

5.0 MITIGATION & MONITORING PLAN

5.1 BACKGROUND

The following mitigation and monitoring plan (MMP) is an update of the MMP from the MPA 07, as adopted by the Forest Service, TRPA, and El Dorado County in 2007. The original MMP was developed based on mitigation measures included in the Draft and Final EIR/EIS/EIS documents prepared for the MP 96. Based upon measures that have been completed, measures that are no longer needed, and new measures that are required to reduce potential effects of the Epic Discovery Project, the MMP has been revised and some measures have new numbering. The Table below summarizes the changes that are proposed to the MPA 07 MMP. Detailed descriptions of each mitigation measure are included in Sections 5.4 through 5.7. The measures of the MMP are numbered “7.X” because this revised MMP shall be placed in the Heavenly Master Plan as Chapter 7 upon its adoption to add Epic Discovery projects.

5.2 SUMMARY OF MMP MEASURES

Table 5-1 summarizes the mitigation measures that are incorporated into the Proposed Action and Action Alternatives.

Table 5-1

Summary of Mitigation Measures/Design Features Incorporated into the Proposed Action and Alternatives

Agency Lead	Measure Number	Measure Title	Existing or Proposed	Justification for Revision or Removal from MPA 07 MMP
PLANNING MEASURES				
TRPA	7.3-1	Obtain Summer Day Use PAOT Allocations	Existing Removed	<u>Requirement of the TRPA Regional Plan Update.</u>
TRPA	7.3-2	TRPA Mitigation Monitoring Activities	Existing	
TRPA	7.3-3	Design and site the proposed Powderbowl Lodge to minimize visibility from off-site views	Existing	
TRPA	7.3-4	Design and site the proposed Gondola Mid Station Restaurant to minimize visibility from off-site views	Existing	
TRPA	7.3-5	Design and site the proposed Angel's Roost Communications Site to minimize visibility from off-site views	Existing Removed	<u>The Angel's Roost Communications Site has been implemented.</u>
TRPA	7.3-6	Reduce Visibility of the Skiways 1 and 2 Trails Through Reduction in Cleared Areas and Retention of Vegetation	Removed	The Skiways Trails have been implemented.
TRPA	7.3-7	Design and site the proposed Sand Dunes Lodge to minimize visibility from off-site views	Existing	
TRPA	7.3-8	Revise TRPA PAS 086 Special Policy 1.4 to Permit Additional Land Disturbance in Edgewood Creek Watershed	Removed	PAS 086 and 087 were amended in 2007.
TRPA	7.3-9	Redistribute Winter Day Use PAOTs from TRPA PAS 087 to PAS 086	Removed	PAS 087 was amended in 2007.
TRPA	7.3-10	Amend Alpine County General Plan	Removed	The Alpine County GP was <u>previously amended.</u>
CONSTRUCTION MEASURES				
ALL	7.4-1	REVISED Implement the Construction Erosion Reduction Program	Existing	
ALL	7.4-2	Construct Infiltration Facilities	Existing	

Agency Lead	Measure Number	Measure Title	Existing or Proposed	Justification for Revision or Removal from MPA 07 MMP
ALL	7.4-3	Control Runoff for Existing Facilities	Existing Removed	<u>BMPs have been completed for existing facilities. Measure 7.4-6 addresses infiltration for new facilities.</u>
ALL	7.4-4	Meet Water Quality Standards	Existing	
ALL	7.4-5	Implement Adaptive Ski Run Prescriptions	Existing	
ALL	7.4-6	Control Runoff due to Future Construction and Long-term Operation of Facilities	Existing	
ALL	7.4-7	Avoid Disturbance to SEZ or Restore/Create SEZ	Existing Removed	<u>The SEZ restoration projects have been completed.</u>
ALL	7.4-8	Avoid Disturbance to Wetlands or Restore/Create Wetlands	Existing Removed	<u>The SEZ restoration projects have been completed and mitigate impacts from past development in wetlands.</u>
ALL	7.4-9	Avoid and/or Restore Future Disturbed SEZ to Meet MP 96 Mitigation Measure 7.4-7 Requirements.	Existing	
ALL	7.4-10	Avoid and/or Restore Future Disturbed Jurisdictional Waters and Wetlands to Meet MP 96 Mitigation Measure 7.4-8 Requirements.	Existing	
ALL	7.4-11	Restore Disturbed SEZs due to Construction of Phase I Projects to Meet MP 96 Mitigation Measure 7.4-7 Requirements	Existing Removed	<u>Combined with Measure 7.4-9.</u>
ALL	7.4-12	Restore Jurisdictional Wetlands and Waters due to Construction of Phase I Projects to Meet MP 96 Mitigation Measure 7.4-8 Requirements	Existing Removed	<u>Combined with Measure 7.4-9.</u>
TRPA	7.4-13	TRPA Land Coverage Mitigation	Existing	
TRPA	GEO-4	Relocate Sky Meadows Challenge Course Access Trails Outside of Mapped SEZ	Proposed	<u>This proposed measure to relocate trails out of SEZ was added to the Project Description.</u>
ALL	BIO-1	Delay Sky Meadows Challenge Course, Sky Basin Coaster and East Peak Lake Water Activities Until Sierra Nevada Yellow-legged Frog Surveys and USFWS Consultation Are Complete	Proposed	
ALL	7.4-14	Reduce and Control Fugitive Dust	Existing	
TRPA-USFS	7.4-15	Minimize Removal/Modification of Deciduous Trees, Wetlands, and Meadows	Existing	

Agency Lead	Measure Number	Measure Title	Existing or Proposed	Justification for Revision or Removal from MPA 07 MMP
ALL	7.4-16	Active Raptor and Migratory Bird Nest Site Protection Program	Existing	
TRPA-USFS	7.4-17	Monitor and Protect Northern Goshawk	Existing	
TRPA-USFS	BIO-4	Wildlife Nursery Site Survey	Proposed	
USFS	7.4-18	Prohibit Skier Access on Management Prescription 9 Lands <u>Utilize Boundary Management Plan to Manage Skier Access on Adjacent NFS Lands</u>	Revised	Revised measure to require a boundary management plan to manage skier access on Forest System Lands within Forest Plan Prescription 9.
USFS	7.4-19	Evaluate and Monitor Known Archaeological Resources Within Comstock Logging Historic District	Existing	
ALL	7.4-20	Identify and Protect Undiscovered Archaeological Resources	Existing	
USFS	7.4-21	Protect the Tahoe Rim Trail	Existing	
TRPA-USFS	7.4-22	Secure Adequate Water Capacity Prior to Development	Existing <u>Removed</u>	<u>Requirement is enforced by local building department.</u>
TRPA-USFS	7.4-23	Secure Adequate Sewer Capacity Prior to Development	Existing <u>Removed</u>	<u>Requirement is enforced by local building department.</u>
OPERATIONS AND MAINTENANCE MEASURES				
ALL	7.5-1	REVIS <u>Cumulative Watershed Maintenance and Effects Restoration Program</u>	Existing <u>Revised</u>	
ALL	WATER-C1a	CA-1 ERA and Erosion Reduction Measures	Proposed	
USFS	WATER-C3	NV-1 ERA and Erosion Reduction Measures	Proposed	
ALL	7.5-2 (WATER-C1b)	REVIS <u>Collection/Monitoring Agreement (On-Going Environmental Monitoring Program)</u>	Revised	Proposed revision to the existing monitoring program - identified as WATER-C1b in Chapter 3.1. Adds requirement for road monitoring in compliance with current USFS protocols. <u>Adds monitoring more robust monitoring of stream channel condition in Sky Meadows, and stream pebble count monitoring per State Water Ambient Monitoring</u>

Agency Lead	Measure Number	Measure Title	Existing or Proposed	Justification for Revision or Removal from MPA 07 MMP
				Program (SWAMP) protocols.
TRPA-USFS	7.5-3	Maintain Water Rights Balance	Existing	
USFS	7.5-4	Maintain Water Flows in Heavenly Valley Creek	Existing	
USFS	7.5-5	Maintain Summertime Flows in Heavenly Valley Creek	Existing Removed	<u>Combined with Measure 7.5-4.</u>
USFS	7.5-6	Maintain Water Flows in Daggett Creek	Existing	
USFS	7.5-7	Maintain Compliance with Water Entitlements	Existing	
TRPA-CNTY	7.5-8	Reduce Vehicle Emissions	Existing	
TRPA	7.5-9	Snow Grooming Noise Mitigation Methods	Existing Removed	<u>Snow grooming equipment has been upgraded and now complies with applicable noise standards.</u>
TRPA	7.5-10	Snowmobile Noise Mitigation Methods	Existing Removed	<u>Snowmobile equipment has been upgraded and now complies with applicable noise standards.</u>
TRPA	7.5-11	Snow Removal Noise Mitigation Methods	Existing	
TRPA	7.5-12	Snowmaking Noise Mitigation Methods for Base Areas	Existing	
TRPA	7.5-13	Snowmaking Noise Mitigation Methods for Upper Mountain Areas	Existing Removed	<u>Annual monitoring of upper mountain areas has shown compliance with applicable noise standards.</u>
TRPA	7.5-14	Limit Hours of Snowmaking Operation and Use of Fan Gun Technology for the Proposed Skyline Trail Snowmaking	Existing	
TRPA	7.5-15	Rock Busting Noise Mitigation Methods	Existing	
TRPA	7.5-16	Restrict Hours of Amphitheater Operations	Existing	
TRPA	TRANS-1	Traffic and Air Quality Mitigation Program	Proposed	
TRPA	7.5-17	Expanded Bus/Shuttle Access	Existing Removed	<u>Measure has been implemented.</u>
TRPA	7.5-18	Discourage Use of Automobiles	Existing Removed	<u>Measure has been implemented.</u>
TRPA	7.5-19	Implement the Coordinated Transportation System (Public Transit Services)	Existing	
TRPA-CNTY	7.5-20	Reduce Traffic on U.S. Highway 50 at Echo Summit	Existing Removed	<u>Levels of Service are no longer unacceptable and have been steadily improving according to</u>

Agency Lead	Measure Number	Measure Title	Existing or Proposed	Justification for Revision or Removal from MPA 07 MMP
TRPA-USFS	7.5-21	Protect Tahoe Draba Populations within Heavenly Mountain Resort	Revised	TRPA traffic monitoring data. <u>Revise MPA 07 measure 7.5-21 to require better fencing/barriers near Tahoe draba populations. See VEG-4 below.</u>
TRPA-USFS	VEG-4	Update MPA 07 Mitigation Measure 7.5-20: Protect Tahoe Draba Populations within Heavenly Mountain Resort	Revised	This proposed measure to <u>Revise MPA 07 measure 7.5-21 to require better fencing/barriers near Tahoe draba populations was added to the Project Description (Section 2.3.5).</u>
TRPA	7.5-22	Tahoe Draba Long-Term Conservation Strategy	Existing Removed	<u>Measure has been implemented.</u>
TRPA-USFS	7.5-23	Minimize Loss/Degradation of Sensitive Plant Species	Existing	
TRPA-USFS	7.5-24	Noxious Weed Invasive Plant Management	Existing	
TRPA-USFS	7.5-25	Late Seral/Old Growth Forest Enhancement	Existing Removed	<u>Measure has been implemented.</u>
TRPA-USFS	7.5-26	Restrict Vehicle Traffic within the Heavenly Mountain Resort MP 96 Development Area	Existing Removed	<u>Requirement has been incorporated into operations plans.</u>
TRPA-USFS	7.5-27	Monitor and Protect Nesting and Fledgling Bird Species	Existing	
ALL	BIO-3	Migratory Bird Limited Operating Period and Habitat Utilization Survey	Proposed	
ALL	BIO-8	Wildlife Trash Management and Education Program	Proposed	
TRPA	7.5-28	Compliance with Design Review Guidelines Section 7 Exterior Lighting Standards and Code of Ordinances	Existing Removed	<u>Requirement of the TRPA Regional Plan Update.</u>
TRPA	7.5-29	Building and Site Design	Existing Removed	<u>Requirement of the TRPA Regional Plan Update.</u>
USFS	7.5-30	Maintain Timber Thinning Practices	Existing	
ALL	7.5-31	Compliance with Existing Health and Safety Practices	Existing Removed	<u>Requirement has been incorporated into operations plans.</u>
USFS	7.5-32	Avalanche Safety Practices	Existing Removed	<u>Requirement has been incorporated into operations plans.</u>
TRPA-CNTY	7.5-33	Provide Employee Housing	Existing	

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Agency Lead	Measure Number	Measure Title	Existing or Proposed	Justification for Revision or Removal from MPA 07 MMP
ALL	7.5-34	Ensure Adequate Police/Sheriff/Fire Capacity	Existing Removed	<u>Service agreements are in place with applicable public service providers.</u>

5.3 MMP ORGANIZATION

The mitigation measures are presented in the following categories:

5.4 Compliance with Existing Programs	A listing of currently applicable regulations and the mitigation measures provided to reflect compliance with these regulations.
5.5 Planning Measures	Those measures requiring additional study, adoption of plans, or adoption of regulations.
5.6 Construction Measures	Those measures which are implemented prior to and during construction.
5.7 Operation and Maintenance Measures	Those measures which are required during the ongoing operation and maintenance of the project.

Each mitigation measure is described in the following format:

Description	The description of the mitigation measure.
<u>Impacts Mitigated</u>	<u>The impact(s) addressed by the mitigation measure.</u>
Mitigation Level	The level to which the impact is anticipated to be mitigated.
Lead Agency	The public agency or individual which has the responsibility for insuring that the measure is carried out.
Implementing Entity	The entity or individual which has the responsibility for implementing or performing the measure.
Monitoring Agency	The public agency which has the responsibility for monitoring to insure that the mitigation measure is effective in mitigating the impact.
Timing	The appropriate point in time at which the mitigation measure is to be initiated and completed.
Current Status	The status of the implementation of the measure through present, particularly whether the measure is ongoing or completed.
Milestone/Product	The outcome or process associated with the measure. Monitoring reports are included in the MPA 07 Appendix.

5.4 COMPLIANCE WITH EXISTING PROGRAMS (REGULATORY COMPLIANCE)

All applicable Regional, City, County, State, and Federal codes and regulations shall be complied with, including but not limited to:

Tahoe Regional Planning Agency

- Environmental Threshold Carrying Capacities
- Regional Plan for the Lake Tahoe Basin
- Code of Ordinances
- Plan Area Statements

Lahontan Regional Water Quality Control Board

- Updated Waste Discharge Requirements
- Lahontan Basin Plan

El Dorado County

- General Plan
- Zoning Ordinance
- Air Pollution Control District
- Uniform Building Code
- Environmental Management Department (food safety and hazardous materials)

State of California

- Air Resources Board
- Cal OSHA - Worker Safety Rules and Standards
- Department of Industrial Relations
- Division of Occupational Safety and Health, Elevator, Lift, and Ride

State of Nevada

- Nevada Division of Environmental Protection (fuel storage and water quality)
- Nevada Division of Environmental Health (water)

Forest Service

- ~~Cumulative Watershed Maintenance and Restoration Program Effects~~
- LTBMU Forest Plan
- Title IV
- Heavenly Special Use Term Permit
- National Historic Preservation Act (Section 106 compliance)

Douglas County

- Master Plan & Development Code
- Zoning Ordinance
- ~~Uniform International Building Code~~
- International Fire Code

U.S. Army Corps of Engineers

- Clean Water Act, Section 404

City of South Lake Tahoe

- General Plan
- Zoning Ordinance
- Uniform Building Code

5.5 PLANNING MEASURES

7.3-1 Obtain Summer Day Use PAOT Allocations

Description	Prior to the construction of new summer day use facilities, Heavenly shall apply for and obtain TRPA approval of a summer day use PAOT allocation equal to the number of PAOTs calculated to use new summer day use areas at the Heavenly Mountain Resort. Should Heavenly be denied the summer day use PAOTs from the TRPA, the facility shall not be constructed or operated.
Impacts Mitigated	2007 EIR/EIS/REC 2: Will the Project conflict with an established recreational use in the area? 96 Final EIR/EIS/EIS: Addition of summer day uses may require an allocation of summer day use PAOTs.
Mitigation Level	Compliance with TRPA PAS summer PAOT allocations.
Lead Agency	TRPA
Implementing Agency	Heavenly Mountain Resort
Monitoring Agency	TRPA
Timing	Start: Project review. Complete: Upon approval of a project that requires summer PAOT allocations.
Status	To be completed for each new summer use that requires summer day use PAOTs.

7.3-2 TRPA Mitigation Monitoring Activities

Description	TRPA and Heavenly shall maintain a mitigation monitoring agreement. The agreement shall require Heavenly to provide adequate funding for TRPA staff to monitor compliance with Master Plan mitigation programs. Many mitigation measures are ongoing, and are therefore not related to any individual project permits or existing compliance programs at TRPA. This mitigation monitoring agreement would ensure TRPA has adequate staff resources to effectively monitor the implementation of Master Plan programs. Specific development projects may have additional compliance requirements not included in this monitoring program which are not covered by the TRPA permit application fee, and which Heavenly may be required to fund.
Impacts Mitigated	96 Final EIR/EIS/EIS: Monitoring of all impacts that must be mitigated by measures included in the Master Plan MMP.
Mitigation Level	Compliance with Heavenly Mountain Resort Master Plan mitigation measure requirements.
Lead Agency	TRPA
Implementing Agency	TRPA
Monitoring Agency	TRPA
Timing	Start: Ongoing.

Status **Complete:** Throughout Master Plan implementation.
Ongoing

7.3-3 SCENIC-3: Design and Site the Proposed Powderbowl Lodge to Minimize Visibility From Off-Site Views

Description Prior to permitting of construction, the following mitigation measures should be taken:

1. Prepare field simulations of the height and mass of the proposed structure. Such simulations may include story poles, balloons or other techniques that effectively demonstrate extent of visibility from off-site views.
2. Determine visibility of proposed structure from viewpoints identified in the MPA 07 EIR/EIS/EIS.
3. If simulations demonstrate that the building may extend above the adjacent ridge line or tree line as viewed from off-site viewpoints, changes to the building height, roof pitches, massing, siting, proposed grading or design would be made to reduce the buildings visibility.
4. Confirm effectiveness of revised siting and design measures with revised simulations.

Impacts Mitigated 06 EIR/EIS/EIS-SCENIC-3: The Powderbowl Lodge Would be Visible From Off-site Views

Mitigation Level Reduced visual effects of Powderbowl Lodge.

Lead Agency TRPA

Implementing Agency Heavenly Mountain Resort

Monitoring Agency TRPA

Timing **Start:** Prepare revised simulations if Powderbowl Lodge design is modified from design studied in 2006.
Complete: Following analysis of revised design, if applicable.

Status Completed summer 2006. Proposed lodge site analyzed in 2006 will not be visible from offsite viewpoints. If a revised lodge plan is submitted in the future, simulations may be required if determined by TRPA project review.

7.3-4 SCENIC-4: Design and Site the Proposed Gondola Mid Station Restaurant to Minimize Visibility From Off-Site Views

Description Prior to permitting of construction, the following mitigation measures should be taken:

1. Prepare field simulations of the height and mass of the proposed structure. Such simulations may include story poles, balloons, or

other techniques that effectively demonstrate the extent of visibility from off-site views.

2. Determine visibility of proposed structure from viewpoints identified in the MPA 07 EIR/EIS/EIS.
3. If simulations demonstrate that the building may extend above the adjacent ridge line or tree line as viewed from off-site viewpoints, changes to the building height, roof pitches, massing, siting, proposed grading or design would be made to reduce the buildings visibility.
4. Confirm effectiveness of revised siting and design measures with revised simulations.

Impacts Mitigated	06 EIR/EIS/EIS-SCENIC-4: The Gondola Mid-Station Restaurant Would be Visible From Off-Site Viewpoints
Mitigation Level	Reduced visual effects of Gondola Mid Station Restaurant
Lead Agency	TRPA
Implementing Agency	Heavenly Mountain Resort
Monitoring Agency	TRPA
Timing	Start: Prior to project construction. Complete: Prior to project construction.
Status	Incomplete. Project has not been proposed.

~~7.3-5 SCENIC-5: Design and Site the Proposed Angel's Roost Communications Site to Minimize Visibility From Off-Site Views~~

Description	Towers and antennae shall be redesigned to appear like natural tree snags. Applicant shall submit design plans, including color and material samples, that demonstrate that the proposed antennae and support apparatus would blend with the forest background and be non-reflective. Materials such as core ten steel which are non-reflective should be used. All major trees outside the footprint of the facility shall be protected during construction and retained on site. A retention and revegetation plan for disturbed or cleared areas shall be submitted as part of the permit application.
Impacts Mitigated	06 EIR/EIS/EIS-SCENIC-5: The Angel's Roost Communications Site Would be Visible From Off Site Viewpoints
Mitigation Level	Reduced visual effects of Angel's Roost Communications Site
Lead Agency	TRPA
Implementing Agency	Heavenly Mountain Resort
Monitoring Agency	TRPA
Timing	Start: Prior to project construction. Complete: Prior to project construction.

Status ~~Complete. Project was constructed.~~

~~7.3-6 SCENIC-6: Reduce Visibility of the Skiways 1 and 2 Trails Through Reduction in Cleared Areas and Retention of Vegetation~~

Description	Skiways 2 (I5) should be realigned and gladed with 25 percent cleared area and 75 percent vegetation retention. Skyway 1 (I4) should be gladed with 50 percent retention of vegetation. Total width of the gladed ski trails can be up to 130 feet.
Impacts Mitigated	06 EIR/EIS/EIS SCENIC 6: Proposed New In-Basin Ski Trails and Ski Trail Widening Would Create New Forest Openings
Mitigation Level	Reduced visual effects of proposed new in-basin ski trails I4 and I5
Lead Agency	Forest Service and TRPA
Implementing Agency	Heavenly Mountain Resort
Monitoring Agency	Forest Service and TRPA
Timing	Start: Prior to project construction. Complete: Prior to project construction.
Status	Complete. Project was implemented.

7.3-7 SCENIC-8: Design and Site the Proposed Sand Dunes Lodge to Minimize Visibility From Off-Site Views

Description	<p>Prior to permitting of construction, the following mitigation measures should be taken:</p> <ol style="list-style-type: none"> 1. Prepare field simulations of the height and mass of the proposed structure. Such simulations may include story poles, balloons or other techniques that effectively demonstrate extent of visibility from off-site views. 2. Determine visibility of proposed structure from viewpoints identified in the MPA 07 EIR/EIS/EIS. 3. If simulations demonstrate that the building may extend above the adjacent ridge line or tree line as viewed from off-site viewpoints, changes to the building height, roof pitches, massing, siting, proposed grading or design would be made to reduce the buildings visibility. 4. Confirm effectiveness of revised siting and design measures with revised simulations.
Impacts Mitigated	06 EIR/EIS/EIS-SCENIC-8: The Sand Dunes Lodge Would be Visible From Off-Site Viewpoints
Mitigation Level	Reduced visual effects of proposed Sand Dunes Lodge
Lead Agency	TRPA

Implementing Agency	Heavenly Mountain Resort
Monitoring Agency	TRPA
Timing	Start: Prior to project construction.
	Complete: Prior to project construction.
Status	Incomplete. Project has not been proposed.

7.3-8 LU-1A: ~~Revise TRPA PAS 086 Special Policy 1.4 to Permit Additional Land Disturbance in Edgewood Creek Watershed~~

Description	<p>Two options are available to reduce the MPA 07 inconsistency with TRPA PAS 086 Special Policy 1.4.</p> <p>Option 1 would require the removal of Ski Trails S8, S9 and S10 and Ski Lift S from the MPA 07. Under this option, Heavenly would have to maintain Ski Lifts S and T in their current location and would not be able to create additional disturbance during replacement.</p> <p>Option 2 would require the amendment of TRPA PAS 086 to allow for additional coverage, land disturbance and removal of vegetation within the NV 3 (Edgewood Creek) watershed to accommodate the MPA 07 proposed facilities. Alternative alignments have been studied for Ski Lift S and Ski Trail S10. The analysis provided above applies to the development proposed under each Action Alternative. However, Alternative 4 would result in the least amount of additional disturbance in NV 3.</p>
Impacts Mitigated	06 EIR/EIS/EIS LU 1: Will the Project be inconsistent with the TRPA Regional Plan, Code of Ordinances or Plan Area Statements 086 or 087?
Mitigation Level	Compliance with the TRPA Regional Plan, Code of Ordinances and Plan Area Statements 086 and 087.
Lead Agency	TRPA
Implementing Agency	Heavenly Mountain Resort and TRPA
Monitoring Agency	TRPA
Timing	Start: Upon Approval of MPA 07
	Complete: Upon Approval of MPA 07
Status	Complete.

7.3-9 LU-1B: ~~Redistribute Winter Day Use PAOTs from TRPA PAS 087 to PAS 086~~

Description	<p>Two options are available to eliminate the MPA 07 inconsistency with the TRPA PAS 086 PAOT allocation.</p> <p>Option 1 Would require the reduction of proposed Nevada In Basin ski lift capacity in the MPA 07 to equal proposed MP 96 hourly capacity.</p> <p>Option 2 Would require an amendment to both PAS 086 and 087 to</p>
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Impacts Mitigated	eliminate the proposed PAOT imbalance between the PAS 086 and 087. To balance the PAOT allocation between the two Heavenly PAS, 832 PAOT shall be reallocated from PAS 087 to PAS 086. 06 EIR/EIS/EIS-LU 1: Will the Project be inconsistent with the TRPA Regional Plan, Code of Ordinances or Plan Area Statements 086 or 087?
Mitigation Level	Compliance with the TRPA Regional Plan, Code of Ordinances and Plan Area Statements 086 and 087.
Lead Agency	TRPA
Implementing Agency	Heavenly Mountain Resort and TRPA
Monitoring Agency	TRPA
Timing	Start: Upon Approval of MPA 07 Complete: Upon Approval of MPA 07
Status	Complete.

7.3-10 LU-3: Amend Alpine County General Plan

Description	1. A General Plan Amendment to the Alpine County General Plan shall be completed in order to bring the existing and proposed uses associated with Heavenly Mountain Resort into conformance with the proper designation. The amendment shall change the land use designation from Open Space to Recreational Site. 2.1. An application for the amendment to the General Plan shall be initiated by Heavenly Mountain Resort in conjunction with the Forest Service (landowner), and shall be reviewed by the Planning Commission and proposed for adoption by the Board of Supervisors.
Impacts Mitigated	06 EIR/EIS/EIS-LU 3: Will the project be inconsistent with local General Plan designations?
Mitigation Level	Compliance with the Alpine County General Plan.
Lead Agency	Alpine County
Implementing Agency	Heavenly Mountain Resort, Forest Service and Alpine County
Monitoring Agency	Alpine County
Timing	Start: Upon Approval of MPA 07 Complete: Upon Approval of MPA 07
Status	Complete.

