non-auto modes to a significant number of residences and visitors in the area, it is expected that this diversion would be equivalent to at least two travel parties currently parking in the area at peak times. Overall, current parking demand at this location is expected to remain unchanged or to be reduced by the proposed shared-use path.

Cumulative Effects

Land development projects in the vicinity (such as Beach Club on Lake Tahoe, Project 3, Sierra Colina Village Project, and Edgewood Hotel and Golf Course Realignment Project) would not generate measureable increases in demand for parking at the above-identified trailheads. This is because (1) guests/residents of the projects would be likely to walk or bike directly from these nearby project locations and (2) the projects would not significantly change the overall population of the entire South Shore area. Other shared-use path projects (such as the Greenway Shared-Use Trail) could potentially reduce drive-to-path parking demand at South Demonstration Project trailheads, by providing other opportunities in the vicinity for a recreational use trip.

The subsequent phases of the Nevada Stateline-to-Stateline Bikeway project (connections between Round Hill and Crystal Bay) are estimated to increase the daily drive-to-path demand to 62 for bicycles and 24 for pedestrians. Applying the vehicle occupancy factors (discussed above) to the drive-to-path demand calculations

yields a total of 45 vehicles parking at a path access location over the course of a typical day. A peak-hour-to-day factor of one third is assumed for this analysis, resulting in a peak hour parking demand of 15 vehicles. Rounded to the nearest integer, the number of peak parked vehicles along Elks Point Road would be three vehicles. However, this figure does not reflect that some beach goers that would otherwise drive to the site under cumulative conditions would instead use the proposed shared-use path to bicycle or walk to the beach. Given that the shared-use path would increase the attractiveness of these non-auto modes to a significant number of residences and visitors in the area, it is expected that this diversion would be sufficient to offset this modest number of drivers parking at this location to access the shared-use path. Overall, cumulative parking demand at this location is expected to remain unchanged or to be reduced by the proposed project.

Again, more than adequate unused parking is available in the casino core area, on the shoulders at the Round Hill Pines Beach access road, and along Kahle Drive for the up to two additional parked vehicles that would be generated at those locations.

Segment 1 Optional Alignment – Narrow Lake Parkway west of U.S. 50 by 7 feet

With Alternatives A and B, one option for Segment 1 of the shared-use path includes reducing the width of Lake Parkway by 7 feet. The existing three travel lanes would be reduced to 11 feet in width, and paved shoulders would be reduced to 2 feet in width. “No Parking” signs would be placed on both sides of Lake Parkway. The effects of this optional configuration on special event parking is discussed under the heading “Traffic Conditions – Roadway Level of Service” above.

Alternative C

Direct and Indirect Effects

Under Alternative C the South Demonstration Project would not be constructed. Therefore, parking demand and supply in the project area would remain unchanged from existing conditions.

Cumulative Effects

Under Alternative C the South Demonstration Project would not be constructed. Therefore, parking demand and supply in the project area associated with the shared-use path would remain unchanged from existing conditions.

Vehicle-Miles of Travel (VMT)

Alternatives A and B

Direct and Indirect Effects

An analysis was performed to calculate the change in VMT that would be associated with operation of the South Demonstration Project. The shared-use path use estimates and VMT effects would be the same for Alternatives A and B, and as such the analysis below applies to both alternatives. While travelers bicycling or walking along the facility (who otherwise would have driven) reflect reductions in VMT, persons driving to the shared-use path for recreational purposes reflect additional VMT.

The calculation of the reduction in VMT by shared-use path users not driving to the path was based on average bicycle and pedestrian trip lengths specified in the Lake Tahoe Region Bicycle and Pedestrian Use Model’s documentation. Average vehicle occupancy for bicycle and pedestrian drive-to-path users was defined based on the 2007 survey of path users conducted by the Tahoe Coalition of Recreational Providers (TCORP). The percentage of bike-to-path and walk-to-path users that would have otherwise generated a vehicle-trip in the

absence of the path was also obtained from the surveys. The VMT reduction associated with path users that would have otherwise driven is calculated as the product of the total daily path users, the percentage that would have otherwise driven, and the average trip length, divided by the average vehicle occupancy. As shown in Table 3.9-5, the resulting daily VMT reduction associated with avoided auto trips would be 643 VMT. The VMT generated by drive-to-path users is calculated by taking the number of drive-to-path users, factoring by the average vehicle occupancy (size of travel group) and multiplying by the average length of the vehicle-trip used to access the shared-use path (from TCORP surveys). This additional VMT is estimated at 143. On balance, the South Demonstration Project is forecast to yield a net reduction in VMT of 500.

Table 3.9-5
Analysis of Daily Vehicle-Miles of Travel Effects of the South Demonstration Project

	VMT Reduction Associated with Path Users Not Driving to Path Who Otherwise Would Have Driven					VMT Generated by Recreational Path Users Driving to Path				
	Daily Users Not Driving to Path [1]	% Would Have Driven [2]	Avg. Trip Length [3]	Avg Vehicle Occupancy[2]	Change in VMT	Daily Users Driving to Path [1]	Avg Auto Trip Length [2]	Avg. Vehicle Occupancy [2]	Change in VMT	Total Change in VMT
Bicyclist	1,691	27%	2.4	2.2	-503	42	4.9	2.2	94	-409
Pedestrian	480	27%	1.5	1.4	-140	14	4.9	1.4	49	-91
Total					**-643**				**143**	**-500**

Notes:
[1] Calculation from application of Lake Tahoe Region Bicycle and Pedestrian Use Model for the South Demonstration Project.
[2] From TCORP 2007 surveys of users of Tahoe recreational trails.
[3] Average trip length, as specified in the Lake Tahoe Region Bicycle and Pedestrian Use Model documentation.
Source: LSC Transportation Consultants, Inc.

Cumulative Effects

The following projects have a net effect of increasing use along the South Demonstration Project shared-use path:

- Nevada Stateline-to-Stateline Bikeway–Future Phases Connecting Round Hill to Crystal Bay
- Beach Club on Lake Tahoe
- Project 3
- Sierra Colina Village Project
- Edgewood Hotel and Golf Course Realignment Project

On the other hand, the Nevada Stateline-to-Stateline Bikeway – Future Phases Connecting Round Hill to Crystal Bay project is estimated to increase the daily drive-to-path demand for bicycles and pedestrians.

The resulting VMT reduction associated with avoided auto trips increases to 751 VMT under cumulative conditions. The VMT generated by drive-to-path users is estimated to increase to equal 222 under cumulative conditions. The net result associated with the South Demonstration Project under cumulative conditions is a decrease of 529 VMT. This represents an additional reduction of 29 VMT compared with the direct effects of this alternative.

Alternative C

Direct and Indirect Effects

The construction of the South Demonstration Project has a net beneficial effect of decreasing regional VMT by 500. Under Alternative C, the South Demonstration Project would not be constructed and the resultant VMT reduction would not occur.

Cumulative Effects

The construction of the South Demonstration Project would result in a net beneficial effect of decreasing regional VMT by 529 under cumulative conditions. Under Alternative C, the South Demonstration Project would not be constructed and the resultant VMT reduction would not occur.

3.10 Air Quality

3.10.1 Scope of the Analysis

This section describes the existing air quality conditions and potential air quality effects associated with Alternatives A, B, and C. The following analysis consists of an evaluation of direct, indirect, and cumulative air quality effects for each alternative. The analysis herein focuses on mobile and area source emissions generated by the action alternatives, as no permanent stationary sources affecting air quality would be developed under any of the project alternatives.

3.10.2 Assessment Factors

NEPA – U.S. Forest Service, Lake Tahoe Basin Management Unit Forest Plan

The LTBMU Forest Plan, as amended by the SNFPA, was used as the basis for evaluating the project's impact on air quality under NEPA. An air quality goal in the Forest Plan includes "maintaining and, where necessary, restoring the clear, clean air important to the aesthetic enjoyment of the area and the health of the people." Most of the forest management practices and forest wide standards and guidelines contained in the Forest Plan pertain to major emission sources in wilderness areas, and fire protection and prevention practices including fire detection and suppression, fuels treatment, and prescribed burn practices. These issues are not directly relevant to the proposed South Demonstration Project and are not further addressed in this document.

The following evaluation criterion from the LTBMU Forest Plan consistency matrix (Project Record A-1) applies to this section of the EA:

- Prepare a traffic analysis for each new recreation site which would produce more than 200 trips per day. Prepare a traffic analysis when existing sites that produce substantial traffic are proposed for reconstruction. TRPA criteria for a traffic analysis will be used including modeling that estimates the effects of the project upon level of service at key intersections, effects upon air quality, and effects upon traffic flow. Plan offsetting mitigation measures for the impacts.

Section 3.9, "Traffic, Parking, and Transit," provides an analysis of traffic-related effects associated with the action alternatives, and indicates an overall reduction in vehicle miles traveled (VMT) following project implementation.

Tahoe Regional Planning Agency

The following criteria have been established to ensure that project-generated emissions do not result in a violation and/or substantial contribution to a violation of the ambient air quality standards.

Short-Term Air Quality Effects

As identified by TRPA, an alternative would result in a significant short-term air quality effect if:

- Construction of the project results in emissions from heavy-duty construction equipment that would result in a violation of opacity standards (Nevada Administrative Code (NAC) 445B.7665) or emissions of particulate matter (fugitive dust) standards (NAC 445B.22037); or

- Construction-generated emissions of ROG [reactive organic gases], NO_X [ozone], or PM_{10} [particulate matter less than 10 microns in size] would exceed mass emissions of 82 lb/day [Note: Although mass emissions

thresholds have not been adopted by the state of Nevada, the NDEP Bureau of Air Pollution Control (BAPC) and Bureau of Air Quality Planning (BAQP), or Douglas County, a threshold of 82 lb/day (used by other Tahoe Basin jurisdictions) is appropriate to determine whether project implementation would result in an adverse effect and/or affect related-attainment designations (e.g., atmospheric deposition)].

Long-Term Air Quality Effects

As identified by TRPA, an alternative would result in a significant long-term air quality effect if:

- Operation of the project would result in regional emissions that exceed 82 lbs/day of NO_X or ROGs;
- Stationary emissions of the project (as opposed to area source and mobile source emissions) would result in emissions that exceed the peak 24-hour period significance thresholds established by Chapter 91 of the TRPA Code of Ordinances; or
- Operation of the project would result in or contribute to local CO concentrations that exceed the Nevada 1-hour ambient air quality standard of 35 ppm or the Nevada and TRPA 8-hr standard of 6 ppm.

Odor Effects

Odor effects would be significant if construction or operation of the project would result in the exposure of sensitive receptors to an objectionable odor source.

Hazardous Air Pollutant Effects

Hazardous air pollutant effects would be significant if construction or operation of the project would result in the exposure of sensitive receptors to toxic air contaminants (TAC) that exceed 10 in one million for the Maximally Exposed Individual (MEI) to contract cancer and/or a Hazard Index of 1 for the MEI.

Numeric and Management Standards

The applicable TRPA numeric and management standards for air quality are as follows:

<u>Carbon Monoxide</u>

- Numerical Standard: Maintain carbon monoxide concentrations at or below 6.0 parts per million (ppm) averaged over 8 hours.
- Management Standard: Reduce average daily traffic volume between 4:00 p.m. and 12:00 midnight on the U.S. 50 corridor by 7% during the months of November through February from the 1981 base year.

<u>Ozone</u>

- Numerical Standard: Maintain ozone concentration below 0.08 ppm averaged over 1 hour.
- Numerical Standards:
  - Maintain PM_{10} concentration below 150 $\mu g/m^3$ averaged over 24 hours, for federal compliance and below 50 $\mu g/m^3$ for state compliance.

- Maintain PM_{10} concentration below 50 $\mu g/m^3$ annual average over three years running, for federal compliance and below 30 $\mu g/m^3$ annual average for state compliance.

Regional Visibility

- Numerical Standard: Achieve 156 kilometers (97 miles) at least 50% of the year as measured by aerosol concentrations measured at Bliss State Park monitoring site.
- Numerical Standard: Achieve 115 kilometers (71 miles) at least 90% of the year as measured by aerosol concentrations measured at Bliss State Park monitoring site.
- Management Standard: Reduce wood smoke emissions by 15% of the 1981 base values through technology, management practices, and educational programs.

