

1.10.3 Soil Conservation Subelement

Overview

In addition to serving as a growth medium for plants, soil provides numerous chemical, physical, and biological functions that are critical to sustaining healthy ecosystems and maintaining environmental quality. Accordingly, the Compact identifies the need to establish and adopt environmental standards for soil conservation. The Regional Plan currently contains two Thresholds for soil conservation:

- (1) Soil Conservation Threshold SC-1 for Impervious Cover (Management Standard). Impervious cover shall comply with the Land Capability Classification of the Lake Tahoe Basin, California and Nevada, A Guide for Planning (Bailey 1974).
- (2) Soil Conservation Standard SC-2 for Stream Environment Zones (Numerical Standard). Preserve existing naturally functioning SEZ lands in their natural hydrologic condition, restore all disturbed SEZ lands in undeveloped, unsubdivided lands, and restore 25% of the SEZ lands that have been identified as disturbed, developed or subdivided, to attain a 5% total increase in the area of naturally functioning SEZ lands.

The programmatic goals and policies that provide Agency direction for the soil conservation program and attainment of the above listed soil conservation Thresholds are contained in the Soils, SEZ, and Land Use Subelements. The Soils Subelement currently contains one goal and seven associated policy statements.

The goal statement calls for the control of accelerated soil erosion and the maintenance of soil productivity (i.e., soil conservation) as a means of achieving established environmental threshold carrying capacities for soil, vegetation, and water quality. The seven subsequent policy statements direct TRPA to:

- (1) limit the timing and extent of ground disturbance
- (2) minimize the associated effects on soil and water quality
- (3) establish limits for allowable impervious land coverage based on the land capability system and base allowable coverage coefficients developed by Bailey (1974)
- (4) establish procedures for reviewing, updating, and challenging the land capability determinations made by Bailey (1974)
- (5) restrict new land coverage and disturbance on sensitive lands (i.e., land capability districts 1-3)
- (6) identify areas containing coverage in excess of the maximum allowable coverage limits and develop programs to address the environmental problems caused by excess coverage
- (7) preserve all naturally functioning SEZs and restore disturbed SEZ lands wherever possible.

TRPA employs a variety of planning-, regulatory-, and environmental improvement-based strategies and measures to implement the policies and achieve the goals listed in the Soil Subelement. In general, these measures and strategies can be grouped into two categories: those intended to address the acute, short term effects caused by

temporary soil and vegetation disturbance, and those that are intended to address the long term, chronic effects that result from soil and vegetation disturbance and the replacement of native soils and vegetation with impervious land coverage. The primary measures and strategies in place today under the 1987 Regional Plan are listed below:

Implementation Measures that Address Short Term Effects of Land Disturbance:

- Soil and Vegetation Disturbance Regulations. The timing and extent of soil and vegetation disturbance is regulated to prevent or minimize the risk of detrimental soil compaction and accelerated runoff, erosion, and sedimentation
- Temporary Best Management Practice (BMP) Regulations. These BMPs are required during project construction to limit ground disturbance and control accelerated runoff, erosion, and sedimentation.
- Permanent (i.e., Post-Disturbance) BMP Regulations. These BMPs are required following the completion of project construction to stabilize and re-vegetate disturbed and/or denuded areas and to control accelerated runoff, erosion, and sedimentation resulting from project-related soil and vegetation disturbance.

Implementation Measures that Address Long Term Effects of Land Coverage and Disturbance:

- Land Capability Districts and Impervious Land Coverage Regulations. TRPA’s land capability program and associated impervious land coverage regulations are central to the agency’s long term soil conservation strategy. Under the 1987 Regional Plan, land capability units or “districts” are delineated at a regional or “planning-scale,” based on known geomorphic hazards, soil map unit descriptions contained in the Soil Survey of the Tahoe Basin Area (Rogers 1974), and the methodology set forth in the Land Capability Classification of the Lake Tahoe Basin (Bailey 1974). Land capability district and boundary determinations are then verified in the field on a project by project basis.