5.6 CONSTRUCTION MEASURES

7.4-1 Implement the ~~REVISED~~ Construction Erosion Reduction Program

Description	<p>Refer to pages 4.1 56 to 4.1 65 of Volume 4a of the 95 Draft EIR/EIS/EIS.</p> <p>Refer to APPENDIX 2-B of the 06 Draft EIR/EIS/EIS for the Revised Construction Erosion Reduction Program (CERP) and the Watershed Management Guidebook: <u>An Outcome-Based Guide to Watershed Management (Drake, K. and M. Hogan. 2013).</u></p> <p><u>Implementation of the</u> Revised CERP would minimize the rate of soil loss from Heavenly Mountain Resort caused by construction activities associated with all Alternatives. This program is outlined in Appendix 2-B and serves as a working version of Mitigation Measure 7.4-1 from the MP 96. The program is now considered a USFS design feature of the Proposed Action and Alternatives 3, 4, 4A and 5 and not a separate mitigation measure for all Master Plan facility implementation at Heavenly and is updated by the USFS as necessary to be consistent with the latest Forest Service procedures for erosion control. Heavenly would be the implementing entity, and the Forest Service or TRPA would be the lead and monitoring agency. Mitigation measures contained in this program will be finalized during individual project design and implemented during construction of the each new facility.</p> <p>The Erosion Control Plan and Revegetation Specifications for Ski Runs and Disturbed/Developed Areas (previously referred to as "Heavenly Valley Summer Operation and Erosion Control Plan") has been was updated and integrated as part of the revised CERP prepared for the MPA 07. The revegetation specification for ski trails and developed and disturbed project areas have been were revised and updated by an outside contractor and subsequently included in the Watershed Management Guidebook prepared by Drake and Hogan. During these revisions, monitoring results from the Environmental Monitoring Program (1995-2003) were incorporated to integrate more effective BMPs, changes in ski area management directives, improved seed mixtures, Forest Service native plant program, and Forest Service noxious weed management program into the plan. The CERP plan <u>should</u> also help facilitate project documentation and record keeping.</p>
Impacts Mitigated	<p>06 EIR/EIS/EIS- WATER-1: Existing Percent ERA in Watersheds CA-6, NV-1 and NV-4 are above allowable TOCs</p> <p>06 EIR/EIS/EIS- WATER 2: Peak and Total Runoff Increases Due to Vegetation Removal and Impervious Surface Construction</p> <p>06 EIR/EIS/EIS- WATER -3: MPA 07 Ski Area Construction and Operation May Lead to Noncompliance with Surface Water Quality Standards and Thresholds in Heavenly Valley, Bijou Park, Edgewood, Mott and Daggett Creeks</p> <p>06 EIR/EIS/EIS- WATER-4: Phase I Ski Area Construction and Operation May Lead to Noncompliance with Surface Water Quality Standards and Thresholds in Heavenly Valley, Bijou Park, Edgewood, and Daggett Creeks</p>

Mitigation Level	Future development must not increase <u>sedimentation rates from the ski resort that would adversely impact downstream beneficial uses.</u> the percent Equivalent Roaded Acres (ERA) above the recommended Thresholds of Concern (TOC) for each of the Heavenly watersheds. Meet State and regional water quality standards. Temporary and permanent BMP effectiveness.
Lead Agency	Forest Service, TRPA, and Lahontan
Implementing Agency	Heavenly Mountain Resort
Monitoring Agency	Forest Service
Timing	Start: At beginning of each construction project. Complete: Following successful implementation of construction mitigation measures.
Status	Ongoing

7.4-2 Construct Infiltration Facilities

Description	<p>Heavenly shall, for new facilities with impervious surfaces, evaluate whether infiltration of storm water may contaminate the groundwater. If groundwater is not at risk, Heavenly shall design and construct infiltration facilities with capacity, at a minimum for a 20-year, 1-hour storm event. If groundwater is at risk of contamination, Heavenly shall design and construct SEZs, detention ponds or other facilities to prevent an increase in the peak flow. Facilities should be designed using the methodology in TRPA's Water Quality Management Plan for the Lake Tahoe Region, Volume II, Handbook of Best Management Practices. This design feature is evaluated at the site-specific engineering design phase for all projects at Heavenly Mountain Resort.</p> <p>In addition to installing infiltration facilities, SEZs or detention ponds to prevent an increase in peak flow, the following additional mitigation measures can also be used:</p> <p>Reduce the coverage footprint for new facilities or when modifying existing facilities by incorporating low impact development principles. Low impact development strives to mimic a site's predevelopment hydrology by using design techniques that infiltrate, filter, store, evaporate, and detain runoff close to its source. Methods, such as bioretention, green roofs, permeable pavers, or cisterns, can be incorporated into project design.</p>
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Impacts Mitigated	96 Draft EIR/EIS/EIS: Peak and total runoff increases due to future construction of facilities identified in 95 Draft EIR/EIS/EIS Table 4.1-13. 06 EIR/EIS/EIS- WATER 2: Peak and Total Runoff Increases Due to Vegetation Removal and Impervious Surface Construction 06 EIR/EIS/EIS- WATER-3: MPA 07 Ski Area Construction and Operation May Lead to Noncompliance with Surface Water Quality Standards and Thresholds in Heavenly Valley, Bijou Park, Edgewood, Mott and Daggett Creeks 06 EIR/EIS/EIS- WATER-4: Phase I Ski Area Construction and Operation May Lead to Noncompliance with Surface Water Quality Standards and Thresholds in Heavenly Valley, Bijou Park, Edgewood, and Daggett Creeks
Mitigation Level	Runoff capacity for 20-year, 1-hour storm event.
Lead Agency	TRPA and Lahontan
Implementing Agency	Heavenly Mountain Resort
Monitoring Agency	TRPA
Timing	Start: At beginning of each construction project. Complete: Following successful construction of infiltration facility.
Status	Ongoing

7.4-3 WATER-1: Control Runoff for Existing Facilities

Description	1. Heavenly shall complete installation of BMPs at all lodges and support facilities, parking lots, and ski lifts. 2. Heavenly shall complete the BMP retrofit project for California Base Parking Lot by October 2007 as required under the Updated Waste Discharge Permit. 3. Heavenly shall complete a BMP retrofit project for the Stagecoach Parking Lot and install BMPs on all existing structures and facilities prior to further development in NV 4. Projects that involve restoration and revegetation and will not increase watershed ERAs for NV 4 shall be permitted. This measure #3 is regulated by NDEP not TRPA or the Forest Service.
Impacts Mitigated	06 EIR/EIS/EIS- WATER 2: Peak and Total Runoff Increases Due to Vegetation Removal and Impervious Surface Construction
Mitigation Level	Site Specific, but runoff capacity for the 20-year, 1 hour design storm at a minimum; Watershed ERAs must be below allowable TOC prior to future development
Lead Agency	TRPA and Lahontan (items 1 and 2 only); NDEP (Item 3)
Implementing Agency	Heavenly Mountain Resort
Monitoring Agency	TRPA (items 1 and 2 only); NDEP (Item 3)
Timing	Start: Ongoing, Upon Adoption of MPA 07

	Complete: Ongoing
Status	Ongoing

7.4-4 WATER-2: Meet Water Quality Standards

Description	<p>Implementation of the following mitigation measures would reduce the impact to less than significant. The Forest Service would be the lead and monitoring agency. Heavenly would be the implementing entity.</p> <p>1. Heavenly shall continue the maintenance phase of the CWE Restoration Program (Appendix I of 95 Draft EIR/EIS/EIS).</p> <p>21. Heavenly shall implement the Watershed Maintenance and Restoration Revised CWE Restoration Program (Appendix 3.1-D of the Epic Discovery Project Draft EIR/EIS/EIS). The program should be revised and prioritized as determined by future monitoring and the Forest Service Access and Travel Management Plan (ATM) Heavenly Road Maintenance Agreement for the Heavenly Valley Transportation shed.</p> <p>32. Heavenly shall continue to implement the Revised CERP (Updated Mitigation Measure 7.4 1).</p> <p>43. Heavenly, Lahontan and the Forest Service shall implement the Revised Environmental Monitoring Program (Updated Mitigation Measure 7.5 2).</p> <p>54. Heavenly shall install and maintain BMPs at all facilities and parking lots (Mitigation Measure 7.4-2).</p> <p>65. At least one water year prior to construction of Ski Lift Z and/or Ski Trails 86, 87, 89, 91 (now Ski Trails Z1, Z2, Z4, and Z8 in the MPA 07), the Forest Service and NDEP will conduct a field visit to determine an appropriate site for installation of a monitoring station on the South Fork of Daggett Creek if the Forest Service and NDEP determine that installation of a monitoring site for water quality is necessary.</p> <p>76. Snow grooming equipment and activities are not permitted on ski trails deficient of snow cover adequate enough to protect soil and water resources.</p>
Impacts Mitigated	<p>06 EIR/EIS/EIS- WATER-3: MPA 07 Ski Area Construction and Operation May Lead to Noncompliance with Surface Water Quality Standards and Thresholds in Heavenly Valley, Bijou Park, Edgewood, Mott and Daggett Creeks</p> <p>06 EIR/EIS/EIS-WATER-4: Phase I Ski Area Construction and Operation May Lead to Noncompliance with Surface Water Quality Standards and Thresholds in Heavenly Valley, Bijou Park, Edgewood, and Daggett Creeks</p>
Mitigation Level	State and Regional water quality constituent standards; Updated Waste Discharge Permit
Lead Agency	Forest Service
Implementing Agency	Heavenly Mountain Resort

Monitoring Agency	Forest Service
Timing	Start: Ongoing
	Complete: Ongoing
Status	Ongoing

7.4-5 WATER-3: Implement Adaptive Ski Run Prescriptions

Description	Heavenly shall implement the ski trail prescriptions proposed in the Easy Street Run Hazard Reduction Program (Attachment 1) on all future ski trails and selected and approved existing ski trails with significant hazards, adapting prescription techniques to monitoring results from demonstration projects. Monitoring results will be reviewed and the program amended and improved based on these results. The program is a process-based, adaptive management approach to ski trail implementation. Heavenly shall be the implementing and monitoring entity, and the Forest Service shall be the oversight and approval agency. For ski trails in the Lake Tahoe Basin, TRPA shall also be the approval agency.
Impacts Mitigated	<p>06 EIR/EIS/EIS-WATER-1: Existing Percent ERA in Watersheds CA-6, NV-1 and NV-4 are above allowable TOCs</p> <p>06 EIR/EIS/EIS-WATER 2: Peak and Total Runoff Increases Due to Vegetation Removal and Impervious Surface Construction</p> <p>06 EIR/EIS/EIS-WATER-3: MPA 07 Ski Area Construction and Operation May Lead to Noncompliance with Surface Water Quality Standards and Thresholds in Heavenly Valley, Bijou Park, Edgewood, Mott and Daggett Creeks</p> <p>06 EIR/EIS/EIS-WATER-4: Phase I Ski Area Construction and Operation May Lead to Noncompliance with Surface Water Quality Standards and Thresholds in Heavenly Valley, Bijou Park, Edgewood, and Daggett Creeks</p>
Mitigation Level	<u>Future development must not increase sedimentation rates from the ski resort that would adversely impact downstream beneficial uses. ERAs must be below watershed TOC prior to further development within the watershed</u>
Lead Agency	TRPA
Implementing Agency	Heavenly Mountain Resort
Monitoring Agency	TRPA
Timing	Start: Ongoing
	Complete: Ongoing
Status	Ongoing and adapted to monitoring results and new technologies

7.4-6 WATER-4: Control Runoff due to Future Construction and Long-Term Operation of Facilities

Description

1. Before design and construction of each specific project, identify the likely project-specific impacts and identify specific appropriate mitigation measures for each impact. Heavenly shall continue to include temporary and permanent BMPs details and specifications on all project designs submitted to TRPA and the Forest Service for approval. BMPs are intended to reduce runoff and capture sedimentation that creates water quality impacts from construction.
2. New facilities with impervious surfaces shall be designed and constructed with infiltration BMPs with a minimum capacity for a 20-year, 1-hour storm event. Runoff structures and BMPs will be designed and constructed to require minimal maintenance, avoid directing runoff into sensitive areas, and adequately treat the 20-year, 1 hour storm. In addition, Heavenly shall continue to maintain existing runoff diversion structures and other erosion reduction BMPs as required in the Revised Environmental Monitoring Program.
3. While underground snowmaking may be proposed and approved for summer-groomed ski trails and select road segments exempted under the MP 96 (see Figure 2-3 of the 95 Draft EIR/EIS/EIS), all subsequently proposed snowmaking shall be installed above ground except as follows: If a certain situation dictates installing snowmaking systems below ground, the impacts of the ground disturbance shall be determined and mitigated to less than significant using site-specific BMPs or removal or restoration of other existing disturbances. If impacts from new trenching cannot be adequately mitigated, then snowmaking equipment shall be installed above ground. Under ground snowmaking alternatives were not analyzed in the 06 Draft EIR/EIS/EIS because the existing CWE model is not sensitive enough to differentiate short-term non-vegetation removal and non-land coverage disturbances.
4. Scheduling and documentation of maintenance activities will be formalized to facilitate monitoring and reporting activities required through the Environmental Monitoring Program and the Updated Lahontan Waste Discharge Permit. A map is required to identify the locations of these structures and would facilitate annual maintenance and documentation of maintenance activities and timing.
5. ~~The proposed primary use of the Mid-station road is disclosed in Appendix 6 of MPA 07. If additional secondary use is proposed for the Gondola Mid Station road, such as construction of a future Gondola Mid Station restaurant, additional analysis shall be required to determine potential impacts.~~

Impacts Mitigated	06 EIR/EIS/EIS- WATER 2: Peak and Total Runoff Increases Due to Vegetation Removal and Impervious Surface Construction 06 EIR/EIS/EIS- WATER-3: MPA 07 Ski Area Construction and Operation May Lead to Noncompliance with Surface Water Quality Standards and Thresholds in Heavenly Valley, Bijou Park, Edgewood, Mott and Daggett Creeks 06 EIR/EIS/EIS- WATER-4: Phase I Ski Area Construction and Operation May Lead to Noncompliance with Surface Water Quality Standards and Thresholds in Heavenly Valley, Bijou Park, Edgewood, and Daggett Creeks
Mitigation Level	Site-specific, but at a minimum runoff capacity for 20-year, 1-hour storm event; effective soil cover adequate to control soil loss
Lead Agency	TRPA and Lahontan
Implementing Agency	Heavenly Mountain Resort
Monitoring Agency	TRPA
Timing	Start: During the planning stages of a facility Complete: Ongoing
Status	Ongoing

~~7.4-7 Avoid Disturbance to SEZ or Restore/Create SEZ~~

Description	<p><u>1994-95 Condition</u></p> <p>Implementation of the following mitigation measures will reduce the impact to less than significant. TRPA and Forest Service will be the lead and monitoring agencies and Heavenly will be the implementing entity. Mitigation will begin at the time of adoption of the MP 96.</p> <ol style="list-style-type: none"> 1. Heavenly shall restore the in-region disturbed but not developed SEZs (29.1 acres). The restoration designs for these SEZs shall achieve both SEZ restoration and still permit ski area operations and wintertime skiing in the restored areas. TRPA and Forest Service shall have the restoration design approval authority. 2. Heavenly shall restore an additional 5.2 acres of SEZs within the Lake Tahoe Basin. This acreage represents a 25 percent decrease in the total evenly disturbed and developed SEZ acreage. Possible locations for the restoration work include Upper Edgewood Creek below the Boulder Base Lodge, along Trout Creek near the STPUD treatment plant, and along Trout Creek at the Meeks Lumber relocation site. 3. Heavenly shall implement the CWE Soil Erosion Reduction Program, in particular the restoration of 0.9 acres of SEZs (see 95 Final EIR/EIS/EIS Table 4.2-3) outside the Lake Tahoe Region. <p><u>MP 96 Projects</u></p> <p>Implementation of the following mitigation measures would</p>
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~~reduce the impact to less than significant. The Forest Service and TRPA will be the lead agency and the monitoring agency. Heavenly will be the implementing entity. Mitigation should occur at or before the time of development of the new facility. Note that mitigations 1 and 2 result in no additional land coverage or permanent disturbance in SEZ within the Lake Tahoe Region.~~

- ~~1. Heavenly shall realign Ski Lifts P, K, and X; and Ski Trails 30, 31, 35, 36 and 37 to avoid development within SEZs and SEZ setbacks.~~
- ~~2. Heavenly shall design the Gondola so that no towers are constructed in the SEZ, and only trimming of the tops of vegetation to a height of 19 feet is required within the SEZ and SEZ setbacks.~~
- ~~3. Heavenly shall trim only the tops of vegetation within SEZ crossings (to a height of 3 feet tall) along Ski Trails 87 and 91.~~
- ~~4. Heavenly shall, for development in SEZs outside the Lake Tahoe Region, comply with relevant Forest Service BMPs and guidelines regarding development within SEZs to minimize the severity of impact to SEZs from development, including restoration of up to 15.9 acres of SEZs outside the Lake Tahoe Basin.~~
- ~~5. Heavenly shall, for development in SEZs outside the Lake Tahoe Region, minimize the aerial extent and intensity of the impacts including, but not limited to, use of helicopters to install ski lift towers.~~
- ~~6. Heavenly shall, prior to the time of development of the new East Peak Lodge, design and construct the lodge to minimize the area and severity of impact to the SEZ as determined jointly by Forest Service and Heavenly.~~
- ~~7. Heavenly shall implement the SEZ restorations identified in 96 Final EIR/EIS/EIS Tables 4.2-2 and 4.2-3 and an additional 0.6 acres outside the Lake Tahoe Region.~~
- ~~8. Heavenly shall minimize operational impacts to the SEZs by annually cutting only the tops of vegetation (to a height of 3 feet tall) to prevent skier safety hazards. Vegetation shall be cut with hand-held equipment, so that heavy equipment and vehicles are not driven and used in the SEZs.~~
- ~~9. If avoidance is not possible pursuant to mitigation measure number 1, Heavenly shall apply for and seek exemption findings from Lahontan and TRPA.~~

MPA-07 Projects

~~In summary, to meet compliance with the mitigation targets as required in the MP 96 MMP, Heavenly must restore at least 18.3 acres of disturbed SEZ in 2006. Under a worst case scenario, the following mitigation measures are necessary to reduce the impact~~

~~to less than significant. TRPA and Forest Service will be the lead and monitoring agencies and Heavenly would be the implementing entity. Mitigation measures are ongoing until verification is completed.~~

- ~~1. TRPA and the Forest Service will be the lead and monitoring agencies and Heavenly would be the implementing entity. The mitigation process is ongoing until verification is completed.~~
- ~~2. Heavenly shall complete the 7.65 acres of restoration identified in the Edgewood Creek Watershed Assessment and Restoration Plan (Swanson 2005, Appendix 2 F).~~
- ~~3. Heavenly shall complete the 8.75 acres of restoration identified for the Edgewood Bowl and North Bowl areas identified by Swanson Hydrology and Geomorphology in a subsequent evaluation of the Edgewood Bowl and North Bowl SEZs (Swanson 2005, Appendix 2 F). A portion of this 8.75 acres has been completed in the summer of 2006.~~
- ~~4. Heavenly shall complete the 1.10 acres of SEZ restoration/creation identified in the Upper Shop Water Quality and SEZ Improvements project (see Appendix 3.2 A)~~
- ~~5. Heavenly shall utilize credit for restoration of developed SEZs (up to 0.95 acre is available) to meet the remaining 0.80 acre of disturbed SEZ restoration needed.~~
- ~~6. Heavenly shall begin the projects in 2006, complete restoration of the projects listed above in Phase I, and work with the regulatory agencies to verify completion of the restoration as required to meet the restoration schedule outlined under the MP 96 for the mitigation of impacts to SEZs from past projects (total of 29.1 acres).~~

Impacts Mitigated

~~96 Final EIR/EIS/EIS: SEZ Disturbance for Existing Heavenly Facilities (Existing 1994 1995 Conditions)~~

~~96 Final EIR/EIS/EIS: Disturbance to Jurisdictional Wetlands and Waters from Existing Heavenly Conditions (Existing 1994 1995 Conditions)~~

~~06 EIR/EIS/EIS SEZ 1: SEZ Disturbance from Existing Heavenly Facilities~~

~~06 EIR/EIS/EIS SEZ 2: Disturbance of Jurisdictional Wetlands and Waters from Existing Heavenly Facilities~~

Mitigation Level

~~Compliance with TRPA & Forest Service criteria for disturbance within an SEZ.~~

Lead Agency

~~TRPA, Lahontan and Forest Service~~

Implementing Agency

~~Heavenly Mountain Resort~~

Monitoring Agency

~~TRPA and Forest Service~~

Timing	Start:	The following table provides interim performance targets for SEZ restoration in the Lake Tahoe Region.		
			<u>Acreage of</u>	<u>Acreage of</u>
		<u>Year</u>	<u>Developed SEZ</u>	<u>Disturbed SEZ</u>
		1997	0.0	0.0
		1998	0.0	0.0
		1999	1.3	9.0
		2000	0.0	3.0
		2001	1.3	3.0
		2002	0.0	3.0
		2003	1.3	3.0
		2004-2006	1.3	8.1
		Total	5.2	29.1
	Complete:	Ongoing.		
Status		Ongoing, partially complete.		

7.4-8 Avoid Disturbance to Wetlands or Restore/Create Wetlands

Description

MP-96 Projects

Implementation of the following mitigation measures would reduce the impact to less than significant. The U.S. Army Corps of Engineers will be the lead and monitoring agency. Heavenly will be the implementing entity. Mitigation will occur at or before the time of development of the new facility.

1. Heavenly shall, before development of these facilities begins, complete a jurisdictional wetlands delineation to determine the actual location of jurisdictional wetlands and waters surrounding the specific project.
2. Heavenly shall avoid development within the wetlands and waters to the extent possible as determined jointly by the U.S. Army Corps of Engineers and Heavenly.
3. Heavenly shall, if development within the wetlands cannot be avoided, seek to obtain a Section 404 permit from the COE, including water quality certification by Lahontan, and comply with all requirements of the permit to mitigate the specific impacts of the project.

MPA-07 Projects

Implementation of the mitigation measures listed for 7.4-3 for existing disturbance to SEZs would also reduce the impact from past disturbances to jurisdictional waters and wetlands to a less than significant level.

Impacts Mitigated	96 Final EIR/EIS/EIS: Disturbance of Jurisdictional Waters and Wetlands Due to the Construction of MP 96 Facilities 06 EIR/EIS/EIS SEZ 1: SEZ Disturbance from Existing Heavenly Facilities 06 EIR/EIS/EIS SEZ 2: Disturbance of Jurisdictional Wetlands and Waters from Existing Heavenly Facilities
Mitigation Level	Compliance with U.S. Army Corps of Engineers wetlands permitting requirements.
Lead Agency	U.S. Army Corps of Engineers and Lahontan
Implementing Agency	Heavenly Mountain Resort
Monitoring Agency	U.S. Army Corps of Engineers
Timing	Start: Prior to development of a new facility. Complete: Upon completion of the proposed facility.
Status	Ongoing, with restoration projects completed.

7.4-9 **SEZ-3: Avoid and/or Restore Future Disturbed SEZs to Meet MP 96 Mitigation Measure 7.4-7 Requirements**

Description	<p><u>MPA 07 Projects</u></p> <p>Implementation of the following mitigation measures will reduce the impact from future SEZ disturbance to less than significant. Depending on project location, the Forest Service, TRPA, or Lahontan will be the lead and monitoring agencies. Heavenly will be the implementing entity. Mitigation implementation will occur at or before the time of development of the new MPA 07 facility.</p> <p>In-Basin</p> <ol style="list-style-type: none"> 1. Run widening activities (Ski Trails I1, H9, H10, H11, S2, and Z2) will be conducted over the snow, or by other means that do not cause ground disturbance, and ONLY coniferous trees will be felled and left in place. Shrubs and herbaceous vegetation will remain, no ground disturbance will occur, and hydrologic function of the SEZ will be preserved. 2. Heavenly shall, prior to the time of construction of Ski Trails H13, 12, and 5a, design the ski trails to avoid new disturbance to SEZs and SEZ setbacks or minimize if avoidance is not possible as determined jointly by the Forest Service, TRPA, and Lahontan. If impacts to hydrologic function or permanent degradation to riparian communities are determined, findings must be made for TRPA Code of Ordinances 20.4.b (2)30.5.2 and the Lahontan Basin Plan (restoration at a minimum of 1.5:1 ratio and net environmental benefit). 3. Upon replacement of Boulder Ski Lift (Ski Lift Q), the ski lift base will be relocated outside the SEZ along with all buildings involved in Boulder Operations. Alternatively, facilities may be moved to the existing Boulder parking lot if TRPA determines that the relocation area is man-modified and does not require restoration. Ski Lift Q must be replaced in its current alignment, and no direct disturbance or indirect impacts to the Edgewood Creek SEZ Restoration project
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area will be permitted.

4. No vehicles or equipment are permitted off road in SEZs without justification and prior approval from TRPA, Lahontan, and the Forest Service.
5. Channel and streambed stability are important components of sediment reduction and SEZ functionality. Therefore, hand pruning methods will be used to maintain riparian vegetation at a minimum height of 3 feet in the vicinity of active low flow channels. The vicinity will be defined as between the banks and within a 5 foot buffer on either side of the channel. Mechanical thinning could occur outside the designated channel and buffer area.
6. All tree removal/cutting activities for construction of the ski lifts will be conducted to reduce the potential for ground disturbance within SEZs. Mechanisms for cutting trees will be over the snow or involve the use of helicopters.
7. Sky Meadows and the portion of Heavenly Valley Creek, which feeds the meadow, will be restored (according to a Restoration Plan prepared by a third party and approved by TRPA and the Forest Service) after removal of the Sky Meadows facilities and deck. Decommissioned road segments R93 and R94 will remain closed.
8. If avoidance is not possible pursuant to mitigation measure 1, Heavenly will apply for and seek exemption findings from the Lahontan and TRPA and implement appropriate restoration in the minimum amount of 1.5 times the area of new disturbance.
9. For projects within jurisdictional wetlands and waters, a Section 404 permit from the USACE and water quality certification from Lahontan (in California) will be required.

Out-of-Basin

1. Heavenly will remove coniferous trees and trim only the tops of vegetation (to a height of no less than 3 feet tall) along the SEZ portions of Ski Trails 17, 18, U3, U4, Z1, Z2, Z3, Z4, Z8.
2. Heavenly will, for development in SEZs/RCA's outside the Lake Tahoe Basin, comply with relevant Forest Service BMPs and guidelines regarding development within RCA's to minimize the severity of impacts to SEZs/RCA's from development, including restoration of up to 37.29 acres (24.86 times ratio of 1.5:1) of SEZs/RCA's outside the Lake Tahoe Basin.
3. Heavenly will, for development in SEZs/RCA's outside the Lake Tahoe Basin, minimize the areal extent and intensity of the impacts including, but not limited to, use of helicopters to install ski lift towers.
4. Channel and streambed stability are important components of sediment reduction and SEZ functionality. Therefore, Heavenly will minimize operational impacts to the SEZs/RCA's by using hand-pruning methods to maintain riparian vegetation at a minimum height of 3 feet in the vicinity of active low flow channels. The vicinity will be defined as between the banks and within a 5 foot buffer on either side of the channel. Mechanical thinning could occur outside the designated channel and buffer area.
5. For projects within jurisdictional wetlands and waters, a Section 404 permit from the USACE and water quality certification from

Impacts Mitigated	Lahontan (in California) will be required. 06 EIR/EIS/EIS- SEZ-3: SEZ Disturbance due to the Construction of Proposed Facilities 06 EIR/EIS/EIS- SEZ-4: Disturbance of Jurisdictional Wetlands and Waters Due to the Construction of Proposed Facilities
Mitigation Level	Compliance with TRPA & Forest Service criteria for disturbance within an SEZ.
Lead Agency	TRPA, Lahontan and Forest Service
Implementing Agency	Heavenly Mountain Resort
Monitoring Agency	TRPA and Forest Service
Timing	Start: Prior to development of a new facility. Complete: Upon completion of the proposed facility.
Status	Ongoing, with restoration projects completed.

7.4-10 SEZ-4: Avoid and/or Restore Future Disturbed Jurisdictional Wetlands and Waters to Meet MP 96 Mitigation Measure 7.4.8 Requirements

Description	<p><u>MPA 07 Projects</u></p> <p>Implementation of the following mitigation measures will reduce the impact to less than significant. The Forest Service and USACE will be the lead and monitoring agencies. Lahontan may be a lead and monitoring agency for 401 Certification of projects located in California. Heavenly will be the implementing entity. Mitigation will occur at or before the time of development of the new MPA 07 facility.</p> <ol style="list-style-type: none"> 1. Heavenly will, before development begins, complete a jurisdictional wetlands delineation to determine the actual location of jurisdictional wetlands and waters surrounding the specific project. 2. Heavenly will avoid development within the wetlands and waters to the extent possible as determined jointly by USACE and the Forest Service. 3. Heavenly will, if development within the wetlands cannot be avoided, obtain a Section 404 permit from the USACE or approval under existing general permits, including water quality certification (Section 401) by Lahontan (in California), and comply with all requirements of the permit to mitigate specific impacts of the project <u>(including coordinating with CDFW to comply with Section 1600 of the FGC if there is removal of riparian vegetation)</u>. 4. Sky Meadows Lodge and Deck (CA-1), the Base of Ski Lift Q (NV-3), and Boulder Operations will be relocated to locations outside delineated wetland boundaries to reduce impacts caused by past projects. 5. All tree removal activities for construction of ski lifts and ski trails will be conducted to reduce the potential for ground disturbance within wetlands or jurisdictional waters.
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	6. Additionally, as stated in the Updated Waste Discharge Permit (Board Order NO. R6T-2003-0032, page 15) for projects that impact SEZs [or wetlands] in California, "...any disturbance to SEZ [or wetlands] for new construction is prohibited unless the Regional Board provides an exemption to prohibitions against discharge or threatened discharge of wastes attributable to new development in SEZ [or wetlands]. If the Regional Board provides an exemption, additional mitigation measures may also be required for their permitting."
Impacts Mitigated	06 EIR/EIS/EIS- SEZ-4: Disturbance of Jurisdictional Wetlands and Waters Due to Construction of Proposed Facilities
Mitigation Level	Compliance with U.S. Army Corps of Engineers wetlands permitting requirements.
Lead Agency	U.S. Army Corps of Engineers and Lahontan
Implementing Agency	Heavenly Mountain Resort
Monitoring Agency	U.S. Army Corps of Engineers
Timing	Start: Prior to development of a new facility. Complete: Upon completion of the proposed facility.
Status	Ongoing, with restoration projects completed.

~~7.4-11 SEZ-5: Restore Disturbed SEZs due to Construction of Phase I Projects to Meet MP 96 Mitigation Measure 7.4-7 Requirements~~

Description	<p><u>MPA 07 Phase I Projects</u></p> <p>Implementation of the following mitigation measures will reduce the impact from future SEZ disturbance to less than significant. Depending on project location, the Forest Service, TRPA, and Lahontan will be the lead and monitoring agencies. Heavenly will be the implementing entity. Mitigation implementation will occur at or before the time of development of the new MPA 07 facility.</p> <p>In-Basin</p> <ol style="list-style-type: none"> 1. Heavenly shall, prior to the time of construction of Ski Trail 15 (proposed Skiways Trail), design the ski trail to avoid new disturbance to SEZs and SEZ setbacks or minimize the area of disturbance if avoidance is not possible as determined jointly by the Forest Service, TRPA, and Lahontan. Only the removal of conifer trees (10 trees total) depicted in design plans in Appendix 2 H will be removed. 2. Heavenly will implement the restoration projects outlined in the Edgewood Creek Watershed Assessment and Restoration Plan (Swanson 2005, Appendix 2 F). 3. No vehicles or equipment are permitted off road in SEZs without justification and prior approval from TRPA, Lahontan, and the Forest Service. 4. Channel and streambed stability are important components of sediment reduction and SEZ functionality. Therefore, hand pruning methods will be used to maintain riparian vegetation at a minimum
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	<p>height of 3 feet in the vicinity of active low flow channels. The vicinity will be defined as between the banks and within a 5 foot buffer on either side of the channel. Mechanical thinning could occur outside the designated channel and buffer area.</p> <p>5. All tree removal/cutting activities for construction of the ski lifts will be conducted to reduce the potential for ground disturbance within SEZs. Mechanisms for cutting trees will be over the snow or involve the use of helicopters.</p> <p>6. Heavenly will apply for and seek exemption findings from the Lahontan (in California) and TRPA and implement appropriate restoration in the minimum amount of 1.5 times the area of new disturbance.</p> <p>7. For projects within jurisdictional wetlands and waters, a Section 404 permit from the USACE and water quality certification from Lahontan (in California) will be required.</p> <p>Out of Basin</p> <p>No projects are proposed for MPA 07 Phase I that impact out of basin SEZs/RCA.</p>
Impacts Mitigated	<p>06 EIR/EIS/EIS SEZ 5: SEZ Disturbance Due To Construction Of MPA 07 Projects</p> <p>06 EIR/EIS/EIS SEZ 6: Disturbance Of Jurisdictional Wetlands And Waters Due To The Construction Of MPA 07 Projects</p>
Mitigation Level	Compliance with TRPA & Forest Service criteria for disturbance within an SEZ.
Lead Agency	TRPA, Lahontan, and Forest Service
Implementing Agency	Heavenly Mountain Resort
Monitoring Agency	TRPA and Forest Service
Timing	<p>Start: Prior to development of a new facility.</p> <p>Complete: Upon completion of the proposed facility.</p>
Status	Ongoing, with restoration projects completed.

7.4-12 SEZ-6: Restore Jurisdictional Wetlands and Waters Disturbed Due to Construction of Phase I Projects to Meet MP 96 Mitigation Measure 7.4-8 Requirements.

Description	<p><u>MPA 07 Phase I Projects</u></p> <p>Implementation of the following mitigation measures will reduce the impact from future SEZ disturbance to less than significant. The Forest Service and TRPA will be the lead and monitoring agencies. Heavenly will be the implementing entity. Mitigation implementation will occur at or before the time of development of the North Bowl Ski Lift and Ski Trail S10.</p> <p>1. Heavenly will, before project development begins, complete a jurisdictional wetlands delineation to determine the actual location of jurisdictional wetlands and waters surrounding the specific</p>
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	project.
	2. Heavenly will avoid development within the wetlands and waters to the extent possible as determined jointly by USACE and the Forest Service.
	3. Heavenly will, if development within the wetlands cannot be avoided, obtain a Section 404 permit from the USACE, including water quality certification (Section 401) by the Lahontan (in California), and comply with all requirements of the permit to mitigate specific impacts of the project.
	4. All tree removal activities for construction of ski lifts and ski trails will be conducted to reduce the potential for ground disturbance within wetlands or jurisdictional waters.
Impacts Mitigated	06 EIR/EIS/EIS SEZ 6: Disturbance Of Jurisdictional Wetlands And Waters Due To The Construction Of MPA 07 Projects
Mitigation Level	Compliance with U.S. Army Corps of Engineers wetlands permitting requirements.
Lead Agency	U.S. Army Corps of Engineers
Implementing Agency	Heavenly Mountain Resort
Monitoring Agency	U.S. Army Corps of Engineers
Timing	Start: Prior to development of a new facility. Complete: Upon completion of the proposed facility.
Status	Ongoing, with restoration projects completed.