Subregional Visibility

- Numerical Standard: Achieve 78 kilometers (48 miles) at least 50% of the year as measured by particulate concentrations measured at the South Lake Tahoe monitoring site.
- Numerical Standard: Achieve 31 kilometers (19 miles) at least 90% of the year as measured by particulate concentrations measured at the South Lake Tahoe monitoring site.
- Management Standard: Reduce wood smoke emissions by 15% of the 1981 base values through technology, management practices, and educational programs.
- Management Standard: Reduce vehicle miles of travel by 10% of the 1981 base values.

Atmospheric Deposition

- Water Quality (WQ) Numerical Standard: Reduce dissolved inorganic nitrogen loading to Lake Tahoe from all sources by 25% of the 1973–1981 annual average.
- Management Standard: Reduce dissolved inorganic nitrogen loads from surface runoff by approximately 50%, from groundwater approximately 30%, and from atmospheric sources approximately 20% of the 1973–1981 annual average. This threshold relies on predicted reductions in pollutant loadings from out-of-Basin sources as part of the total pollutant loading reduction.
- Management Standard: Reduce the transport of nitrates into the LTAB and reduce oxides of nitrogen produced in the LTAB consistent with water quality thresholds.
- Management Standard: Reduce vehicles miles of travel in the Lake Tahoe Basin by 10% of the 1981 base year values.

3.10.3 Affected Environment

The South Demonstration Project is located in Douglas County, Nevada, which is within the Lake Tahoe Air Basin (LTAB). Air quality within the Douglas County portion of the LTAB is regulated by the EPA, TRPA, and the NDEP BAPC and BAQP. The LTAB includes portions of El Dorado and Placer Counties in California; and Washoe County, Douglas Counties, and the Carson City Rural District in Nevada. The ambient concentrations of air pollutant emissions are determined by the amount of emissions released by pollutant sources and the

atmosphere's ability to transport and dilute such emissions. Natural factors that affect transport and dilution include terrain, wind, atmospheric stability, and the presence of sunlight. Therefore, existing air quality conditions in the area are determined by such natural factors as topography, meteorology, and climate, in addition to the amount of emissions released by existing air pollutant sources, as discussed separately below.

Topography, Meteorology, and Climate

Lake Tahoe lies in a 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 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 to 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 39ºF (4ºC). 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 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) resulting in accumulation and elevated concentrations. Further, each night the down-slope winds transport local pollutants from nearby developed areas out over the lake, increasing the opportunity for pollutants to deposit. This meteorological regime, characterized by weak or calm winds and a strong inversion, is the most common pattern at all times of the year (Cahill and Cliff 2000).

A second important meteorological regime is the transport of pollutants from the Sacramento Valley and San Francisco Bay due to mountain upslope winds that result from the topographic location of the lake directly to the east of the Sierra Nevada crest. This pattern develops when the western slopes of the Sierra Nevada are heated, causing the air to rise in a chimney effect and move upslope to the Sierra crest and over into the LTAB. The strength of this pattern depends on the amount of heating, and thus is strongest in summer, beginning in April and essentially ceasing in late October (Cahill and Cliff 2000).

Other regimes in the LTAB are defined by strong synoptic weather patterns that overcome the dominant terrain-defined meteorology regimes discussed above. The most important is the winter storm regime, which is responsible for precipitation primarily in the form of snow (Cahill and Cliff 2000).

Each of the meteorological regimes has the potential to influence pollution concentrations in the LTAB. Pollution episodes typically occur when local inversions are present, which trap emissions and when conditions allow for the transport of pollution from the western slopes of the Sierra Nevada, the Sacramento Valley, and the San Francisco Bay. Recent studies have even shown spring and fall contributions to local pollution levels from Asia. Periods of low pollution concentration are associated with winter storms and high winds. Winter storms dilute the local and upwind pollution with strong vertical mixing and the incorporation of clean North Pacific air (Cahill and Cliff 2000).

Local meteorological conditions are recorded 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 23ºF to a normal maximum of 42ºF. August temperatures range from a normal minimum of 48ºF to a normal maximum of 78ºF (WRCC 2006a). The annual predominant wind direction and mean speed is from the south at 7 mph (WRCC 2006b, 2006c).

Monitoring Station Data and Attainment Area Designations

Criteria air pollutant concentrations are measured at several monitoring stations in the LTAB. The South Lake Tahoe-Sandy Way and South Lake Tahoe–Airport Road stations are the closest monitoring stations to the project area with recent data for ozone, CO, NO_2, $PM_{10,}$ and $PM_{2.5}$. In general, the ambient air quality measurements from these monitoring stations are representative of the air quality in the project vicinity. Table 3.10-1 summarizes the air quality data from these stations for the past 3 years, 2007 – 2009 are presented for ozone while the remaining pollutants the 2003 through 2005 data are the most current. The national ozone standard was exceeded one day in 2008.

EPA and TRPA use this type of monitoring data to designate areas according to attainment status for criteria air pollutants established by the agencies. The purpose of these designations is to identify those areas with air quality problems and thereby initiate planning efforts for improvement. The three basic designation categories are nonattainment, attainment, and unclassified. Unclassified is used in areas that cannot be classified on the basis of available information as meeting or not meeting the standards. The most current national and TRPA attainment designations for the Douglas County portion of the LTAB are shown in Table 3.10-2 for each criteria air pollutant.

EPA and TRPA designate areas according to attainment status for criteria air pollutants established by the agencies. The purpose of these designations is to identify those areas with air quality problems and thereby initiate planning efforts for improvement. The three basic designation categories are nonattainment, attainment, and unclassified. Unclassified is used in areas that cannot be classified on the basis of available information as meeting or not meeting the standards. The most current national and TRPA designations for the Douglas County portion of the LTAB are shown in Table 3.10-2.

Atmospheric Deposition

Lake Tahoe's clarity has been decreasing by approximately 1 foot per year for over 30 years (see Section 3.3, "Hydrology and Water Quality," for more information). Clarity loss has historically been attributed to increased inputs of the nutrients nitrogen and phosphorous. These nutrients cause an increase in the growth of algae, which results in reduced clarity. Recent data indicate that particles in the water also have a significant effect to lake clarity, and possibly more so than algal growth. Data from the late 1970s and early 1980s found that nitrogen deposition from the atmosphere was contributing to the nutrient load in the lake. At that time, it was believed that excess nitrogen was having the largest effect on the loss of lake clarity. Therefore, TRPA adopted a threshold indicator for nitrogen deposition to the lake. However, data collected in the 1980s and 1990s indicated that phosphorous also plays a significant role in lake clarity, and in some years its role was equal to or more significant than nitrogen.

The first research that found that phosphorous is also depositing from the air into the lake was by Jassby in 1994 (Roberts and Reuter 2007; 84). This has prompted further study into the role of atmospheric deposition, with data indicating that phosphorous loading to the lake must also be reduced if the loss of clarity is to be slowed and, hopefully, reversed. Although TRPA has not yet adopted indicators for deposition of phosphorous, it is expected that as the indicator update process gets underway, an indicator will be included for this nutrient. As discussed above, particle deposition to the lake is also important to clarity. However, it is not yet known if the current federal and state standards for PM are stringent enough to also address the role of PM in lake clarity loss. This is also being evaluated in the threshold indicator update process.

Criteria Air Pollutants

Air quality regulations focus on the following air pollutants: ozone, carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), respirable and fine particulate matter (PM_{10} and $PM_{2.5}$), and lead. Because these are

Table 3.10-1
Summary of Annual Air Quality Data

South Lake Tahoe-Sandy Way and Airport Road Air Quality Monitoring Stations			
	2007	2008	2009
Ozone - National Standard (1-hr/8-hr avg, 0.12/0.075 ppm)			
Maximum Concentration (1-hr/8-hr avg, ppm)	0.090 / 0.073	0.091 / 0.077	0.077 / 0.070
Number of Days National 1-hr/8-hr Standard Exceeded	0 / 0	0 / 1	0 / 0
	2003	**2004**	**2005**
Carbon Monoxide (CO)* - National Standard (1-hr/8-hr avg, 35/9 ppm)			
Maximum Concentration (1-hr/8-hr avg, ppm)	2.4 / 1.51	2.2 / 1.18	NA
Number of Days National 1-hr/8-hr Standard Exceeded	0 / 0	0 / 0	NA
Nitrogen Dioxide ($N0_2$) - National Standard (annual, .053 ppm)			
Maximum Concentration (1-hr avg, ppm)	0.052	0.055	NA
Annual Average (ppm)	0.010	NA	NA
Respirable Particulate Matter (PM_{10}) - National Standard (24-hr avg, 150 µg/m^3)			
Maximum Concentration (µg/m^3)	61.0	47.0	38.0
Number of Days National Standard Exceeded (Measured/Calculated [1])	0 / 0.0	0 / NA	0 / NA
Suspended Particulate ($PM_{2.5}$) - National Standard (24-hr avg, 65 µg/m^3)			
Maximum Concentration (µg/m^3)	21.0	20.0	NA
Number of Days National Standard Exceeded (Measured[2])	0	0	NA

Notes: ppm = parts per million by volume, µg/m^3 = micrograms per cubic meter, NA = not available
Different years data were collected to present the most recent years of data recorded in the Lake Tahoe Basin.
[*] CO monitoring data from the South Lake Tahoe Sandy Way monitoring station.
[1] Measured days are those days that an actual measurement was greater than the level of the state daily standard or the national daily standard. Measurements are typically collected every 6 days. Calculated days are the estimated number of days that a measurement would have been greater than the level of the standard had measurements been collected every day. The number of days above the standard is not necessarily the number of violations of the standard for the year.
[2] The number of days a measurement was greater than the level of the national daily standard. Measurements are collected every day, every three days, or every 6 days, depending on the time of year and the site's monitor schedule. The number of days above the standards is not directly related to the number of violations of the standard for the year.
Sources: ARB 2006a and 2010; EPA 2006a

Table 3.10-2
Attainment Status Designations[1]

Pollutant	National Designation[3]	TRPA Designation
Ozone - 1-hour	No applicable standard[2]	Nonattainment
Ozone - 8-hour	Attainment/Unclassified	
PM_{10}	Attainment/Unclassified	Nonattainment
$PM_{2.5}$	Attainment/Unclassified	-
Carbon Monoxide	Attainment/Unclassified	Nonattainment
Nitrogen Dioxide	Attainment/Unclassified	
Sulfur Dioxide	Attainment/Unclassified	-
Lead (Particulate)	Attainment/Unclassified	-
Hydrogen Sulfide	-	-
Sulfates	-	
Visibility Reducing Particulates	-	Attainment
Traffic Volume	-	Attainment
Wood Smoke	-	Unknown (Likely Nonattainment)
Vehicle Miles of Travel	-	Nonattainment
Atmospheric Deposition - TRPA Interim Target	-	Attainment
Atmospheric Deposition - TRPA Standard	-	Unknown[3]

Notes:
1 For the Douglas County portion of the LTAB.
2 The 1-hour ozone NAAQS was revoked on June 15, 2005.
3 Nonattainment: 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.
Unclassifiable: any area that cannot be classified on the basis of available information as meeting or not meeting the national primary or secondary ambient air quality standard for the pollutant.
Maintenance: any area that has been redesignated from nonattainment to attainment due to successful completion of each of the conditions numbered below.

a. Section 107(d)(3)(E) of the 1990 CAAA states that the following criteria must be met in order for an area to be redesignated from nonattainment to attainment:
b. The EPA has determined that the national ambient air quality standard (NAAQS) has been attained. This standard is 0.12 ppm for ozone.
c. The applicable State Implementation Plan (SIP) has been fully approved by the EPA under section 110(k).
d. The EPA has determined that the improvement in air quality is due to permanent and enforceable reductions in emissions.
e. The State has met all applicable requirements for the area under section 110 and part D.
f. The EPA has fully approved a maintenance plan, including a contingency plan, for the area under section 175A.2.

Sources: EPA 2006, TRPA 2002, TRPA 2006

the most prevalent air pollutants known to be deleterious to human health and extensive health-effects criteria documents are available, they are commonly referred to as "criteria air pollutants." A brief description of each criteria air pollutant including source types is provided below. (Note: a description of the health effects and future trends for each criteria air pollutant is provided in Project Record L-6.)

Carbon Monoxide

CO is a colorless, odorless, and poisonous gas produced by incomplete burning of carbon in fuels, primarily from mobile (transportation) sources. Approximately 77% of the nationwide CO emissions are from mobile sources, and 23% consists of CO emissions from wood-burning stoves, incinerators, and industrial sources.