Associated land coverage regulations are organized around the following eight central regulatory program elements:

- (1) Base allowable land coverage.
- (2) Maximum allowable land coverage
- (3) Eligible land coverage transfers
- (4) Land coverage transfer ratios
- (5) Land coverage transfer restrictions and requirements
- (6) Permissible uses on sensitive lands
- (7) Sensitive lands mitigation
- (8) Excess land coverage mitigation

Although some of these regulatory program elements are based on soil and geomorphic considerations (e.g., base allowable coverage), most are derived largely from land use considerations. As such, all eight of these regulatory program elements are more fully described in the Land Use Subelement.

- Permanent BMP Regulations. Permanent BMPs are required for all existing and new developments to offset the effects of long term soil disturbance and impervious land coverage on watershed processes and runoff, erosion, and sedimentation rates.

- Community Plan and Redevelopment Plan Requirements. TRPA's community plan and redevelopment regulations require the removal of land coverage and sensitive land restoration as conditions of project approval.
- Environmental Improvement Program (EIP). The EIP works cooperatively with partner agencies to identify and implement environmental improvement projects that restore disturbed areas, remove impervious land coverage, and help to control accelerated runoff, erosion, and sedimentation.

Alternative 1—Continuation of Existing Regional Plan

Summary

Under Alternative 1, the "No Action" Alternative, the goals, policies, and implementation measures from the 1987 Regional Plan would remain in place, with one exception: the existing land capability map of the Lake Tahoe Basin would be replaced with an updated map based on the recent soil survey update that was completed for the Tahoe Basin (U.S. Department of Agriculture Natural Resources Conservation Service 2007).

Goals and Policies

Under Alternative 1, the Goals and Policies from the 1987 Regional Plan would remain in place, with the exception of the updated map cited in the summary above.

Implementation Measures

Under Alternative 1, the implementation measures from the 1987 Regional Plan would remain in place, with the exception of the updated map cited in the summary above.

Alternative 2

Summary

Alternative 2 is designed to incorporate the desired conditions for impervious land coverage and soil resources that were developed during the Pathway process. It is meant to improve the effectiveness of ongoing soil conservation and threshold attainment efforts by incorporating new policies and implementation measures to:

- (1) improve the accuracy of regional and project-level land capability determinations
- (2) reduce impacts of wet season construction activities and resource management operations
- (3) improve the effectiveness of land coverage removal and land restoration efforts.

In addition, existing goals and policies would be reorganized to clarify language and intent and to move detailed implementation language from the goals and policies document to the Code.

Goals and Policies

Under Alternative 2, the existing soil conservation goal statement from the 1987 Regional Plan would be revised to clarify language and intent. A new goal statement would be added to incorporate the desired conditions for land coverage and soil

resources that were developed during the Pathway process. The revised goal statement would call on TRPA to implement policies and programs that minimize ground disturbance and the associated effects on soil and water quality.

The new goal statement would require that TRPA, to the extent possible, regulate land coverage so that it does not exceed the capacity of soil resources to offset the associated adverse effects of soils, watershed conditions, and water quality, and that unavoidable adverse effects resulting from impervious land coverage are fully mitigated on a watershed or storm water zone basis.

Under Alternative 2, an existing policy pertaining to SEZ management and restoration would be deleted because these topics are already addressed in the Stream Environment Zone Subelement. The other six policies in the existing Soils Subelement would be retained but revised to clarify policy language and intent, move detailed implementation language to the Code, and adopt an updated land capability map of the Tahoe Basin. A new policy would be added to provide directive for the development and implementation of new soil quality performance standards for projects involving land coverage removal and the remediation of temporary and long term soil disturbance.