7.4-13 TRPA Land Coverage Mitigation

Description	As documented in a TRPA Land Coverage Verification letter dated December 5, 2005 (06 Draft EIR/EIS/EIS Appendix 3.4-B), Heavenly removed and restored 422,623 ft ² of previously existing land coverage, including 105,415 ft ² , (2.4 acres) in Hydrologic Transfer Area 4 (South Stateline) and 317,208 ft ² (7.2 acres) in Hydrologic Transfer Area 5 (Upper Truckee). An additional 37,897 ft ² (0.86 acres) of banked coverage may become available in Hydrologic Transfer Area 5 after successful restoration. To utilize the 434,580 ft ² (as outlined in Table 3.4-2 of this 2006 -Draft EIR/EIS/EIS) of available land coverage within the Heavenly project area (includes remaining coverage available plus banked coverage), TRPA must make appropriate relocation findings included in the Code of Ordinances, and temporary and permanent BMPs must be installed and maintained as outlined in mitigation measure 7.4-1, the Revised Construction Erosion Reduction Program (CERP).
Impacts Mitigated	06 EIR/EIS/EIS-EARTH-1: New Permanent Land Coverage.
Mitigation Level	Land coverage no greater than allowed by TRPA using the Bailey Land Capability Classification system.
Lead Agency	TRPA
Implementing Agency	TRPA and Heavenly Mountain Resort

Monitoring Agency	TRPA
Timing	Start: Upon approval of the MPA 07
	Complete: Upon completion of project construction and Findings.
Status	Ongoing

~~GEO-1 Relocate Sky Meadows Challenge Course Access Trails Outside of Mapped SEZ (Proposed Action, Alternative 1)~~

Description	Sky Meadows Challenge Course shall be redesigned to locate access trails outside of the mapped Sky Meadows SEZ boundary.
Impacts Mitigated	Epic Discovery EIR/EIS/EIS GEO 1: Would the project result in covering of the soil beyond the limits allowed in the land capability or Individual Parcel Evaluation System?
Mitigation Level	Land coverage no greater than allowed by TRPA using the Bailey Land Capability Classification system.
Lead Agency	TRPA
Implementing Agency	TRPA and Heavenly Mountain Resort
Monitoring Agency	TRPA
Timing	Start: Prior to construction of proposed Sky Meadows Challenge Course
	Complete: Upon completion of project construction.
Status	Ongoing

BIO-1 Delay Sky Meadows Challenge Course, Sky Basin Coaster and East Peak Lake Water Activities Until Sierra Nevada Yellow-legged Frog Surveys and USFWS Consultation Are Complete

Description	<p>Heavenly Mountain Resort shall delay implementation of projects located in Sky Meadows or East Peak Lake (e.g., Sky Meadows Challenge Course, Sky Basin Coaster and East Peak Lake Water Activities) until protocol surveys (3 surveys in the past 10 years <u>in accordance with USFS/USFWS protocol</u>) are completed for the Sky Meadows Basin and East Peak Lake suitable habitat for Sierra Nevada yellow-legged frog (SNYLF).</p> <p>If SNYLF are determined to be present in the project area, Heavenly shall formally consult with CDFW (California projects only) and the LTBMU shall formally consult with USFWS regarding potential impacts to the species. If the results of consultation allow; the Projects may be allowed to proceed with protection measures developed in consultation with <u>CDFW, LTBMU and USFWS. If it is determined that protection measures cannot be implemented to reduce impacts to the species, each activity proposed in the delineated habitat area that will result in new disturbance and human interaction will be eliminated from the Project (e.g., Sky Basin Coaster, Sky Meadows Challenge</u></p>
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	Course, East Peak Lake Dock).
	<p>If SNYLF are not determined to be present within the delineated suitable habitat, Heavenly <u>shall start informal consult with CDFW (California projects only) and in conjunction with LTBMU shall start informal consultation with USFWS</u> regarding potential impacts to designated habitat that has been classified as “Unutilized Potential” in accordance with Region 5 direction (USFS Memorandum dated 5/28/14). <u>If the results of the informal consultation allow; the Projects may be allowed to proceed with habitat protection measures developed in consultation with CDFW, LTBMU and USFWS. Once the consultation process with USFWS is complete, the information will be incorporated into this project NEPA, BA/BE, and decision documents, including any specific terms and conditions as directed by USFWS. If the results of the informal consultation allow; the Projects may be allowed to proceed with habitat protection measures developed in consultation with LTBMU and USFWS.</u></p>
Impacts Mitigated	Epic Discovery EIR/EIS/EIS - BIO-1: Would the Project, directly or indirectly, cause a loss of individuals or occupied habitat of endangered or threatened fish or wildlife species?
Mitigation Level	Protection of listed species located within the Heavenly operational boundary.
Lead Agency	USFS and TRPA
Implementing Agency	USFS
Monitoring Agency	USFS
Timing	<p>Start: Prior to construction of proposed Sky Meadows Challenge Course and East Peak Lake Water Activities</p> <p>Complete: Upon completion of surveys and consultation with USFWS.</p>
Status	New measure proposed for Epic Discovery Project

7.4-14 Reduce and Control Fugitive Dust

Description	Heavenly shall require its contractors to implement mitigation measures during project construction to minimize the generation and transport of construction related fugitive dust. These measures consist of using chemical dust suppressants (with prior review and approval by the Lahontan staff for California projects) and/or water on unpaved roads, graded and excavated areas and material storage piles, and of cleaning on-site paved roads daily to remove tracked-on dirt and mud.
Impacts Mitigated	Cumulative change in ambient fine particulate (PM ₁₀) concentrations.
Mitigation Level	Reduce fine particulate emissions during construction.
Lead Agency	TRPA
Implementing Agency	Heavenly Mountain Resort
Monitoring Agency	TRPA

Timing	Start:	Upon commencement of project construction.
	Complete:	Upon completion of project construction.
Status		Ongoing

7.4-15 Minimize Removal/Modification of Deciduous Trees, Wetlands, and Meadows

Description	<div><div><div>1. Heavenly Mountain Resort shall retain a qualified biologist to conduct a preliminary vegetation survey prior to the project-level design or approval of any proposed facility. This vegetation survey shall identify all deciduous trees, wetlands, and meadows located within or adjacent to the proposed construction corridor and shall delineate facility-siting alternatives that avoid the loss or degradation of these resources. Heavenly Mountain Resort, through consultation with the Forest Service and TRPA, shall then implement a final engineered facility siting alternative that avoids the loss or degradation of riparian or wetland plant communities.</div><div>2. If TRPA, Lahontan, and the Forest Service jointly determine (the Forest Service, Lahontan, and TRPA shall determine separately on lands of individual jurisdiction) that the construction of any new facility cannot be sited to avoid the loss or degradation of riparian or wetland plant communities, the areal extent of the impact and the intensity of the impact shall be minimized. Methods for minimizing impact shall include, but not be limited to, the realignment of facilities to minimize the acreage of riparian or wetland plant communities affected, hand excavation adjacent to riparian or wetland plant communities, and use of helicopters to install ski lift towers and other facilities. For each acre of disturbed riparian or wetland vegetation, an area 1.5 times the impacted area shall be restored or created within the special use permit boundary.</div></div></div>
Impacts Mitigated	<div><div>96 Final EIR/EIS/EIS: Loss or degradation of native vegetation associations due to the construction of new MP 96 facilities.</div><div>06 EIR/EIS/EIS-7.4-8: Loss or degradation of native vegetation associations due to the construction of new MPA 07 facilities.</div></div>
Mitigation Level	Non-degradation of deciduous trees, wetlands, and meadows.
Lead Agency	TRPA
Implementing Agency	Heavenly Mountain Resort
Monitoring Agency	TRPA
Timing	<div><div>Start:</div><div>Prior to the approval of a MPA 07 project.</div><div>Complete:</div><div>Upon completion of construction or, if necessary, following implementation of vegetation creation and restoration.</div></div>
Status	Ongoing

7.4-16 BIO-2: Active Raptor and Migratory Bird Nest Site Protection Program

Description	Pre-construction surveys, conducted during the nesting season immediately prior to project construction, shall be conducted to identify any active raptor nest sites within the selected alignment. During initial construction activities (tree removal), a Forest Service qualified biological monitor shall be onsite to evaluate whether any raptors or migratory birds are occupying trees within 100 feet of the construction corridor. The biological monitor will have the authority to stop construction near occupied trees if it appears to be having a negative impact on nesting raptors or migratory birds or their young observed within the construction setbacks of the project area. If construction is stopped, the monitor must consult with, Forest Service and TRPA staff within 24 hours to determine appropriate actions to continue construction while reducing impacts to identified raptors or migratory birds.
Impacts Mitigated	06 EIR/EIS/EIS-BIO-2: Loss of active raptor and migratory bird nests.
Mitigation Level	Protection of raptor and migratory bird nests and fledglings.
Lead Agency	Forest Service
Implementing Agency	Heavenly Mountain Resort
Monitoring Agency	Forest Service
Timing	Start: Pre-construction of projects. Complete: Upon completion of construction activities.
Status	Ongoing, as projects are proposed.

7.4-17: Monitor and Protect Northern Goshawk

Description	<ol style="list-style-type: none"> 1. Surveys for northern goshawk shall be funded by Heavenly and conducted by the Forest Service or by others approved by the Forest Service prior to the onset of any project that proposes to affect suitable northern goshawk habitat or any project located within 0.5 mile of suitable northern goshawk habitat. All surveys shall be in accordance with the most recent Forest Service Region 5 protocol. If a northern goshawk nesting territory is discovered, a Protected Activity Center shall be delineated in accordance with the Sierra Nevada Forest Plan Amendment Record of Decision (January 2004). A LOP must be maintained to prohibit activities or vegetation treatments which may disrupt breeding within ¼ mile of the PAC from February 15 through September 15. The LOP may be waived if surveys confirm nesting is not occurring or if the activity is of such scale and duration that impacts to breeding California spotted-owls <u>Northern goshawks</u> would not occur. A one-half-quarter mile disturbance zone surrounding the nesting tree shall be delineated in accordance with TRPA Code of Ordinances 78.3.A(1)62.4.1(A) <u>78.3.A(1)62.4.1(A)</u> for in-basin areas. No manipulation of the habitat within the disturbance zone is allowed unless manipulation is necessary for habitat enhancement. 2. Heavenly Mountain Resort shall fund and the Forest Service or the TRPA shall prepare (and both the Forest Service and TRPA shall
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approve) updated northern goshawk habitat maps at 5-year intervals throughout the life of the MPA 07. These maps shall reflect the loss or modification of existing suitable northern goshawk habitat and shall identify new habitat areas created by the maturation of early and mid-successional forest stands and shall be based on the latest scientific information. The updated northern goshawk habitat maps shall be used to identify areas that must be surveyed for northern goshawk prior to allowing construction activities to proceed. Updated habitat maps shall not interrupt two year survey protocols. Maps utilized for the first year of surveys shall be utilized for the second year of surveys regardless if updates occur.

Impacts Mitigated	96 Final EIR/EIS/EIS Disturbance of northern goshawk nesting or foraging habitat.
	06 EIR/EIS/EIS – BIO-4: Loss of sensitive (including Management Indicator Species) wildlife individuals or habitat?
Mitigation Level	Maintenance of northern goshawk habitat at Heavenly; protection of nesting goshawks from noise and human disturbance.
Lead Agency	TRPA
Implementing Agency	Heavenly Mountain Resort
Monitoring Agency	TRPA
Timing	Start: Project Review. Complete: Ongoing.
Status	Ongoing

BIO-4: Wildlife Nursery Site Survey

Description	<p><u>Heavenly Mountain Resort shall conduct a thorough pre-construction survey of project areas for wildlife nursery sites and den locations. The survey shall be performed by a professional biologist with experience locating nursery/den sites and shall be performed prior to initial ground disturbance for a project activity. The survey area shall include the location of ground disturbance and areas within 100 meters of ground disturbing activities, as well as any area where staging will occur or access will be provided for construction equipment. The contracted biologist shall report the findings of the survey to the USFS LTBMU. The Responsible Official may implement an LOP, adapt construction timelines or facility locations as determined necessary to provide adequate protection. If an LOP is implemented, construction may only occur between August 1 and March 15.</u></p> <p>Heavenly Mountain Resort shall conduct a thorough pre-construction survey of project areas for wildlife nursery sites and den locations. The survey shall be performed by a professional biologist with experience locating nursery/den sites and shall be performed prior to initial ground disturbance for a project activity. The survey area shall include the location of ground disturbance and areas within 100 meters of ground disturbing activities, as well as any area where staging will occur or access will be provided for construction equipment. The Biologist shall report the findings of the survey to the USFS LTBMU. If an Pacific marten den site is located, a 100-acre buffer of the highest quality habitat shall be identified surrounding the den site to comply with the SNEPA Final SEIS Record of Decision page 39 (January 2004). However, the final</p>
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	decision can be made at the local level by the Forest Supervisor to reflect site specific conditions and may not require the implementation of an 100 acre buffer.
Impacts Mitigated	Epic Discovery EIR/EIS/EIS - BIO-4: Would the Project cause a loss of wildlife nursery/den sites and associated habitat?
Mitigation Level	Protection of identified nursery/den sites.
Lead Agency	USFS
Implementing Agency	USFS and Heavenly Mountain Resort
Monitoring Agency	USFS
Timing	Start: Prior to construction of Epic Discovery Projects. Complete: Ongoing.
Status	New measure for Epic Discovery Project

7.4-18 ~~Prohibit Skier Access on Management Prescription 9 Lands~~ Utilize Boundary Management Plan to Manage Skier Access on Adjacent NFS Lands

Description	Heavenly Mountain Resort shall prohibit skier access from the Gondola Mid Station by posting ski area boundary markers and roping the perimeter of the facility. <u>Access is permitted through managed skier gates along the ski area boundary.</u>
Impacts Mitigated	Installation of ski resort facilities on lands designated for Management Prescription 9 of the LTBMU's Forest Plan. (MP 96 and MPA 07)
Mitigation Level	Compliance with Management Prescription 9 of the LTBMU's Forest Plan.
Lead Agency	Forest Service
Implementing Agency	Heavenly Mountain Resort
Monitoring Agency	Forest Service
Timing	Start: Upon approval of the Heavenly Mountain Resort MPA 07. Complete: Ongoing.
Status	Ongoing

7.4.19 Evaluate and Monitor Known Archaeological Resources Within Comstock Logging Historic District

Description	<ol style="list-style-type: none"> 1. The sites must be formally evaluated for the NRHP by a qualified professional as either contributors to the proposed discontinuous Comstock Logging Historic District, or on their own merits as historic properties. 2. Their data potential (criterion D) and their associations (A and B) must be established in consultation with the Nevada State Historic Preservation Office (SHPO). Concurrently, if the resources are determined to be in basin, they should also be evaluated for
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	designation as TRPA historic resources in compliance with TRPA Code Sections 29.4 and 29.5 67.6 and 67.7.
	3. In addition, the sites must be monitored to determine the extent of deterioration and to discourage vandalism.
	4. Avoidance of cultural resources by project components is desired.
	5. If project redesign is not feasible and cultural resources that have been evaluated and determined eligible to the NRHP will be impacted, consultation and concurrence with SHPO, TRPA, Forest Service, and/or the Washoe Tribe in dealing with the affected resources must occur and measures to reduce the impact to less than significant identified. Another option that may be determined appropriate after site evaluation and monitoring is a program of public interpretation.
Impacts Mitigated	96 Final EIR/EIS/EIS: Destruction of known archaeological resources in the vicinity of existing ski trails, ski lifts, summer uses, and maintenance activities. 06 EIR/EIS/EIS – CULT-1: Potential to Disturb Known Cultural Resources
Mitigation Level	Identification and protection of significant archaeological resources
Lead Agency	Forest Service
Implementing Agency	Forest Service and Heavenly Mountain Resort
Monitoring Agency	Forest Service
Timing	Start: Upon approval of the Heavenly Mountain Resort MPA 07. Complete: Ongoing.
Status	Ongoing

7.4-20 Identify and Protect Undiscovered Archaeological Resources

Description	<ol style="list-style-type: none"> 1. The LTBMU Heritage Resources staff shall have the opportunity to spot-check proposed construction areas and to consult with the SHPO, prior to final decisions regarding the siting of specific MP 96 or MPA 07 facilities. 2. If previously undiscovered resources are discovered or revealed during construction or any subsequent activity, all activity will cease in the vicinity of the discovery until the LTBMU Heritage Resources staff for either California or Nevada assesses it for eligibility to the NRHP, compliance with TRPA Code Section 2967, and/or (in the event of a prehistoric or ethnographic find) for Native American (Washoe) values. This assessment will occur in consultation with the SHPO, TRPA, and the Washoe Tribe, as appropriate. 3. Cessation of activity will continue until proper treatment can be determined and implemented. 4. Avoidance of the resource may be an appropriate mitigation measure. 5. An implemented interpretive program for the cultural resource
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	may be determined to ban an important component to the mitigation measure after evaluation of the resource.
	6. The appropriate contingency clause stipulating this stop-work condition will be inserted in all contracts related to the undertakings.
Impacts Mitigated	96 Final EIR/EIS/EIS - Potential destruction of undiscovered archaeological sites during construction of facilities. 06 EIR/EIS/EIS – CULT-1: Potential to Disturb Known Cultural Resources
Mitigation Level	Identification and protection of significant archaeological resources
Lead Agency	Forest Service and TRPA
Implementing Agency	Forest Service and Heavenly Mountain Resort
Monitoring Agency	Forest Service and TRPA
Timing	Start: Upon approval of the Heavenly Mountain Resort MPA 07. Complete: Ongoing.
Status	Ongoing

7.4-21: Protect the Tahoe Rim Trail

Description	<p>Heavenly Mountain Resort shall implement the following measures in the Galaxy and Wells Fargo Ski Lift areas to allow for continued use of the TRT during construction of resort facilities:</p> <ul style="list-style-type: none"> • The construction of permanent structures (ski lift terminals or towers) which would block trail use shall be prohibited within the current alignment of the TRT. • Safety hazards within or adjacent to the TRT, including blasting areas, trenches, ski lift construction sites, and tree removal areas, shall be roped off and posted to prohibit public access during construction. • Heavenly shall work with USFS, TRT and local media outlets to inform the general public of potential closure times, dates and alternative access to other areas of the TRT. • Wherever possible, ski trails shall be sited to not intersect with the existing TRT. In addition, ski lift towers shall be sited so as to provide the greatest distance of natural vegetative buffer, including trees, woody plant material, and groundcover between the trail and the tower foundations. As required in the <u>to protect Cumulative Watershed Effects Section (3.1) of this document</u>, new ski trails and ski lifts shall be constructed in order to minimize the removal of existing ground vegetation. Implementation of these measures would reduce the potential impact to less than significant.
Impacts Mitigated	<p>96 Final EIR/EIS/EIS - Short-term conflicts with the use of the Tahoe Rim Trail caused by construction of Ski Lifts R, Y, and EE and Ski Trails 72 to 77</p> <p>06 EIR/EIS/EIS – REC-2: Will the Project conflict with an established</p>

	recreational use in the area?
Mitigation Level	Maintenance of the existing recreational value of the Tahoe Rim Trail.
Lead Agency	Forest Service
Implementing Agency	Heavenly Mountain Resort
Monitoring Agency	Forest Service
Timing	Start: Upon approval of the Heavenly Mountain Resort MPA 07.
	Complete: Upon completion of MPA 07 construction.
Status	Ongoing.

7.4-22 ~~Secure Adequate Water Capacity Prior to Development~~

Description	<p>Heavenly on-site demands for water relate largely to snowmaking and on-mountain visitor service needs. Off-site impacts revolve around the continued development of the South Lake Tahoe Area. Heavenly has not indicated a precise schedule for the proposed expansion, other than that shown in the 95 Draft EIR/EIS/EIS, Appendix S, Table S-9. This analysis developed forecasts of off-site housing and visitor development associated with the MP 96.</p> <p>Whether or not supply or infrastructure problems will exist is simply unknown at this time under these circumstances, mitigation measures will consist of:</p> <ul style="list-style-type: none"> • The Heavenly Mountain Resort will complete a detailed analysis of on-site water and sewer requirements prior to beginning each new phase of development. This analysis is complete for MPA 07 Phase I development. • STPUD and KGID will review the analyses and determine if water supply and transmission capacity and sewer system collection and treatment capacity can be reasonably expected to be available to meet expansion needs. • No further expansion will be allowed until the local utilities or Forest Service can verify existing or planned capacity sufficient to meet on-site needs.
Impacts Mitigated	96 Final EIR/EIS/EIS: Potentially inadequate water delivery infrastructure to accommodate project related requirements.
Mitigation Level	Adequate water supply.
Lead Agency	STPUD and KGID
Implementing Agency	Heavenly Mountain Resort
Monitoring Agency	TRPA
Timing	Start: Prior to Project Review.
	Complete: Project Review.
Status	Ongoing.

7.4-23 ~~Secure Adequate Sewer Capacity Prior to Development~~

Description	Heavenly shall acquire adequate sewer capacity prior to development of new on mountain facilities that require sewer units. Heavenly generally utilizes sewer capacity reserved for MP 96 buildout. This capacity shall be monitored to ensure that it will continue to meet the requirements of facilities included in the MPA 07.	
Impacts Mitigated	96 Final EIR/EIS/EIS: Potentially inadequate sewage treatment capacity.	
Mitigation Level	Adequate sewer capacity.	
Lead Agency	STPUD	
Implementing Agency	Heavenly Mountain Resort	
Monitoring Agency	TRPA	
Timing	Start:	Prior to Project review.
	Complete:	Project review.
Status	Ongoing.	

5.7 OPERATIONS AND MAINTENANCE MEASURES

7.5-1 ~~REVIS~~Cumulative Watershed Effects Maintenance and Restoration Program

Description

Heavenly shall implement the Watershed Maintenance and Restoration Program (Epic Discovery Draft EIR/EIS/EIS Appendix 3.1-D). The program will be updated as needed to identify restoration priorities that are determined by ongoing monitoring. Forest Service monitoring for the summer maintenance road system will be incorporated into this Program and will be used to develop the restoration and maintenance schedule for road segments.

Cumulative Watershed Effects (CWE) modeling tools were used to analyze watershed health and design restoration programs during the environmental review of the 96 MP, 07 MPA and the Epic Discovery Project. For future Master Plan implementation and monitoring, CWE modeling tools will no longer be used to determine whether erosion reduction targets have been achieved. CWE modeling tools are not sensitive enough to be useful on a project-level scale. The in-field monitoring required as part of the Ongoing Environmental Monitoring Program (Measure 7.5-2) provides a more accurate method for determining success of the proposed restoration measures. The reporting required by the updated WDRs ensures that measures are implemented and maintained.

~~Heavenly shall implement the maintenance phase of the CWE Restoration Program (MP96) and the Revised CWE Restoration Program (MPA 07). The programs should be revised and prioritized as determined by future monitoring. The Forest Service Access and Travel Management Plan (ATM) for the Heavenly Valley Transportation shed should also be used to appropriately revise the restoration and maintenance schedule for road segments.~~

~~The original CWE Soil Erosion Reduction Program (mitigation measure 7.5-1) was reworked and rescheduled upon completion of the 1997 Tamarack Express EA due to immediate changes in capital project priorities. The reworked 1997 CWE Restoration Program was then implemented more on a pre and post project basis and not as scheduled. The program is now called the 1997 CWE Restoration Program. All projects scheduled in the 1997 CWE Restoration Program have been completed and are outlined in Appendix 3.1 B. The exception is Edgewood Bowl Restoration, but this project will be completed in 2006.~~

~~The Revised CWE Restoration Program for the MPA 07 is outlined in Table 4 of Appendix 2 D and is scheduled according to capital project area and construction phasing. Appendix 2 D contains the Technical Report for the 2005 Cumulative Watershed Effects (CWE) Model Revision. Detailed descriptions of the CWE analysis, CWE model, and CWE restoration programs are references to Appendix 2 D.~~

~~As with the 1997 CWE Restoration Program, under the Revised CWE Restoration Program for the MPA 07, all road segments with modeled erosion rates of over 5 tons per acre/year and all ski trails with modeled erosion rates over 1 ton per acre/year are prioritized and restoration projects would be completed along with, if not prior to, projects in~~

~~Phase I. The Revised CWE Restoration Program for the MPA 07 is now considered a design feature of the Proposed Action and Alternatives 3, 4, 4A and 5.~~

The Watershed Maintenance and Restoration ~~revised~~ Program is scheduled and prioritized according to ~~will~~ continue to include restoration and maintenance projects that are included in the MPA 07 Phase I, II, and III capital project implementation plan contained in Appendix 3.1-D (see Chapter 2). Additionally, the Watershed Maintenance and ~~Revised~~ CWE Restoration Program will ~~focus on~~ include long-term maintenance needs for ~~of~~ facility BMPs, and road and ski trail projects with improved pre- and post-project implementation and effectiveness monitoring, ~~as most~~ All large scale ski trail restoration projects ~~have been~~ were completed under the original 1997 CWE Restoration Program (see Appendix 3.1-B) and now require maintenance. The exception is Edgewood Bowl Restoration, which was scheduled for completion in 1998 under the CWE Restoration Program and is now scheduled for Phase I in conjunction with the proposed replacement of the North Bowl Chair Ski Lift.

The Watershed Maintenance and ~~revised~~ CWE Restoration Program project list ~~described~~ contained in Table 4 of Appendix 2-3.1-D would be implemented under the Proposed Action and Alternatives 3, 4 4A and 5, and is structured to further reduce the watershed percent ERAs and to reduce the potential for erosion or soil loss due to long term operation of existing and proposed facilities at Heavenly Mountain Resort. The Watershed Maintenance and ~~Revised~~ CWE Restoration Program is ~~proposed for years 2006 through 2016 and is organized first according to~~ in phases based on Priority ski trail and road segments treatment needs and ~~then according to~~ further linked to capital project implementation Phases I, II, or III and the capital project focus areas ~~phasing~~.

The percent ERAs for the Proposed Action, after construction of all facilities, ski lifts, roads, and ski trails (use of appropriate BMPs during and after construction and installation of BMPs on all existing facilities assumed for Proposed Conditions with Full Mitigation Measures) are referenced to Table 3.1 17. These ERAs are representative of the 2004 Existing Conditions as revised by development of the entire Proposed Action with assumed BMPs applied to all impervious surfaces. Watershed ERAs may be further decreased through completion of the Revised CWE Restoration Program as outlined in Appendix 2 D. The overall objectives of this program are continued maintenance and application of improved and accepted specifications and seed mixtures for revegetation and restoration projects, and improved technology and engineering for road projects.

The Forest Service would be the lead and monitoring agency, and Heavenly would be the implementing entity. Timing for implementation of the mitigation measures of this program would begin upon adoption of MPA 07 ~~is ongoing~~. Any facility, ski trail, or road segments identified for restoration in this program, but restored prior to adoption of the MPA 07, would be credited toward completion of this program.

Impacts Mitigated	<p>06 EIR/EIS/EIS- WATER-1: Existing Percent ERA in Watersheds CA-6, NV-1 and NV-4 are above allowable TOCs</p> <p>06 EIR/EIS/EIS- WATER 2: Peak and Total Runoff Increases Due to Vegetation Removal and Impervious Surface Construction</p> <p>06 EIR/EIS/EIS- WATER-3: MPA 07 Ski Area Construction and Operation May Lead to Noncompliance with Surface Water Quality Standards and Thresholds in Heavenly Valley, Bijou Park, Edgewood, Mott and Daggett Creeks</p> <p>06 EIR/EIS/EIS- WATER-4: Phase I Ski Area Construction and Operation May Lead to Noncompliance with Surface Water Quality Standards and Thresholds in Heavenly Valley, Bijou Park, Edgewood, and Daggett Creeks</p>
Mitigation Level	<u>Future development must not increase sedimentation rates from the ski resort that would adversely impact downstream beneficial uses. Watershed sedimentation rates (ERAs) reduced to below the recommended TOC and to the levels shown in Table 3.1-17 (the "Proposed Action with full mitigations" column)</u>
Lead Agency	Forest Service, Lahontan and TRPA
Implementing Agency	Heavenly Mountain Resort
Monitoring Agency	Forest Service
Timing	<p>Start: Existing Mitigation modified for MPA 07; Continued implementation upon approval of the Heavenly Ski Resort MPA 07 as design features. Maintenance stage of the 1997 CWE Restoration Program is ongoing; the Revised CWE Restoration Program will begin upon approval of the MPA 07Ongoing</p> <p>Complete: Ongoing</p>
Status	The Revised CWE Restoration Watershed Maintenance and Restoration Program is to be implemented as outlined in Table 4 of Appendix 23.1-D and amended by the Forest Service ATM (roads and hiking trails) <u>Road Maintenance Program</u> and Environmental Monitoring Program.

WATER-C1a

CA-1 ~~ERA~~ and Erosion Reduction Measures

Description	<p>Prior to or concurrent with new permanent or temporary disturbance in the Sky Basin, the highest risk (i.e., those with the greatest potential for sediment loading to a channel) sources of erosion or "hotspots" that would have a direct effect on Heavenly Valley Creek channel and BMI scores shall be mitigated, as outlined in <u>Epic Discovery Draft EIR/EIS/EIS Appendix 3.1-F</u>. First phase hotspots shall be addressed prior to new disturbance and shall include numbers 31, 32, 33, 34, 35, 36, and 49, as based on combinations of high erosion risk, high connectivity and/or close proximity to the channel and/or SEZ. Phase two hotspots shall be addressed prior to or concurrent with new disturbance and shall include numbers 13, 30, 37, 38, 41, 42, 43, 44, 45 and 46 because of combinations of high connectivity, but moderate erosion risk or lower proximity to the channel and/or SEZ. Hotspots</p>
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	numbers 6, 7, 39, 40, 47 and 48 shall be retained and implemented as part of the MPA 07 Mitigation Monitoring Program's mitigation measure 7.5-1 (ongoing <u>Watershed Maintenance and CWE</u> Restoration Program) to correct areas of chronic sources of erosion that pose lower risk of sediment transport to the channel and/or SEZ. The status of implementation and effectiveness of these mitigation measures shall be documented through mitigation measure 7.5-2 (ongoing Environmental Monitoring Program) and reported to TRPA, Forest Service and Lahontan in annual monitoring reports.
Impacts Mitigated	Epic Discovery EIR/EIS/EIS - WATER-C1: Would the Project have significant cumulative impacts to water resources in watershed CA-1?
Mitigation Level	Inform and focus the required management and restoration actions to improve biotic conditions in the Sky Meadows.
Lead Agency	Forest Service, Lahontan and TRPA
Implementing Agency	Heavenly Mountain Resort
Monitoring Agency	Forest Service
Timing	Start: Prior to Construction of Sky Basin Projects Complete: Ongoing
Status	New program prepared for Epic Discovery Project.