Nitrogen Dioxide

NO_2 is a brownish, highly reactive gas that is present in all urban environments. The major human-made sources of NO_2 are combustion devices, such as boilers, gas turbines, and mobile and stationary reciprocating internal combustion engines. Combustion devices emit primarily nitric oxide (NO), which reacts through oxidation in the atmosphere to form NO_2 (EPA 2006a). The combined emissions of NO and NO_2 are referred to as NO_X, which are reported as "equivalent" NO_2. Because NO_2 is formed and depleted by reactions associated with photochemical smog (ozone), the NO_2 concentration in a particular geographical area may not be representative of the local NO_X emission sources.

Sulfur Dioxide

SO_2 is produced by such stationary sources as coal and oil combustion, steel mills, refineries, and pulp and paper mills. The major adverse health effects associated with SO_2 exposure pertain to the upper respiratory tract. SO_2 is a respiratory irritant with constriction of the bronchioles occurring with inhalation of SO_2 at 5 ppm or more.

Particulate Matter

Respirable particulate matter with an aerodynamic diameter of 10 micrometers or less is referred to as PM_{10}. PM_{10} consists of particulate matter emitted directly into the air, such as fugitive dust, soot, and smoke from mobile and stationary sources, construction operations, fires and natural windblown dust, and particulate matter formed in the atmosphere by condensation and/or transformation of SO_2 and reactive organic gases (ROG). Particulate matter includes a subgroup of finer particles called $PM_{2.5}$ with an aerodynamic diameter of 2.5 micrometers or less (EPA 2006a).

Lead

Lead is a metal found naturally in the environment as well as in manufactured products. The major sources of lead emissions into the atmosphere have historically been mobile and industrial sources. As a result of the phase-out of leaded gasoline, as discussed in detail below, metal processing is currently the primary source of lead emissions. The highest levels of lead in air are generally found near lead smelters. Other stationary sources are waste incinerators, utilities, and lead-acid battery manufacturers.

Toxic Air Contaminants

TACs are air pollutants that may cause or contribute to an increase in mortality or in serious illness, or that may pose a hazard to human health, federally referred to as hazardous air pollutants (HAPs). TACs are usually present in minute quantities in the ambient air. However, their high toxicity or health risk may pose a threat to public health even at low concentrations.

3.10.4 Environmental Consequences

Short-Term Construction-Related Emissions of Criteria Air Pollutants

Alternatives A and B

Direct and Indirect Effects

Construction-generated emissions associated with both action alternatives would be short-term and temporary in nature. The duration and type of construction activities would be the same under both action alternatives. Construction activities that would generate emissions of criteria air pollutants generally include: vegetation thinning; demolition/removal of existing fencing and sidewalks in certain areas; shared-use path, restroom facility, expanded parking lot, and BMP construction; and striping and signage installation. These activities would temporarily generate emissions of several pollutants: ozone precursors (ROG and NO_X), CO, PM_{10} and $PM_{2.5}$, and diesel exhaust, a TAC. The sources of emissions would include dust generated during site preparation (e.g., pavement removal, grading, and vegetation clearing); exhaust from construction equipment, construction workers' commute trips, and materials transport; and other miscellaneous activities.

As identified in Table 3.10-3 neither action alternative would result in construction-generated emissions of ROG, NO_X, or PM_{10} that exceed specified criteria. Furthermore, implementation of Design Feature AQ-1 would include implementing TRPA and Douglas County requirements with respect to best management practices, grading, soil disturbance, and excavation to prevent adverse effects related to short-term construction-related emissions. Thus, Alternatives A and B would not result in an adverse effect related to pollutant emissions during construction.

Cumulative Effects

As identified in Table 3.10-3 neither action alternative would result in construction-generated emissions of ROG, NO_X, or PM_{10} that exceed specified criteria. However, related development projects listed in Table 3.1-1 (such as Sierra Colina or Beach Club) could violate or contribute to an existing or projected air quality violation due to construction related emissions. However, in accordance with TRPA Code of Ordinances and Douglas County requirements, the related projects as well as the South Demonstration Project would be required to follow all regulations with respect to BMPs, grading, and excavation, construction season limits, and air quality controls, which would reduce emissions of ROG, NO_X, or PM_{10} to levels that do not exceed specified criteria. Therefore, the South Demonstration Project and related projects in the South Lake Tahoe and Douglas County portions of the Tahoe Basin (as listed in Table 3.1-1) would not result in adverse cumulative effects related to short-term construction-related emissions ROG, NO_X, or PM_{10}.

Alternative C

Direct and Indirect Effects

Under Alternative C, no shared-use path would be constructed; therefore, Alternative C would result in no potential effects related to construction-generated emissions of criteria air pollutants.

Cumulative Effects

Under Alternative C, no shared-use path would be constructed; therefore, Alternative C would result in no contribution to potential cumulative effects related to short-term construction-generated emissions of criteria air pollutants.

Table 3.10-3
Summary of Estimated Daily Construction Emissions Associated with Alternatives A and B

Source	ROG (lbs/day)	NO_X (lbs/day)	PM_{10} (lbs/day)
Restroom Building Construction			
Grading	0.00	0.00	0.00
Building[1]	0.00	0.01	0.00
Arch Coatings[2]	4.29	0.01	0.00
Maximum Daily Total, Unmitigated	4.29	0.01	0.00
Shared-Use Path Construction[3]			
Land Clearing	3.57	32.39	11.35
Grading	7.24	58.31	12.29
Paving	3.02	20.54	1.45
Maximum Daily Total, Unmitigated	7.24	58.31	12.29
Totals	**11.53**	**58.32**	**12.29**
Thresholds Used to Determine Adverse Effects (total emissions)	**82**	**82**	**82**

Notes:
1 Emissions generated by building construction were estimated based on URBEMIS 2007 default emission factors and the projected construction schedule.
2 Emissions from the application of architectural coatings are based on low VOC content architectural coatings emission factors from URBEMIS 2007.
3 Paving emissions are based on default URBEMIS 2007 emission factors and the duration of time to pave a total of 0.02 acres of area for the expanded parking lot and restroom building. SMAQMD's Road Construction Model was used to estimate land clearing, grading, and paving emissions for shared-use path construction. Emissions estimates assume that up to 1 acre of land could be disturbed on a given day.
See Project Record L-6 for modeling results.
Sources: Modeling performed by AECOM 2010.

Long-Term Emissions of Criteria Air Pollutants

Alternatives A and B

Direct and Indirect Effects

Regional area and mobile source emissions of criteria pollutants associated with the long-term operation of the action alternatives are not quantified. Use of the proposed shared-use path under both action alternatives would be limited to non-motorized use, except access by the occasional maintenance vehicle. While there would be emissions associated with vehicles accessing parking at trailhead locations and the occasional maintenance vehicle accessing the shared-use path and expanded parking lot, Section 3.9, "Traffic, Parking, and Transit," estimates that on balance there would be a net decrease in VMT for both action alternatives. Both action alternatives are forecast to yield a net reduction in VMT of 500. This reduction in VMT would result in a corresponding decrease in criteria air pollutant emissions from existing conditions. For these reasons,

Alternatives A and B are expected to result in a long-term beneficial air quality effect as it relates to criteria air pollutant emissions.

Cumulative Effects

As described in Section 3.9, "Traffic, Parking, and Transit," the following projects have a net effect of increasing use along the South Demonstration Project shared-use path:

- Nevada Stateline-to-Stateline Bikeway–Future Phases Connecting Round Hill to Crystal Bay
- Beach Club on Lake Tahoe
- Project 3
- Sierra Colina Village Project
- Edgewood Hotel and Golf Course Realignment Project

On the other hand, the Nevada Stateline-to-Stateline Bikeway – Future Phases Connecting Round Hill to Crystal Bay project is estimated to increase the daily drive-to-path demand for bicycles and pedestrians.

The resulting VMT reduction associated with avoided auto trips increases to 751 VMT under cumulative conditions. The VMT generated by drive-to-path users is estimated to increase to equal 222 under cumulative conditions. The net result associated with the South Demonstration Project under cumulative conditions is a decrease of 529 VMT. This reduction in VMT would result in a corresponding cumulative decrease in criteria air pollutant emissions from existing conditions. Therefore, the South Demonstration Project and related projects in the South Lake Tahoe and Douglas County portions of the Tahoe Basin would not result in adverse cumulative effects related to long-term air quality effects related to criteria air pollutant emissions.

Alternative C

Direct and Indirect Effects

Under Alternative C, no shared-use path would be constructed; therefore, Alternative C would have no effect on long-term operational emissions of criteria pollutants.

Cumulative Effects

Under Alternative C, no shared-use path would be constructed; therefore, Alternative C would result in no contribution to potential cumulative effects related to operational emissions of criteria air pollutants.

Localized Mobile-Source Carbon Monoxide Emissions

Alternatives A and B

Direct and Indirect Effects

CO 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, schools, and hospitals. The Transportation Project-Level Carbon Monoxide Protocol (Garza et al. 1997) states that signalized intersections at LOS E or F represent a potential for a CO violation, also known as a "hot spot," and should undergo quantitative screening-level analysis. Thus, modeling of CO concentrations is typically recommended for receptors located near signalized roadway intersections that are projected to operate at LOS E or F.

The action alternatives would not generate traffic at levels that would adversely affect LOS at signalized intersections. The traffic analysis prepared for this EA (Section 3.9, "Traffic, Parking, and Transit") focuses on an evaluation of effects on roadway LOS at at-grade crossing locations for the action alternatives. Because the affected roadways would continue to operate at LOS A with implementation of both action alternatives, the action alternatives 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 Alternatives A and B.

Cumulative Effects

As discussed in Section 3.9, "Traffic, Parking, and Transit," the following related projects in the vicinity of the South Demonstration Project would affect traffic volumes at at-grade roadway crossing locations:

- Beach Club on Lake Tahoe
- Edgewood Hotel and Golf Course Realignment Project

The additional traffic generated by these projects at the path crossing locations combined with additional usage generated by the projects listed in the preceding section of this document would not degrade LOS at the at-grade roadway crossing locations. The LOS A at all locations where the shared-use path would cross local roadways would be maintained when considered with these other projects, and there would not be an adverse cumulative effect on roadway LOS. (Note: there are other projects in the site vicinity [such as Sierra Colina Village Project] that could add to traffic on U.S. 50, but not to the potential at-grade roadway crossing locations shown in Table 3.9-3.)

Construction of South Demonstration Project Alternative A or B would not cause or contribute to CO concentrations that exceed applicable 1-hour and 8-hour standards at signalized intersections or at at-grade roadway crossing locations. Further, because LOS A would be maintained at the potential road crossing locations, under cumulative conditions, the South Demonstration Project and related projects in the vicinity would not result in an adverse cumulative effect related to localized CO concentrations.

Alternative C

Direct and Indirect Effects

Under Alternative C, no shared-use path would be constructed; therefore, Alternative C would result in no potential effects related localized CO concentrations.

Cumulative Effects

Under Alternative C, no shared-use path would be constructed; therefore, Alternative C would result in no contribution to potential cumulative effects related to localized CO concentrations.

Odors

Alternatives A and B

Direct and Indirect Effects

The occurrence and severity of odor effects depend on numerous factors: the nature, frequency, and intensity of the source; wind speed and direction; and the presence of sensitive receptors. Although offensive odors rarely

cause any physical harm, they still can be very unpleasant, leading to considerable distress and often generating citizen complaints to local governments and regulatory agencies.

Construction of both action alternatives would result in emissions of diesel exhaust from on-site construction equipment. This exhaust, though intermittent and temporary, could drift within 100 feet of sensitive receptors, including golfers, residents, and people associated with the businesses located along 4-H Camp Road, Laura Drive, and Kahle Drive, and could result in objectionable odors affecting these neighboring land uses. However, because pieces of equipment near the receptors would be limited in number and temporary (on the order of a few days), and odorous emissions from diesel exhaust and asphalt paving would dissipate rapidly, the project would not result in a substantial direct exposure of sensitive receptors to offensive odors. No indirect effects would occur.

The project consists of the long-term operation of a 3.2-mile shared-use path and an associated restroom facility. The restrooms would be connected to the local sanitary sewer system. With regular maintenance and proper design, recreational land uses are typically not considered major odor sources. No indirect effects would occur. For these reasons, no adverse odor effects would occur under either action alternative.

