



Van Sickle CA/NV Bi-State Park

APPENDIX I MASTER PLAN SUMMARY REPORT JUNE 2005

DESIGN WORKSHOP
PARSONS
JWA
CONSORTIUM WEST
KLEINFELDER
SUSAN LINDSTROM
WESTERN BOTANICAL
SERVICES
LSC TRANSPORTATION
TURNER AND ASSOCIATES

Appendix I - Master Plan Summary Report

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September 21, 2004
File: 49096.01

Mr. Steve Noll
Design Workshop
298 Kingsbury Grade, First Floor #3
Stateline, Nevada 89449

**SUBJECT: Preliminary Geologic Hazards and Geotechnical Issues Report
Van Sickle Bi-State Park
Stateline, Nevada/California**

Dear Mr. Noll:

The attached report presents our summary of the preliminary geologic hazards and geotechnical issues for the planned Van Sickle Park located in Stateline, Nevada/California. The subject site location is shown on Plate 1. This report was prepared in accordance with our approved Scope of Work, dated May 21, 2004.

Kleinfelder performed a site visit and reviewed available geologic and geotechnical literature. The discussion of geologic hazards and geotechnical issues along with limitations is included in the attached report. Based on the results of the site visit and literature review, we believe there are no geologic or geotechnical constraints that would preclude project development. However, a geotechnical investigation will be necessary based on final site development and structure design.

We appreciate this opportunity to be of service to Design Workshop, and look forward to working with you on future phases of this development. If you have any questions regarding this report or need additional information or services, please feel free to call either of the undersigned.

Sincerely,

KLEINFELDER, INC.

Joshua P. Fortmann
Staff Geologist

Mark Doehring, P.E.
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Geoscience Manager

JF:MD:am

**PRELIMINARY GEOLOGIC HAZARDS
AND GEOTECHNICAL ISSUES
VAN SICKLE BI-STATE PARK
STATELINE, NEVADA/CALIFORNIA**

September 21, 2004

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Plate 7: Photos 5 and 6

EXECUTIVE SUMMARY

Based on the site visit and literature review completed to date, we have drawn the following general conclusions. This summary should be read in conjunction with the attached report.

- General site geology is granodiotite outcrops at higher elevations, decomposed granodiorite on slopes and alluvial deposits in stream and meadow areas.
- Site soils generally consist of loamy coarse sand and gravelly coarse sand. Silt loam and silty clay loam are present in drainage areas.
- Shallow groundwater is likely to be encountered at lower elevations and near drainages. A potential for liquefaction hazard exists in these areas, depending on soil conditions, groundwater depth and bedrock depth. Construction dewatering and subdrains may be necessary depending on final structure design and location.
- Portions of two drainages located on the subject site are mapped as having a moderate severity of shaking during an earthquake. The main access road crosses one of the drainages near the Nevada-California state boundary. The drainages are also subject to increased potential for liquefaction and debris flow hazard.
- A potential for rock fall and/or avalanche exists on the steep slopes of the site. Areas of outcrop may also present an increased rock fall hazard. The majority of development is planned for relatively level areas of the site. Hiking trails are planned for higher elevations. The day use area proposed for a ropes course is located near a steep slope that experienced a forest fire in 2002. This area may have an increased potential of erosion, rock fall, and avalanches.
- The site is not located within the boundaries of an Alquist-Priolo Earthquake Fault Zone. However, the site is located in a region traditionally characterized by moderate seismic activity. Additionally, one potentially active fault, and three mapped faults of unknown activity, are mapped within the site limits. The active Tahoe Valley fault is located approximately 3 kilometers (km) to the southwest; the Genoa and West Tahoe Valley faults are located approximately 5 km to the east and 12 km to the west, respectively. The Genoa and Tahoe Valley faults are capable of producing earthquakes with estimated magnitudes of 7.4 and 7.0, respectively (dePolo, et al,

1997). Multiple other active faults are located in the vicinity of the subject site. A major seismic event on these faults could cause moderate to high ground shaking at the site.