WATER-C3 NV-1 ~~ERA and~~ Erosion Reduction Measures

Description	Prior to new permanent or temporary disturbance in the Mott Creek watershed (NV-1), the highest risk (i.e., those with the greatest potential for sediment loading to a channel) sources of erosion or "hotspots", numbers 1, 3, 4, 5 and 6 as outlined in <u>Epic Discovery Draft EIR/EIS/EIS</u> Appendix 3.1-G shall be implemented. Hotspot numbers 7, 8, 9, 10, 11, 13, 16, 20, 21, 22, 23 and 24 shall be addressed during field fitting and phased construction of the proposed mountain bike trails. Those lower risk hotspots 2, 12, 14, 15, 17, 18 and 19 shall be retained and implemented as part of the MPA 07 Mitigation Monitoring Program's mitigation measure 7.5-1 (ongoing <u>Watershed Maintenance and CWE</u> Restoration Program). The status of implementation and effectiveness of these mitigation measures shall be documented through mitigation measure 7.5-2 (ongoing Environmental Monitoring Program) and reported to TRPA, Forest Service and Lahontan in annual monitoring reports.
Impacts Mitigated	Epic Discovery EIR/EIS/EIS - WATER-C3: Would the Project have significant cumulative impacts to water resources in watershed NV-1?
Mitigation Level	Inform and focus the required management and restoration actions to improve soil and water quality conditions in the Mott Creek watershed.
Lead Agency	Forest Service
Implementing Agency	Heavenly Mountain Resort
Monitoring Agency	Forest Service

Timing	Start:	Prior to Construction of Mott Creek watershed Projects
	Complete:	Ongoing
Status	New program prepared for Epic Discovery Project.	

WATER-C1b Amendment to MPA 07 Mitigation Measure 7.5-2 (see additional measures at the end of the description)

7.5-2 ~~REVISED Collection/Monitoring Agreement (On-Going Environmental Monitoring Program)~~

Description ~~The on-going Environmental Monitoring Program, Mitigation Measure 7.5-2, addresses the Lahontan Board Order No. R6T-2003-0032A2 waste discharge requirements (WDRs) and implements the monitoring and reporting program for Heavenly Mountain Resort. The Program includes the following monitoring components: The Revised Environmental Monitoring Program is attached in Appendix 3.1 D. The following sections include an outline of monitoring components and a summary of recommendations from the CMR (USFS 2004), TRPA, Lahontan, and West Yost and Associates.~~

Water Quality Monitoring

~~The monitoring requirements for Heavenly Valley Creek and Bijou Park Creek are defined in the Lahontan Order No. R6T-2003-0032 and are summarized in Table 3.1-12. The Monitoring Program has been adapted to satisfy the monitoring requirements of Lahontan Board Order No. R6T-2003-0032.~~

~~Since the adoption of the MP 96, NDEP and TRPA have developed more specific monitoring requirements for Heavenly and the creeks within Heavenly's boundaries on the Nevada side. The Monitoring Program also includes monitoring to evaluate whether the water quality goals of NDEP and TRPA are achieved.~~

~~The present Monitoring Program includes water quality monitoring at stations HV C1A, HV C2, HV C3, HV C4, HV H5, HV E1, and HV E2. Sampling for Heavenly Valley, Hidden Valley, and Edgewood Creeks occur monthly except during the spring snow melt period (approximately March 15 until summer baseflow condition is reached), when sampling occurs weekly. Results are reported to Heavenly, TRPA, and Lahontan in an annual Monitoring Program Report. Additionally, water quality sampling results are reported quarterly to Lahontan as required by Order No. R6T-2003-0032. The following constituents are monitored at all stations unless specified otherwise below:~~

- ~~• Discharge;~~
- ~~• Specific Conductivity;~~
- ~~• Turbidity;~~
- ~~• Suspended Sediment;~~
- ~~• Total Nitrate/Nitrite as Nitrogen (Total NO₂/NO₃);~~
- ~~• Total Kjeldahl Nitrogen (TKN);~~

- ~~Dissolved Orthophosphate and Total Phosphorus (DOP/SRP and Total P);~~
- ~~Dissolved Phosphorus (DP twice a year at HV E1 and HV E2)~~
- ~~Chloride (HV C1A, HV C2, HV C3 and HV H5 quarterly; HV C4 all samples)~~
- ~~Total Iron (HV C1A, HV C2, HV C3, HV H5 quarterly; HV C4 all samples)~~

~~Additional parameters for the HV C4 monitoring site:~~

- ~~Oil and Grease;~~
- ~~Total Petroleum Hydrocarbons (as gasoline range);~~
- ~~Ammonia (monthly and during snowmelt runoff);~~
- ~~Total Lead (quarterly and during storm and snowmelt runoff).~~

~~The Environmental Monitoring Program has been updated to adapt the conclusions and recommendations made in the CMR (USFS 2004) through ongoing discussions between LTBMU and Heavenly. The Heavenly Mountain Resort Environmental Monitoring Program will continue to be funded by Heavenly but as of 2005 is implemented by ENTRIX and Resource Concepts, Inc. with oversight and management by the LTBMU Ecosystem Management Department. The water quality monitoring program will be reevaluated as part of the 2006 Comprehensive Monitoring Report and will include a comprehensive analysis of the existing water quality data at all the monitoring sites and recommendations regarding future monitoring to improve monitoring site locations, and sampling strategies. Additionally, Lahontan recommends analysis of the adequacy of monitoring utilized to evaluate progress towards meeting the Heavenly Valley Creek TMDL annual sediment loads. See Appendix 3.1 C for the outside party evaluation of the Updated Discharge Permit completed by West Yost and Associates in 2004.~~

~~When Ski Lift Z and/or Ski Trails Z1, Z2, Z3, Z4, Z5, Z6, Z7, and Z8, are proposed for construction, the Forest Service and NDEP will conduct a field visit to determine an appropriate site for the installation of a monitoring station on the South Fork of Daggett Creek. Following construction of the ski lift or ski trails, the monitoring station shall be installed to Forest Service and NDEP standards.~~

Effective Soil Cover Monitoring

~~The Monitoring Program of the MP 96 included soil cover monitoring with objectives of determining requirements and effectiveness of various soil covers under different slopes and conditions, the effectiveness of various plant species as ground covers, and to evaluate the effectiveness of past and current projects. As stated in the CMR (USFS 2004), Chapter 3, these objectives could only be answered qualitatively and some objectives could not be answered completely due to inadequacies in the monitoring program, field methodologies, database deficiencies, or insufficient data.~~

~~Monitoring from 1995-2002 was based on the use of fixed test plots and random transects occurring in each elevation range within Heavenly (<7,800 feet; 7,800 to 8,800 feet; >8,800 feet) and in representative riparian areas in each elevation zone. Results were reported annually in the Annual Environmental Monitoring Report.~~

~~Fixed plots were discontinued in 2002 due to difficulty relocating the erosion pins and the fact that most erosion pins had been disturbed during ski area management activities. Random transects (also called effective soil cover surveys) should continue based on a pre and post project monitoring schematic and should incorporate less field intensive monitoring activities. Additionally, as stated on page 8.52 of the 96 Final EIR/EIS/EIS, upon 5 year evaluation of the Environmental Monitoring Program (which occurred through the CMR), if progress has not been adequately made towards restoration goals, a revised plan will be developed to achieve updated objectives. The following recommendations were made in the CMR (USFS 2004) for the effective soil cover component of the Monitoring Program:~~

~~• Discontinue Fixed Plot Monitoring~~

- ~~• Better record keeping is needed to document materials and structures installed, and seeding rates and mixes. This implementation monitoring will improve data collected concerning plant succession, applied seed mixes, and effectiveness of various mitigation measures, to better address monitoring objectives.~~
- ~~• It is recommended that effective soil cover measurements at random transects, as well as estimates of soil loss volume, continue to be collected. These data should continue to be assessed at four year intervals. However, it is also recommended that the use of satellite imagery (IKONOS) or aerial photos be considered as the primary methods of collecting soil cover data for ski trails. This data could then be converted into GIS polygons for mapping and for input into process based, hillslope model (such as WEPP). Transects would primarily be used to validate polygon designation of imaged data, and to document visible signs of erosion and erosion estimates. The definition of what should be counted as rock cover needs to be reexamined, due to a suspiciously high degree of variability in this measurement. A process for collecting duplicate data (i.e. repeat transects at very short time intervals, with different and same data collectors) should be developed to determine the magnitude of sampling error with these measurements.~~
- ~~• It is recommended that the monitoring plan be updated to consider utilizing a physically based, descriptive hillslope erosion model (such as WEPP, the Watershed Erosion Prediction Project), to estimate effectiveness of revegetation and grade control structures in controlling erosion on individual ski trails. Transect data would be used to provide inputs for the model, as well as some field data for validation of results.~~

~~Entrix, one of the consultants hired by Heavenly to continue implementation of the Heavenly monitoring program, has developed a revised monitoring strategy for this component, as outlined in Appendix 3.1-D.~~

BMP Effectiveness Monitoring

~~The Monitoring Program includes BMP effectiveness monitoring (BMPEP) to determine requirements and effectiveness of BMP planning, design, and implementation at existing facilities, restoration sites, and new construction sites to prevent soil erosion and protect water quality. Applications of BMPs at Heavenly include an array of~~

~~structural and nonstructural measures that reduce soil movement and control surface runoff. Many of these BMPs are required as part of the Revised Construction Erosion Reduction Program (CERP in Appendix 2-B). Some example measures include establishing vegetative cover, protecting stream environment zones and other sensitive areas, mulching the soil surface, installing infiltration and stabilization measures, and creating physical barriers between waterways and construction sites.~~

~~Monitoring is also conducted to determine the appropriate maintenance levels to preserve the integrity of the various BMPs. Monitoring of permanent and temporary BMPs occurs at existing facilities, restoration sites, and new construction sites. Results are reported annually the Annual Monitoring Report and are used to prioritize project sites for the following field season.~~

~~In the process of analyzing the data for the CMR report, which were collected on past BMP data forms, several significant flaws were identified that severely limit the ability to provide a comprehensive systematic evaluation for answering the two basic questions of whether BMPs were implemented correctly and whether they were effective in protecting water quality. These limitations included varying skill levels of data collection staff, sampling frequency inconsistencies, insufficient data storage and analysis process, and current strategy not well designed to inform decision making processes.~~

~~Feedback and results provided by the past monitoring has proven effective in facilitating information exchange between Heavenly and Forest Service staff during project implementation. This has improved mutual understanding of appropriate BMP application and effectiveness. While this has helped to provide information to managers, particularly in the short term, the current process has provided limited useful documentation to assess BMP implementation and effectiveness success. Qualitative observational narratives were found to be extremely valuable in providing information learned through staff experience; however quantitative data are needed to measure success.~~

~~The results of the evaluations conducted in 2004 utilizing new protocols are presented in the 2004 Annual Report for the Heavenly Environmental Monitoring Program (USFS 2004). Although the database for evaluating the data collected was not yet available for this report, a preliminary evaluation of the results was conducted by LTBMU monitoring staff. This evaluation concluded that 10 out of the 14 evaluations conducted indicate problems with BMP implementation, and 2 of the 14 evaluations indicate a substantial level of concern related to BMP effectiveness. A consistent deficiency related to implementation was observed related to inadequate specifications for revegetation. As a result of this data, Heavenly is contracting with a consultant to revise the revegetation specifications for projects beginning in 2006, and will be implementing corrective actions in 2006 at the projects with observed deficiencies identified in the 2004 evaluations.~~

~~Under the Revised Environmental Monitoring Program, Resource Concepts Incorporated (RCI), the consultants hired by Heavenly to implement the BMP component of the Heavenly monitoring program, will be utilizing the now available database, and will use the new~~

format described in Appendix 3.1 D for future BMP monitoring at the resort. The BMP Monitoring Third Quarter Report submitted to Lahontan on October 31, 2005 is included in Appendix 3.1 E. The consultant will also provide feedback, including any suggested improvement to this process.

The CMR also made a number of recommendations related to the monitoring and evaluation of BMPs related to resort roads. There are currently over 30 miles of largely native surface roads at the resort. These recommendations are provided below.

- Develop and add a separate section to the Revised Environmental Monitoring Program for roads monitoring and revise roads monitoring to align with LTBMU Roads Monitoring Program
- A thorough evaluation of the degree of success of the decommissioning treatments and previously implemented road BMP upgrades should be a priority. The evaluation should follow the process established for the LTBMU Roads Program.
- The LTBMU Roads Program has developed a three step process to assess both BMP effectiveness and potential water quality impacts to roads. The first step is to assess potential risk to water quality for individual road segments (based on a number of qualitative criteria related to road characteristics and proximity to waterbodies) and rate each segment as high, medium, or low risk. The second step is to utilize the BMPEP evaluation forms developed for the Region 5 BMPEP program, to assess BMP implementation and effectiveness. The third step will be to utilize the WEPP model for roads to estimate the actual transport of runoff and sediment from specific road segments (including BMP applications). The WEPP model will be applied to a representative sample of road segments representing a variety of road characteristics and risk categories, to estimate loading for the entire road network, and to provide an estimate of site specific BMP effectiveness. The roads monitoring program at Heavenly should be revised to more closely follow the process described above, to provide more meaningful data related to road BMP effectiveness and the potential risk to water quality from roads.
- All decommissioned roads should be evaluated to determine if natural contours were restored, all compacted surfaces were eliminated, appropriate drainage structures are functioning, and adequate soil cover is in place. Assessments of water quality risk, evaluations of decommissioning and BMP upgrade success, and recommendations for future decommissioning and BMP upgrade measures should be conducted in coordination with the Forest Service

Riparian Condition Monitoring

The Monitoring Program of the MPA-07 will include riparian condition monitoring to evaluate the status and trend of stream channel and riparian condition at Heavenly Mountain Resort. In addition, this monitoring will be used to determine the effect of Heavenly Mountain Resort operations on the geomorphology, habitat, and riparian condition of potentially affected streams. As needed, the results of the monitoring will be used to modify management practices.

~~The evaluation of monitoring data will include the following components:~~

- ~~• Evaluate sediment sources and conditions using the monitoring data to the extent feasible.~~
- ~~• Characterize and evaluate geomorphic characteristics, channel habitat condition, and stream channel stability.~~
- ~~• Determine the effect of Heavenly Mountain Resort operations on trends observed in channel characteristics listed above.~~
- ~~• Determine if measured variability is within the natural range of unimpaired watersheds, by comparing to data from undisturbed watersheds.~~
- ~~• If applicable, identify potential effects of other disturbances or naturally unstable geomorphic systems.~~
- ~~• Identify the need for remediation or restoration measures.~~

~~The use of Pfankuch protocols for evaluation of stream channel conditions has been discontinued based on recommendations resulting from the development of the LTBMU Adaptive Management Monitoring Program for Channel Condition. The Pfankuch protocol is no longer being utilized by federal land management agencies and has been replaced by SCI methodology. Full SCI monitoring will occur every three to five years~~

~~A bioassessment component was added to the Heavenly monitoring program in 2002. The Forest Service Region 5 protocol for macroinvertebrate sampling was implemented in 2002 and 2003 on both Heavenly and Hidden Creek, and is scheduled to be repeated at two year intervals. The next scheduled interval is 2005 and 2006. Data from the 2002/2003 has not yet been fully analyzed, and should be included in the 2006 Comprehensive Monitoring Report.~~

~~In addition to the currently established SCI reaches the, Entrix will be recommending the addition of new reaches in Daggett, Mott, and Edgewood Creek to continue long term evaluation of channel condition in these streams. SCI surveys will also be utilized to monitor effects of channel restoration projects at the resort, including the Edgewood Creek stream restoration project. The Edgewood Creek Watershed Assessment and Restoration Plan found in Appendix 2 F outlines a recommended monitoring approach and success criteria.~~

Condition and Trend Monitoring

~~The Monitoring Program includes condition and trend monitoring to determine the overall condition of the watersheds, trends in the conditions of the watersheds, and if management activities are improving the watershed conditions. Data were collected from existing facilities, roads, and ski trails in each of the watersheds and watersheds were rated for condition and trend according to criteria specified in Chapter 6 of the CMR (USFS 2004). Results were reported in the Annual Monitoring Report and the Condition and Trend Summary table for watersheds at Heavenly Mountain Resort are presented in Table 3.1-13.~~

~~The revised approach for evaluating future watershed condition and trend is outlined in the Revised Environmental Monitoring Program in~~

~~Appendix 3.1 D.~~

In summary, the Heavenly Mountain Resort Environmental Monitoring Program should continue to be revised and organized to adequately meet the monitoring and reporting requirements set forth in all regulatory documents and the Mitigation and Monitoring Program of the MPA 07. ~~These needs and requirements include:~~

- ~~• Updated Discharge Permit (Water Quality Monitoring of Ski Area, Water Quality Monitoring at California Base Area, Erosion control and Facilities Maintenance, Development of an Annual Work List, Snow Conditioning and Snowmaking Enhancement, Deicers and Abrasive Application and Recovery, Heavenly Valley Creek TMDL, Mitigation monitoring);~~
- ~~• Revised CWE Restoration Program (Project BMP Implementation Documentation with Performance based Criteria need to be improved; Updated Erosion Control Plan and Revegetation Specifications necessary) Mitigations 7.4.9 and 7.5.1;~~
- ~~• Revised Construction Erosion Reduction Program Mitigation 7.4.1;~~
- ~~• SEZ Restoration Projects (Project Implementation and Performance base Criteria need to be established) Mitigations 7.4.3 and 7.4.4; and~~
- ~~• Easy Street Run Hazard Reduction Project Mitigating prescriptions for ski trail implementation were demonstrated on Easy Street (Ski Run HH 1). The Forest Service recommends the use of the Watershed Erosion Prediction Program (WEPP), a model capable of predicting site specific hillslope processes. Performance based and process based monitoring objectives should be decided upon by TRPA, the Forest Service and Lahontan in order to adequately judge success of the demonstration project(s) and enable the adaptive management process to contribute to improvement of prescriptions for future projects, which include proposed and selected existing ski trails). The ESRHRP Monitoring Report is included in Appendix 2-C and results and summarized below.~~

The on-going Environmental Monitoring Plan-Program shall be updated for 2015 through an amendment of the Lahontan WDR as follows: and monitoring and reporting program. The Program shall include additional monitoring requirements that have been identified for avoidance and reduction of cumulative watershed effects, as follows:

- Roads and trails monitoring within the Heavenly special use permit boundary shall be amended to comply with current Forest Service protocols, including the mountain bike trails constructed as part of the Mountain Bike Park in the Mott Creek Watershed (applies only to NV-1). Other general use mountain bike and hiking and maintenance trails would not be components of the Environmental Monitoring program, but on-going effectiveness of design features shall be monitored and maintained through the current Heavenly operations and maintenance program.
- For the Heavenly Valley Creek Sky Meadows Reach only, the stream channel condition monitoring component shall be amended

~~to add a more robust protocol for measuring monitoring for in-stream fine sediment and in stream temperature monitoring to provide a better assessment of causes of poor biotic health and document effectiveness of mitigation strategies.~~

~~• The Forest Service Region 5 Stream Condition Inventory (SCI) pebble count protocol shall conform to State Water Ambient Monitoring Program (SWAMP) protocols. This protocol shall apply to SCI reaches established in Heavenly Mountain Resort watersheds and the Hidden Valley Creek reference watershed.~~

Impacts Mitigated

06 EIR/EIS/EIS- WATER-1: Existing Percent ERA in Watersheds CA-6, NV-1 and NV-4 are above allowable TOCs

06 EIR/EIS/EIS- WATER 2: Peak and Total Runoff Increases Due to Vegetation Removal and Impervious Surface Construction

06 EIR/EIS/EIS- WATER-3: MPA 07 Ski Area Construction and Operation May Lead to Noncompliance with Surface Water Quality Standards and Thresholds in Heavenly Valley, Bijou Park, Edgewood, Mott and Daggett Creeks

06 EIR/EIS/EIS- WATER-4: Phase I Ski Area Construction and Operation May Lead to Noncompliance with Surface Water Quality Standards and Thresholds in Heavenly Valley, Bijou Park, Edgewood, and Daggett Creeks

Epic Discovery EIR/EIS/EIS - WATER-C1: Would the Project have significant cumulative impacts to water resources in watershed CA-1?

Epic Discovery EIR/EIS/EIS - WATER-C3: Would the Project have significant cumulative impacts to water resources in watershed NV-1?

Mitigation Level

Compliance with state and regional water quality standards and allowable watershed TOCs.

Lead Agency

Forest Service, Lahontan (in CA) and TRPA (In Basin)

Implementing Agency

Forest Service and Heavenly Mountain Resort

Monitoring Agency

Forest Service

Timing

Start: January 1995.

Complete: Ongoing under agreement between Heavenly and Forest Service and Heavenly and third party contractor

Status

Amendment to ongoing agreement in place between Heavenly, TRPA, Forest Service and third party contractors. To be added as an amendment to the Lahontan WDRs and monitoring and reporting program.

7.5-3 Maintain Water Rights Balance

Description

Water Rights/Water Use Monitoring Program

To ensure that water from Heavenly's various supplies is used in appropriate quantities and locations, a Water Use/Water Rights monitoring program would be implemented. The goal of the program would be to measure or estimate the quantity of water supplied by each

source and where the water is used. ~~This program is used as a mitigation measure in several of the impacts below.~~

~~The existing gauging stations (described above) would be upgraded to provide continuous flow measurement. The Daggett Creek Station will be relocated to a site closer to the Heavenly Mountain Resort boundary to isolate the effects of the Heavenly Mountain Resort and eliminate effects from Kingsbury Grade. Existing and new facilities would be installed to measure all surface water and groundwater diversions. Additionally, the quantities of water purchased from STPUD and KGID would be measured.~~

~~Descriptions of proposed new flow measurement facilities are presented below. Locations of these facilities are presented in 95 Draft EIR/EIS/EIS Figure 4.3-1.~~

- ~~• East Peak Lake Release — An instream flow gauge would be installed below East Peak Lake to measure releases from the Reservoir.~~
- ~~• Lower Crossover Ski Trail — A 6 inch meter would be installed at Lower Crossover Ski Trail. This meter would measure total and instantaneous flow into and out of the Lake Tahoe Basin within Nevada. This meter would have electronics for remote display and computer connection.~~
- ~~• Top of North Bowl Ski Trail — A 12 inch meter would be installed at the top of North Bowl Ski Trail. This meter would measure total and instantaneous flow into and out of the Lake Tahoe Basin within Nevada. This meter would have electronics for remote display and computer connection.~~
- ~~• Men's Down Hill Above 075 Ski Trail — A 12 inch meter would be installed at Men's Down Hill Ski Trail above the 075 Ski Trail. This meter would measure total and instantaneous flow into and out of the Lake Tahoe Basin within Nevada. This meter would have electronics for remote display and computer connection.~~
- ~~• Upper Lower Way Home Ski Trail — A 6 inch meter would be installed at Upper Lower Way Home Ski Trail. This meter would measure total and instantaneous flow into and out of the Lake Tahoe Basin within Nevada. This meter would have electronics for remote display and computer connection.~~

~~MPA 07 — Additional Monitoring Facilities:~~

- ~~• Meters should be installed to monitor the monthly pumpage from individual wells used for snowmaking, including both the existing and proposed wells. Additionally, the monitoring should include monthly measurements of groundwater levels in the existing and proposed wells used for snowmaking. Finally, extended period aquifer tests should be conducted in each of the proposed wells used for snowmaking.~~

~~With Using the existing and proposed flow monitoring facilities, it would be possible to determine the quantity of water supplied to Heavenly from each source, used in each state, and used in and out of~~

	the Lake Tahoe Basin. By knowing the use restrictions on water from each source, the maximum water use permitted in any area would be known, and thus water uses could be limited to the maximum permitted. This mitigation measure would also provide data necessary to ensure attainment of TRPA's goal to reduce and eliminate inter-basin transfers.
	Heavenly would prepare an annual report indicating the quantity of water used from each of its sources, the maximum entitlement from each of its sources, and the amount of water consumed by each of Heavenly's uses, including snowmaking in and out of the Tahoe Basin in both California and Nevada. Additionally, flow records for each of the creek monitoring stations, estimated flow into East Peak Lake and releases from East Peak Lake would be included. This report would be submitted to the Forest Service for review and concurrence. If the Forest Service finds that Heavenly is out of compliance with any terms of their water rights, Heavenly would, in the future, modify their operating procedures to comply with the water right requirements.
Impacts Mitigated	<p>96 Final EIR/EIS/EIS: Water diversions from Heavenly Valley Creek may result in violations of water right requirements.</p> <p>96 Final EIR/EIS/EIS: Noncompliance with Heavenly water entitlements.</p> <p>96 Final EIR/EIS/EIS: Future increased creek water diversions from Heavenly Valley Creek may result in violation of water right requirements.</p> <p>96 Final EIR/EIS/EIS: Future increased use of water by Heavenly may not comply with the water entitlements.</p> <p>06 EIR/EIS/EIS- WATER USE-1: Potential for Changes in Streamflow (Daggett, Mott and Bijou Park Creeks) and Lake Level (East Peak Lake) Effects Based upon Proposed Groundwater Pumping</p> <p>06 EIR/EIS/EIS- WATER USE-2: Potential for Changes in Groundwater Levels Based upon Proposed Groundwater Pumping</p>
Mitigation Level	Compliance with water rights restrictions.
Lead Agency	State of Nevada and Forest Service
Implementing Agency	Heavenly Mountain Resort
Monitoring Agency	State of Nevada and Forest Service
Timing	<p>Start: Upon approval of the Heavenly Mountain Resort MPA 07.</p> <p>Complete: Ongoing.</p>
Status	Ongoing; all meters needed to monitor water use and balance conditions are in place.

7.5-4 Maintain Water Flows in Heavenly Valley Creek

Description	Implementation of the following mitigation measures will reduce the impact to less than significant. The Forest Service will be the lead agency and monitoring agency and will review the annual water use/water rights report. Heavenly will be the implementing entity.
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~~Mitigations will be implemented upon adoption of the Heavenly Mountain Resort MP 96 and continued indefinitely.~~

1. Heavenly shall implement the Water Rights/Water Use Monitoring Program so that it can be determined how much water is used in California and Nevada both in- and out-of-basin.
2. Heavenly shall, using the upgraded monitoring station at Heavenly Valley Creek station HV-C1A (upstream of California Reservoir), continue to monitor the inflow to the Reservoir, so that the required release rates are known.
3. Heavenly shall operate the California Reservoir such that the minimum release requirements are complied with.
4. Heavenly shall document compliance in the annual water use/water rights report (~~described above~~ Mitigation Measure 7.5-3), to include flow records at HV-C1A, California Reservoir release records and flow records at HV-C2.
5. Heavenly shall, if water use does not conform with water rights and the Reservoir operating permit, modify future operation of the Reservoir to comply with the water right and operating permit restrictions.
6. Heavenly shall obtain water for summertime irrigation from sources other than Heavenly Valley Creek.
7. Heavenly shall manage the California Reservoir and Dam such that the Dam releases equal the inflow to the Reservoir during the summer such that instream flows are not decreased.

Impacts Mitigated

96 Final EIR/EIS/EIS: Water diversions from Heavenly Valley Creek may result in violations of water right requirements

96 Final EIR/EIS/EIS: Future increased creek water diversions from Heavenly Valley Creek may result in violation of water right requirements.

96 Final EIR/EIS/EIS: Diversion of creek water from Heavenly Valley Creek for summer irrigation of revegetation/restoration sites may constitute a nonattainment of the TRPA fisheries threshold concerning instream flows.

Mitigation Level

Compliance with water right requirements for Heavenly Valley Creek.

Compliance with TRPA instream flow threshold for Heavenly Valley Creek.

Lead Agency

TRPA and Forest Service

Implementing Agency

Heavenly Mountain Resort

Monitoring Agency

Forest Service

Timing

Start: Upgraded monitoring station shall be installed within 90 days after approval of the Heavenly Mountain Resort MP 96.

Complete: Ongoing.

Status Ongoing. The upgraded monitoring station was funded in 2004 by Vail Resorts. Data is now being recorded. Annual water use reports are being prepared.

7.5-5 Maintain Summertime Flows in Heavenly Valley Creek

Description	Implementation of the following mitigation measures would reduce the impact to less than significant. TRPA will be the lead agency and the monitoring agency. Heavenly will be the implementing entity. Mitigations shall be implemented upon adoption of the Heavenly Mountain Resort MP 96 and continued indefinitely.
	<ol style="list-style-type: none"> 1. Heavenly shall obtain water for summertime irrigation from sources other than Heavenly Valley Creek. 2. Heavenly shall manage the California Reservoir and Dam such that the Dam releases equal the inflow to the Reservoir during the summer such that instream flows are not decreased.
Impacts Mitigated	96 Final EIR/EIS/EIS: Diversion of creek water from Heavenly Valley Creek for summer irrigation of revegetation/restoration sites may constitute a nonattainment of the TRPA fisheries threshold concerning instream flows.
Mitigation Level	Compliance with TRPA instream flow threshold for Heavenly Valley Creek.
Lead Agency	Forest Service and TRPA
Implementing Agency	Heavenly Mountain Resort
Monitoring Agency	Forest Service
Timing	Start: Upon approval of the Heavenly Mountain Resort MP 96. Complete: Ongoing.
Status	Ongoing

7.5-6 Maintain Water Flows in Daggett Creek

Description	Implementation of the following mitigation measures would reduce the impact to less than significant. The Forest Service would be the lead agency and monitoring agency and would review the annual report. Heavenly would be the implementing entity. All mitigations would be implemented upon adoption of the Heavenly Mountain Resort MP 96 and continued indefinitely.
	<ol style="list-style-type: none"> 1. Heavenly shall install a flow gauge to measure the release from East Peak Lake. 2. Heavenly shall estimate flow into East Peak Lake based upon the previous months' total precipitation and then calculate the required release (as done above for average, wet, and dry years in 95 Draft EIR/EIS/EIS Table 4.3-7). 3. Heavenly shall operate East Peak Lake Dam to satisfy the

calculated release rates, the requirements of water right permit 50525, and downstream claimants needs. No more than 0.5 cfs shall be diverted between November 2 and March 15, and no diversions shall be made from March 16 through November 1. However, releases are not required to exceed the estimated Daggett Creek inflow even if downstream claimants' needs are not satisfied.