Cumulative Effects

The related The Responsible Official under NEPA is the LTBMU Forest Supervisor. Given the purpose and need, the Forest Supervisor will review the proposed alternatives, including the proposed action, to make the following decisions on NFS lands: 1) whether or not to implement the proposed action or an alternative to the proposed action; and 2) whether or not a Finding of No Significant Impact (FONSI) can be supported by the environmental analysis contained in this EA. If a FONSI can be supported, then a Decision Notice will be issued by the Forest Supervisor.

Alternative C

Direct and Indirect Effects

Under Alternative C, the shared-use path as described under Alternatives A and B would not be constructed. Alternative C would not generate construction-related odors or operations or maintenance related odors.

Cumulative Effects

Under Alternative C, no shared-use path would be constructed; therefore, Alternative C would result in no contribution to potential cumulative effects related to odors.

Greenhouse Gases

Alternatives A and B

Cumulative Effects

The effects of greenhouse gases (GHGs) are borne globally, as opposed to localized air quality effects of criteria air pollutants and TACs. The quantity of GHGs that it takes to ultimately result in climate change is not precisely known; suffice it to say, the quantity is enormous, and no single project alone would measurably contribute to a noticeable incremental change in the global average temperature, or to global, local, or micro climate. Therefore, GHG impacts to global climate change are considered to be inherently cumulative. Therefore, they are analyzed as a cumulative impact.

Construction-related emissions of greenhouse gases associated with the action alternatives (A and B) would be small, temporary, and finite in nature. There are currently no federal or state of Nevada measures to determine what GHG emissions from construction projects would be considered an adverse effect. Given the scale and nature of the construction associated with the action alternatives, the GHGs generated during construction would not result in adverse cumulative effects related global climate change.

Both Alternative A and B would decrease regional VMT by 529 under cumulative conditions. The EPA has determined that motor vehicles cause an effect to GHG emissions. Since the action alternatives would result in a net reduction in VMT, project implementation would be expected to have a beneficial effect on GHG emissions and would not result in a contribution to potential cumulative effects related to climate change.

Alternative C

Cumulative Effects

Under Alternative C, no shared-use path would be constructed; therefore, Alternative C would result in no contribution to potential cumulative effects related to short-term construction GHGs. The construction of the South Demonstration Project would result in a net beneficial effect of decreasing regional VMT by 529 under cumulative conditions. Under Alternative C, the South Demonstration Project would not be constructed and the resultant VMT reduction would not occur, nor would the beneficial effect on GHG emissions occur. However, because no shared use path would be constructed under Alternative C, it would not result in a contribution to potential cumulative effects related to climate change.

3.10.5 Consequences for TRPA Environmental Threshold Carrying Capacities

This section summarizes the effects of each alternative on the environmental thresholds established by TRPA for air quality:

- AQ-1 Carbon Monoxide (CO)
- AQ-2 Ozone (Precursors NO_X and ROG)
- AQ-3 PM_{10}
- AQ-4 Visibility
- AQ-5 U.S. 50 Traffic Volumes
- AQ-6 Wood Smoke Emissions
- AQ-7 Vehicle Miles Traveled
- AQ-8 Atmospheric Nutrient Loading

AQ-1 Carbon Monoxide, AQ-2 Ozone, AQ-3 PM_{10}, AQ-4 Visibility, and AQ-8 Atmospheric Loading

The air quality thresholds are applied to the whole basin, so either the whole basin is in attainment for a given threshold or the whole basin is non-attainment. The AQ-1, AQ-2, and AQ-3 thresholds have been designated as nonattainment. The AQ-4 threshold is designated as attainment and the AQ-8 threshold is designated as “unknown”.

The implementation of Alternatives A and B would not create new long-term sources of CO, NO_X, ROG, or PM_{10}. Since there are no new sources of these criteria pollutants attainment of the thresholds AQ-1, AQ-2 and AQ-3 would not be affected. Since there are no new sources of the criteria pollutants associated with decreasing visibility (ROG, NO_X and PM_{10}) then there would be no affect on the attainment of threshold AQ-4. Finally there are no new emissions sources associated with atmospheric nutrient loading and as such no affect on the attainment of threshold AQ-8.

AQ-5 U.S. 50 Traffic Volumes

AQ-5 has been designated as attainment. Because Alternatives A, B and C would not change traffic volumes on U.S. 50 nor would they adversely affect localized carbon monoxide concentrations, they would have no effect on the threshold attainment.

AQ-6 Wood Smoke Emissions

The AQ-6 threshold designation is “unknown”. Because none of the alternatives would include prescribed burns, woodstoves, or other sources of wood smoke, they would have no effect on the threshold attainment.

AQ-7 Vehicle Miles Traveled

The AQ-7 threshold designation is nonattainment. Implementation of Alternatives A and B would result in a net reduction in region-wide VMT. Because the action alternatives would reduce VMT, they would have a beneficial effect on the threshold attainment. Alternative C would have no effect on VMT and as such would have no effect on the threshold attainment.

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3.11 Noise

3.11.1 Scope of the Analysis

This section describes the ambient noise conditions in the project area and the potential for adverse noise effects to result from implementation of Alternative A, B, or C. It evaluates the significance of potential short-term and long-term operational noise effects of each alternative. Analysis provided in this section is based on review of agency documents and relevant regulations, plans, and policies (see Chapter 1 for summary of applicable regulations).

3.11.2 Assessment Factors

NEPA – U.S. Forest Service, Lake Tahoe Basin Management Unit Forest Plan

Under NEPA, the context and intensity of an alternative's potential effects related to noise were evaluated based on whether the proposed project would conflict with the Forest Service's land management practices and requirements in the LTBMU Forest Plan, which are summarized in the Forest Plan consistency matrix (Project Record A-1).

Tahoe Regional Planning Agency

The TRPA Initial Environmental Checklist was used to guide evaluation of the project's noise effects. Items on the checklist pertaining to noise were considered as criteria against which the project was evaluated. An action would have an adverse noise effect if it would result in:

- Increases in existing Community Noise Equivalent Levels (CNEL) beyond those permitted in the applicable Plan Area Statement (PAS), Community Plan, or Master Plan;
- Expose people to severe noise levels; or
- Create single event noise levels greater than those set forth in the TRPA noise environmental threshold.

More specifically, the proposed project would result in adverse noise effects if:

- Short-term project-related construction noise generated by construction activities and/or off-site construction-related traffic were to exceed applicable TRPA thresholds (i.e., the relevant PAS CNEL threshold) outside the hours between 8:00 a.m. and 6:30 p.m.
- Long-term project-generated traffic noise levels associated with the operation of the project would result in a perceptible (e.g., 3 A-weighted decibels [dBA] or greater) increase in noise levels along affected roadways and expose existing sensitive receptors to noise levels that exceed applicable TRPA thresholds (i.e., the relevant PAS CNEL threshold).
- Long-term on-site non-traffic source noise levels during operation of the project would expose existing nearby sensitive receptors to noise levels that exceed applicable TRPA thresholds (i.e., the relevant PAS CNEL threshold).
- On-site noise levels at proposed sensitive receptors (e.g., within parcel boundaries) would exceed applicable land use compatibility standards (i.e., the relevant PAS CNEL threshold).

- Vibration levels exceed the recommended standard of 0.2 in/sec PPV with respect to the prevention of structural damage for normal buildings or FTA's maximum acceptable vibration standard of 80 VdB with respect to human response for residential uses (i.e., annoyance) at nearby vibration-sensitive land uses.

3.11.3 Affected Environment

The project area includes a mix of open space, governmental, commercial, residential, and recreational land uses. Existing noise sensitive receptors in the project area generally include: residential developments in the Oliver Park General Improvement District off of Laura Drive and Kahle Drive, and in the Elks Point neighborhood west of Round Mound; recreation users on the Lam Watah Trail and at Nevada Beach Campground and day use areas at Nevada Beach and Round Hill Pines Beach; golf users at the Edgewood Golf Course; and hotel uses along Lake Parkway, U.S. 50, and Laura Drive.

The noise environment within the project area is generally influenced by surface transportation noise emanating from vehicle traffic on U.S. 50 and local surface streets (e.g., Kahle Drive, Elk Points Road, Lake Parkway), recreational activities on Lake Tahoe (e.g., jet skis, power boats), and natural sounds (e.g., birds, water, wind, insects).

3.11.4 Environmental Consequences

Short-Term Construction Noise

Alternatives A and B

Direct and Indirect Effects

Construction activities are expected to take up to 6 months to complete within the May 15 – October 15 timeframe. It is anticipated that both action alternatives would be constructed in three distinct phases or segments. Given the type of project (a linear feature and few structures), construction at any given location would be limited in duration. Construction activities would involve demolition of small areas of existing fence, pavement, curb and gutter, and sidewalk; tree removal; topsoil stripping; grading; retaining wall construction; and placement of aggregate base, asphalt and concrete, culverts, bridge abutments, prefabricated bridge(s), a restroom, benches, picnic tables, and signs. For Alternatives A and B, all three construction phases would generally involve similar types of construction activities. Construction-related noise effects would be similar for both action alternatives in terms of the proximity of sensitive receptors to construction activities and their duration of exposure. Residences on Kahle Drive could be located within approximately 25 feet of construction activities with either action alternative. Alternative B would occur within close proximity to more residences on Kahle Drive west of Laura Drive than Alternative A. It is assumed that noise from U.S. 50 vehicle traffic would mask construction noise related to Alternative A from residences located east of the highway. From the north side of Elks Point Road, the shared-use path would follow a lower alignment that contours around the west side of Round Mound. The lower alignment would be located within approximately 128 feet of the closest residential structure on the west side of Elks Avenue within the Elks Point Neighborhood. An upper alignment is being considered as an option to distance the shared-use bicycle path from existing residences—the upper alignment would move the path to a distance of 190 feet from the closest residence.

On-site construction equipment could include the use of a backhoe or small excavator, front loader, small grader, small paver, roller compactor, whacker, haul trucks, pumper truck, concrete truck, crane, and a pavement grinder. Based on typical construction equipment noise levels, noise emanating from these individual pieces of equipment could range from 77 to 90 dBA at 50 feet (Bolt Baranek and Newman 1981). The residences on Kahle Drive could be located within approximately 25 feet of construction activities with either action alternative. Based on these equipment noise levels and a typical noise-attenuation rate of 6 dBA per doubling of distance, noise levels at

25 feet from individual pieces of equipment could range from between 83 to 96 dBA. As such, operation of individual or multiple pieces of construction equipment could result in noise levels at sensitive receptors (e.g., residences, recreational locations, and hotels) that exceed the maximum CNELs for the applicable PASs (50 to 65 dBA CNEL).

However, design features have been incorporated into the project for both action alternatives that would be implemented to minimize noise effects related to construction (Design Features NOI-1, NOI-2, and NOI-3). These measures include placing noise controls on construction equipment, locating construction equipment and staging areas to minimize noise effects, restricting construction vehicle idling during periods of non-use, and restricting noise-generating construction activities to the hours between 8:00 a.m. and 6:30 p.m., Monday through Saturday, during which such activities are exempt from the TRPA noise standards (TRPA Code of Ordinances, Chapter 23 Noise Limitations, Section 23.8 Exemptions to Noise Limitations). If construction activities must run past exempted hours, any nearby sensitive receptors (less than 200 feet from those activities) would be given at least one week notice of such activities and a plan demonstrating how appropriate noise-reducing measures (such as erecting temporary sound barriers) would be implemented to maintain the applicable PAS's maximum community noise level standards. The plan would be submitted to TRPA for review and approval prior to initiating construction activities occurring outside of TRPA's exempted hours. All emergency work to protect life or property is exempt from applicable noise standards.

In addition to on-site construction equipment use, employee and construction material haul truck trips could increase noise levels along area roadways where sensitive receptors are located. Construction activities for either action alternative would require approximately 20 on-site employees at any given time. Assuming two total one-way trips per day per employee and up to 10 one-way trips per day associated with the transport of equipment and materials, construction activities would result in a maximum of approximately 30 one-way daily trips. Typically, traffic volumes have to double before the associated increase in noise levels is noticeable (3 dBA CNEL) along roadways (Caltrans 2009). Therefore, the addition of these daily trips to existing U.S. 50 daily volumes of approximately 28,000 average daily trips (Caltrans 2008) would be an imperceptible change. Employee and construction vehicle travel on local roadways (e.g., Kahle Drive and Elks Point Road) near residences that experience low volumes of truck traffic would be more noticeable than along U.S. 50. However, given that these trips would make up a small fraction (<2%) of the existing volumes on these roadways (2,400 and 2,100 average daily trips; see Table 3.9-1) and given that Design Feature NOI-2 would restrict construction hours to between 8:00 a.m. and 6:30 p.m., construction of either action alternative would not be expected to result in a noticeable change in the noise levels along area roadways. In addition, such increases in traffic would be temporary.