- Shallow bedrock conditions should be expected in many areas across the subject site. It is possible that the underlying bedrock has experienced a highly variable amount of weathering. Excavation with heavy equipment (such as a D-9 with a single tooth ripper) and/or drilling and blasting may be required in some locations.
- Recommendations for building foundations and earthworks including hard-rock excavation, and other geotechnical-related designs will require a design-level geotechnical investigation.

PRELIMINARY GEOLOGIC HAZARDS AND GEOTECHNICAL ISSUES

VAN SICKLE BI-STATE PARK STATELINE, NEVADA/CALIFORNIA

1 INTRODUCTION AND SCOPE

1.1 Project Description

This report presents the results of our preliminary geologic hazards and geotechnical issues assessment for the proposed Van Sickle Park located in Stateline, Nevada and California. The site is located in T13 N, R18E Sec 25, 26, 27, 34 and 35, Mount Diablo Baseline & Meridian. The subject site is located in the upland mountain areas to the east of Stateline, Nevada and California. The subject site is located within the South Lake Tahoe Quadrangle USGS 7.5 minute topographic map, and is shown on the attached Site Vicinity Map (Plate 1).

The subject site comprises 640 acres; approximately 520 acres of which is located in Nevada. The remaining 120 acres are located in California. Two large tracts of property make up the subject site. The western portion of the subject site is located in California and Nevada, and the eastern portion of the subject site is located in Nevada. The western portion will be developed with park amenities, proposed to include a visitor center, day-use picnic areas, group campsites, vehicle/tent sites and walk-in campsites. An asphalt-paved road will provide site access, and hiking trails will be constructed at higher elevation areas. The eastern portion will be developed with hiking trails only.

1.2 Purpose and Scope of Work

Kleinfelder performed this preliminary assessment in accordance with our proposal, dated May 21, 2004. The purpose of the work is to provide preliminary information regarding potential geologic hazards and geotechnical issues. The scope of work included performing a site visit, a review of available literature and preparation of this report.

1.3 References

The following published and unpublished references were reviewed during preparation of this report:

- “Preliminary Geologic Hazards, Former Highway 50 Bypass Bike Trail Project, South Lake Tahoe, California”, by Kleinfelder, Inc., January 13, 2004, File No. 35501.01.
- “Geotechnical Investigation Report, Proposed Falcon Glenn Residential Development (Van Sickle Property), South Lake Tahoe, California”, by Kleinfelder, Inc., July 10, 2003, File No. 30146.01.
- “Geotechnical Investigation Report, Proposed Heavenly Ski Area Improvements, South Lake Tahoe, California”, by Kleinfelder, Inc., October 20, 1998, File No. 30-2649-01.001.
- “Geotechnical Investigation, 1 to 2 Million Gallon Water Storage Tank, Stateline Storage Project, South Lake Tahoe, California”, by SHB AGRA, Inc., November 5, 1993.
- Harrill, J.R., 1977, *South Lake Tahoe Folio Hydrologic Map*, Nevada Bureau of Mines and Geology Environmental Series map No. 2Af, 1:24,000.
- Bonham, H.F., Jr. and J.L. Burnett, 1976, *South Lake Tahoe Folio Geologic Map*, Nevada Bureau of Mines and Geology Environmental Series map No. 2Ag, 1:24,000.
- Katzer, T.L., and P.A. Glancy, 1978, *South Lake Tahoe Folio Flood and Related Debris Flow Hazards Map*, Nevada Bureau of Mines and Geology Environmental Series, 1:24,000.
- Trexler, D.T., and Bell, J.W., 1979, *South Lake Tahoe Folio Earthquake Hazards Map*, Nevada Bureau of Mines and Geology Environmental Series map No. 2AI, 1:24,000.