4. Heavenly shall document compliance in an annual water use/water rights report, to include records of estimated flow into and release from East Peak Lake.
5. Heavenly shall, if water use does not conform with water right restrictions, modify operations to conform with the water right restrictions or purchase decreed downstream water rights to cover any diversions above those permitted by Water Right 50525.

Impacts Mitigated	96 Final EIR/EIS/EIS: Diversion of creek water from Daggett Creek (outside the Lake Tahoe Basin) may result in violations of water right requirements. 96 Final EIR/EIS/EIS: Increased creek water diversions from Daggett Creek may result in violation of water right requirements.
Mitigation Level	Compliance with water right requirements for Daggett Creek.
Lead Agency	State of Nevada
Implementing Agency	Heavenly Mountain Resort
Monitoring Agency	Forest Service
Timing	Start: Upon approval of the Heavenly Mountain Resort MP 96. Complete: Ongoing.
Status	Ongoing

7.5-7 Maintain Compliance with Water Entitlements

Description	Implementation of the following mitigations would reduce the impact to less than significant. Forest Service would be the lead and monitoring agency and would review the annual report; Heavenly would be the implementing entity. Mitigations should be implemented upon approval of this document and continued indefinitely. <ol style="list-style-type: none"> 1. Heavenly shall limit water use to conform with their approved water rights including limiting water use to quantities available under approved water rights and restricting uses to proper POU's. For water purchased from STPUD and KGID, Heavenly shall comply with water rights restrictions associated with the purchased water. 2. Heavenly shall implement the Water Rights/Water Use Monitoring Program which will enable Heavenly to determine the quantity and location of water use, and thus to determine if Heavenly's water right requirements are satisfied. 3. Heavenly shall annually determine the maximum permissible
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water uses for each location (California, Nevada, in-region, out-of-region) based upon the quantities supplied by each source and the current water use restrictions of each source.

4. Heavenly shall annually prepare a report documenting that water uses conform to water rights restrictions.
5. Heavenly shall, if water use for the previous year does not conform with water rights, modify future water use operations to conform with the approved water rights.
6. Heavenly shall obtain approval of the California (App. Nos. 30227 and 80228) and Nevada (No. 58345) water rights application to use 594 and 150 afa of Lake Tahoe water in California and Nevada in the Lake Tahoe Basin for snowmaking. Also, Heavenly shall apply for and obtain approval of the changes to existing Nevada water rights POU's discussed above and shown in the 96 Final EIR/EIS/EIS Figure 4.3-3. If approval of these applications is not obtained, Heavenly shall currently and at all time in the future limit water use to conform to their approved water rights.
7. Heavenly shall, if Heavenly's on-site water supplies are insufficient to satisfy its water demands, purchase additional water from STPUD and KGID. For water purchased from STPUD and KGID, Heavenly shall use the water within their approved service areas.~~For water purchased from STPUD and KGID, Heavenly shall use the water in basin and comply with water rights restrictions associated with the purchased water.~~ Additionally, for water use out-of-basin and in Nevada, Heavenly shall develop new water supplies (drill additional wells) such that they can fully utilize their approved water rights.

Impacts Mitigated	96 Final EIR/EIS/EIS: Noncompliance with Heavenly water entitlements. 96 Final EIR/EIS/EIS: Future increased use of water by Heavenly may not comply with the water entitlements.
Mitigation Level	Compliance with Heavenly water entitlements.
Lead Agency	Forest Service and TRPA
Implementing Agency	Heavenly Mountain Resort
Monitoring Agency	Forest Service
Timing	Start: Upon approval of the Heavenly Mountain Resort MP 96. Complete: Ongoing.
Status	Ongoing

7.5-8 Reduce Vehicle Emissions

Description	To reduce the potential impact to ambient CO concentrations, Heavenly shall work with responsible agencies to implement a mitigation package to ensure construction projects do not significantly increase ambient CO concentrations. The mitigation measure for this impact
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would require participation of many different emission contributors. These sources include vehicular traffic, home fire places, industrial sources, and other combustion engines.

The combination of mitigation measures selected would depend on three key factors:

- the Alternative selected for implementation
- the phasing of the Alternative
- the level of mitigation desired.

All three of these factors must be addressed by Heavenly and other lead and responsible agencies before a final mitigation package can be prepared and implemented. The final mitigation package must reduce CO emissions associated with the operation of the Heavenly Mountain Resort to help attain and maintain the CO standards within the Lake Tahoe Air Basin.

Heavenly has implemented the following mitigation measures as required in the MP 96 Mitigation and Monitoring Program:

- Developed additional control technologies (e.g., low emission vehicles) on mobile and stationary diesel-powered equipment as recommended in the 96 Final EIR/EIS/EIS.
- Expanded the Heavenly Shuttle Bus System – provides free shuttle service between all Heavenly Base areas (including the gondola) and all area lodging facilities. A free employee shuttle was also added.
- Improved Existing Transit System – free rides for Heavenly employees on BlueGo fixed route system, contributed to start-up and operation of the CTS (BlueGo) public transit system.
- Improved Parking Management to Maximize Shuttle Bus Usage – parking fee for Heavenly Village structure, parking management implemented in the surrounding neighborhoods and at the adjacent Town Center.
- Low Emission Vehicles for Use as Buses and Shuttles – Heavenly is replacing several diesel shuttles with CNG shuttles and plans on continuing to incorporate alternatively fueled vehicles into the fleet as vehicles are retired.

In addition to the measures implemented to date, the following mitigation measures were recommended in the 96 Final EIR/EIS/EIS to address cumulative CO conditions. Due to the recent exceedance of CA CO standards, these mitigation measures should also be considered to reduce near-term CO effects of the MPA 07.

Heavenly shall require that construction equipment operating procedures (equipment maintenance and limitations on equipment idle time) be followed by contractors, that low-sulfur diesel fuel is used, and that low NOx emitting engines are used in construction equipment. Heavenly must follow dust control measures during construction. Best available control technology (BACT) shall be used for all construction equipment.

Heavenly shall consider offering skiers the option of purchasing morning as well as afternoon half-day ski lift tickets. This would

	reduce peak hour parking lot traffic by shifting some of the half-day skier exit traffic to the midday period.
Impacts Mitigated	96 Final EIR/EIS/EIS: Cumulative change in ambient carbon monoxide concentrations. 96 Final EIR/EIS/EIS: Cumulative change in ambient fine particulate (PM ₁₀) concentrations. 06 EIR/EIS/EIS-AQ-1: Change in Ambient Carbon Monoxide Concentrations
Mitigation Level	Reduce carbon monoxide and fine particulate emissions from construction equipment and vehicular traffic.
Lead Agency	El Dorado County, TRPA and TTD
Implementing Agency	Heavenly Mountain Resort; City of South Lake Tahoe; Hotels; Casinos
Monitoring Agency	El Dorado County and TRPA
Timing	Start: Upon approval of the Heavenly Mountain Resort MPA 07. Complete: Ongoing.
Status	Ongoing

7.5-9 ~~Snow Grooming Noise Mitigation Methods~~

Description	In order to reduce this impact to less than significant, Heavenly shall not operate snow grooming equipment as outlined in the Affected Environment Section within 85 feet of a PAS boundary. Heavenly could modify snow grooming methods and continue to groom as long as they meet the PAS CNEL noise standards.
Impacts Mitigated	96 Final EIR/EIS/EIS: Potential exceedance of TRPA PAS noise standards during the use of snow grooming equipment.
Mitigation Level	TRPA Plan Area Statement CNEL levels.
Lead Agency	TRPA
Implementing Agency	Heavenly Mountain Resort
Monitoring Agency	TRPA
Timing	Start: Upon approval of the Heavenly Mountain Resort MP 96. Complete: Ongoing.
Status	Ongoing

7.5-10 ~~Snowmobile Noise Mitigation Methods~~

Description	In order to reduce this impact to less than significant, Heavenly shall maintain their snowmobiles in optimum operating conditions to comply with TRPA single event noise standards and will not allow concentrated activity near adjacent PAS boundaries. In addition, Heavenly shall continue to replace older model snowmobiles with new four stroke engine models, which are quieter than older models.
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Impacts Mitigated	96 Final EIR/EIS/EIS: Potential exceedance of TRPA single event and PAS noise standards during the use of snowmobiles.	
Mitigation Level	TRPA Plan Area Statement CNEL levels.	
Lead Agency	TRPA	
Implementing Agency	Heavenly Mountain Resort	
Monitoring Agency	TRPA	
Timing	Start:	Upon approval of the Heavenly Mountain Resort MP 96.
	Complete:	Ongoing.
Status	Ongoing	

7.5-11 Snow Removal Noise Mitigation Methods

Description	<p>In order to mitigate this impact to less than significant levels, Heavenly must reduce the CNEL values to 1982 levels or the PAS noise standards, whichever is less, at the California and Boulder base areas. The 1982 CNEL value is the same as the existing and predicted Action Alternative values. These values can be reduced to the PAS CNEL noise standard by minimizing nighttime snow removal operations, and by constructing noise barriers along the perimeters of the parking lots. The noise barriers may be constructed from the snow removed from the parking lot. In later season operations during snowmelt, a barrier of snow may not be practical. In this situation, snow removal operations should occur during daytime or evening hours only. At the California Base, the upper parking lot should be cleared first, and clearing of the lower parking lot should be delayed until daytime hours whenever possible. These measures will provide up to a 15 to 20 dB CNEL noise reduction. The reduction of CNEL levels shall be reevaluated annually to ensure that Heavenly is implementing all possible snow removal measures available to attain the PAS CNEL noise standards.</p>	
Impacts Mitigated	96 Final EIR/EIS/EIS: Exceedance of TRPA PAS noise standards during snow removal at the California and Boulder base areas in the absence of snowmaking noise.	
Mitigation Level	TRPA Plan Area Statement CNEL levels.	
Lead Agency	TRPA	
Implementing Agency	Heavenly Mountain Resort	
Monitoring Agency	TRPA	
Timing	Start:	Upon approval of the Heavenly Mountain Resort MP 96.
	Complete:	Ongoing.
Status	Ongoing	

7.5-12 Snowmaking Noise Mitigation Methods for Base Areas

Description

To reduce the impact to a less than significant level, Heavenly must reduce noise levels to 1982 values or the PAS noise standards, whichever is less. The reduction of CNEL levels shall be reevaluated annually to ensure that Heavenly is implementing all possible snowmaking measures available to attain the PAS CNEL noise standards.

There are numerous measures available, that when used in combination, would reduce the CNEL values to below 1982 levels or the PAS noise standards, whichever is less. The mitigation and monitoring plan shall specify which measures will be used to meet the PAS CNEL noise standards. These measures include the following, which are listed in order of priority:

1. Use of fan guns (or other similar technology with similar or better noise reductions) in place of air/water nozzles or air/water guns which are low noise.
2. Re-direction of nozzles and fans to minimize noise exposures at PAS boundaries.
3. Reduction in the numbers of nozzles and/or fans.
4. Use of setbacks to reduce noise exposures at PAS boundaries.
5. Use of noise reduction housings for air/water nozzles.
6. Use of barriers at low-mounted air/water nozzles.
7. Reduction in snowmaking activities at nighttime.
8. Sponsor research into reducing noise produced by snowmaking. This may include support of industry-wide research activities, specific studies concerning nozzle design sponsored directly by Heavenly, and the study of alternatives in placement of guns and fan guns at Heavenly.

At the Stagecoach and Boulder Bases, Heavenly will strive to replace all air/water nozzles with fan guns. This will reduce CNEL values measured at TRPA PAS boundaries significantly due to the lower noise emissions of each source, as well as a reduction in the number of sources (one fan gun can replace three or four air/water nozzles). Fan guns would be placed to provide adequate coverage, and, where possible, would be oriented to reduce noise exposures at TRPA PAS boundaries. Using the first three items of the priority list would achieve compliance with the PAS standards. The schedule for Stagecoach would be to achieve a 20 dB reduction in CNEL exposures at the PAS boundaries in Year 1999. At Boulder, a 25 dB reduction would be the goal for Year 2001.

At the California Base, it is anticipated that the entire list of mitigation measures would be pursued. The schedule for mitigation monitoring is to achieve a 10 dB reduction by Year 1999, a 15 dB reduction by Year 2001, with a goal of a 35 dB reduction by Year 2006. It should be noted that the above reductions would be achieved at a reference

location near Saddle and Keller Roads, and that there would be a trade-off in that noise levels would be increased by new sources in the vicinity of CA Base Area Ski Lifts K, L, and M (~~only one of which is likely to be installed~~).

The noise monitoring program should include:

1. Noise measurements to verify CNEL or short-term noise levels:
 - a) At remote PAS boundaries affected by snowmaking (such as the Edgewood Bowl area);
 - b) At the California Base when studying alternatives in replacements of air/water nozzles with fan guns, re-direction of nozzles, use of housings and barriers, etc.;
 - c) At the Stagecoach and Boulder Base areas after fan guns have been installed;
 - d) At the California Base near Ski Lifts K, L, and M after ski lifts have been installed;
 - e) As required in connection with Heavenly's nozzle noise reduction research efforts; and
 - f) As required for concerts.
2. Installation of a long-term noise monitoring station at the California Base near Saddle and Keller Roads. This site could be set up before snowmaking begins in the late Fall, and left in operation over the Winter to document noise levels from snowmaking and snow removal.

Impacts Mitigated

96 Final EIR/EIS/EIS: Exceedance of TRPA PAS noise standards during the use of snowmaking equipment at the California base area.

96 Final EIR/EIS/EIS: Exceedance of TRPA PAS noise standards during the use of snowmaking equipment at the Boulder base area.

96 Final EIR/EIS/EIS: Exceedance of TRPA PAS noise standards during the use of snowmaking equipment at the Stagecoach base area.

Mitigation Level

TRPA Plan Area Statement CNEL levels.

Lead Agency

TRPA

Implementing Agency

Heavenly Mountain Resort

Monitoring Agency

TRPA

Timing

Start: Upon approval of the Heavenly Mountain Resort MP 96.

Complete: Ongoing.

Status

Ongoing.

7.5-13 ~~Snowmaking Noise Mitigation Methods for Upper Mountain Areas~~

Description

~~To reduce the impact to a less than significant level, Heavenly must reduce existing noise levels where new facilities would result in new Plan Area noise impacts. The reduction of existing CNEL levels shall be reevaluated annually to ensure that Heavenly is implementing all~~

	possible snowmaking measures available to work towards the attainment of the PAS CNEL noise standards.
	In order to reduce the existing CNEL values at adjacent PAS boundaries, Heavenly shall use fan guns or other similar noise reduction measures for all new snowmaking areas. In addition, where new snowmaking is placed adjacent to existing ski trails with snowmaking, Heavenly shall convert the existing air/water snowmaking nozzles with fan guns or use other similar noise reduction measures to maintain or reduce existing noise levels in that area. This is expected to provide about a 20 dB reduction in CNEL values.
	Based upon the reduction of noise levels at existing snowmaking areas, this impact is considered to be less than significant.
Impacts Mitigated	96 Final EIR/EIS/EIS: Exceedance of TRPA PAS noise standards during the use of snowmaking equipment at upper mountain areas.
Mitigation Level	TRPA Plan Area Statement CNEL levels.
Lead Agency	TRPA
Implementing Agency	Heavenly Mountain Resort
Monitoring Agency	TRPA
Timing	Start: Upon approval of the Heavenly Mountain Resort MP 96.
	Complete: Ongoing.
Status	Ongoing

~~7.5-14 NOISE-1: Limit hours of Snowmaking operation and use fan-gun technology for the proposed Skyline Trail Snowmaking~~

Description	<p>In the vicinity of Skyline Trail, the current snowmaking CNEL is approximately 78 dB based on existing snowmaking operations. As a means of minimizing CNEL noise impacts, Heavenly shall limit snowmaking to daytime hours along the Skyline Trail.</p> <p>In addition, as required in mitigation measure 7.5-13 above, Heavenly shall replace existing air water nozzles with fan guns on adjacent ski trails located under the top portion of the Dipper Express and Sky Express Ski Lifts (e.g., Ski Trails I3—Upper Ellie's, V4—Big Dipper, and V8—Orion's). Implementation of this measure would result in overall reduction in existing snowmaking CNEL noise levels during snowmaking operations at the PAS 095 boundary. Based on noise measurements conducted in February 2005 at the PAS 095 boundary, and above the existing trail, the operation of the four existing air water Ratnik guns resulted in measured noise levels of 76 dBA Leq. Therefore, the predicted noise levels for the proposed fan guns are at least 5 to 10 dB less than the existing snowmaking operations. The resulting CNEL at the PAS 095 boundary using the recommended mitigation measures would result in a CNEL of approximately 60 dB. This reduction in noise compared to existing conditions is consistent with the existing MP 96 MMP which calls for Heavenly to provide an overall reduction in snowmaking noise through the use of new</p>
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	snowmaking technology.
Impacts Mitigated	06 EIR/EIS/EIS NOISE 1: Exceedance of TRPA PAS Noise Standards During the Use of Snowmaking Equipment
Mitigation Level	Compliance with TRPA PAS noise standards
Lead Agency	TRPA
Implementing Agency	Heavenly Mountain Resort
Monitoring Agency	TRPA
Timing	Start: Upon approval of the Heavenly Mountain Resort MPA 07.
	Complete: Ongoing.
Status	Ongoing

7.5-15 Rock Busting Noise Mitigation Methods

Description	<p>In order to mitigate the impact to a less than significant level, Heavenly must control the number, size and location of “rock busting” blasts in order to meet PAS noise standards. In order to mitigate the impact to a less than significant level, Heavenly must control the number, size and location of “rock busting” blasts in order to meet PAS noise standards.</p> <ol style="list-style-type: none"> 1. Rock busting operations noise impacts have been thoroughly analyzed in the 95 Draft EIR/EIS/EIS Noise Section 4.6, and are described above. It is expected that additional rock busting operations will occur as a part of the continued development of the existing MP 96 Master Plan. In order to reduce this impact to less than significant, existing mitigation measures for rock busting (7.5-14) shall continue to be implemented to reduce on mountain rock busting noise. 2. The noise levels vary based upon shot size and shot timing. Based upon the analysis in the 95 Draft EIR/EIS/EIS, locations of the 50 dB and 55 dB C-weighted CNEL contours are about 2,900 feet and 1,800 feet, respectively, from the blast site. In order to reduce this impact to less than significant, existing mitigation measures for rock busting (7.5-14) shall continue to be implemented to reduce on mountain rock busting noise. <p><u>Audible noise due to blasting is not commonly considered to be a significant source of annoyance if blasting is controlled to meet safety standards on the project site. It is expected that additional rock busting operations will occur as a part of the development included in the MPA 07. In order to reduce this impact to less than significant, existing mitigation measures for rock busting (7.5-14) shall continue to be implemented to reduce on mountain rock busting noise.</u></p>
Impacts Mitigated	<p>96 Final EIR/EIS/EIS - Potential exceedance of TRPA PAS noise standards during summer “rock busting”.</p> <p>06 EIR/EIS/EIS – Potential Exceedance of TRPA PAS Noise Standards During Summer “Rock Busting.”</p>

Mitigation Level	TRPA Plan Area Statement CNEL levels.	
Lead Agency	TRPA	
Implementing Agency	Heavenly Mountain Resort	
Monitoring Agency	TRPA	
Timing	Start:	Upon approval of the Heavenly Mountain Resort MPA 07.
	Complete:	Ongoing.
Status	Ongoing	

7.5-16 Noise-5 Restrict Hours of Amphitheater Operations

Description	Restrict hours of concert noise to the daytime and early evening (non-nighttime) hours. Technically, concerts would need to cease operations by 10:00 p.m. However, it is recommended that concerts cease operations by sunset. This would be consistent with the hours of operations assumed for the amphitheater noise study. In addition, concerts should not extend more than 6 hours in duration.	
Impacts Mitigated	06 EIR/EIS/EIS-NOISE-5: Potential exceedance of TRPA PAS noise standards during summer concerts.	
Mitigation Level	TRPA Plan Area Statement CNEL levels.	
Lead Agency	TRPA	
Implementing Agency	Heavenly Mountain Resort	
Monitoring Agency	TRPA	
Timing	Start:	Upon approval of the Heavenly Mountain Resort MPA 07.
	Complete:	Ongoing.
Status	Ongoing.	

TRANS-1 Traffic and Air Quality Mitigation Program

Description	Heavenly shall contribute to the Air Quality Mitigation Fund in accordance with Chapter 65 – Traffic and Air Quality Mitigation Program of the TRPA Code of Ordinances. The air quality mitigation fee shall be assessed in accordance with the mitigation fee schedule in the TRPA Rules of Procedure. Fees generated by the air quality mitigation fee are used to support programs/improvements that reduce VMT, improve air quality, and encourage alternative modes of transportation.	
Impacts Mitigated	Epic Discovery EIR/EIS/EIS - TRANS-1. Will the Project result in the generation of 200 or more new Daily Vehicle Trip Ends?	
Mitigation Level	<u>Provide Funding for Basin projects to Reduced VMT.</u>	
Lead Agency	TRPA	

Implementing Agency	Heavenly Mountain Resort
Monitoring Agency	TRPA
Timing	Start: Upon approval of the Epic Discovery Project
	Complete: Upon payment of calculated fees.
Status	New measure for Epic Discovery Project.

7.5-17 Expanded Bus/Shuttle Access

Description	<p>Heavenly shall implement a monitoring program that focuses upon maximizing the shuttle bus usage to the existing base areas and new Gondola. The following mitigation measures are required for all Action Alternatives.</p> <p>Heavenly shall implement the proposed CTS (see mitigation measure 7.5-18). Through increased development of transit opportunities, automobile usage can be reduced. Substantial decreases in parking demand and regional VMT (Vehicle miles traveled) could also be achieved.</p> <p>Heavenly shall implement incentives directed at increasing the usage of the existing Heavenly ski shuttle buses. Incentives could include: 1) discounts for ski lift tickets and ski packages when the shuttle system is used for access; 2) parking fees at the base areas; 3) reduced parking supply at the existing base areas to reduce vehicle parking at the site; or 4) parking management strategies directed at encouraging Heavenly skiers and sightseers to walk to the new Gondola.</p> <p>Heavenly shall increase their employee shuttle services to maximize the use of shuttles by employees. Existing off site parking spaces which are in non-compliance according to TRPA shall be eliminated near Ski Run Boulevard to encourage skiers and visitors from the South Lake Tahoe Commercial Core Area to use the new Gondola. In addition, employees shall be provided incentives for using employee housing which is within walking distance of the Heavenly Mountain Resort or Gondola.</p> <p>Based upon the programs identified above, this impact would be considered less than significant.</p>
Impacts Mitigated	96 Final EIR/EIS/EIS: Parking demand will increase at each of the existing base areas and at the new Gondola.
Mitigation Level	No increase in the number of parking spaces at the existing base facilities.
Lead Agency	TRPA
Implementing Agency	Heavenly Mountain Resort
Monitoring Agency	TRPA
Timing	Start: Upon approval of the Heavenly Mountain Resort MP 96.
	Complete: Ongoing.
Status	Ongoing

7.5-18 Discourage Use of Automobiles

Description	<p>Heavenly shall discourage the use of automobiles as the primary access mode to the Gondola. No automobile parking for the Gondola shall be provided by Heavenly. Through participation in the CTS the Heavenly Mountain Resort shuttle buses could be used for rolling stock during the summer recreational season. Discounts for summer use of the Gondola could be provided for those Gondola riders who use transit to access the Gondola Base Station.</p> <p>Through the CTS and in cooperation with the Chamber of Commerce and the various Tahoe Area Visitor Information Centers and sources, visitors shall be informed of alternative modes of travel to the Gondola. Public information regarding the CTS system, user discounts and other benefits shall be incorporated into a standard public information/discount package that is provided to all visitors, tourist agencies and other groups who accommodate and/or arrange travel for visitors to the Tahoe Region.</p>	
Impacts Mitigated	96 Final EIR/EIS/EIS Increased peak summer day ridership and vehicle miles traveled (VMT) within the Lake Tahoe Region under the low and high Gondola ridership alternatives.	
Mitigation Level	Reduced automobile use in the Lake Tahoe Region.	
Lead Agency	TRPA	
Implementing Agency	Heavenly Mountain Resort	
Monitoring Agency	TRPA	
Timing	Start:	Upon approval of the Heavenly Mountain Resort MP 96.
	Complete:	Ongoing.
Status	Ongoing	

7.5-19 Implement the Coordinated Transportation System (Public Transit Services)

Description

Heavenly shall continue to implement their part of the ongoing package of air quality and traffic mitigation measures presented in the CTS Memorandum of Understanding.

The goals of the CTS are fourfold and are to provide:

1. A unified and *singular* public transit system in the South Shore;
2. A predominantly *market/demand* driven rather than a predominantly *schedule* driven public transit system;
3. A transit system that treats riders as *guests* rather than *passengers*; and
4. A *guest interactive* public transit system that connotes and promotes guest convenience.

A description of the contributions to the CTS Mitigation Fund, physical contributions, specific road, intersection and other physical improvements that would be provided by each of the proponents of the MOU Projects are:

~~A. Revised Ski Run Project~~

- ~~1. The project's fair share contribution to the CTS Mitigation Fund;~~
- ~~2. Construction of a second left turn lane from Ski Run Boulevard onto U.S. Highway 50 westbound toward the Wye and separate right turn lane on eastbound U.S. Highway 50 at Ski Run Boulevard along with all necessary signalization and traffic control; and~~
- ~~3. Provision of a light rail transit easement by each subcomponent parcel owner of the Ski Run Component of Redevelopment Project 1 adjacent to and along the lake side of U.S. Highway 50 from the West property line of Tahoe Meadows to the East property line of Tahoe Beach and Ski.~~

~~B. Park Avenue Project~~

- ~~1. The project's contribution to the CTS Mitigation Fund;~~
- ~~2. Construction of an intermodal transit facility sited at U.S. Highway 50 and adjacent to the East property line of the Embassy Suites Hotel. This facility shall be constructed to facilitate the CTS and a future fixed guideway system in accordance with proposition 16.~~
- ~~3. Construction of "Transit Lane" from Van Sickle Road to U.S. Highway 50;~~
- ~~4. Realignment of Park Avenue and widening of its entire length from two to three lanes (i.e., one lane each way and one center turn lane);~~
- ~~5. Reconstruction of Van Sickle Road to City Standards~~

~~from Park Ave to the East property line of the Embassy Suites Hotel;~~

- ~~6. Provision of a light rail transit easement parallel to and along the mountain side of U.S. Highway 50 from the East property line of the Embassy Suites Hotel to Pioneer Trail; and~~
- ~~7. Construction of a free right hand turn lane from Pioneer Trail onto U.S. Highway 50 eastbound, construction of a new lane along and on the mountain side of U.S. Highway 50 from Pioneer Trail to Park Avenue, and construction of a free right hand turn lane from U.S. Highway 50 onto Park Avenue along with all necessary signalization and traffic controls.~~

C. Heavenly Mountain Resort

1. The project's fair share contribution to the CTS Mitigation Fund;
2. Continued operation of the existing winter bus fleet and additional operation of some portion of that same bus fleet in the summer as part of the CTS; and
3. Construction of the proposed Gondola, which effectively mitigates DVTE, DVMT, and intersection LOS for the majority of the Heavenly Mountain Resort ongoing projects as more particularly set forth in the Heavenly Mountain Resort MP 96 and its 96 Final EIR/EIS/EIS.