With implementation of Design Features NOI-1, NOI-2, and NOI-3, construction of Alternatives A and B would not cause noise levels to exceed the maximum CNELs for the applicable PAS, annoy and/or disrupt the sleep of occupants of existing noise-sensitive land uses in the project vicinity, nor create a substantial temporary increase in ambient noise levels. Therefore, Alternatives A and B would not result in direct or indirect adverse construction noise effects.

Cumulative Effects

The related projects listed in Table 3.1-1 as well as the South Demonstration Project, either Alternative A or B, would be result in short-term noise effects from on-site construction equipment and vehicles and off-site construction vehicle traffic. However, all related projects as well as the South Demonstration Project would be required to include noise-reduction project design features or mitigation measures such as noise controls on construction equipment, locating construction equipment and staging areas to minimize noise effects, restricting construction vehicle idling during periods of non-use, and restricting noise-generating construction activities to the hours between 8:00 a.m. and 6:30 p.m., Monday through Saturday, during which such activities are exempt from the TRPA noise standards (TRPA Code of Ordinances, Chapter 23 Noise Limitations, Section 23.8 Exemptions to Noise Limitations). Therefore, the South Demonstration Project and related projects in the South

Lake Tahoe and Douglas County portions of the Tahoe Basin (as listed in Table 3.1-1) would not result in adverse cumulative effects related to construction noise.

Alternative C

Direct and Indirect Effects

Under Alternative C, there would be no shared-use path construction in the project area; therefore, Alternative C would generate no construction noise.

Cumulative Effects

Under Alternative C, no shared-use path would be constructed; therefore, Alternative C would result in no contribution to potential cumulative effects related to short-term construction-related noise.

Long-Term Operational Noise

Alternatives A and B

Direct and Indirect Effects

The long-term operation of the South Demonstration Project under either action alternative would not result in any new, long-term sources of operational noise as the shared-use path itself would be limited to non-motorized vehicle use (except that generated by occasional maintenance or emergency vehicles). Further, noise from recreation activities (e.g., bicycling, walking, running) is not considered nuisance noise. As described in Section 3.9, “Traffic, Parking, and Transit,” daily drive-to-path volumes on access roads would not be substantial such that there would be a noticeable change (3 dBA) in roadside noise levels over the long term. Although the shared-use path would require a limited number of new vehicle trips for routine inspection and maintenance of the path, ambient noise conditions in the project area would generally continue as they exist today.

The proposed expansion of the parking lot near the northwest corner of the intersection of Kahle Drive and U.S. 50 (Exhibits 2-3 and 2-6 in Chapter 2, “Alternatives”) by 14 spaces would not be expected to result in a noticeable change in noise levels at nearby residences further west on Kahle Drive, given that use of the lot would generally occur during less noise-sensitive daytime hours and it would be consistent with existing parking lot activities at this location. Because no new noise sources would be created and the types of uses would remain similar to those that exist today, operation of the shared-use path and expanded parking lot would not create adverse noise effects.

Cumulative Effects

The related projects listed in Table 3.1-1 as well as the South Demonstration Project, either Alternative A or B, would result in limited to no increases in noise effects from long-term operations, although projects such as Beach Club, Edgewood, Sierra Colina, and others would be operational at the same time and vehicle trips causing operational noise would occur on many of the same roadways, like U.S. 50. Specifically, the South Demonstration Project would have negligible noise effects as the shared-use path itself would be limited to non-motorized vehicle use. Therefore, the South Demonstration Project and related projects in the South Lake Tahoe and Douglas County portions of the Tahoe Basin (as listed in Table 3.1-1) would not result in adverse cumulative effects related to long-term operational noise.

Alternative C

Direct and Indirect Effects

Under Alternative C, there would be no shared-use path construction or operation in the project area; therefore, Alternative C would generate no long-term operational noise.

Cumulative Effects

Under Alternative C, no shared-use path would be constructed; therefore, Alternative C would result in no contribution to potential cumulative effects related to long-term operational noise.

Groundborne Vibration and Groundborne Noise

Alternatives A and B

Direct and Indirect Effects

Construction activities have the potential to result in varying degrees of temporary groundborne vibration, depending on the specific construction equipment used and operations involved. Vibration generated by construction equipment spreads through the ground and diminishes in magnitude with increases in distance. Table 3.11-1 shows vibration levels for typical construction equipment.

Table 3.11-1
Typical Construction-Equipment Vibration Levels

Equipment	PPV at 25 feet (in/sec)	Approximate LV at 25 feet
Haul Trucks	0.076	86
Small Bulldozer	0.003	58

Notes: in/sec = inches per second; LV = velocity level in decibels (VdB) referenced to 1 microinch/second and based on the root mean square velocity amplitude; PPV = peak particle velocity.
Source: FTA 2006: 12-12

Residences on Kahle Drive could be located within approximately 25 feet of construction activities with either action alternative. As discussed above, on-site construction equipment would include a backhoe or small excavator, front loader, small grader, small paver, roller compactor, whacker, haul trucks, pumper truck, concrete truck, crane, and a pavement grinder. Using FTA's recommended procedure for applying a propagation adjustment to these reference levels (Table 3.11.1), which accounts for the decrease in vibration levels with an increase in distance from the source to receptor, predicted vibration levels of approximately 0.076 in/sec PPV and 86VdB at the nearest sensitive receptors (residence at corner of Laura Drive and Kahle Drive) could occur from the use of haul trucks. These vibration levels would not exceed the recommended standards with respect to the prevention of structural building damage (0.2 in/sec PPV for normal buildings). However, vibration levels would exceed FTA's maximum-acceptable-vibration recommendation with respect to human response (80 VdB for residences and buildings where people normally sleep) at nearby existing vibration-sensitive land uses (FTA 2006: 8-3). Additionally, there are historical structures (Round Hill Pines Resort) located within 5 feet of some portions of the proposed bike path construction area. Vibration levels from construction equipment could be up to 0.85 in/sec PPV, thus exceeding the recommended standard of 0.08 in/sec PPV for historical structures (FTA 2006: 8-3).

Project design features have been incorporated into the project for both Alternatives A and B that would be implemented to minimize noise effects related to construction. Design Features NOI-1, NOI-2, and NOI-3 include placing noise controls on construction equipment, locating construction equipment and staging areas to minimize noise effects, restricting construction vehicle idling during periods of non-use, and restricting noise-generating construction activities to the hours between 8:00 a.m. and 6:30 p.m., Monday through Saturday, during which such activities are exempt from the TRPA noise standards (TRPA Code of Ordinances, Chapter 23 Noise Limitations, Section 23.8 Exemptions to Noise Limitations). In addition, project Design Feature NOI-4 would limit heavy-duty construction equipment operational distances to sensitive structures; and NOI-5 would require the use of smaller equipment that generate lower vibration levels near sensitive structures (see Section 2.3 of this EA). Implementation of Design Features NOI-1 through NOI-5 would ensure that construction of Alternatives A and B would not cause vibration levels to exceed recommended vibration standards, annoy 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 vibration levels. Therefore, Alternatives A and B would not result in direct or indirect adverse construction vibration effects.

Long-term operation of Alternatives A and B would not include any vibration sources and construction activities would not expose nearby vibration-sensitive receptors to or generation of excessive groundborne vibration or groundborne noise levels. As a result, no significant groundborne vibration and groundborne noise effects due to operation of the shared-use path would occur.

Cumulative Effects

The related projects listed in Table 3.1-1 as well as the South Demonstration Project, either Alternative A or B, could result in limited sources of vibration or construction activities that could result in groundborne vibration and groundborne noise. However, all related projects as well as the South Demonstration Project would be required to include noise-reduction project design features or mitigation measures such as noise controls on construction equipment, locating construction equipment and staging areas to minimize noise effects, restricting construction vehicle idling during periods of non-use, restricting noise-generating construction activities to the hours between 8:00 a.m. and 6:30 p.m., Monday through Saturday, during which such activities are exempt from the TRPA noise standards (TRPA Code of Ordinances, Chapter 23 Noise Limitations, Section 23.8 Exemptions to Noise Limitations), limiting heavy-duty construction equipment operational distances to sensitive structures, and requiring the use of smaller equipment that generate lower vibration levels near sensitive structures. Therefore, the South Demonstration Project and related projects in the South Lake Tahoe and Douglas County portions of the Tahoe Basin (as listed in Table 3.1-1) would not result in adverse cumulative effects related to groundborne vibration or groundborne noise.

Alternative C

Direct and Indirect Effects

Under Alternative C, construction or operation of a shared-use path would occur and no groundborne vibration or noise would be generated.

Cumulative Effects

Under Alternative C, no shared-use path would be constructed; therefore, Alternative C would result in no contribution to potential cumulative effects related to groundborne vibration or noise.

3.11.5 Consequences for TRPA Environmental Threshold Carrying Capacities

This section describes the effects of each alternative on the environmental thresholds established for noise by TRPA. Three noise thresholds have been established by TRPA:

- N-1—Aircraft Noise;
- N-2—Single Event Noise; and
- N-3—Community Noise Equivalent Levels.

Noise thresholds are applied basin wide, and no local attainment designations are used. The three noise thresholds have a "nonattainment" status. The project would not adversely affect or interfere with attainment of any of TRPA's noise thresholds as described below.

N-1—Aircraft Noise

Implementation of Alternatives A, B, or C would not affect N-1, 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.

N-2—Single Event Noise

Implementation of Alternatives A, B, or C would not affect attainment of N-2, Single Event Noise, as defined in the TRPA Environmental Threshold Carrying Capacity Noise Standards, because single-event noise from construction haul trucks (10 one-way trips per day associated with the transport of equipment and materials) would not result in a noticeable change in the traffic noise contours of area roadways (less than 3 dBA CNEL) based on existing traffic volumes. No other single-event noise sources would be created or modified due to construction and operation of the proposed shared-use path.

N-3—Community Noise Equivalent Levels

As described in Section 3.11.5 above, implementation of Alternatives A, B, or C would not result in any short-term or long-term adverse noise effects. Implementing Alternatives A, B, or C would not affect attainment of threshold N-3, Community Noise Equivalent Levels (CNEL). Implementing the project would increase short-term noise levels due to construction equipment and activities involved in constructing the shared-use path and associated facilities. However, both traffic and area noise sources would not increase substantially (Alternative A and B), or would be unchanged (Alternative C). Implementation of project Design Features NOI-1 through NOI-5 would ensure that construction of Alternatives A and B would not exceed CNEL standards or vibration standards, annoy 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 shared-use path under both action alternatives would be insufficient to 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 Alternative C, noise levels would not change because no action would occur. For these reasons, changes to the existing attainment status of threshold N-3 would not occur under any of the alternatives.

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3.12 Public Services and Utilities

3.12.1 Scope of the Analysis

This section describes existing public services and utilities, presents an analysis of potential adverse effects resulting from Alternatives A through C, and identifies mitigation measures for any adverse effects that are identified. It evaluates the significance of potential effects on emergency response; water supply, treatment, and distribution; wastewater treatment and disposal; solid waste; and energy utilities. Analysis provided in this section is based on review of agency documents (see Chapter 1 for a description of applicable regulations and policies) and as-needed consultation with service providers.

3.12.2 Assessment Factors

NEPA – U.S. Forest Service, Lake Tahoe Basin Management Unit Forest Plan

The LTBMU Forest Plan, as amended by the SNFPA, is focused on environmental resources and does not specifically address or provide a means to evaluate an action's effect on public services and utilities.

Tahoe Regional Planning Agency

The TRPA Initial Environmental Checklist (IEC) was used to guide evaluation of the project's effects on public services and utilities. Items on the checklist pertaining to public services and utilities were considered as criteria against which the project was evaluated. An action's effect on public services would be considered adverse in terms of its context and intensity if it had an unplanned effect on, or resulted in a need for, new or altered governmental services—specifically fire protection; police protection; schools, parks or other recreation facilities; or maintenance of public facilities or other government facilities.