Implementation Measures

In addition to the existing planning-, regulatory-, and environmental improvement-based strategies contained in the 1987 Regional Plan, Alternative 2 would incorporate the following new measures to implement the revised and new soil conservation policies contained in the Soils Subelement:

- *Sensitive Lands and Wet Season Soil Disturbance Regulations.* Develop and implement standardized evaluation criteria for determining the suitability of soil and site conditions for sensitive lands and wet season grading, disturbance, and resource management operations. Develop and implement corresponding monitoring protocols and methodologies for determining the effects of these activities on soil and water quality.
- *Updated Land Capability Map and Field Verification Protocols.* Adopt an updated, planning-level land capability map of the Lake Tahoe Basin that is based on the 2007 soil survey update prepared by the U.S. Department of Agriculture Natural Resources Conservation Service, and revise the land capability regulations to require site-specific soil and land capability mapping and discretionary field verification of soil and land capability map units.
- *Soil Quality Performance Standards.* Develop and implement soil quality performance standards to be used in measuring the success of land coverage removal projects and projects involving the remediation of temporary and long term soil disturbance.

The implementation measures under Alternative 2 include proposed land coverage regulations which can be found in the alternatives description for the Land Use Subelement.

Alternative 3

Summary

Alternative 3 is designed to continue implementation of existing Goals, Policies, and Implementation Measures in the current soils program with the following two exceptions:

- (1) An existing policy statement would be amended to adopt an updated, planning-level land capability map of the Tahoe Basin that is based on the recent soil survey update that was completed for the Tahoe Basin (U.S. Department of Agriculture Natural Resources Conservation Service 2007).
- (2) A new implementation measure would be added to develop and implement standardized evaluation criteria for determining the suitability of soil and site conditions for sensitive lands and wet season grading, disturbance, and resource management operations, and to develop and implement corresponding monitoring protocols and methodologies for determining the effects of these activities on soil and water quality.

Goals and Policies

The goals and policies under Alternative 3 would be the same as those proposed for Alternative 1 with the exception that one existing policy statement would be amended to adopt an updated, planning-level land capability map of the Tahoe Basin that is based on the recent soil survey update that was completed for the Tahoe Basin (U.S. Department of Agriculture Natural Resources Conservation Service 2007).

Implementation Measures

The implementation measures under Alternative 3 would be the same as those proposed for, Alternative 1, with the exception of the following changes:

- Updated Land Capability Map. Adopt an updated, planning-level land capability map of the Lake Tahoe Basin that is based on the 2007 soil survey update prepared by the U.S. Department of Agriculture Natural Resources Conservation Service.
- Sensitive Lands and Wet Season Soil Disturbance Regulations. Develop and implement standardized evaluation criteria for determining the suitability of soil and site conditions for sensitive lands and wet season grading, disturbance, and resource management operations. Develop and implement corresponding monitoring protocols and methodologies for determining the effects of these activities on soil and water quality.

Alternative 4

Summary

Alternative 4 is designed to incorporate the desired conditions for impervious land coverage and soil resources that were developed during the Pathway process. It is meant to improve the effectiveness of ongoing soil conservation and threshold attainment efforts by incorporating new policies and implementation measures to:

- (1) improve the accuracy of regional and project-level land capability determinations
- (2) reduce impacts of wet season construction activities and resource management operations
- (3) improve the effectiveness of land coverage removal and land restoration efforts

In addition, Alternative 4 makes site verification of land capability mandatory and not discretionary, as it is in Alternative 2.

Goals and Policies

The goals and policies under Alternative 4 would be the same as those proposed for Alternative 2.

Implementation Measures

The implementation measures under Alternative 4 would be the same as those proposed for Alternative 2, except for the modification to the following measure (see **emphasis**):

- Updated Land Capability Map and Field Verification Protocols. Adopt an updated, planning-level land capability map of the Lake Tahoe Basin that is based on the 2007 soil survey update prepared by the U.S. Department of Agriculture Natural Resources Conservation Service, and revise the land capability regulations to require site-specific soil and land capability mapping and **mandatory** field verification of soil and land capability map units.

The implementation measures under Alternative 4 include proposed land coverage regulations which can be found in the alternatives description for the Land Use Subelement.