D. South Tahoe Public Utility District

- ~~1. The project's fair share contribution to the CTS Mitigation Fund which was fixed at \$200,000.00 by the May 1995 Certified Future Connections Facilities Plan EIR/EIS; and~~
- ~~2. On an ongoing basis, the contribution of 5% of all sewer connection fees to the CTS Mitigation Fund for operational and capital expenses that are collected from all new sewer connections after May 24, 1995 that are allowed by the "Future Connections Facilities Plan".~~

Impacts Mitigated	96 Final EIR/EIS/EIS: The Peak Hour Levels of Service at Intersections Along U.S. Highway 50 Would Operate At Unacceptable Conditions in the Year 2007. 06 EIR/EIS/EIS- TRANS-1: Summer Vehicle Miles of Travel 06 EIR/EIS/EIS- TRANS-2: Level of Service 06 EIR/EIS/EIS- TRANS-3: Parking
Mitigation Level	Improvements to the Levels of Service at Intersections Along U.S. Highway 50 by Reducing the Dependence on the Automobile.
Lead Agency	TRPA and South Shore Transportation Management Association
Implementing Agency	Heavenly Mountain Resort
Monitoring Agency	TRPA

Timing	Start:	Upon Future Project Permit Approval
	Complete:	Ongoing
Status		Ongoing

7.5-20 Reduce Traffic on U.S. Highway 50 at Echo Summit

Description	<p>The following mitigation measures are recommended to reduce the new traffic generated by the project on U.S. Highway 50 at Echo Summit during the Sunday peak period. One or a combination of the following measures shall be used to reduce new trips associated with the MP 96 build-out.</p> <p>Heavenly shall expand their charter package promotions for visitors who would normally use Echo Summit to access the Tahoe Basin. Based upon a 55 passenger charter bus capacity, increasing charters alone would require an additional 36 to 48 charters per weekend.</p> <p>Heavenly shall encourage more visitors to access the Tahoe Basin via air travel to Reno and other airports east of the Placerville area. The shift to air travel would require an additional 1,955 to 2,664 person trips on planes per weekend.</p> <p>Heavenly shall introduce special pricing programs that are directed at encouraging skiers to access or depart the Tahoe Basin on off peak times and travel periods. In other words, shift the arrivals to the Basin from Friday nights to Wednesday or Thursday and shift the departures from the Basin to Monday or Tuesday rather than Sunday afternoon.</p> <p>In order to determine the effectiveness of these measures, Heavenly shall expand their marketing and surveying procedures to include more questions and data concerning arrivals and departures in the Tahoe Basin. Of particular interest is the need to better understand when people arrive and depart the Basin and the routes which they use. Heavenly shall report their findings annually. By reporting these findings each year, the lead and responsible agencies can determine if the project's marketing strategies, such as encouraging bus charters and other alternative modes of access, are successful in reducing traffic into the Basin to pre MP 96 levels and/or shifting the times and days of the week that people visit the Basin to ski at Heavenly.</p>
Impacts Mitigated	96 final EIR/EIS/EIS: Unacceptable Levels of Service at U.S. Highway 50 near Echo Summit.
Mitigation Level	Non degradation of peak hour traffic at U.S. Highway 50 and Echo Summit.
Lead Agency	TRPA
Implementing Agency	Heavenly Mountain Resort
Monitoring Agency	TRPA
Timing	<p>Start: Upon MP 96 approval.</p> <p>Complete: Ongoing.</p>
Status	Ongoing

VEG-1: Update MPA 07 Mitigation Measure 7.5-21: ~~Protect Tahoe Draba Populations within Heavenly Mountain Resort~~

7.5-21: Protect Tahoe Draba Populations within Heavenly Mountain Resort

Description

1. *Surveys:* All facilities that are proposed to be located within potential Tahoe draba habitat shall have surveys performed prior to site planning for the subject facility. All in-basin Tahoe draba plants shall be avoided and protected using protective measures identified below for in-basin projects.
2. *Fencing:* For out-of-basin projects and for in-basin projects as outlined below in #34, minimize loss of Tahoe draba plants by installing protective fencing around occupied habitat that is adjacent to Forest Service approved construction projects. ~~Fencing shall be installed prior to the onset of construction, shall be at least 4 ft. in height, and shall be installed along the boundary of any construction zone, staging areas, or roads and trails that will be used for construction access and are located adjacent to existing Tahoe draba plants.~~ Heavenly shall install resource protection fencing in areas of known Tahoe draba occurrences that are immediately adjacent to facilities, trails, roadways or other activities that may impact existing plants. The resource fencing shall be placed in the specified locations on a seasonal basis after the snow melts and before summer activities (e.g., public operation and construction/maintenance crews) commence. The goal of the resource protection fencing is to prevent both vehicular access and to eliminate the ability for people to access the protected area. The fence shall be composed of metal stakes placed at a maximum distance of 20 feet for the extent of the length. A minimum of three ropes, at least 4 feet in height, shall be tied to the posts so as to prevent access across the fence line. For fencing placed along roadways, it shall be placed at the edge of the road surface below the toe of the slope on which the plants exist so as to maximize protection. Additionally, interpretative signage shall be placed along the fence line to identify the Tahoe draba. The fencing shall be removed at the end of the dry season after construction access or recreational activities have ceased.
3. *Boardwalks:* In order to further protect Tahoe draba habitat and existing plants, elevated boardwalks will be used to cross sensitive areas for access to the Sky Meadows Coaster and Sky Meadows Zipline Canopy Tour. These boardwalks shall be elevated a minimum of 6 inches above the soil surface and be constructed of grated material that allows light and moisture to pass. The purpose of the boardwalk is to allow for the movement of soil below and to maintain habitat connectivity and not further fragment suitable habitat for Tahoe draba. Fencing shall be installed prior to the onset of project activities, operations or construction, shall be at least 4 feet in height and shall be fencing that prevents foot traffic. The fencing shall be installed along the boundary of any construction zone, staging areas, or roads and trails that will be used for construction access and shall be located immediately adjacent to permanently installed features (e.g., access trails) in areas of existing Tahoe draba plants. Plants located within the approved construction footprint may be disturbed for out of basin projects

~~only. Fencing will be maintained throughout the duration of construction activities and removed upon completion of the project and prior to the opening of the ski season. Installation of information signs and working education shall also be required to inform construction crews of the purpose of the fencing.~~

34. *Avoidance:* For in-basin projects, avoid loss of Tahoe draba by siting facilities away from Tahoe draba populations and by installing protective fencing around occupied habitat where it is adjacent to proposed facilities.

~~*Skiway Glade Trails 14 & 15:* LTBMU botanists shall work with Heavenly staff and/or contractors in the field to locate trees to be removed for the Skiways Glades and to identify whether existing Tahoe draba populations would be potentially disturbed during tree removal. Trees located nearby existing Tahoe draba populations must be removed in such a manner to avoid disturbance to the plants.~~

~~*Zipline Adventure Ride:* The zip line stations and access trails shall be repositioned if necessary to avoid disturbance to Tahoe draba and Galena Creek rock cress plants. As described above in bullet number 2, fencing shall also be installed to reduce impacts from adjacent construction activities and staging.~~

~~*Gondola Hiking Trails:* The gondola hiking trails shall be realigned if necessary to avoid existing in basin and out of basin Tahoe draba and Galena Creek rock cress populations.~~

~~*Powderbowl Lodge:* The proposed Powderbowl lodge location is approximately 8,800 feet in elevation. Surveys were performed in 2006 and did not reveal any draba plants. To date, no Tahoe draba plants have been found this low on the Mountain. However, pre-construction surveys shall be required for the lodge site. Should plants be discovered within the construction footprint, the lodge would either be relocated to avoid plants, or postponed to a future MPA 07 phase when potential adopted conservation strategies may allow for plant disturbance (see Measure VEG 1 A: Tahoe Draba Long Term Conservation Strategy).~~

45. *Rock Removal:* Construction activities should avoid capping rocks/boulders that have Tahoe draba growing near them. If rocks must be capped near Tahoe draba populations, existing plants shall be covered during blasting with canisters or other approved protective measures. This measure is in addition to fencing described above in bullet number 2.
56. *Monitoring:* Fences and blasting operations near Tahoe draba plants shall be monitored for the duration of the construction season by contractors, Heavenly staff, and Forest botanists to ensure compliance.
67. *Interpretive Program:* Develop and implement an employee orientation and training program for Tahoe draba for those employees associated with summer operations, such as interpretive programs, zip line, and hiking trails. Interpretive materials may include a description or illustration of Tahoe draba, an overview of the plant's natural history, general locations of the species at Heavenly, and measures that could be employed to protect the plant

	and its habitat from disturbance. Interpretive materials and services should be provided at entry points for summer visitors to the resort.
Impacts Mitigated	<p>2006 EIR/EIS/EIS – VEG-1: Loss directly or indirectly (including through spread of noxious weeds), of individuals or habitat of endangered, threatened, or rare (CNPS 1B) plant species?</p> <p>1996 EIR/EIS/EIS - Potential loss or disturbance of Tahoe draba populations within the Master Plan Development Area. (Existing 1994-95 Conditions plus 1996 Master Plan)</p> <p>Loss or disturbance of Tahoe draba populations due to increased summer recreational activity. (Existing 1994-95 Conditions plus 1996 Master Plan)</p> <p>Epic Discovery EIR/EIS/EIS - VEG-2: Would the Project result in an overall decrease in long term trends in Tahoe draba populations within the Project area?</p>
Mitigation Level	Maintenance of existing Tahoe draba populations at Heavenly.
Lead Agency	Forest Service (Mountain Wide) and TRPA (In-Basin)
Implementing Agency	Heavenly Mountain Resort
Monitoring Agency	Forest Service (Mountain Wide)
Timing	<p>Start: Project planning.</p> <p>Complete: Ongoing.</p>
Status	Ongoing

~~7.5-22 Veg 1-A: Tahoe Draba Long-Term Conservation Strategy~~

Description	<p>As required in Measure 7.5-20: Protect Tahoe Draba Populations within Heavenly Mountain Resort, all facilities that are proposed to be located within potential Tahoe draba habitat shall have surveys performed prior to site planning for the specific facility. Within the Lake Tahoe Basin, all Tahoe draba plants shall be avoided and protected using protective measures identified in measure 7.5-20. Future projects included in MPA 07 Phases II and III may have the potential to impact Tahoe draba plants, as new plant populations are being discovered in numerous locations on the Mountain. Prior to the initiation of phases II and III ongoing research may demonstrate that it is possible to mitigate direct and indirect impacts to Tahoe draba by transplanting natural or nursery grown individuals. As such, Heavenly shall implement the following measures should they want to pursue the potential for disturbance of in-basin Tahoe draba plants in future MPA 07 Phases. Until proven and effective mitigation measures are developed, no plants within the basin will be disturbed.</p> <ol style="list-style-type: none"> 1. In order to develop a Long-Term Conservation Strategy for Tahoe draba that may one day allow for disturbance of in-basin plants, Heavenly has assisted in facilitating the drafting, execution, and implementation of a Memorandum of Understanding (MOU) between the Forest Service Humboldt-Toiyabe National Forest, Forest Service Lake Tahoe Basin Management Unit, Mount Rose Limited Partnership, Heavenly Valley Limited Partnership and
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	Tahoe Regional Planning Agency. The MOU facilitates the collection of more extensive data on Tahoe draba ecology and include research on potential methods to transplant and propagate plants from seed.
	2. Based upon a Forest Service and TRPA approved Conservation Strategy, in-basin plant disturbance and removal may be possible for future MPA-07 phases. To make in-basin disturbance possible, the TRPA Regional Plan may require an amendment that would allow for plant disturbance based on advances in out-planting, transplanting procedures and/or seed propagation.
Impacts Mitigated	2006 EIR/EIS/EIS — VEG 1: Loss directly or indirectly (including through spread of noxious weeds), of individuals or habitat of endangered, threatened, or rare (CNPS 1B) plant species? 1996 EIR/EIS/EIS — Potential loss or disturbance of Tahoe draba populations within the Master Plan Development Area. (Existing 1994-95 Conditions plus 1996 Master Plan) Loss or disturbance of Tahoe draba populations due to increased summer recreational activity. (Existing 1994-95 Conditions plus 1996 Master Plan)
Mitigation Level	Maintenance of existing Tahoe draba populations at Heavenly.
Lead Agency	TRPA and Forest Service
Implementing Agency	Heavenly Mountain Resort
Monitoring Agency	TRPA and Forest Service
Timing	Start: MPA-07 Adoption Complete: Ongoing.
Status	Proposed MPA-07 Mitigation Measure

7.5-23 VEG 1-B: Minimize Loss/Degradation of Sensitive Plant Species

Description	<p>1. Heavenly Mountain Resort shall retain a qualified biologist, funded by Heavenly or fund Forest Service personnel, to conduct a preliminary sensitive plant survey prior to project level siting of any proposed facility within the Heavenly Mountain Resort permit area. The purpose of the survey shall be to identify occurrences of any LTBMU sensitive plant species (<u>note: Tahoe draba is addressed in Measure 7.5-21</u>) within or adjacent to the proposed construction corridor and to develop facility siting alternatives that avoid or minimize the loss or degradation of sensitive plants.</p> <ul style="list-style-type: none"> If sensitive plants are present in project area then at a minimum, a 100 ft buffer will be placed around the plants and the facility shall be sited outside of the buffer. If the 100 ft buffer is not feasible, additional mitigation measures may be discussed for the following plant species: Galena Creek rock cress, Tahoe draba, Cup Lake draba, long-petaled lewisia, and three-ranked hump-moss. See appendices C and D for mitigation measures allowed for Tahoe draba and possible ways the above species could also be mitigated.
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	<ul style="list-style-type: none"> If the 100 ft buffer cannot be accommodated or impacts to the species cannot be mitigated, additional mitigation measures will not be allowed for the following species, unless there is an increase in current populations: <i>Arabis tiehmii</i> (Tiehm's rock cress), <i>Botrychium ascendens</i> (upswept moonwort), <i>Botrychium crenulatum</i> (scalloped moonwort), <i>Botrychium lineare</i> (slender moonwort), <i>Botrychium lunaria</i> (common moonwort), <i>Botrychium minganense</i> (Mingan moonwort), <i>Botrychium montanum</i> (western goblin), <i>Bruchia bolanderi</i> (Bolander's candle moss), <i>Epilobium howellii</i> (subalpine fireweed), <i>Erigeron miser</i> (starved daisy), <i>Eriogonum umbellatum</i> var. <i>torreyanum</i> (Torrey's or Donner Pass buckwheat), <i>Helodium blandowii</i> (Blandow's bog-moss), <i>Hulsea brevifolia</i> (short-leaved hulsea), <i>Lewisia kelloggii</i> ssp. <i>hutchisonii</i> (Kellogg's lewisia), <i>L. k. ssp. kelloggii</i> (Kellogg's lewisia), <i>Meesia uliginosa</i> (broad-nerved hump-moss) and <i>Peltigera hydrothyria</i> (veined water lichen). A-The Forest Service Botanist will determine any additional mitigation measures for species on the sensitive plant list that are not included in this environmental document based on the known occurrence information. If watch list species are found in the project area, mitigation measures will be discussed and be based on species presence and distribution.
	<p>2. In order to minimize disturbance in potential habitat for TES species, facilities should be sited to avoid the following habitats:</p> <ul style="list-style-type: none"> Riparian areas, wetlands, and meadow vegetation Old growth sites where trees are greater than 30 in dbh
	<p>3. Because of limited information pertaining to the effect of man-made snow on sensitive plants, snow guns shall not be placed where snowmaking would directly affect any sensitive plant species.</p>
	<p>4. Prior to the final approval of any proposed facility within the permit boundaries, Heavenly Mountain Resort shall prepare or fund a qualified biologist to prepare a project-level biological evaluation (BE) pursuant to Forest Service policy. The BE prepared for each project within Heavenly Mountain Resort MPA 07 Development Area shall incorporate information from the Heavenly Mountain Resort MPA 07 Programmatic BE, as well as information obtained during project-specific biological field surveys. Based on this information, the project level BEs shall identify potential project impacts to sensitive plants and fungi and incorporate mitigation measures to reduce these impacts. The recommendations of the BE shall be approved by the Forest Service and TRPA prior to the onset of construction of any new facility at the Heavenly Mountain Resort.</p>
Impacts Mitigated	06 EIR/EIS/EIS – VEG-1: Loss directly or indirectly (including through spread of noxious weeds), of individuals or habitat of endangered, threatened, or rare (CNPS 1B) plant species?
Mitigation Level	Maintenance and protection of potential existing sensitive plant populations at Heavenly.

Lead Agency	TRPA and Forest Service
Implementing Agency	Heavenly Mountain Resort
Monitoring Agency	Forest Service
Timing	Start: Project construction.
	Complete: Ongoing.
Status	Ongoing

7.5-24 VEG 1-C: ~~Noxious Weed~~ Invasive Plant Management

Description

1. As a term and conditions of Heavenly Mountain Resort's Special Use Permit, Heavenly will develop a long-term integrated weed management plan. This plan should include annual monitoring associated with existing weed infestations and new project construction. Plans should include control and abatement plans, restoration and revegetation plans, and annual reporting requirements (weed treatments, infestation sizes, and locations will be reported). Currently, three noxious weed species are located within Heavenly Mountain Resort's boundary on both Forest Service and privately owned land: tall whitetop (*Lepidium latifolium*), Canada thistle (*Cirsium arvense*) and bull thistle (*Cirsium vulgare*).
2. Summertime maintenance and excavation equipment vehicles used for project implementation should be weed free and cleaned of all attached mud, dirt, and plant parts before entering the project area. This practice shall be done at a vehicle washing station or steam cleaning facility (power or high-pressure cleaning) before the equipment and vehicles enter the project area.
3. Equipment, materials, or crews shall not be staged in noxious weed infested areas.
4. All gravel, fill, mulches or other materials should be weed free. Use onsite sand, gravel, rock or organic matter where possible. Otherwise, obtain materials from gravel pits and fill sources that have been determined to be weed-free by the Forest Service Noxious Weed Coordinator. Topsoil from disturbance will be saved and put back to use in onsite revegetation, unless contaminated with noxious weeds. All activities that require seeding or planting should use locally collected native seed sources whenever possible. Plant and seed material should be collected from as close to the project area as possible, from within the same watershed and at a similar elevation whenever possible. Persistent non-natives such as timothy (*Phleum pretense*), orchardgrass (*Dactylis glomerata*), or ryegrass (*Lolium sp.*) should be avoided. Seed mixes should be approved by Forest Service Botanists.
5. Weed infestations identified before project implementation that are within the project area should be treated or "flagged and avoided" according to the species present and project constraints. Before the implementation of the Epic Discovery Project, Heavenly will treat and monitor the existing locations of tall whitetop located near the

	top of the Tamarack Chairlift (#296) and Sky Chairlift (#169).
	6. Construction areas should be monitored for 3 years post-project to ensure that no new weed infestations move into the area disturbed during project implementation.
	7. Heavenly will implement an annual employee orientation and training program for employees that work in ground disturbing activities. Training could include an introduction to the noxious weeds currently present on the mountain, (tall whitetop, Canada thistle, and bull thistle), photographs of the weeds, a map identifying known weed locations, and a list of the mitigation measures being implemented to eradicate the noxious weeds.
Impacts Mitigated	06 EIR/EIS/EIS – VEG-1: Loss directly or indirectly (including through spread of noxious weeds), of individuals or habitat of endangered, threatened, or rare (CNPS 1B) plant species?
Mitigation Level	Maintenance and protection of potential existing sensitive plant populations at Heavenly.
Lead Agency	Forest Service
Implementing Agency	Heavenly Mountain Resort
Monitoring Agency	Forest Service
Timing	Start: Project construction. Complete: Ongoing.
Status	Ongoing

7.5-25 VEG 3: Late Seral/Old Growth Forest Enhancement

Description	<p>Heavenly Mountain Resort shall conduct or fund forest enhancement/restoration projects when MPA 07 projects would remove late seral/old growth suitable habitat within the Lake Tahoe Basin as shown in Figure 3.8 1. The acres of habitat enhanced/restored shall be at a 2 to 1 ratio for each acre removed for projects that result in removal of identified habitat. The objective of the forest enhancement/restoration projects shall be to advance stands toward a late seral stage and promote old growth characteristics. Forest enhancement/restoration projects may also decrease impacts associated with secondary effects by decreasing fragmentation of forested stands (i.e., fully restoring roads that bisect suitable habitat). All forest enhancement/restoration projects shall comply with USFS Limiting Operating Periods so as to not disturb adjacent sensitive wildlife species if they should exist.</p> <p>All forest enhancement/restoration projects shall follow the Policies set forth in the TRPA Goals and Policies Conservation Element Vegetation Goal #4 as follows:</p> <ul style="list-style-type: none"> • Stands exhibiting late seral/old growth characteristics shall be managed to allow these stands to sustain these conditions. • Stands not exhibiting late seral/old growth characteristics shall be managed to progress towards late seral/old growth. • Prescriptions for treating these stands will be prepared on a stand by stand basis. Each prescription will demonstrate/explain
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	<p>how it will promote late seral or old growth characteristics prior to applying any mechanical treatment or prescribed fire. Stand-specific prescriptions will be developed using the best available forest and ecosystem management science, strategies, standards and guidelines.</p> <ul style="list-style-type: none"> • Retain large trees as a principal component of late seral/old growth ecosystems. • Retain trees of medium and small size sufficient to provide for large tree recruitment over time, and to provide structural diversity. Preferably, these trees will be the most vigorous in the stand using one of the standard tree classifications. In addition, species composition should be key consideration in tree retention. • Use of prescribed fire is preferred to reduce fire hazard and perpetuate desired natural ecological processes. Manual and mechanical treatment may be used to reduce forest fuel levels and to improve late seral forest conditions in addition to, or in lieu of, prescribed fire. <p>Preferred locations for the forest enhancement/restoration shall be within the Heavenly Special Use Permit Boundary. All habitat removed from within the Tahoe Basin shall be mitigated by habitat enhancement within the Tahoe Basin. Secondary locations for the forest enhancement/restoration shall be directly to the south of the Heavenly Special Use Permit Boundary in the High Meadows area. If suitable sites for enhancement/restoration are no longer available in the preferred or secondary restoration areas, enhancement/restoration projects may be located anywhere within the Tahoe Basin for in-basin impacts (or outside the Basin in the Carson Range of the Sierra Nevada for out of basin impacts) in the same elevation zone (Subalpine zone, Upper Montane zone or Montane zone) as the habitat being removed.</p> <p>All restored stands shall be inspected by USFS and TRPA staff to ensure target conditions of the prescription are met. Subsequent to completion of the enhancement prescription, an inspection and stand analysis shall be performed every 5 years and shall be reported to USFS and TRPA. The stand analysis shall follow the stand structure elements set forth in Table 3.8-16 of the FEIR/EIS/EIS.</p>
Impacts Mitigated	06 EIR/EIS/EIS VEG 3: Loss of native live trees larger than 24" dbh, old forest or late seral/old growth habitat as defined by TRPA or SNEPA.
Mitigation Level	Maintenance and protection of large trees and late seral/old growth habitat at Heavenly.
Lead Agency	TRPA
Implementing Agency	Heavenly Mountain Resort and Forest Service
Monitoring Agency	TRPA
Timing	<p>Start: MPA 07 Approval</p> <p>Complete: Ongoing.</p>
Status	Ongoing

7.5-26: Restrict Vehicle Traffic within the Heavenly Ski Resort MP 96 Development Area

Description	<ol style="list-style-type: none"> 1. Vehicle traffic within the Heavenly Mountain Resort MP 96 Development Area shall be limited to employees of the Heavenly Mountain Resort, the Forest Service, and other regulatory agencies that have jurisdiction within the special use permit boundaries. Public traffic shall be restricted to service vehicles and authorized visitors only, and shall be either accompanied by a Heavenly staff member or carry written authorization for vehicle access. In addition, Heavenly Mountain Resort shall install signing at each entry gate identifying a 10 mile per hour speed limit on all internal roads, directing all traffic to stay on existing roads, and warning all vehicles to watch for wildlife crossing the roads. 2. Off road vehicle use by Heavenly staff, as well as construction vehicles and equipment, shall be restricted to existing roads. 3. Heavenly Mountain Resort shall implement an annual employee orientation and training program that provides an introduction to the wildlife resources at Heavenly and the measures being undertaken to protect these resources from disturbance.
Impacts Mitigated	96 Final EIR/EIS/EIS Indirect effects to wildlife and fisheries.
Mitigation Level	Minimize effects of vehicle use on wildlife.
Lead Agency	TRPA and Forest Service
Implementing Agency	Heavenly Mountain Resort
Monitoring Agency	Forest Service
Timing	Start: Upon approval of the Heavenly Mountain Resort MP 96. Complete: Ongoing.
Status	Ongoing.

7.5-27 Monitor and Protect Nesting and Fledgling Bird Species

Description	<p>Heavenly shall not conduct any summer concerts at the Gondola Top Station prior to August 1. Prohibition of concerts prior to this time would allow most local resident birds to complete fledging and minimize the potential for nest failure. Alternatively, Heavenly may choose to conduct a more focused study to determine whether concert-related noises do result in nest failure of local resident nesting birds. This study would be conducted with the approval and in consultation with the Forest Service and TRPA. If no nest failure is documented, constraints on the timing of summer concerts at the Gondola Top Station may be reduced or eliminated.</p>
Impacts Mitigated	96 Final EIR/EIS/EIS: Noise Impacts Associated with Summer Concerts at the Gondola Top Station
Mitigation Level	Maintain TRPA sound level recommendations at the Gondola Top Station during nesting and fledgling periods.

Lead Agency	TRPA
Implementing Agency	Heavenly Mountain Resort
Monitoring Agency	TRPA
Timing	Start: Project Review.
	Complete: Ongoing.
Status	Ongoing

BIO-3 Migratory Bird ~~Limited Operating Period~~ and Habitat Utilization Survey

Description

In order to protect migratory bird nests from increased human presence in the tree canopy during the breeding season, Heavenly Mountain Resort shall perform nesting bird surveys for the following projects: Mid-Station Canopy Tour, Sky Cycle Canopy Tour, East Peak Zipline Canopy Tour, Sky Meadows Zipline Canopy Tour and the Sky Meadows Challenge Course. The surveys shall be completed annually prior to the start of project operations during the breeding season (April –August). The surveys shall identify migratory birds nesting on or immediately adjacent to proposed structures (including trees used as platforms) and equipment associated with the above-listed projects (projects that are located within the forest canopy).

To better understand the extent of migratory bird utilization of the habitats located in the above referenced project locations, bird point counts shall be performed to determine species diversity, nesting data as well as population size. The first point count survey of the project areas shall be performed prior to commencement of construction activities during nesting season. The results of the initial baseline survey shall be compared to future nesting surveys performed on an annual basis, in the vicinity of the projects. Daily inspection surveys of the project facilities shall be conducted by the operator to determine the presence of bird nesting activity. If the nest is not active (does not contain either eggs or hatchlings/young) the nest may be removed. If a migratory bird nest is located on a structure (including tree based platforms) or equipment associated with a project during annual surveys and is found to be active (containing either eggs or hatchlings/young), a buffer avoidance zone shall be instituted until it has been determined the nestlings have fledged. The distance of the buffer avoidance zone shall be determined by USFS and shall reflect the tolerance level of the individual pair, species, level of activity/disturbance and duration. Project activities and operations associated with the forest canopy based projects shall cease within the identified buffer avoidance zone if determined necessary to protect the active nest by USFS, NDOW and CDFW biologists. If a migratory bird nest is located on a structure (including tree based platforms) or equipment associated with a project during annual surveys and is found to be active (containing either eggs or hatchlings/young), a 300 m buffer shall be instituted until it has been determined the nestlings have fledged. Project activities and operations associated with the forest canopy based projects shall cease within the 300 m buffer if determined necessary to protect the active nest by USFS biologists. Annual surveys shall be performed indefinitely to alleviate impacts to future nests.

Impacts Mitigated	Epic Discovery EIR/EIS/EIS - BIO-3: Would the Project have an adverse effect to migratory land bird species or their associated habitats?
Mitigation Level	Protect active bird nests (e.g., containing either eggs or hatchlings/young).
Lead Agency	USFS
Implementing Agency	USFS and Heavenly Mountain Resort
Monitoring Agency	USFS
Timing	Start: Prior to construction of Epic Discovery Projects that utilize tree canopy. Complete: Ongoing.
Status	New measure for Epic Discovery Project

BIO-8 Wildlife Trash Management and Education Program

Description	Heavenly Mountain Resort shall create and implement a trash management program for the entire resort. The program shall consist of installation of wildlife proof trash containers located at each of the lodge facilities and food service areas within the resort. A trash removal and management plan shall also be formulated and implemented to expedite timely removal of refuse from deposition points to approved collection points located at the base areas or to a point designated outside the resort. The removal and management plan shall include specified storage areas and practices within each facility to prevent access to refuse by wildlife species. An educational component of said plan shall be included in an effort to decrease litter and improper feeding of and ramifications to wildlife. The education program shall be directed toward Heavenly Mountain Resort staff through training, and toward the public through signage and presentations throughout the proposed Epic Discovery project locations. <u>The plan shall be reviewed annually by Forest biologist.</u>
Impacts Mitigated	Epic Discovery EIR/EIS/EIS - BIO-8: Would The Project result in increased human/wildlife interactions?
Mitigation Level	Minimize interactions between humans and wildlife.
Lead Agency	USFS
Implementing Agency	USFS and Heavenly Mountain Resort
Monitoring Agency	USFS
Timing	Start: Prior to implementation of Epic Discovery Projects. Complete: Ongoing.
Status	New measure for Epic Discovery Project

~~7.5-28 Compliance with Design Review Guidelines Section 7 Exterior Lighting Standards and Code of Ordinances~~

Description	All exterior lighting should be designed in keeping with TRPA Design Review Guidelines Section 7 and Code of Ordinances Exterior Lighting
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Standards Section 30.8, including the following standards:

- ~~1. Exterior lights shall not blink, flash or change intensity. String lights, building or roofline tube lighting, reflective or luminescent wall surfaces are prohibited.~~
- ~~2. Exterior lighting shall not be attached to trees except for the Christmas season.~~
- ~~3. Parking lot, walkway, and building lights shall be directed downward.~~
- ~~4. Fixture mounting height shall be appropriate to the purpose. The height shall not exceed the limitations set forth in Chapter 22.~~
- ~~5. Outdoor lighting shall be used for purposes of illumination only, and shall not be designed for, or used as, an advertising display. Illumination for aesthetic or dramatic purposes of any buildings or surrounding landscape projecting above the horizontal is prohibited.~~
- ~~6. The commercial operation of searchlights for advertising or any other purpose is prohibited.~~
- ~~7. Seasonal lighting displays and lighting for special events which could conflict with other provisions of this section may be permitted on a temporary basis pursuant to Chapter 7.~~

~~The Guidelines recommend that lighting be designed as an integral part of the architecture and landscape and that consistent overall lighting and overly bright lighting be avoided. The guidelines recommend overall principles for the design of parking lot lighting, the lighting of structures, and height standards. In general, lighting should be directed downward and away from adjacent properties, cut off shields should be incorporated and lighting should not cause glare or excessive spillage to adjacent sites. To avoid significant impacts, each of the proposed plan's lighted areas should be consistent with this section of the Guidelines.~~

~~In addition, exterior lighting for the Gondola Mid Station, Top Station and Monument Peak Lodge shall be concealed from view off site. Glare or spillage lighting shall not be evident from any lakeward vista point. If, when installed, exterior lighting is evident from below, it shall be redesigned to eliminate glare or spillage or be removed entirely. If exterior lighting is necessary for the illumination of walks or paths, luminaries should be installed in low bollards, with light directed downward and toward buildings and should be concealed from view from the lakeward side. Non-directional floodlights should not be installed at any location visible from the lakeward side. Spotlights may be installed if their source is concealed and light spillage and glare is not evident from the lakeward side. None of the buildings or ancillary structures or buildings should appear to "glow" as viewed from the lakeward side.~~

Impacts Mitigated	96 Final EIR/EIS/EIS: The exterior lighting of lodges, restaurants, maintenance buildings, and parking lots proposed in the MP 96 may be inconsistent with TRPA Design Review Guidelines and Code of Ordinances Recommendations.	
Mitigation Level	Compliance with TRPA Design Review Guidelines Section 7 Exterior Lighting Standards and Code of Ordinances Chapter 30.	
Lead Agency	TRPA	
Implementing Agency	Heavenly Mountain Resort	
Monitoring Agency	TRPA	
Timing	Start:	Upon approval of the Heavenly Mountain Resort MP 96.
	Complete:	Ongoing.
Status	Ongoing	

7.5-29 Building and Site Design

Description	<p>Each in-basin building proposed in the MP 96 (new, relocated and remodeled) should be designed to be consistent with the Community Design Subelement of the Regional Plan including the design recommendations found within the following policies:</p> <ul style="list-style-type: none"> • Site Design; • Building Height, Bulk, and Scale; • Landscaping; • Lighting; and • Signing. <p>In addition, the design recommendations found in the Design Review Guidelines and the Code of Ordinances Chapters 22, 24, 26, 29, and 30 should be closely followed.</p> <p>Design shall be consistent with the applicable section of the Forest Service Built Environment Guide for buildings on National Forest Land.</p>	
Impacts Mitigated	96 Final EIR/EIS/EIS: The new and remodeled buildings proposed in the Action Alternatives may be inconsistent with the Community Design Threshold.	
Mitigation Level	Compliance with Community Design Subelement of the TRPA Regional Plan, the Design Review Guidelines, and the Code of Ordinances.	
Lead Agency	TRPA	
Implementing Agency	Heavenly Mountain Resort	
Monitoring Agency	TRPA	
Timing	Start:	Project Review.
	Complete:	Upon completion of project construction.
Status	Ongoing	