An action's effect on utilities would be adverse in terms of its context and intensity if it would result in the need for new systems or result in substantial alteration of the following:

- power or natural gas facilities;
- communication systems;
- additional water, the amount of which would exceed the maximum permitted capacity of the service provider;
- additional sewage treatment capacity, the amount of which would exceed the maximum permitted capacity of the sewage treatment provider;
- additional storm water drainage; or
- additional solid waste disposal, the amount of which would exceed the capacity permitted at the disposal facility.

The potential for adverse effects on existing recreational facilities to occur as a result of the proposed project is addressed in Section 3.7, "Recreation," and stormwater management and potential adverse effects on surface water and groundwater from the project are addressed in Section 3.3, "Hydrology and Water Quality." None of the alternatives would require new needs or demands for natural gas or communication systems; therefore, these topics are not discussed further herein. None of the alternatives would be expected to increase population and subsequently increase the number of students; therefore, schools are not discussed further. The analysis discusses whether existing emergency services are adequate to serve the alignment under consideration without requiring the need for the construction of new emergency service agency facilities or require improvements to existing facilities.

3.12.3 Affected Environment

Electricity

Electrical service for the restroom (interior heating and lighting, if needed) under either of the action alternatives would be provided by NV Energy. NV Energy's service area includes all of Nevada and northeastern California, including the Lake Tahoe area. NV Energy provides service to approximately 2.4 million electric citizens. The electricity source for the restroom under any of the action alternatives being considered would be the Round Hill Substation located at the end of Sewer Plant Road directly across U.S. 50 from the project area.

Water Service

Water services for the restroom under either of the action alternatives would be provided by KGID. KGID operates a single water system and provides service to approximately 2,400 connections/properties including single-family dwellings and business establishments, as well as separate irrigation and fire systems. KGID water comes from a gravity fed deep water intake in Lake Tahoe located offshore near the end of Kahle Drive. KGID water is treated at the Lake Intake Station at the end of Kahle Drive. Water is treated with ozone and chlorine. The Lake Intake Station is normally operated in automatic mode and is continuously monitored by a computer system.

KGID currently owns 1,747 acre-feet of water rights. Pumping records at the Lake Intake Station show that the annual demand for water, not including demand for snow making at Heavenly Ski Resort, was 400 million gallons in 2007 (the latest year for which data are readily available)—or 1,227 acre-feet. Therefore, KGID uses approximately 70% of its water rights for residential, commercial, and miscellaneous uses. An additional 46 million gallons were used by Heavenly Ski Resort for snow making in 2007. Because snow melt returns to the lake, the Nevada Division of Water Resources allows KGID to count a maximum of 20% of Heavenly Ski Resorts' water use against its water rights. Therefore, only an approximately 9.2 million gallons is counted relative to KGID's water rights. Between general uses and Heavenly Ski Resort snow making, KGID used approximately 409 million gallons of water in 2007 or approximately 72% of its water rights. (KGID 2009; page 9)

Wastewater Service

Wastewater services for the restroom under either of the action alternatives would be provided by the DCSID. The DCSID provides wastewater treatment for all tourist and commercial facilities, and local residences in the Douglas County portion of Lake Tahoe. The service area encompasses five Districts: KGID, Round Hill General Improvement District (RHGID), Elk Point Sanitation District (EPSD), Tahoe-Douglas District (TDD), and Douglas County Sewer Improvement District Number 1.

The DCSID treatment facility is located at the end of Sewer Plant Road less than a mile from the site of the proposed restroom. After treatment, the reclaimed wastewater is pumped over the mountain to the Carson Valley where it is used for irrigating ranch land. The DCSID Wastewater Reclamation Facility has a capacity to treat 3.75 million gallons of wastewater per day. The facility currently treats an annual average of about 1.8 million gallons of wastewater per day (DCMP 2007:12-49).

Solid Waste Service

STR provides waste removal services within the project area under contract to Douglas County. STR collects more than 100,000 tons of waste each year. This waste is collected and sorted for recycling at a materials recovery facility located at the South Tahoe Refuse Transfer Station, located at 2140 Ruth Avenue, South Lake Tahoe, California. This station has been in operation since 1995. In 2009, STR initiated curbside collection of

recyclables. The regional landfill STR uses is Lockwood Landfill, a 1,535 square-acre municipal solid waste facility located in Storey County, off Interstate 80, east of Sparks, Nevada. The current capacity of Lockwood Landfill is 100+ years (DCMP 2007:12-32).

Law Enforcement

The Douglas County Sheriff's Department (DCSD) provides law enforcement to the area. The closest sheriff's substation to the project is located at 175 U.S. 50, Stateline, Nevada, directly across U.S. 50 from the project area near Kahle Drive. This is the only local law enforcement building located at Lake Tahoe that has jurisdiction for the project site. The LTBMU has law enforcement staff as well; however, because the County would be responsible for operation of the shared-used path under an SUP for portions located on NFS lands, DCSD would be responsible for law enforcement relative to the South Demonstration Project. The Sheriff's substation is staffed with two patrol deputies each shift. The facility operates a satellite jail facility, staffed with a minimum of one deputy. A juvenile detention center is also operated within this facility and has two personnel on duty at all times. Additional staffing of the substation includes a station Commander, an Investigations Sergeant, two full-time Investigators and two support personnel. These positions are staffed during regular business hours, but are subject to call-out when necessary (Douglas County 2009).

In its 2009 Master Plan Annual Report, the DCSD stated that it had received 37,489 calls for service in 2008, representing an approximately 4.2% increase over 2007 but an approximately 5% decrease since the 2006 Master Plan Update was approved (Douglas County 2009:37). Based on current population estimates by the U.S. Census Bureau, the County population has declined approximately 2.4% to 45,180 since the 2006 Master Plan Update was approved (Douglas County 2009:21). With the current population, the County is meeting square feet per capita level-of-service standards for central administrative offices, jail facilities, and substations.

Fire Protection and Emergency Medical Services

Fire prevention, protection, and emergency services in the project area are provided by TDFPD in addition to firefighting personnel employed by USFS. The station nearest the project site is the Round Hill Fire Station (Fire Station #3) on Elks Point Road. Fire Station #3 is staffed with five line personnel: a Captain, an Engineer, two Firefighter/Paramedics, and a Battalion Chief. The station also houses TDFPD's administrative offices. Administration positions include Fire Chief, Assistant Chief-Administrative, Assistant Chief-Fire Marshal, Battalion Chief-Fuels Manager, and Administrative Assistant (TDFPD 2008:8).

Fire Station #3 houses one type-I engine, two advanced life support ambulances (one front line and one reserve), one type-I reserve engine, one command vehicle, a multi casualty trailer, and one utility vehicle. The aerial ladder truck may be located at the station during peak periods to enhance operational effectiveness (TDFPD 2008:8).

Fire Station #3 provides all types of fire suppression, A.L.S. medical response, rope rescue, ice rescue, and vehicle extrication. Fire Station #3 is budgeted for 15 line personnel including Battalion Chief to maintain its acceptable level of service (TDFPD 2008:8).

3.12.4 Environmental Consequences

Increased Demand for Water Supply, Treatment, Distribution, and Storage

Alternatives A and B

Direct and Indirect Effects

The same parking lot expansion and new restroom facility (up to four stalls) at the end of Kahle Drive near U.S. 50 would be constructed under Alternatives A and B. This facility would increase demand for treated domestic water. The USFS uses guidance for sizing water systems from the 1970s—the Forest Service Handbook 7409.11, Section 44.11–Exhibit 01, Average Daily Design Flow (Snodgrass 2007). Demand for domestic water for day use recreational facilities with flush toilets is estimated at 5 gallons of domestic water per person per day (Snodgrass 2007). As noted in Section 3.9, "Traffic, Parking, and Transit," the estimated number of shared-use path users is 2,010 bicycle trips per day and 384 pedestrian trips per day, totaling approximately 2,394 daily users. Given that the shared-use path would be located in an urban location with many other public restroom opportunities nearby in the community, for the purpose of water demand estimation it is assumed that about one-quarter of the daily users would use the new restroom facility. At this rate, an estimated average number of daily users of the restroom would be 599 people. Therefore, the restroom would use approximately 2,995 gallons of domestic water per day. There are 325,851 gallons of water in one acre-foot. Therefore, the restroom would use less than 0.01 acre-feet of water per day. During the approximately 90-day peak use period (June-August), the restroom would use 1.1 acre-feet of water or approximately 0.06% of KGID's total water rights. Because KGID has 28% of its water rights unused and available, there is more than sufficient capacity to supply potable water to the proposed restroom facility. The ability to serve the restroom facility has also been confirmed by the KGID General Manager (McKay, pers. comm., 2010).

Because sufficient supplies are available to serve the proposed new hook-ups to existing water supply lines along Kahle Drive, service to the restroom would not require the construction of a new water intake facility. Treatment capacity is available to provide the amount of water needed to serve the restroom. No improvements would need to be made to the existing water treatment facilities (McKay, pers. comm., 2010). Water would be delivered to the restroom from the Lake Tahoe intake facility via the existing water main in the Kahle Drive right-of-way. Because the restroom facility would not require the construction of any new facilities for KGID to meets its service obligations, neither alternative would have direct adverse effects on water supply and no indirect adverse effect from off-site construction of new facilities or facility improvements.

Cumulative Effects

With KGUD utilizing only 72% of its allocated water rights, there are no existing water supply deficiencies. The population and demographic makeup of the water system is not anticipated to change significantly because there are relatively few lots for development within the water system, few development permits are issued on an annual basis, and water use has remained relatively steady over the past 10 years (KGID 2009; page 5). In addition to the South Demonstration Project, KGID would serve Sierra Colina and Beach Club on Lake Tahoe. KGID has sufficient water supply, treatment, and distribution facilities to serve the proposed restroom for the shared-use path as well as these related projects (McKay, pers. comm., 2010). All other projects listed in Table 3.1-1 would be served by different water purveyors. KGID's Water Treatment System Upgrade Project would not affect the ability of KGID to serve the South Demonstration Project and related projects but would enhance the District's system. Therefore, the related projects as well as the South Demonstration Project would not result in adverse cumulative effects related to the water supply, treatment or distribution.

Alternative C

Direct and Indirect Effects

Under Alternative C no restroom facility would be constructed; therefore, there would be no direct or indirect on water supply, treatment, distribution, or storage.

Cumulative Effects

Under Alternative C, no shared-use path would be constructed; therefore, Alternative C would result in no contribution to potential cumulative effects related to water supply, treatment, distribution, or storage.

Increased Demand for Wastewater Service

Alternatives A and B

Direct and Indirect Effects

A new restroom facility (up to four stalls) would be constructed under Alternatives A and B. This facility would increase demand for wastewater treatment. Based on *Small and Decentralized Wastewater Management Systems*, demand for domestic water for public restrooms is estimated at 5 gallons of domestic water per person per day (user) (Crites 1998:171). This is consistent with the Forest Service Handbook 7409.11, Section 44.11–Exhibit 01, Average Daily Design Flow. As noted above, the total number of daily users expected to use the restroom facility would be approximately 599 people, generating an estimated 2,995 gallons of wastewater per day.

The DCSID Wastewater Reclamation Facility has a capacity to treat 3.75 million gallons of wastewater per day. The facility currently treats an annual average of about 1.8 million gallons of wastewater per day resulting in a capacity of 1.95 million additional gallons of wastewater treatment capacity per day. The proposed restroom would generate approximately 0.012 million gallons of wastewater per day, leaving surplus treatment capacity at 1.938 million gallons per day. The ability to serve the restroom facility has also been confirmed by the DCSID District Manager (Ikehara, pers. comm., 2010). No improvements would need to be constructed at the existing wastewater treatment facilities with the exception of hook-ups to DCSID lines in Kahle Drive (Ikehara, pers. comm., 2010). Because the restroom facility would not require the construction of any new facilities for DCSID to maintain its level of service, neither alternative would have direct adverse effects on wastewater treatment and no indirect adverse effect from off-site construction of new facilities or facility improvements.

Cumulative Effects

There are no existing wastewater treatment deficiencies with DCSID. DCSID would serve the Edgewood Hotel and Golf Course Realignment Project, Sierra Colina, Beach Club on Lake Tahoe, Round Hill Pines Resort Facility and BMP Retrofit Project, as well as the South Demonstration Project. DCSID has sufficient treatment facilities to serve the proposed restroom for the shared-use path as well as these related projects (Ikehara, pers. comm., 2010). The other projects listed in Table 3.1-1 would be served by other wastewater service providers. Therefore, the related as well as the South Demonstration Project would not result in adverse cumulative effects related to wastewater treatment.

