

**Appendix I-2  
TAHOE PROJECT PROPOSAL**

**Project Name: Land-cover characterization of the Lake Tahoe Basin**      **EIP #: 10162**

**Lead Agency: U.S. Geological Survey**

**Contact: Christian Raumann**

**Phone Number: (650) 329-5648**

**Threshold:**

**Email Address: craumann@usgs.gov**

**Threshold Standard:**

**Total Project Cost: \$250,000**

**LTFAC/TWG Recommended Funding:  
\$150,000**

**Project Description:**

This project proposes to (1) map the current and historical state of the land surface, (2) conduct analysis to document patterns, rates, and trends in urbanization and land-use change, and (3) assess the causes and possible environmental consequences of land-use change.

**Describe the purpose and need for the project:**

Human activity in the Lake Tahoe Basin has increased substantially in the past six decades causing significant environmental impacts on stream water quality, natural vegetation structure, and possibly lake water clarity. In spite of past and ongoing efforts to understand how Lake Tahoe functions and to what extent humans have affected its surrounding landscape and ecosystem processes, there remains a lack of comprehensive current and temporal land use/land cover (LULC) data and analysis for the region.

**Describe the goals and objective of the project (For Science & Research Projects describe Key Management Questions being addressed):**

Through the quantification and explanation of landscape changes, disturbances, and impacts, we may begin to understand to what degree specific land-management practices and development activities contribute to fluctuating environmental conditions within the Lake Tahoe Basin.

**Describe the anticipated project accomplishments:**

Project methodology has already been developed in the southern Lake Tahoe Basin. For this current project, we derived high-resolution LULC GIS datasets for the years 1940, 1969, 1987, and 2002 using digital orthoimagery (1-meter scale) and IKONOS satellite imagery. Multitemporal LULC was classified at a 1-acre minimum mapping unit using a hierarchical classification system designed specifically for the Lake Tahoe Basin. Anthropogenic impervious surface area was estimated (0%-100% in 5% increments) for each LULC polygon. Natural impervious cover was also mapped at the 1-acre scale. With the recent completion of LULC mapping, we've begun quantification and analysis of the data.

For the proposed project, we will produce similar multitemporal digital orthoimagery and high-resolution LULC datasets for the rest of the Lake Tahoe Basin. Once mapped, we

**SNPLMA Project #:** \_\_\_\_\_ **(To be assigned by SNPLMA Administration)**

will generate and analyze land-cover change statistics, identifying and describing any significant trends and possible links to environmental health. These results may then prove useful to support the decisions of regulatory agencies and educate stakeholders.

**Describe the “readiness” of this project to move forward (Environmental doc., etc.)**

Land use/land cover mapping for 2002 may begin immediately as the 2002 IKONOS imagery is now available and the classification system has already been developed for the Lake Tahoe Basin.

**Describe partnerships for this project. (Include documentation)**

Desert Research Institute (DRI), USGS Water Resources-Carson City

**For Science & Research Projects describe how this project will guide future management activities:**

This project will provide a much-needed baseline and historical retrospective of natural and human-induced changes to the Lake Tahoe Basin landscape.

*Map of the study area is included.*

## Land-cover characterization of the Lake Tahoe Basin

This figure shows the coverage extent of historical digital orthoimagery and high-resolution land-cover mapping in the southern Lake Tahoe Basin for the years 1940, 1969, 1987, and 2002.

This project proposes similar imagery and land-cover data be produced, along with analysis, for the rest of the Tahoe Basin (labeled UNMAPPED).

Lake Tahoe Basin

Lake Tahoe

UNMAPPED

UNMAPPED

UNMAPPED

Intervening Areas

Bijou Creek watershed

Trout Creek watershed

Upper Truckee River watershed

2002 land use/land cover data is shown here at a reduced spatial resolution.

0 5 10 KM

NEVADA  
CALIFORNIA