7.5-30 Maintain Timber Thinning Practices

Description	<p>Heavenly Mountain Resort shall be required to continue working with the Forest Service in determining areas that require timber thinning practices as established by the LTBMU Land and Resource Management Plan to reduce the potential for rapid and intensive wildfire spread due to excessive fuel loading. In addition, non-flammable materials shall be used on roofs, and cleared ingress/egress at base areas will be a priority.</p> <p>Timber thinning practices shall be consistent with the management criteria developed for maintenance and enhancement of wildlife habitat values.</p>
Impacts Mitigated	<p>96 Final EIR/EIS/EIS: Potential exposure of future ski resort visitors to wild/forest fires.</p> <p>96 Final EIR/EIS/EIS: Indirect effects to wildlife and fisheries.</p>
Mitigation Level	Controlled fuel loading.
Lead Agency	Forest Service
Implementing Agency	Heavenly Mountain Resort
Monitoring Agency	Forest Service
Timing	<p>Start: Upon approval of the Heavenly Mountain Resort MP 96.</p> <p>Complete: Ongoing.</p>
Status	Ongoing

7.5-31 ~~Compliance with Existing Health and Safety Practices~~

Description	<p>Heavenly shall continue to update the Hazardous Materials Business Plan, Hazardous Waste and Substance Potential Spill Emergency Plan, and Hazardous Waste Training Program as new chemicals are utilized for Heavenly Mountain Resort operations.</p> <p>Heavenly shall continue to train personnel in the proper management, use, and disposal of hazardous materials.</p> <p>If a spill occurs, Heavenly shall implement the Hazardous Waste and Substance Potential Spill Emergency Plan.</p> <p>Heavenly shall comply with TRPA's Handbook of Best Management Practices, the Water Quality Provisions of the TRPA Code of Ordinances, and the requirements and objectives of the Lahontan Regional Water Quality Control Board (i.e. Upper Truckee River Water Quality Objectives, the narrative water quality objectives in the 1975 North Lahontan Basin Plan, and the narrative and numerical water quality objectives in the 1991 California Inland Surface Waters Plan). Heavenly shall also comply with state and federal regulations associated with chemical use, storage, and disposal.</p>
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Impacts Mitigated	96 Final EIR/EIS/EIS: Use, storage, and disposal of hazardous materials on the project site. 96 Final EIR/EIS/EIS: Through spills or leaks hazardous chemicals may pollute creeks or groundwater
Mitigation Level	Proper storage and disposal of hazardous materials at Heavenly maintenance facilities, warehouses and restaurants.
Lead Agency	TRPA, Lahontan, and Forest Service
Implementing Agency	Heavenly Mountain Resort
Monitoring Agency	Forest Service as part of their special use permits administration.
Timing	Start: Upon approval of the Heavenly Mountain Resort MP 96. Complete: Ongoing.
Status	Ongoing

7.5-32 ~~Avalanche Safety Practices~~

Description	According to the Heavenly avalanche safety team, the unexploded ordnance does not pose a significant threat to winter recreational use. The threat of human contact would come in late spring/early summer following snowmelt when the unexploded ordnance is uncovered. In order to ensure safety of summer recreational users, the Heavenly Mountain Resort avalanche safety team members shall document the precise location of all unexploded ordnance using a topographic map and written or computer filing system ledger. Each year following snowmelt and prior to use of the site for summer recreational activities, these locations shall be walked by the team to locate the unexploded ordnance. The ordnance shall either be detonated in place (if safety warrants) or removed from the site and destroyed in an approved out-of-region location. Locations of ordnances exploded during no snow conditions shall be documented for potential vegetative restoration if ground cover is destroyed.
Impacts Mitigated	96 Final EIR/EIS/EIS: Potential threat of unexploded avalanche ordnance to winter and summer recreational users.
Mitigation Level	Proper storage and disposal of hazardous materials at Heavenly maintenance facilities, warehouses and restaurants.
Lead Agency	Heavenly Mountain Resort
Implementing Agency	Heavenly Mountain Resort
Monitoring Agency	Forest Service
Timing	Start: Upon approval of the Heavenly Mountain Resort MP 96. Complete: Ongoing.
Status	Ongoing

7.5-33 Provide Employee Housing

Description	<ul style="list-style-type: none"> • Heavenly Mountain Resort would complete a housing survey of employees on an annual basis. This would report to document the number of Heavenly employees (on a monthly basis), location of residence, housing characteristics (size, number of occupants and number of workers), housing preferences, and current costs and the occupancy of Heavenly-owned employee housing. • A Base Year would be defined as the year prior to the first phase of mountain expansion allowed under the adopted MP 96. Base employment is defined as the number of Heavenly Mountain Resort employees on the payroll during the peak month of the Base Year. According to Heavenly, peak employment during the 1996/1997 season was 1,607 employees. • Heavenly Ski Resort would maintain its current housing program and will assist employees to locate housing as part of the annual employee orientation program develop, purchase, or otherwise sponsor additional affordable housing for 33 percent of "New" Heavenly employment for those employees seeking employee housing that cannot be accommodated in Heavenly-owned housing. New employment is the number of persons employed during the peak month of the year above Base Year peak month employment counts. • The Heavenly Mountain Resort can provide affordable housing in a number of ways. Certain mechanisms are encouraged: <ul style="list-style-type: none"> • work with and supplement efforts by South Lake Tahoe Housing Authority; • renovate existing housing stock to reduce environmental impacts of new development; and • expand the existing rental program. • Heavenly's employee housing program and compliance with this mitigation measure shall be monitored and directed by an Affordable Housing Task Force made up of the City of South Lake Tahoe, TRPA, and Housing Authority representatives. TRPA shall have final authority as to acceptable compliance by Heavenly, but involvement of a more diversified group might ensure more imaginative solutions that are better integrated with other local housing efforts.
Impacts Mitigated	96 Final EIR/EIS/EIS: Increased pressure on affordable housing supply.
Mitigation Level	Suitability, price and availability of housing for year round residents.
Lead Agency	TRPA and El Dorado County
Implementing Agency	Heavenly Mountain Resort
Monitoring Agency	TRPA

Timing	Start:	Upon approval of the Heavenly Mountain Resort MP 96.
	Complete:	Ongoing.
Status		Ongoing

7.5-34 ~~Ensure Adequate Police/Sheriff/Fire Capacity~~

Description	<p>Although no significant impact on police and sheriff services is anticipated under any of the Action Alternatives, two forms of mitigation measures are suggested. Presently Heavenly pays police officers for special traffic control duties associated with controlling mountain access and egress. In instances where the operation of Heavenly causes direct impact on police or sheriff protection requirements, these practices should be maintained. Additionally, Heavenly should take aggressive steps to ensure that mountain expansion does not create new attractions for out-of-bounds skiing, which can place burdens on the Sheriff's search and rescue operations.</p> <p>At the time of project approval for new on-mountain Heavenly facilities, the City of South Lake Tahoe Fire Department shall determine if they will be required, due to project circumstances, to provide first response. If this determination is made, the City shall propose an agreement for consideration by Heavenly and the Lake Valley Fire Protection District to provide first response to emergencies.</p>
Impacts Mitigated	<p>96 Final EIR/EIS/EIS: Additional demands on police protection services.</p> <p>96 Final EIR/EIS/EIS: New demands on fire protection service provision.</p>
Mitigation Level	Adequate police and fire protection services.
Lead Agency	City of South Lake Tahoe Police Department, El Dorado County Sheriff, and Douglas County Sheriff
Implementing Agency	Heavenly Mountain Resort
Monitoring Agency	City of South Lake Tahoe Police Department, El Dorado County Sheriff, and Douglas County Sheriff
Timing	<p>Start: Upon adoption of the Heavenly Mountain Resort MP 96.</p> <p>Complete: Ongoing.</p>
Status	Ongoing

5.8 MANAGEMENT RESPONSE TO MONITORING AND EVALUATION

5.8-1 Soil and Water Quality

The previous sections of this chapter describe a variety of mitigation measures necessary to prevent adverse impacts to resources as a result of the implementation of the Proposed Action. Appendix 3.1-D of the 06 Draft EIR/EIS/EIS describes a revised environmental monitoring plan to evaluate and determine whether there is an overall trend of improvement in environmental conditions at the resort for soil and water resources. The monitoring program is also designed to determine whether the proposed actions (including mitigation measures) are successful in preventing adverse impacts from MPA 07 implementation. The monitoring program would be the same under each alternative.

The purpose of this section is to describe the process that will be followed to disclose monitoring and evaluation results to all interested parties, and how these results will be utilized by Heavenly Resort, USFS, Lahontan, and TRPA to identify and prioritize appropriate management actions in response to monitoring results.

The environmental monitoring plan and the Lahontan Monitoring and Reporting requirements that are contained in the adopted Waste Discharge Requirements specify that an annual monitoring report will be prepared by ~~February~~ January 15th each year to disclose the results of the previous year's monitoring, including an evaluation of achievement of environmental standards and targets. The environmental monitoring plan also specifies that a comprehensive analysis will be prepared at 5 year intervals, and will include an evaluation of trends over the past 5 years of data collection. These monitoring reports will be utilized to initiate the adaptive management process.

As monitoring reports are completed by a third-party contractor approved by the appropriate agencies, they will be sent by hard copy to USFS, TRPA, and Lahontan by May 1st of each year. Reports will be available for public review at TRPA, USFS and Lahontan offices as well as posted on appropriate websites including but not limited to, the Heavenly Resort website, the LTBMU website, and the Tahoe Integrated Information Management System (TIIMS) website.

Within 60 days of receiving the completed monitoring reports, Heavenly, USFS, Lahontan and TRPA staff will develop an action plan based on the monitoring results. The following steps will be followed for the action plan process:

- Determine if monitoring results indicate implementation (or lack of implementation) of proposed actions/mitigation measures contributed to exceedance of environmental standards, goals, and targets (herein termed environmental triggers).
- Determine level of significance of exceedance of triggers (using qualitative assessment based on numerical analysis.)
- Identify specific response(s) to address exceedances of environmental triggers.

- Response can include alternatives to proposed action, and/or additional mitigation measures if impacts of alternatives were adequately analyzed through the NEPA process.
- Specific responses will be presented in an action plan for the upcoming field season(s), which describes what will be done, where work will be done, and when work is to be conducted. Specific actions will be prioritized and scheduled based on a qualitative assessment of significance.

Once an action plan is developed based on the most recent annual or comprehensive monitoring report, the action plan will be made available on the same websites utilized to post monitoring reports. Notice of the availability of this action plan will be sent to interested parties. If requested by interested parties, a meeting will be held to discuss the action plan recommendations. Subsequent monitoring reports will include a specific section(s) describing follow-up monitoring of proposed management actions to identify whether the actions were implemented, and evaluate the success of the actions.

Examples of “triggers” that may initiate a management response, and examples of the toolbox of actions that may be considered to address the triggers are provided below. These lists are not meant to be all-inclusive. However, management responses will not be considered that may have different/greater adverse effects than those considered in the MPA 07 EIR/EIS/EIS.

Potential Triggers

- An apparent degradation in water quality that can be linked to management activities. (water quality and macroinvertebrate sampling).
- Documented failures in BMP implementation (BMPEP).
- Documented failures in BMP effectiveness. Visible signs of unacceptable levels of uncontrolled runoff, accelerated erosion and sediment transport from ski trails, roads, and developed facilities. (BMPEP)
- Indicators of channel degradation (based on Stream Condition Inventory (SCI) Sampling).
- Analysis of ski trail restoration techniques indicates more cost/effective low maintenance techniques for restoring soil function on previously summer graded ski trails and other disturbed lands (Soil Restoration monitoring).
- An apparent reduction in overall effective soil cover at the resort, resulting in evidence of increased rill and gully erosion. Will also include evaluation of soil function, acknowledging that cover may not be the most significant variable in creating stable soils (Effective Soil Cover Monitoring).
- Evidence of poor success in SEZ restoration, based on hydrologic and vegetation indicators.

Potential Management Responses

The following are potential actions that will be considered in the management toolbox in response to monitoring results.

- Discontinue or reduce tree removal activity associated with creation of new conventional or gladed ski trails through removal and thinning of tree overstory.
- Utilize less ground disturbing techniques for tree removal.
- Continue restoration of historic ski trails that exhibit poor soil function resulting in increased runoff and erosion, or to improve overall watershed condition where monitoring indicators indicate a degrading trend. Consider techniques evaluated through the soil restoration monitoring program.
- Correct mitigation measures that were either not implemented, were not implemented correctly, or are not effective.
- If BMPs were implemented as designed, but were not effective, prescribe more aggressive BMPs and/or retrofit existing BMPs.

5.8-2 Traffic and Parking

The previous sections of this chapter describe a variety of mitigation measures necessary to prevent adverse impacts to resources as a result of the implementation of the Proposed Action. The monitoring program is designed to determine whether the proposed actions (including mitigation measures) are successful in preventing adverse impacts from MPA 07 implementation. The monitoring program would be the same under each alternative.

The purpose of this section is to describe the process that will be followed to disclose monitoring and evaluation results to all interested parties, and how these results will be utilized by Heavenly Resort, Douglas County, El Dorado County, the City of South Lake Tahoe and TRPA to identify and prioritize appropriate management actions in response to monitoring results.

Heavenly shall prepare a parking monitoring report at the end of each ski season. This report shall include:

- A list of the days during which overflow parking was used on Ski Run Boulevard, South Benjamin Drive, and Galaxy Bowl and any days when overflow parking was full at these locations.
- The number of parking spaces used at Galaxy Bowl each day this area was used for overflow parking.
- A statement regarding whether any days during which these overflow parking areas were filled.

The monitoring reports will be utilized to initiate the adaptive management process.

~~As monitoring reports are completed, they will be sent by hard copy to TRPA, Douglas County, El Dorado County, and the City of South Lake Tahoe. Notification will include emailing individuals when the reports are available and listing the places and websites where reports can be viewed. Monitoring Reports will be available for public review at TRPA as well as posted~~

on ~~appropriate websites including but not limited to,~~ the TRPA and the Heavenly Resort websites.

In addition, historical annual average daily traffic, monthly, and hourly traffic counts can be obtained from NDOT's Annual Traffic Report, the NDOT Traffic Information Access (TRINA) website (<http://www.nevadadot.com/trina/>), and Caltrans Traffic and Vehicle Data Systems website (<http://www.dot.ca.gov/hq/traffops/saferesr/trafdata/index.htm>) or by contacting these agencies directly. These traffic counts can be accessed by interested parties to evaluate traffic trends on US 50 near South Lake Tahoe.

Within 60 days of receiving the completed monitoring reports, Heavenly, TRPA, Douglas County, El Dorado County, and the City of South Lake Tahoe staff, depending on the areas affected, will develop an action plan based on the monitoring results. The following steps will be followed for the action plan process:

- Determine if monitoring results indicate implementation (or lack of implementation) of proposed actions/mitigation measures contributed to exceedance of environmental standards, goals, and targets (herein termed environmental triggers).
- Determine level of significance of exceedance of triggers (using qualitative assessment based on numerical analysis.)
- Identify specific response(s) to address exceedances of environmental triggers.
 - Response can include alternatives to proposed action, and/or additional mitigation measures if impacts of alternatives were adequately analyzed through the environmental review (e.g., TRPA, CEQA, NEPA) process.
- Specific responses will be presented in an action plan for the upcoming operating season, which describes what will be done, where, and when measures will be implemented. Specific actions will be prioritized and scheduled based on a qualitative assessment of significance.

Once an action plan is developed based on the most recent annual monitoring report, the action plan will be made available on the same websites utilized to post monitoring reports. Notice of the availability of this action plan will be sent to interested parties. If requested by interested parties, a meeting will be held to discuss the action plan recommendations. Subsequent monitoring reports will include a specific section(s) describing follow-up monitoring of proposed management actions to identify whether the actions were implemented, and evaluate the success of the actions.

Examples of “triggers” that may initiate a management response, and examples of the toolbox of actions that may be considered to address the triggers are provided below. These lists are not meant to be all inclusive. However, management responses will not be considered that may have different/greater adverse affects than those considered in the MPA 07 EIR/EIS.

Potential Triggers

- An increase in the percentage of visitors who drive to Heavenly Resort as reported by Heavenly's yearly visitor survey.

- An increase in Sunday PM peak hour traffic volumes based on available Caltrans count data on US 50 near Echo Summit.
- An increase in number of days and spaces used for overflow parking at monitored locations.
- An increase in illegally parked cars near Heavenly base areas during winter skiing operations.

Potential Management Responses

The following are an example of the potential actions that will be considered in the management toolbox in response to monitoring results:

- Increase marketing for using alternative modes to access Heavenly Mountain Resort.
- Provide a park and ride lot and shuttle service from a location west of Ski Run Boulevard
- Provide bus/shuttle service from the “Wye” to Heavenly.
- Provide shuttle service from the Sacramento International Airport, similar to the South Tahoe Express service from Reno International Airport.
- Expand shuttle service from the San Francisco Bay area.

5.8-3 Late Seral / Old Growth Enhancement

Mitigation measure/design feature VEG-3 Late Seral/Old Growth Forest Enhancement as described earlier in this chapter was identified as necessary to prevent adverse impacts to late seral/old growth forest as a result of the implementation of the Proposed Action and Action Alternatives. The enhanced stand treated under VEG-3 shall be monitored every 5 years to determine whether the proposed enhancement prescription is progressing successfully. The monitoring program would be the same under each Action Alternative.

The purpose of this section is to describe the process that will be followed to disclose monitoring and evaluation results to all interested parties, and how these results will be utilized by Heavenly Resort, Forest Service and TRPA to identify and prioritize appropriate management actions in response to monitoring results if deemed necessary.

The USFS or a third-party shall prepare a forest enhancement monitoring report every 5 years to track the progress of the enhanced stand using the stand structure element criteria as provided in Table 3.8-16 of the MPA 07 Final EIR/EIS/EIS. This report shall include a summary and status of each of the stand structure criteria and a discussion as to how the stand is progressing toward late seral/old growth characteristics.

Examples of “triggers” that may initiate a management response, and examples of the toolbox of actions that may be considered to address the triggers are provided below. These lists are not meant to be all inclusive. However, management responses will not be considered that may have different/greater adverse affects than those considered in the MPA 07 EIR/EIS.

Potential Triggers

- Failure of the management prescription to meet the desired criteria outlined in the prescription.

Potential Management Responses

The following are potential actions that will be considered in the management toolbox in response to monitoring results.

- A new stand of equal or greater acreage shall be identified and approved by TRPA and Forest Service as suitable for restoration/enhancement.
- A prescription shall be formulated for the new stand as a site specific tool for restoration/enhancement using the stand structure criteria as outlined in MPA 07 Final EIR/EIS/EIS Table 3.8-16.
- The new stand enhancement prescription shall be implemented.

CHAPTER 5 - ATTACHMENT 1

Easy Street Run Hazard Reduction Program

Easy Street Run Hazard Reduction Demonstration Project

(ESRHRP)

Monitoring Report

**Prepared by
Melanie M. Greene
Parsons Scientist**

1.0 Project Background

The Easy Street Run Hazard Reduction Demonstration Project (ESRHRP) was proposed in 2004 by Heavenly Mountain Resort for purposes of demonstrating an iterative, process-based approach for ski trail (synonymous with "ski run") construction, which balanced the needs of ski area development and management with the protection of soil and water resources, while also decreasing dependency on snowmaking and associated resource use. Parsons (Stateline, NV) prepared the original ski trail prescriptions proposed in the original proposed amendment to the MP 96 in 2004. An updated version of the prescriptions is proposed in Appendix 3 of the 2005 Master Plan Amendment (MPA 05) that is analyzed for the 06 Draft EIR/EIS/EIS. The revision presented in the MPA 05 were based on preliminary monitoring results and input from personnel from Heavenly Mountain Resort (implementers), Forest Service (special use permit administrator and resource specialists), Tahoe Regional Planning Agency (TRPA-compliance) and Lahontan Regional Water Quality Control Board (Lahontan-Updated Discharge Permit administrator) and Parsons (consultant for impact analysis and document preparation).

Comments received during the public scoping period for the MPA 05 environmental assessment (EA) and again for the 06 Draft EIR/EIS/EIS, requested additional monitoring to be completed for the ESRHRP utilizing the Water Erosion Prediction Project (WEPP) soil erosion model, a process-based computer model, used to predict runoff, soil erosion, and sediment delivery. Additionally, the Comprehensive Monitoring Report (USFS 2004) and the Revised Environmental Monitoring Program (Appendix 3.1-D of the 06 Draft EIR/EIS/EIS) for Heavenly Mountain Resort contained recommendations and statements for exploration of WEPP for subsidizing and further calibration of the Cumulative Watershed Effects (CWE) Model and for utilization of effective soil cover monitoring on ski trails.

Melanie Greene and Stephanie Heller (Parsons and Forest Service Hydrologists, respectively) worked together during September 2005 to complete WEPP modeling for the ESRHRP utilizing first a version of Disturbed WEPP and next the Hillslope WEPP

version April 2004. Parsons and the Forest Service concluded that WEPP had potential for application towards prediction of erosional processes on ski trails as a result of implementation of ESRHRP prescriptions and long term ski area management but that first the WEPP model had to be built to reflect actual site specific conditions and ski area management.

Drea Traeumer, who originally assisted Forest Service scientists develop WEPP and who now works for Kennedy/Jenks Consulting as the staff hydrologist, was contracted to modify and refine Hillslope WEPP to more accurately model the ESRHRP. The results and conclusions from WEPP modeling are summarized under the WEPP subsection of this monitoring report. The complete technical report is included in Appendix 3.1-F of the 06 Draft EIR/EIS/EIS.

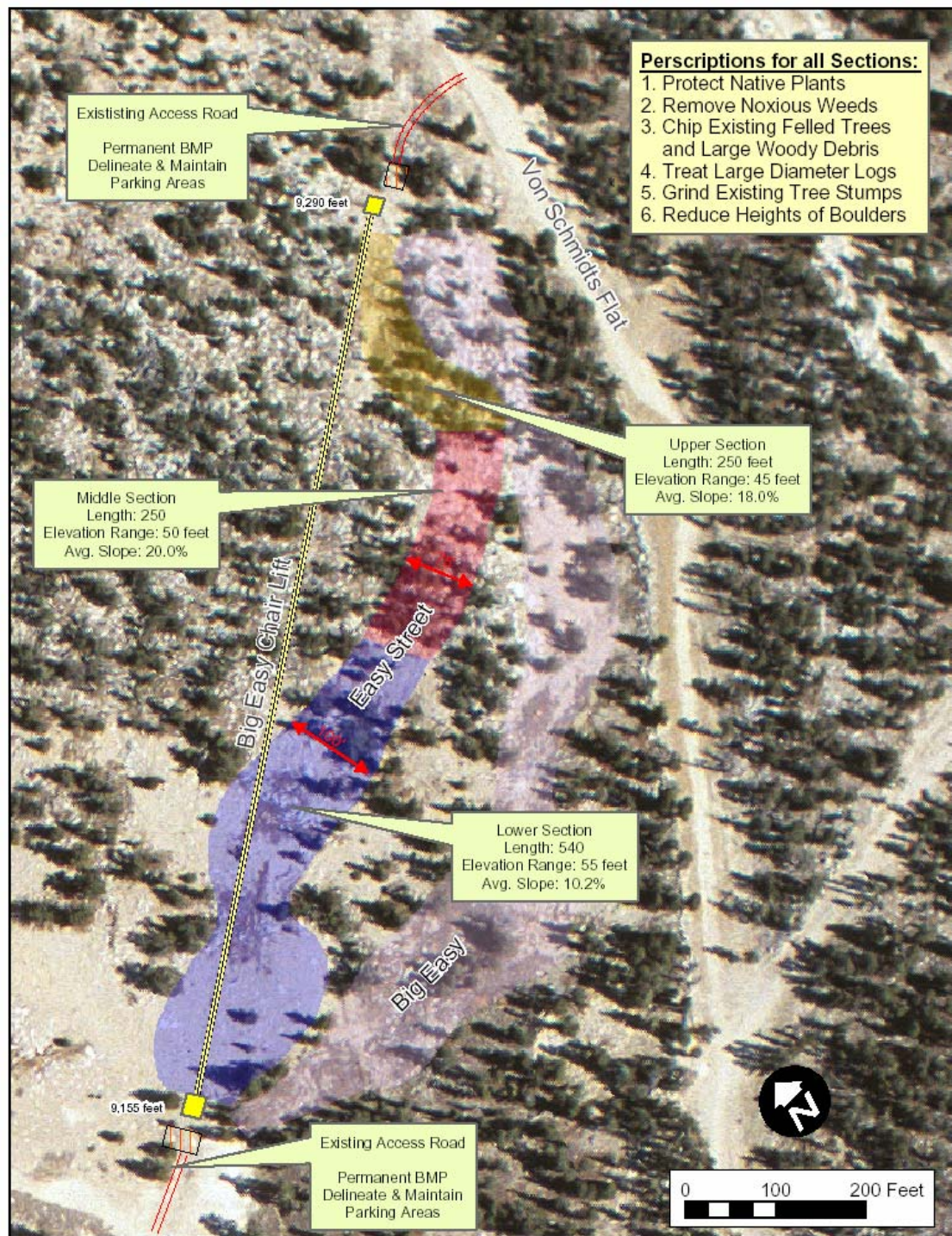
1.1 Project Objectives

- Preserve existing effective soil cover while reducing the height of existing effective surface cover (felled trees, large woody debris, stumps, and rock/boulders) to between 12-18 inches;
- Reduce consumption of electrical energy and water resources;
- Attain and maintain the 70% total effective soil surface cover as required by the Cumulative Watershed Effects (CWE) Analysis;
- Provide a variety of surface cover for wildlife microhabitat
- Improve visual quality

2.0 Field Monitoring Approach

Pre-treatment, pre-project, and post-project effective soil cover and photo point monitoring were completed for the ESRHP. The pre-project monitoring and photos were taken after the installation of the snowmaking lines, but prior to implementation of the ESRHP prescriptions. Ideally monitoring would have occurred prior to installation of snowmaking lines. Pre-treatment photos were taken on October 1, 2004 to characterize the project site and establish the three ski trail segments illustrated in Figure 1 for the Cumulative Watershed Effects (CWE) Model. Permanent photo points were not established at this time; however, Photos 2, 3, and 4 can be used for general comparison with pre-project (pages 9 through 16) and post-project (pages 18 through 25) photo points.

Pre-project monitoring was completed and permanent photo points established on July 21, 2005. Pre-project monitoring was completed after decommissioning and over-wintering of the access road installed during installation of snowmaking lines (seen in pre-treatment photos 2, 3, and 4) and prior to implementation of the ESRHP.



Heavenly
Ski Resort

Easy Street Run Hazard Reduction and Demonstration Project

PARSONS

Figure 1. Easy Street Run Hazard Reduction Project Area and Ski Trail Segments.

Post-project monitoring was completed and permanent photo points were revisited on September 13, 2005. During this field visit, Heavenly Mountain Resort personnel were trained to complete the effective soil cover and photo point monitoring.

Storm monitoring was not completed in 2005. Spring runoff monitoring will be completed in between April and July 2006 depending on the timing of peak runoff conditions.

Future monitoring of proposed ski trail prescriptions will be a "pre-project", completed prior to implementation of proposed trails and snowmaking, and "post-project", completed after ski trail construction utilizing the prescriptions as outlined in the adapted ESRHP.

2.1 *Field Monitoring Objectives*

- Determine, describe and document pre- and post project surface conditions
- Identify potential erosional features
- Determine if prescriptions were implemented correctly and completely
- Determine the effectiveness of prescriptions during spring runoff period and significant storm events
- Monitor long-term effectiveness over prescriptions for erosion control
- Determine necessary maintenance activities and schedule
- Adapt and improve ESHRP prescriptions for use on other proposed ski trails

2.2 *Field Monitoring and Photo Point Monitoring Results*

The following subsections present monitoring results for pre-treatment, pre-project and post-project results. These monitoring scenarios are as defined below:

- Pre-treatment Conditions- ski trail constructed with snowmaking installed with no BMPs applied
- Pre-project Conditions- describe both the snow-making corridor and the adjacent ski trail area after each have been winterized with the application of surface cover and BMPS
- Post-project Conditions- describe both the snow-making corridor and the adjacent ski trail area after the application of ski trail prescriptions outlined in the ESRHP.

2.2-1 *Effectives Soil Cover Summary Results*

Effective soil cover monitoring was completed using the same protocols used for the effective soil cover component of the Heavenly Environmental Monitoring Program proposed in the MP (96). Table 1 below presents the results of the effective soil cover monitoring.

Table 1. Effect Soil Cover Monitoring Results.

Easy Street Segment	% Total Cover	% Vegetation	% Organic Matter	% Rock	% Bare
Pre-treatment (10/2004) –Segment 1	70	0	34	36	30
Pre-project (7/2005)- Segment 1	(70)	(0)	(53)	(17)	(30)
Post-project (9/2005)- Segment 1	87	0	58	29	13
Total % Change	+17	0	+24	-7	-17
Pre-treatment (10/2004) –Segment 2	65	0	30	35	35
Pre-project (7/2005)- Segment 2	(71)	(3)	(50)	(18)	(29)
Post-project (9/2005)- Segment 2	99	3	66	30	1
Total % Change	+34	0	+36	-5	-34
Pre-treatment (10/2004) –Segment 3	35	0	15	20	65
Pre-project (7/2005)- Segment 3	(64)	(0)	(56)	(8)	(36)
Post-project (9/2005)- Segment 3	65	1	46	18	35
Total % Change	+30	+1	+31	-2	-30

The effective soil cover objective of 70% total cover was met for segments 1 and 2 but was not achieved on segment 3. One of the prescription objectives includes preserving existing effective soil cover while reducing the height of existing effective surface cover (felled trees, large woody debris, stumps, and rock/boulders) to between 12-18 inches. Evaluation results indicate that the rock component is under represented on all three segments, while the organic matter component increased due to application of mulch. No rills or gullies were noted on any segment during monitoring or interdisciplinary team fieldtrips.

No soil monitoring was conducted for the project, but visual assessments of post-project conditions conclude that the snowmaking corridor was not adequately restored. There is sufficient soil cover applied along the snowmaking corridor, but the hill slope was not restored to the original contour, remains a concave slope and resembles a decommissioned road segment.

2.2-2 Photo Monitoring

Photo points were established for pre-and post-project conditions following the protocols and forms in the Forest Service's "Photo Point Monitoring Handbook: Part A-Field Procedures" (Hall 2002). Ideally, photo points would have been established to represent pre-treatment conditions, but this monitoring task was not accomplished. Photo 1 illustrated an overview of the ski trail prior to installation of snowmaking and photos 2, 3, and 4 illustrate the general pre-treatment conditions of the three segments of the ski trail.