Alternative C

Direct and Indirect Effects

Under Alternative C no restroom facility would be constructed; therefore, there would be no direct or indirect effects on wastewater treatment.

Cumulative Effects

Under Alternative C, no shared-use path would be constructed; therefore, Alternative C would result in no contribution to potential cumulative effects related to wastewater treatment.

Increased Demand for Electrical Service

Alternative A and Alternative B

Direct and Indirect Effects

The restroom (up to four stalls) proposed under both alternatives would increase demand for electricity for interior lighting, exterior security lighting, possible hand dryers, and potentially a hot water heater. NV Energy, a private company, is not permitted to serve customers if it cannot provide the service. The electrical demand associated with the power required at the restroom would be less than a new residential dwelling unit. NV Energy increases capacity based on residential, commercial, and industrial users and funds expansion projects with user fees. Neither of the action alternatives would generate population growth that would require an increase in NV Energy electricity generating capacity. Because the alternatives would not require construction of new facilities, including the installation of new utility lines in addition to the lines needed to tie the restroom facility into the utility lines in the Kahle Drive right-of-way, the implementation of either alternative would not result in an adverse effect on electricity generation or service.

Cumulative Effects

There are no existing electricity deficiencies with NV Energy. NV Energy would serve the Edgewood Hotel and Golf Course Realignment Project, Sierra Colina, Beach Club on Lake Tahoe, Round Hill Pines Resort Facility and BMP Retrofit Project, Project 3, and Gondola Vista in addition to the South Demonstration Project. Nevada Beach would also be served, but would not require any expansion, only an upgrade. NV Energy has sufficient capacity to serve the proposed restroom for the shared-use path as well as related projects. Therefore, the related projects as well as the South Demonstration Project would not result in adverse cumulative effects related to electricity generation or service.

Alternative C

Direct and Indirect Effects

Under Alternative C no restroom facility would be constructed; therefore, there would be no direct or indirect cumulative effects on electricity generation or delivery.

Cumulative Effects

Under Alternative C, no shared-use path would be constructed; therefore, Alternative C would result in no contribution to potential cumulative effects related to electricity generation or delivery.

Increased Demand for Solid Waste Services

Alternatives A and B

Direct and Indirect Effects

Both alternatives would increase demands for solid waste services. In addition to the restroom facilities, a bear-proof trash container would be located at the expanded Kahle Drive parking lot. Trash would be collected by STR and hauled to the South Tahoe Refuse Transfer Station in South Lake Tahoe where recyclable materials are salvaged and recycled. From the transfer station, the non-recyclable trash would be long-hauled to the Lockwood Landfill. The Lockwood Landfill has capacity for more than 100 years. The primary bulk of trash expected would be recyclable, such as paper towels at the restroom facilities and beverage containers. The amount of non-recyclable trash that would be sent to Lockwood Landfill would not be substantial relative to the 100,000 tons of waste per year that STR currently processes. Therefore, the increased demand for solid waste services would not cause an adverse effect on the current level of solid waste services.

Cumulative Effects

STR would serve the Edgewood Hotel and Golf Course Realignment Project, Sierra Colina, Beach Club on Lake Tahoe, Round Hill Pines Resort Facility and BMP Retrofit Project, Project 3, and Gondola Vista in addition to the South Demonstration Project. Nevada Beach would also be served, but would not require any expansion, only an upgrade. STR has adequate system, equipment, and staff, and the Lockwood Landfill has capacity for more approximately 100 years and the landfill has adequate capacity to serve the shared-use path as well as the related projects. Therefore, the related projects well as the South Demonstration Project would not result in adverse cumulative effects related to solid waste services and facilities.

Alternative C

Direct and Indirect Effects

Under Alternative C the shared-use path and related restroom would not be constructed; therefore, there would be no direct or indirect effects on existing solid waste disposal services.

Cumulative Effects

Under Alternative C, no shared-use path or restroom would be constructed; therefore, Alternative C would result in no contribution to potential cumulative effects related to solid waste disposal services.

Increased Demand for Law Enforcement Services

Alternatives A and B

Direct and Indirect Effects

Features of the action alternatives that would attract additional visitors would include self-service visitor centers, a public restroom, interconnected bicycle and pedestrian trails, access to established recreation areas adjacent to Lake Tahoe, and viewpoints. The proposed shared-use path would be similar and related to existing uses, which include formal and informal trails. (Table 3.9-2, “Tahoe Regional Bicycle and Pedestrian Corridor Use Model Applied to Nevada Stateline to Stateline – South Demo [at Location of Peak Demand in Corridor]” in Section 3.9 “Traffic, Parking, and Transit” provides estimates for peak-hour usage, daily use, and annual use.)

The resulting increase in demand for law enforcement services would not be substantial in terms of the County's measurement for levels of service. Douglas County measures levels of service for law enforcement services based on square footage of offices and substations per capita. When the level of service was established in 2006, the County was achieving its level of service and as time has progressed, population has decreased. Neither alternative would generate population growth; therefore, neither would reduce levels of service as measured by the County. Because neither alternative would reduce the level of service that would require the construction of new facilities or the construction of improvements to existing facilities, no adverse affect on police service would result from increased demand for police services. Police response times would, therefore, be unaffected, and for the shared-use path, would be quick because of the proximity to the existing substation (Duffy, pers. comm., 2010).

During and subsequent to project scoping, concerns were raised by members of the Elks Point Homeowners Association that the proposed shared-use path could create security issues (trespass and vandalism) and impacts to private properties located just west of the alignment in the private gated Elks Point Community as it travels around the west side of Round Mound. The lower alignment would be located within approximately 128 feet of the closest residential structure on the west side of Elks Avenue within the Elks Point Neighborhood. An upper alignment is being considered as an option to distance the shared-use path from existing residences—the upper alignment would move the path to a distance of 190 feet from the closest residence, but would require the removal of rock outcrops protected by TRPA regulations and involve additional locations where the grade would exceed 5%. An existing chain link fence in disrepair east of Elks Avenue separates the Elks Point Community from the proposed shared-use path. While one of the access roads to the community is gated, the southernmost access road, which provides direct access to the lake, has no gate, but includes "no trespassing" signage.

Resident concern about visitors who may not comply with existing laws is an important consideration in project design, although the topic of crime is not included among those covered as an environmental effect under NEPA or TRPA regulations. The potential for trespass and vandalism is addressed as part of the project design where design measures are included to discourage users from leaving the path in sensitive locations. Relevant design measures, as described in Chapter 2 of this EA, include vegetative screening, the placement of boulders adjacent to the shared-use path, increased signage, and the asphalt surface of the shared-use path, itself. Also, the paved surface allows for emergency vehicle access, if needed in response to complaints.

The DCSD substation at 175 U.S. 50, Stateline, Nevada is approximately 0.25 mile from the Elks Point Community. If the DCSD cruiser is at the DCSD substation, then response to the Elks Point Community is approximately 2 minutes and if the cruiser is on patrol then response to this area averages 5 minutes (Duffy, pers. comm., 2010). Complaints outside the Stateline casino core area typically include tripped alarms and traffic accidents; reports of trespassing are extremely rare (Duffy, pers. comm., 2010). DCSD has not experienced security conflicts on existing trails and shared-use paths (e.g., Elks Point Bike Path) located in similar proximity to residential areas, and would not anticipate any difference with the proposed shared-use path (Duffy, pers. comm., 2010). The proposed shared-use path is not expected to increase the amount of time it would take to respond to these calls, because it is not growth inducing and law enforcement levels of service would, therefore, remain the same. Because the project includes design features that discourage shared-use path users from leaving path and the DCSD would not be burdened by additional service calls such that response times would be substantially longer than existing response times, no adverse effects on the security of private property would be expected as a result of the proposed shared-use path.

Cumulative Effects

The related projects listed in Table 3.1-1 as well as well as the South Demonstration Project, either Alternative A or B, have the potential to increase demand for police services. However, because population in Douglas County has been declining over the past several years, there is not a cumulatively adverse condition with respect to the level of police services. The shared-use path and related projects would not require the construction of new police

facilities or the additional of personnel. Therefore, the related projects in the South Lake Tahoe and Douglas County portions of the Tahoe Basin (as listed in Table 3.1-1) as well as the South Demonstration Project would not result in adverse cumulative effects related to police services.

Alternative C

Direct and Indirect Effects

Under Alternative C the shared-use path would not be constructed; therefore, there would be no direct or indirect effects on existing police services.

Cumulative Effects

Under Alternative C, no shared-use path would be constructed; therefore, Alternative C would result in no contribution to potential cumulative effects related to police services.

Increased Demand for Fire Protection and Emergency Medical Response Services

Alternatives A and B

Direct and Indirect Effects

Implementation of either alternative would increase demand for fire protection and emergency medical response services. The increased demand would be related to potential bicycling accidents and increased risk of fire in the Rabe Meadow and Round Mound areas, because of the increased presence of visitors on the shared-use path. LTBMU has recently conducted fuels reduction (thinning) efforts in these areas. The TRPA permit process for linear public facilities also requires fire protection agency pre-approval demonstrating that adequate fire department access and defensible space has been provided; final plan approval is also required prior to construction.

The TDFPD establishes a level-of-service standard for a response time of 5 minutes from the alarm to the arrival of the first unit. Fire Station #3 is located on Elks Point Road where both alternative alignments under Segment 2 terminate and the alignment of Segment 3 begins. Given the proximity of the alternatives to Fire Station #3, the level of service as it relates to response time would be within the goal of 5 minutes. In addition, the paved surface of the shared-use path allows access for emergency vehicles, if needed. Implementation of either alternative would not cause adverse effects on fire protection and emergency medical response services.

Cumulative Effects

The related projects listed in Table 3.1-1 as well as well as the South Demonstration Project, either Alternative A or B, have the potential to increase demand for fire protection and emergency medical response services. However, because TDFPD is achieving its level-of-service standard, there is not a cumulatively adverse condition with respect to fire protection and emergency medical response services. Additionally, all projects in the Basin are required to be reviewed and approved by the appropriate fire protection district (in this case TDFPD) to ensure sufficient emergency response and fire protection measures (such as fire resistant roofs, defensible space, and adequate fire protection services) are included in the projects. There are three major medical facilities within 20 miles of the shared-use path and TDFPD has adequate staffing and facilities. Therefore, the related projects in the South Lake Tahoe and Douglas County portions of the Tahoe Basin (as listed in Table 3.1-1) as well as the South Demonstration Project would not result in adverse cumulative effects related to fire protection and emergency services.

Alternative C

Direct and Indirect Effects

Under Alternative C the shared-use path would not be constructed; therefore, there would be no direct or indirect effects on existing fire protection or emergency medical response services.

Cumulative Effects

Under Alternative C, no shared-use path would be constructed; therefore, Alternative C would result in no contribution to potential cumulative effects related to fire protection or emergency medical response services.

Emergency Access During Construction

Alternatives A and B

Direct and Indirect Effects

Implementation of either alternative involves construction associated with at-grade roadway crossings, construction within or immediately adjacent to public roadway rights-of-way, and the relocation of light poles in Segment 1 along U.S. 50. This could delay or reduce emergency access within and around construction zones. Interference with emergency responders (law enforcement, fire, and medical) as a result of construction would be a potential adverse effect under either alternative. However, because a traffic control plan (Design Feature PS&U-1) would be prepared and implemented that includes forethought into emergency notification procedures, and adequate circulation around construction sites for emergency vehicle access, there would be no residual adverse effect on emergency access during construction.

Cumulative Effects

The related projects listed in Table 3.1-1 as well as well as the South Demonstration Project, either Alternative A or B, have the potential to increase demand for emergency response services or to interfere with emergency access during construction. However, because emergency responders (law enforcement, fire, and medical) are achieving their level-of-service standards, there is not a cumulatively adverse condition with respect to emergency response services. In addition, the shared-use path and related projects would be required to implement Traffic Control Plans for portions of the projects that would involve construction in existing roadway rights-of-way to ensure sufficient emergency access is maintained. Therefore, the related projects in the South Lake Tahoe and Douglas County portions of the Tahoe Basin (as listed in Table 3.1-1) as well as the South Demonstration Project would not result in adverse cumulative effects related to emergency services.

Alternative C

Direct and Indirect Effects

Under Alternative C the shared-use path would not be constructed; therefore, there would be no direct or indirect effects on emergency access.