Photos 2, 3, and 4 are not directly comparable to pre- and post-project photo points, but serve to represent ski trail conditions prior to installation of permanent BMPs.



Photo 1. Overall Easy Street Run Hazard Reduction Project site prior to installation of Big Easy Ski Lift (Lift HH-1)

Pre-treatment photos



Photo 2: Easy Street Segment 1, pre-treatment conditions.



Photo 3: Easy Street Segment 2, pre-treatment conditions.



Photo 4: Easy Street Segment 3, pre-treatment conditions.

Pre-Project Photo Points

Four photo points were established along Easy Street Ski Trail (Ski Trail HH1) for purposes of pre and post project evaluation and for long term monitoring of effective soil cover and potential erosion for each of the ski trail segments. The photo points were named PPT 81_1, PPT 81_2, PPT 81_3, and 81_4. Two photos are taken at each photo point location and are termed A for the downslope perspective (e.g. 81_1A) and B for the upslope perspective (e.g. 81_1B). The following pages 9 through 16 contain the datasheets for the pre-project photo monitoring. Photo point 81_1 (A and B) documents pre-project conditions for Segment 3 (Lower Easy Street), photo point 81_2 (A and B) documents pre-project conditions for Segment 2 (Middle Easy Street), photo point 81_3 (A and B) documents pre-project conditions for Segment 1 (upper Easy Street), and photo point 81_4 (A and B) documents pre-project conditions for Segments 1 and 2 from the south ski trail boundary looking towards the northeast.

Camera Locations and Photo Points

Project: Easy Street Run Hazard Reduction Project- **Pre-Project**
Date: July 21, 2005

Transect Name/Number: Easy Street-Ski Trail 81
Number of Photo Points: 8 photo points
GPS Coordinates: 11S 0248011 4313648
Approximate Elevation: 9185 ft
Examiner: Melanie Greene-Parsons Scientist

Photo Point: **PPT 81-1A (downslope)**

Camera Location: Camera point is located at skier left of lift tower 3 of Big Easy Lift; photo point marker is an orange bolt head with a brass label located flush to the ground; bolt is flagged with red flagging

Compass Bearing: 240° SW-W
% Slope of Hillside: 4-10%

Length of Transect: 250 feet

Photo File Name: PPT_81_1A_preproject.jpg



Camera Locations and Photo Points

Project: Easy Street Run Hazard Reduction Project- **Pre-Project**
Date: July 21, 2005

Transect Name/Number: Easy Street-Ski Trail 81
Number of Photo Points: 8 photo points total
GPS Coordinates: 11S 0248011 4313648
Approximate Elevation: 9185 ft
Examiner: Melanie Greene-Parsons Scientist

Photo Point: **PPT 81-1B (upslope)**

Camera Location: Camera point is located at skier left of lift tower 3 of Big Easy Lift; photo point marker is an orange bolt head with a brass label located flush to the ground; bolt is flagged with red flagging

Compass Bearing: 82° E
% Slope of Hillside: 10-12%

Length of Transect: 300 feet

Photo File Name: PPT_81_1B_preproject.jpg



Camera Locations and Photo Points

Project: Easy Street Run Hazard Reduction Project-**Pre-Project**
Date: July 21, 2005

Transect Name/Number: Easy Street-Ski Trail 81
Number of Photo Points: 8 photo points total
GPS Coordinates: 11S 0248131 4313700
Approximate Elevation: 9240 feet
Examiner: Melanie Greene-Parsons Scientist

Photo Point: **PPT 81-2A (downslope)**

Camera Location: Slightly under rock on skier right between snowmaking hydrant and Lodgepole Pine

Compass Bearing: 250° SW-W
% Slope of Hillside: 20%

Length of Transect: Middle Segment – 150 feet plus most of Lower Segment

Photo File Name: PPT_81_2A_preproject.jpg



Camera Locations and Photo Points

Project: Easy Street Run Hazard Reduction Project-**Pre-Project**
Date: July 21, 2005

Transect Name/Number: Easy Street-Ski Trail 81
Number of Photo Points: 8 photo points total
GPS Coordinates: 11S 0248131 4313700
Approximate Elevation: 9240 feet
Examiner: Melanie Greene-Parsons Scientist

Photo Point: **PPT 81-2B (upslope)**

Camera Location: Slightly under rock on skier right between snowmaking hydrant and Lodgepole Pine

Compass Bearing: 90° E
% Slope of Hillside: 20%

Length of Transect: Middle Segment- upper 100 feet or so
Photo File Name: PPT_81_2B_preproject.jpg



Camera Locations and Photo Points

Project: Easy Street Run Hazard Reduction Project-**Pre-Project**
Date: July 21, 2005

Transect Name/Number: Easy Street-Ski Trail 81
Number of Photo Points: 8 photo points total
GPS Coordinates: 11S 0248146 4313734
Approximate Elevation: 9260 feet
Examiner: Melanie Greene-Parsons Scientist

Photo Point: **PPT 81-3A (downslope)**

Camera Location: Near, but downslope from Big Easy Top Station on skier
right of ski trail; orange bolt head with red flagging and
brass label located under dying Western White Pine
(almost a snag in 2005)

Compass Bearing: 170° S
% Slope of Hillside: 18-20%

Length of Transect: 150 feet
Photo File Name: PPT_81_3A_preproject.jpg



Camera Locations and Photo Points

Project: Easy Street Run Hazard Reduction Project-**Pre-Project**
Date: July 21, 2005

Transect Name/Number: Easy Street-Ski Trail 81
Number of Photo Points: 8 photo points total
GPS Coordinates: 11S 0248146 4313734
Approximate Elevation: 9260 feet
Examiner: Melanie Greene-Parsons Scientist

Photo Point: **PPT 81-3B (upslope)**

Camera Location: Near, but downslope from Big Easy Top Station on skier
right of ski trail; orange bolt head with red flagging and
brass label located under dying Western White Pine
(almost a snag in 2005)

Compass Bearing: 60° NE-E
% Slope of Hillside: 18%

Length of Transect: 200 feet
Photo File Name: PPT_81_3B_preproject.jpg



Camera Locations and Photo Points

Project: Easy Street Run Hazard Reduction Project-**Pre-Project**

Date: July 21, 2005

Transect Name/Number: Easy Street-Ski Trail 81

Number of Photo Points: 8 photo points total

GPS Coordinates: 11S 0248145 4313730

Approximate Elevation: 9245 feet

Examiner: Melanie Greene-Parsons Scientist

Photo Point: **PPT 81-4A (downslope)**

Camera Location: Directly across from PPT_81_2A and PPT_81_2B (skier left) by rock pile and downslope from Western White Pine

Compass Bearing: 270°W

% Slope of Hillside: 18%

Length of Transect: 200 feet

Photo File Name: PPT_81_4A_preproject.jpg



Camera Locations and Photo Points

Project: Easy Street Run Hazard Reduction Project-**Pre-Project**

Date: July 21, 2005

Transect Name/Number: Easy Street-Ski Trail 81

Number of Photo Points: 8 photo points total

GPS Coordinates: 11S 0248145 4313730

Approximate Elevation: 9245 feet

Examiner: Melanie Greene-Parsons Scientist

Photo Point: **PPT 81-4B (upslope)**

Camera Location: Directly across from PPT_81_2A and PPT_81_2B (skier left) by rock pile and downslope from Western White Pine

Compass Bearing: 10° N

% Slope of Hillside: 18%

Length of Transect: 500 feet

Photo File Name: PPT_81_4B_preproject.jpg



Post-project Photo points

Photo points were revisited on September 13, 2005 to document post-project conditions. Post-project monitoring forms are included on pages 18 through 25. Two photos are taken at each photo point location and are termed A for the downslope perspective (e.g. 81_1A) and B for the upslope perspective (e.g. 81_1B). The following pages 9 through 16 contain the datasheets for the post-project photo monitoring. Photo point 81_1 (A and B) documents post-project conditions for Segment 3 (Lower Easy Street), photo point 81_2 (A and B) documents post-project conditions for Segment 2 (Middle Easy Street), photo point 81_3 (A and B) documents post-project conditions for Segment 1 (upper Easy Street), and photo point 81_4 (A and B) documents post-project conditions for Segments 1 and 2 from the south ski trail boundary looking towards the northeast.

During this field visit, Heavenly staff was trained to establish photo points and complete photo point monitoring.

Camera Locations and Photo Points

Project: Easy Street Run Hazard Reduction Project-**Post-Project**
Date: September 13, 2005

Transect Name/Number: Easy Street-Ski Trail 81
Number of Photo Points: 8 photo points
GPS Coordinates: 11S 0248011 4313648
Approximate Elevation: 9185 ft
Examiner: Melanie Greene-Parsons Scientist/
James and Tyler-HV Personnel

Photo Point: **PPT 81-1A (downslope)**

Camera Location: Camera point is located at skier left of lift tower 3 of Big Easy Lift; photo point marker is an orange bolt head with a brass label located flush to the ground; bolt is flagged with red flagging

Compass Bearing: 240° SW-W

% Slope of Hillside: 4-10%

Length of Transect: 250 feet

Photo File Name: PPT_81_1A_postproject.jpg



Camera Locations and Photo Points

Project: Easy Street Run Hazard Reduction Project- **Post-Project**
Date: September 13, 2005

Transect Name/Number: Easy Street-Ski Trail 81
Number of Photo Points: 8 photo points total
GPS Coordinates: 11S 0248011 4313648
Approximate Elevation: 9185 ft
Examiner: Melanie Greene-Parsons Scientist

Photo Point: **PPT 81-1B (upslope)**

Camera Location: Camera point is located at skier left of lift tower 3 of Big Easy Lift; photo point marker is an orange bolt head with a brass label located flush to the ground; bolt is flagged with red flagging

Compass Bearing: 82° E
% Slope of Hillside: 10-12%

Length of Transect: 300 feet

Photo File Name: PPT_81_1B_postproject.jpg



Camera Locations and Photo Points

Project: Easy Street Run Hazard Reduction Project-**Post-Project**
Date: September 13, 2005

Transect Name/Number: Easy Street-Ski Trail 81
Number of Photo Points: 8 photo points total
GPS Coordinates: 11S 0248131 4313700
Approximate Elevation: 9240 feet
Examiner: Melanie Greene-Parsons Scientist

Photo Point: **PPT 81-2A (downslope)**

Camera Location: Slightly under rock on skier right between snowmaking hydrant and Lodgepole Pine

Compass Bearing: 250° SW-W
% Slope of Hillside: 20%

Length of Transect: Middle Segment – 150 feet plus most of Lower Segment

Photo File Name: PPT_81_2A_**postproject**.jpg



Camera Locations and Photo Points

Project: Easy Street Run Hazard Reduction Project-**Post-Project**
Date: September 13, 2005

Transect Name/Number: Easy Street-Ski Trail 81
Number of Photo Points: 8 photo points total
GPS Coordinates: 11S 0248131 4313700
Approximate Elevation: 9240 feet
Examiner: Melanie Greene-Parsons Scientist

Photo Point: **PPT 81-2B (upslope)**

Camera Location: Slightly under rock on skier right between snowmaking hydrant and Lodgepole Pine

Compass Bearing: 90° E
% Slope of Hillside: 20%

Length of Transect: Middle Segment- upper 100 feet or so
Photo File Name: PPT_81_2B_postproject.jpg



Camera Locations and Photo Points

Project: Easy Street Run Hazard Reduction Project-**Post-Project**
Date: September 13, 2005

Transect Name/Number: Easy Street-Ski Trail 81
Number of Photo Points: 8 photo points total
GPS Coordinates: 11S 0248146 4313734
Approximate Elevation: 9260 feet
Examiner: Melanie Greene-Parsons Scientist

Photo Point: **PPT 81-3A (downslope)**

Camera Location: Near, but downslope from Big Easy Top Station on skier
right of ski trail; orange bolt head with red flagging and
brass label located under dying Western White Pine
(almost a snag in 2005)

Compass Bearing: 170° S
% Slope of Hillside: 18-20%
Length of Transect: 150 feet
Photo File Name: PPT_81_3A_**postproject**.jpg



Camera Locations and Photo Points

Project: Easy Street Run Hazard Reduction Project-**Post-Project**
Date: September 13, 2005

Transect Name/Number: Easy Street-Ski Trail 81
Number of Photo Points: 8 photo points total
GPS Coordinates: 11S 0248146 4313734
Approximate Elevation: 9260 feet
Examiner: Melanie Greene-Parsons Scientist

Photo Point: **PPT 81-3B (upslope)**

Camera Location: Near, but downslope from Big Easy Top Station on skier right of ski trail; orange bolt head with red flagging and label located under dying Western White Pine snag in 2005

brass
(almost a

Compass Bearing: 60° NE-E
% Slope of Hillside: 18%
Length of Transect: 200 feet
Photo File Name: PPT_81_3B_postproject.jpg



Camera Locations and Photo Points

Project: Easy Street Run Hazard Reduction Project-**Post-Project**
Date: September 13, 2005

Transect Name/Number: Easy Street-Ski Trail 81
Number of Photo Points: 8 photo points total
GPS Coordinates: 11S 0248145 4313730
Approximate Elevation: 9245 feet
Examiner: Melanie Greene-Parsons Scientist

Photo Point: **PPT 81-4A (downslope)**

Camera Location: Directly across from PPT_81_2A and PPT_81_2B (skier left) by rock pile and downslope from Western White Pine

Compass Bearing: 270°W
% Slope of Hillside: 18%

Length of Transect: 200 feet
Photo File Name: PPT_81_4A_**postproject**.jpg



Camera Locations and Photo Points

Project: Easy Street Run Hazard Reduction Project-**Post-Project**
Date: September 13, 2005

Transect Name/Number: Easy Street-Ski Trail 81
Number of Photo Points: 8 photo points total
GPS Coordinates: 11S 0248145 4313730
Approximate Elevation: 9245 feet
Examiner: Melanie Greene-Parsons Scientist

Photo Point: **PPT 81-4B (upslope)**

Camera Location: Directly across from PPT_81_2A and PPT_81_2B (skier left) by rock pile and downslope from Western White Pine

Compass Bearing: 10° N
% Slope of Hillside: 18%

Length of Transect: 500 feet
Photo File Name: PPT_81_4B_postproject.jpg



2.2-3 Spring Runoff Monitoring

Spring runoff monitoring completed during the establishment of pre-project photo points and pre-project effective soil cover evaluations. No rill or gully formation was noted during field monitoring and as documented in pre-project photo points. Future spring runoff monitoring should be conducted by Heavenly personnel during the actual snowmelt period, which varies with site-specific snow pack and climate.

2.2-4 Storm Monitoring

Storm monitoring was not completed as recommended. Heavenly personnel on site during July and August 2005 precipitation events observed no surface runoff during or after these events (verbal communications with ESRHRP project implementers). Appropriate photo point monitoring was not completed, however, and adequate documentation is not available.

2.3 *Field Monitoring Conclusions and Adaptive Management Recommendations*

- The pre-project monitoring is not a true representation of the ski trail because the ski trail had already been implemented. Additionally, the pre-project monitoring performed in 2004 was completed after snowmaking and the resulting access road had been installed. Ideally, pre-project monitoring would occur before any project activities in order to gain an understanding of the true ground cover that exists on the slope.
- The overall objective of the ski trail prescriptions is to achieve a ski trail with an effective surface cover that generally maintains the existing ground cover while only reducing the overall height of the cover (e.g. reduce the height of the boulders and improve contact of down trees with the soil surface). This was not achieved for the ESRHRP due to removal of significant amounts of rock for installation of the snowmaking line.
- Generally, the segments do not have a representative amount of rock (<3 inches) cover as compared to pre-treatment conditions and the hillslope was not restored to the original contour as a result.
- Most of the increase in effective soil cover was in the form of “duff” or native mulch that was produced on site with the use of a chipped and also brought in from off site sources. Ideally, all mulch will be produced from onsite materials obtained during ski trail implementation. Straw, even weed-free certified, is not recommended. Application of mulch may need to occur annually to maintain effective soil cover at 70%.
- Results of photo point monitoring do not indicate significant changes in cover along the ski trail corridor, but do indicate increased cover along the snowmaking corridor.
- Photo point monitoring indicates that the snowmaking corridor was not adequately restored to the original hill slope contours.
- Seasonal Runoff Evaluation and Storm Monitoring will need to occur next year along with Noxious Weed Monitoring; at this point in time it is not specified who

or what entity is responsible for this monitoring; a decision need to be made as to the frequency of Seasonal Runoff Monitoring (annual, every 3-5 years, or if additional project work is implemented)

- Permanent BMPs must be maintained to preserve the integrity of the slope (delineated parking areas, proper signage for closure and interpretive objectives)
- Adaptive management considerations (based on monitoring results and recommendations from agency resource specialists) include: improving soil resources, improving wildlife habitat, improving visual quality, incorporating underground utilities, and improved construction techniques (objectives are listed on page 3-10 and 3-11 of Appendix 3 of the MPA 05).
- **Supplemental modeling utilizing W.E.P.P (Watershed Erosion Prediction Program) should be performed for EIS analysis**

3.0 Water Erosion Prediction Project (WEPP) Modeling Overview

As recommended during field evaluations and during interagency field trips, WEPP modeling was completed for supplementation of ESRHRP monitoring. The complete report for the WEPP modeling performed for environmental impact analysis is included in Appendix 3.1-F of the 2006 Draft EIR/EIS/EIS. A complete description of the WEPP model and input and output parameter files are referenced to Appendix 3.1-F. A summary of the modeling results as they pertain to the ESRHRP monitoring is presented in this subsection.

The objective of WEPP modeling for the ESRHRP is to predict potential erosion that may result from ski trail implementation utilizing the prescriptions outlined in the ESRHRP. Erosion predictions are needed to understand the effects of ski trail prescriptions and various ski area management practices on Easy Street (Ski Trail 81), a recreational ski trail located at Heavenly Mountain Resort. The Water Erosion Prediction Project (WEPP) soil erosion model, a process-based computer model, was used to predict runoff, soil erosion, and sediment delivery from Easy Street Ski Trail. Various conditions were simulated using WEPP to predict the effects of different management activities and to increase the understanding of surface cover effects. Conditions representing the Easy Street Run Hazard Reduction Demonstration Project (ESRHRP), underground snow-making installation, and varied surface cover were simulated for Easy Street Ski Trail using the WEPP model.

3.1 WEPP Modeling Result

The following tables and summary of WEPP results are taken directly from the WEPP Technical Memo referenced to Appendix 3.1-F pages 13 through 19. WEPP predictions of soil loss and sediment yield for Easy Street Ski Trail under [ESRHRP](#) conditions are summarized in Tables 2 through 4 below. Easy Street Ski Trail was modeled as two hillslopes (a snow-making corridor and an adjacent ski trail) and their results combined to predict total loss and erosion. Easy Street Ski Trail was modeled as two hillslopes for the

ESRHRP analyses: a snow-making corridor and an adjacent ski run area. The results from each hillslope were combined to calculate total predicted soil loss and sediment delivery from Easy Street ski run under ESRHRP conditions. As WEPP returns estimates in units of tons per acre, soil loss and sediment delivery, in tons, were calculated for Easy Street Ski Trail using the assumed dimensions of the snow-making corridor and adjacent ski area, as presented in Table 5.

Table 2: Results for Snow-making Corridor Under ESRHRP Conditions

Snow-making Corridor	Pre-treatment (Range of Surface Cover 35 – 70%)	Pre-project (Range of Surface Cover 64 – 71%)	Post-project (Range of Surface Cover 65 – 99%)
Average annual precipitation (in)	36.2	36.2	36.2
Average annual runoff - rainfall (in)	0.20	0.20	0.20
Average annual runoff - snowmelt (in)	3.1	3.0	3.0
Average annual soil loss (tons/acre)	54.9	31.1	19.8
Average annual sediment yield (tons/acre)	46.7	19.8	15.3
Percentage yield (%)	0.85	0.64	0.77

^aRatio of soil loss to sediment yield

Table 3: Results for Adjacent Ski Trail Area Under ESRHRP Conditions

Adjacent Ski Trail	Pre-treatment (Range of Surface Cover 35 – 70%)	Pre-project (Range of Surface Cover 64 – 71%)	Post-project (Range of Surface Cover 65 – 99%)
Average annual precipitation (in)	36.2	36.2	36.2
Average annual runoff - rainfall (in)	0.0	0.0	0.0
Average annual runoff - snowmelt (in)	0.0	0.0	0.0
Average annual soil loss (tons/acre)	0.0	0.0	0.0
Average annual sediment yield (tons/acre)	0.0	0.0	0.0
Percentage yield (%)	0.0	0.0	0.0

Table 4: Results for Easy Street Ski Trail Under ESRHRP Conditions

Snow-making Corridor + Ski Trail	Pre-treatment (Range of Surface Cover 35 – 70%)	Pre-project (Range of Surface Cover 64 – 71%)	Post-project (Range of Surface Cover 65 – 99%)
Average annual precipitation (in)	36.2	36.2	36.2
Average annual runoff - rainfall (in)	0.20	0.20	0.20
Average annual runoff - snowmelt (in)	3.1	3.0	3.0
Average annual soil loss (tons/acre)	54.9	31.1	19.8
Average annual sediment yield (tons/acre)	46.7	19.8	15.3
Percentage yield (%)	0.85	0.64	0.77

Table 5: WEPP Results for Easy Street Ski Trail (Corridor and Ski Trail) Under ESRHRP Conditions

Snow-making Corridor + Ski Trail^a	Pre-treatment (Range of Surface Cover 35 – 70%)	Pre-project (Range of Surface Cover 64 – 71%)	Post-project (Range of Surface Cover 65 – 99%)
Average annual precipitation (in)	36.2	36.2	36.2
Average annual runoff - rainfall (in)	0.20	0.20	0.20
Average annual runoff - snowmelt (in)	3.1	3.0	3.0
Average annual soil loss (tons)	15.9	9.0	5.7
Average annual sediment yield (tons)	13.6	5.7	4.4
Percentage yield (%)	0.85	0.64	0.77

^a Snow-making corridor is assumed to be 0.29 acres (1,040 ft x 12 ft) and adjacent ski trail area is assumed to be 1.79 acres (1,040 ft x 75 ft)

WEPP simulations showed that erosion processes at Easy Street Ski Trail are dominated by snowmelt, as little runoff occurs from rainfall. Simulations for Easy Street Ski Trail using the continuous, 30-year simulation and the 20-year, one-hour design storm predicted no soil loss or sediment yield for the adjacent ski trail area under ESRHRP Pre-treatment, Pre-project, and Post-project conditions. WEPP predictions to evaluate the effects on the adjacent ski trail area when the extent of surface cover was varied showed no soil loss or yield occurring under the 20-year, one-hour design storm when the surface was assumed to be bare. WEPP predictions using the 30-year, continuous simulation showed no soil loss or yield occurring when the surface cover of the adjacent ski trail area was greater than 10%; however, negligible loss and yield values of 0.20 tons/acre were predicted when a bare surface was assumed.

WEPP predicted negligible or no soil loss and sediment yield occurring on the adjacent ski trail area, which can be attributed to the soil properties and the extent of surface cover that were assumed. The extent of surface cover under ESRHRP conditions ranged from

35% to 99%, with a minimum cover of 35% occurring on the less steep, lower segment. Erosion is sensitive to the extent of surface cover and erosion is generally negligible when the extent of surface cover approaches 70% (B. Elliot, USFS RMRS, personal communication).

WEPP predictions using the 20-year, one-hour design storm showed no soil loss or sediment yield occurring on the adjacent ski trail area, which can be attributed to the soil properties that were assumed for the simulations. The WEPP soil file developed for a short grass prairie and assumed to best represent the soil conditions of the adjacent ski area has a bulk density of 1.3 g/cm^3 and an effective hydraulic conductivity of 25 mm/hr (1 in/hr). This effective hydraulic conductivity is equal to the intensity of the 20-year, one-hour design storm; therefore, all rainfall was infiltrated and no runoff or erosion was predicted, regardless of the extent of surface cover. Given that erosion was not predicted to occur on the adjacent ski trail area under the 20-year, one-hour design storm, a more appropriate analysis of soil erosion for a single-event may be to determine the probability of a given level of erosion occurring under a 24-hour storm event. This can be done by using the return probability analysis feature of WEPP, where the model uses the climate input file to internally calculate the 24-hour rainfall for the 5-, 10-, 20-, and 50-year return periods, and predicts the soil loss and sediment yield for each return period.

WEPP predictions for the snow-making corridor under ESRHRP conditions using the 30-year, continuous simulation showed runoff, soil loss, and sediment yield occurring on the snow-making corridor. Runoff values did not change significantly when the extent of surface cover was varied, due to the compaction and low hydraulic conductivity that was assumed; however, soil loss and sediment yield values did vary. Maximum average annual loss and yield values of 54.9 tons/acre and 46.7 tons/acre, respectively, were predicted for Pre-treatment conditions when the corridor surface was assumed bare, and predictions decreased as the extent of surface cover was increased. Predictions of the snow-making corridor under ESRHRP Pre-project conditions showed average annual soil loss and sediment yield decreased to 31.1 tons/acre and 17.5 tons/acre, respectively, which is a reduction of 61% and 62% when compared to Pre-treatment conditions. Similarly, WEPP predicted soil loss and sediment yield under ESRHRP Post-project conditions to further decrease in response to increased surface cover. Average annual soil loss and yield values of 19.8 tons/acre and 15.3 tons/acre, respectively, were predicted for ESRHRP under Post-project conditions, which is a reduction of 64% and 67% when compared to Pre-treatment conditions. Similarly, WEPP predictions for the snow-making corridor under ESRHRP conditions using the 20-year, one-hour design storm showed a decrease in soil loss and sediment yield as the extent of surface cover was increased between Pre-treatment, Pre-project, and Post-project simulations. WEPP simulations using the 20-year, one-hour storm predicted maximum soil loss and sediment yield values of 6.26 tons/acre occurring under Pre-treatment conditions. WEPP predicted soil loss and sediment yield would decrease to less than 2.0 tons/acre under Pre- and Post-project conditions, for an approximate reduction of 70%.

WEPP predictions to evaluate the effects of the extent of surface cover on the snow-making corridor using the 30-year, continuous simulation showed average annual soil loss and sediment yield values of 20.9 ton/acre and 14.2 tons/acre, respectively, when the extent of cover was held constant at 70%. Soil loss and sediment yield predictions

further decreased to 13.9 tons/acre and 8.5 tons/acre, respectively, when the extent of cover was increased to 100%.

3.2 WEPP Modeling Conclusions

WEPP simulations showed the effects of soil properties and the extent of surface cover on soil loss and sediment yield predictions can be significant. WEPP predictions for undisturbed soils showed negligible erosion, regardless of the extent of surface cover. However, WEPP predictions were high for disturbed soils, but decreased as the extent of surface cover was increased. WEPP did not predict soil loss or sediment yield for the adjacent ski area under ESRHRP conditions; however, loss and yield were predicted for the snow-making corridor. This can be attributed to the assumptions that were made about the soil properties that significantly influence erosion: effective hydraulic conductivity, bulk density, rill erodibility, and interrill erodibility. WEPP files developed for highly compacted forest roads have low effective hydraulic conductivity and high bulk density, high rill erodibility, and high interrill erodibility, which were assumed to represent the soil properties of the snow-making corridor. Conversely, WEPP files developed for short grass prairie have a higher effective hydraulic conductivity and lower bulk density, lower rill erodibility, and lower interrill erodibility, and were assumed to represent the soil properties of the adjacent ski trail area. Without measured, site-specific data, assumptions about the soil properties were made that may have resulted in under- or over-predictions of soil loss and sediment yield. While these were the best available methods, and the predictions by WEPP are reasonable, calibrating the model with measured, site-specific data for effective conductivity, bulk density, rill erodibility, and interrill erodibility will improve the accuracy of the model.

Site-specific measurements for effective hydraulic conductivity, rill erodibility, and interrill erodibility can be made through rainfall simulation studies at disturbed, forest sites. Interrill erodibility and effective hydraulic conductivity can be measured during the same study; however, rill erodibility studies are done independently and are more time consuming. Effective hydraulic conductivity is a function of soil textural properties and land management practices; however, disturbance or land management practices can increase or, in some cases, overwhelm the effects of soil textural properties. For example, repeated, annual tillage over many years can neutralize many natural effects of agricultural soils, so that only soil texture properties remain. Alternately, significant disturbances to forest soils (i.e. roads, skid trails, and fire) can overwhelm the effects of soil textural properties because the magnitude of the disturbance becomes more important than the inherent soil properties. For this reason, rainfall simulation studies may be used to measure the effective hydraulic conductivity of disturbed forest soils.

WEPP simulations for the snow-making corridor were made using data representing a worst-case scenario, i.e. highly compacted soils and a long, unbroken overland flow path. Further, simulations of the recovering snow-making corridor assumed passive, non-use only and did not consider the effects of mechanical treatments that accelerate recovery, such as road ripping. Studies show that road ripping treatments can increase effective hydraulic conductivity to a maximum rate of 10mm/hr within the first two years of

treatment, beyond which hydraulic conductivity generally does not increase with time (R. Foltz, USFS RMRS, personal communication).

3.3 WEPP Adaptive Management Recommendations

The WEPP model was applied to various conditions to understand the effects of ski trail prescriptions and management practices through the prediction of soil erosion. A greater understanding of the effects of these practices can be gained by improving the accuracy of the WEPP model through calibration with site-specific data. With greater understanding, adaptive management strategies can be applied to more effectively improve future ski trail designs, prescriptions, management practices, and restoration efforts. Further, WEPP could be an effective tool to develop low-impact design alternatives, and to evaluate the impacts of proposed designs as part of an alternatives analysis process. The following activities could provide the necessary feedback to gauge and respond to the effects of various practices, and are recommended as a potential adaptive management strategy.

- Measure effective hydraulic conductivity, rill erodibility, and interrill erodibility (through rainfall simulation studies) and bulk density before and after to the implementation of prescriptions or management activities
- Calibrate WEPP parameters using measured data to improve the model's accuracy
- Utilize WEPP's return period analysis feature to predict the probability of a given level of erosion occurring for a 24-hour storm event
- Apply WEPP predictions of soil loss and sediment yield to develop and evaluate design alternatives, and to improve future prescriptions, management practices, and restoration efforts for ski trail areas.

4.0 Future Discussions/Decisions/Research for ESRHRP

- Complete demonstration project on ski trail of steeper terrain. Include bulk density measurements for determination of pre and post-project soil compaction
- Demonstration of successful site-specific restoration of snow making corridors and determination of site recovery times
- Site access requirements
- Determination of most effective and efficient equipment
- Most effective depth of mulch applications and determination of ski trail maintenance frequencies

- Determination of the validity of CWE's 70% effective soil cover requirements for high elevation ski trails
- Who is responsible for long term monitoring?