Cumulative Effects

Under Alternative C, no shared-use path would be constructed; therefore, Alternative C would result in no contribution to potential cumulative effects related to emergency access.

3.13 Human Health and Risk of Upset

3.13.1 Scope of the Analysis

This section evaluates public health effects and the potential for risk of upset related to implementation of the South Demonstration Project. The analysis presented in this section is based on a search of the EPA's National Priorities List and other current information. This section describes the existing environmental conditions within the project area and potential environmental effects associated with Alternatives A, B, and C related to human health and the potential risk of upset.

3.13.2 Assessment Factors

NEPA – U.S. Forest Service, Lake Tahoe Basin Management Unit Forest Plan

Under NEPA, the LTBMU Forest Plan was used as the basis for evaluating project features that could contribute to hazards and risks associated with hazardous materials and public health. The Forest Plan requires that potential hazards are evaluated and that appropriate protection measures are incorporated into the project. According to the Forest Plan, potential hazards include risk of fires and public safety related to roadway hazards or conflicts. Managing the risk of catastrophic wildfire in the Lake Tahoe Basin was viewed as the priority for the SNFPA 2004.

Tahoe Regional Planning Agency

Based on TRPA's Initial Environmental Checklist, a project could result in adverse human health effects or lead to a risk of upset if it would:

- involve the risk of explosion or use or disposal of hazardous materials that pose a substantial hazard to people or the environment,
- involve possible interference with emergency evacuation plans,
- create a health or hazard or potential health hazard, or
- expose people to potential health hazards.

3.13.3 Affected Environment

The proposed shared-use path would generally be located within portions of existing roadways and shared-use paths, on NFS land, and around the Edgewood Tahoe Golf Course. The shared-use path for Alternatives A and B would include at-grade roadway crossings at the following six locations: Lake Parkway, Edgewood Tahoe Golf Course entrance road, 4-H Camp Road, Kahle Drive, Elks Point Road, and the Round Hill Pines Beach access road. Shared-use path users that use the parking lot at Kahle Community Center or the Douglas Transit Center would need to cross U.S. 50 to access the shared-use path from Kahle Drive.

The project area is within the Douglas County Unified School District boundaries. The closest school to the project area is Zephyr Cove Elementary School, located approximately 0.35 miles north of the northernmost portion of Alternatives A and B. The closest airports are located in Reno, Nevada; Minden, Nevada; Carson City, Nevada; and South Lake Tahoe, California. These airports are located approximately 35 miles, 10 miles, 20 miles and 4.5 miles from the project area, respectively. Stateline Medical Center, an urgent care facility affiliated with

Barton Hospital, is also located in the immediate vicinity of the project at a location across U.S. 50 near the northeast corner of the intersection of SR 207 and U.S. 50.

Traffic-Related Hazards

The 2010 Lake Tahoe Bicycle and Pedestrian Plan reported 249 injuries and 15 fatalities to pedestrians and bicyclists between 2003 to 2007 (TRPA and Tahoe Metropolitan Planning Organization 2010). Vehicle-related pedestrian fatalities are much more common than bicyclist fatalities. The majority of accidents, resulting in death, occur at non-intersections and roadways that do not maintain crosswalks. Most accidents take place during dusk or at night, and increase with alcohol intoxication of both the pedestrian and driver involved.

Wildfire Risk

The Tahoe-Douglas Fire Plan (Fire Plan) provides fire hazard assessment in the Douglas County portion of the Lake Tahoe Basin. The project area is located within the Stateline and Elk Point/Zephyr Heights/Round Hill areas covered by the Fire Plan. To determine risk, each community is scored based upon community design, structure survivability, availability of fire suppression resources, and physical conditions. The Fire Plan provides information on risk and hazard assessments and risk and hazard reduction recommendations for each area. In addition, the Fire Plan provides recommended hazard reduction projects. Methods include: prescribed fire, mastication, pile and burning excessive fuels, and creation of fuel breaks (TDFPD 2004).

The Elk Point/Zephyr Heights/Round Hill area was mostly recently rated as a high hazard area due to inadequate defensible space, close residential structure spacing, a high number of combustible roofs and unenclosed architectural features, some inadequate address signage, and fire behavior factors. Fire behavior factors include issues such as vegetation (e.g., Jeffery pine and white fir overstory), ground fuels in the form of a heavy duff layer, dwarf mistletoe, which can lead to a higher than expected concentration of dead or down fuel, and topographical factors that increase flame length and rate of spread. The LTBMU completed the Round Hill Fuels Reduction Project in 2010 that included vegetation and fuels treatments (i.e., thinning and pile burning) to reduce stand densities in order to: improve forest health, reduce fire hazards from existing fuels, and modify fire behavior. This project treated forested areas on NFS land within the Round Hill and Rabe Meadow areas. These efforts and other nearby fuels treatment efforts have reduced the risk of fire in the Elk Point/Zephyr Heights/ Round Hill area.

The Stateline area is considered to contain a moderate hazard risk for fire. The moderate risk assessment is due to good defensible space and moderate slope within the area.

As described in Section 3.12, fire prevention, protection, and emergency services in the project area are provided by TDFPD in addition to firefighting personnel employed by USFS. The station nearest the project site is the Round Hill Fire Station (Fire Station #3) on Elks Point Road. Fire Station #3 is staffed with five line personnel: a Captain, an Engineer, two Firefighter/Paramedics, and a Battalion Chief.

3.13.4 Environmental Consequences

As described in Chapter 2, “Alternatives,” it is a goal of the project to construct a separated, shared-use path designed to meet ADA and AASHTO standards. AASHTO and ADA standards consider safety issues such as facility width, surface, slope, shoulders, and crossing design. As a result, user safety is incorporated into the shared-use path design and the long-term effects related to user safety are not further analyzed in this section. (Note: the potential for conflict at at-grade roadway crossing locations is discussed in Section 3.9, “Traffic, Parking, and Transit.”) Additionally, the project would not result in long-term effects to humans or the environment related to hazards or hazardous materials because operation of the shared-use path would not require the use, storage, transport, or disposal of hazardous materials.

Furthermore, implementation of the project (construction and long-term operations) would not interfere with emergency evacuation plans. Section 3.12, "Public Services and Utilities" addresses the project's effect on demand and response times for fire protection and emergency medical response services. The shared-use path could provide fire protection benefits in that portions of the path itself could serve as an additional access route for fire and emergency response, as well as egress from lakeside neighborhoods in the event of an emergency evacuation.

The following analysis focuses on the potential for project construction to expose the public and the environment to hazardous materials and related effects and the project's potential to increase the exposure of persons to wildfire hazards.

Expose the Public or Environment to Hazardous Materials

Alternatives A and B

Direct and Indirect Effects

Construction of the South Demonstration Project would involve the short-term use and storage of hazardous materials typical of a roadway or path construction project (e.g., asphalt, fuel, and paint for striping). All materials would be used, stored, and disposed of in accordance with applicable federal, state, and local laws including Nev-OSHA, and Nevada's Hazardous Waste Management Program regulations, as well as manufacturer's instructions. Transportation of hazardous materials on area roadways is regulated by the Nevada Highway Patrol. As noted in Section 2.3 of this EA, a design feature has been incorporated into the project that includes preparation of a site-specific spill prevention plan that addresses hazardous materials use, storage, transport, and disposal and management and containment of hazardous materials in the event of a spill (Design Feature BMP-12). These protective regulations and measures incorporated into the project are sufficient to minimize risks associated with hazardous materials use. Therefore, the project would not have an adverse effect on the environment related to hazardous materials.

Cumulative Effects

Implementation of related projects listed in Table 3.1-1 could expose the public or the environment to risks associated with the use or transport of hazardous materials. However, the proposed project and related projects are subject to similar government regulations. Transportation of hazardous materials on area roadways is regulated by the Nevada Highway Patrol, while use, storage, and disposal of hazardous materials are regulated by NEV-OSHA and Nevada's Hazardous Waste Management Program. Compliance with these regulations would minimize the combined effect related to hazardous materials use. Therefore, the related projects in the South Lake Tahoe and Douglas County portions of the Tahoe Basin (as listed in Table 3.1-1) as well as the South Demonstration Project would not result in adverse cumulative effects related to the use or transport of hazardous materials.

Alternative C

Direct and Indirect Effects

Under Alternative C, the share-use path would not be constructed and there would be no use, storage, or transport of hazardous materials. Therefore, Alternative C would have no effects related to the spill of hazardous materials.

Cumulative Effects

Under Alternative C, no shared-use path would be constructed and there would be no use, storage, or transport of hazardous materials; therefore, Alternative C would result in no contribution to potential cumulative effects related to the spill of hazardous materials.

Increased Exposure to Wildfire Hazard

Alternatives A and B

Direct and Indirect Effects

The study area contains lands classified as high and moderate fire hazard areas. The Elk Point/Zephyr Heights/Round Hill area was rated as a high hazard area due to inadequate defensible space, close residential structure spacing, a high number of combustible roofs and unenclosed architectural features, some inadequate address signage, and fire behavior factors. However, LTBMU completed the Round Hill Fuels Reduction Project in 2010, which treated forested areas on NFS land within the Round Hill and Rabe Meadow areas and reduced the risk of fire in the Elk Point/Zephyr Heights/Round Hill area. The Stateline area is considered to contain a moderate hazard risk for fire due to good defensible space and moderate slope within the area.

Creation of the new shared-use path would bring more people to the project area, which could increase sources of ignition (e.g., improperly extinguished cigarettes). However, implementation of Alternatives A and B would include removal/relocation of vegetation including pines, firs, willow stands, and aspens for construction of the shared-use path. (Trees that would be removed are limited to those that are less than 24 inches dbh.) In addition, once construction is complete, Douglas County would oversee maintenance of the shared-use path, such as vegetation clearing, pavement sweeping, and fallen trees removal. Vegetation removal for construction as well as maintenance of the shared-used path would minimize the extent of fire fuels in the immediate shared-use path corridor. Furthermore, areas where the proposed shared-use path would create new disturbance, would widen an existing trail, or otherwise improve an existing trail, could act as a fire break, which would reduce opportunities for fire to spread. The study area is also sufficiently served with fire protection and emergency services by TDFPD and LTBMU (a cooperating agency within the TDFPD). Thus, the proposed project would not result in an adverse change in the risk of exposure to wildfires in the project vicinity.

Cumulative Effects

The related projects listed in Table 3.1-1, such as Sierra Colina or Beach Club, as well as well as the South Demonstration Project, either Alternative A or B, have the potential to increase the exposure of people or structures to wildfire. However, projects in the Basin are required to be reviewed and approved by the appropriate fire protection district (in this case TDFPD) to ensure sufficient emergency response and fire protection measures (such as fire resistant roofs, defensible space, and adequate fire protection services) are included in the projects. Further, the vegetation removal for construction and maintenance of the proposed shared-use path, the potential for the path to act as a fire break, and the fire protection service by TDFPD and LTBMU reduce the project's potential to contribute to a cumulative increase in risks in the project area. Therefore, the related projects in the South Lake Tahoe and Douglas County portions of the Tahoe Basin (as listed in Table 3.1-1) as well as the South Demonstration Project would not result in adverse cumulative effects related to the risk of exposure to wildfires.

Alternative C

Direct and Indirect Effects

Under Alternative C, the shared-use path would not be constructed and there would be no increased exposure of people or structures to wildland fires. Therefore, Alternative C would have no effects related to wildland fires.

Cumulative Effects

Under Alternative C, no shared-use path would be constructed and there would be no increased exposure of people or structures to wildland fires; therefore, Alternative C would result in no contribution to potential cumulative effects related to increased exposure to wildland fires.

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4 Consultation and Coordination

4.1 List of EA Preparers

The following individuals; federal, state, and local agencies; tribes; and non-agency persons contributed to the development of this EA.

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4.2 Other Agencies and Persons Consulted

Federal, State and Local Agencies

The following entities are indirectly involved with the project through sponsorship of the Nevada Stateline-to-Stateline Bikeway planning process and are participants in the Working Group, have otherwise contributed information that informed the EA process, or are a cooperating agency under NEPA.

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Others

The following organizations were consulted during the EA process:

Elks Point Homeowners Association
Edgewood Companies – Edgewood Tahoe Golf Course

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LTBMU. *See* U.S. Department of Agriculture (USDA) Forest Service Lake Tahoe Basin Management Unit

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