- Burnett, J.R., 1968, *Geology of the South half of the Lake Tahoe Basin, California and Nevada*, California Geology, July 1971.
- Armin, R.A., John, D.A., Dohrenwend, J.C., *Preliminary Geologic Map of the Freel Peak 15' Quadrangle, California and Nevada*, 1980.
- Jennings, C.W. (1994), *Fault Activity Map of California and Adjacent Areas with Locations and Ages of Recent Volcanic Eruptions*, California Division of Mines and Geology.
- Schweikert, R.A. et al (2000), *Preliminary Map of Pleistocene to Holocene Faults in the Lake Tahoe Basin, California and Nevada*, University of Nevada Reno.
- *Soil Survey, Tahoe Basin Area, California and Nevada*, US Department of Agriculture, March 1974.
- *South Lake Tahoe 7.5' Topographic Map*, US Geological Survey, 1982.
- Schweikert, R.A. et al (1999), *Preliminary Fault Map of the Lake Tahoe Basin, California and Nevada*, Seismological Research Letters, Volume 70, Number 3, May/June 1999.
- De Polo, C.M. et al (1997), *Earthquake Occurrence in the Reno-Carson City Urban Corridor*, Seismological Research Letters, Volume 68, Number 3, May/June 1997.
- Mineral Land Classification of El Dorado County, California, California Geological Survey Open-File Report 2000-03, 2001.

2 FIELD RECONNAISSANCE

On September 9, 2004, Kleinfelder performed a field reconnaissance of the subject site. A Kleinfelder geologist and geotechnical engineer observed the western portion of the subject site, with emphasis on the proposed visitor center area. The higher elevations of the western portion and the eastern portion of the subject site were not observed. We understand that unpaved hiking trails are the only proposed improvements in these areas. We observed the western portion of the subject site, moving from the site entrance on Montreal Road along the existing road to the day use area (proposed ropes course) at the uphill end of the road. Existing features include the barn and cabins in the vicinity of the proposed visitor center, and Heavenly gondola crossing the site parallel and to the south of the state line. The existing road crosses an unnamed tributary of Edgewood Creek near the state line, and then passes the proposed group campsites. Areas of proposed development observed include the visitor center, day-use picnic areas, maintenance area, group campsites, the vehicle/tent site area, walk-in campsites and associated parking areas, and the day use area. We also observed the existing South Tahoe Public Utility District (STPUD) water tanks located on STPUD property within the subject site boundaries. Observed potential geologic hazards and geotechnical issues include drainages, steep slopes and associated issues, including avalanche and rock fall hazards. Kleinfelder also observed a forest fire burn area, located adjacent to the east of the proposed ropes course, which may affect erosion potential. Discussion of potential geologic hazards and geotechnical issues in relation to site features and proposed structures is included below. Photographs of selected site features are attached as Plates 5, 6 and 7.

3 DISCUSSION

3.1 Site Conditions

The existing subject site development includes a barn and cabin structures, dirt roadways, and municipal water tanks. The majority of the subject site is undeveloped upland terrain. The undeveloped property includes forest, meadow and drainage areas.

This is a preliminary assessment and additional investigation may provide additional data regarding the identified geologic and geotechnical issues. A geotechnical investigation should be performed prior to design and construction of all structures, roads, trails and associated utilities.

3.2 Regional Geology

The site is located within the Sierra Nevada geomorphic province and the Lake Tahoe Basin. Lake Tahoe is a large graben bounded by faults on three sides. Cretaceous-age granodiorite forms the peaks and ridges on the subject site with some roof pendants of meta-sedimentary rocks located west of the site.

The features of the eastern Sierra Nevada Mountains were formed by large scale faulting during the Tertiary period. Numerous volcanic vents are also located in the region. Although not currently active, these features have shown activity within the last 7 million years.

Much of the region has been affected by glaciation during the past 1.5 to 2 million years. This glacial activity is responsible for many of the landforms surrounding the site. Glacial activity has transported large volumes of sediments, and deposited this material throughout the South Lake Tahoe area as glacial till and glacial outwash. The subject site is located on the South Lake Tahoe geologic map.

3.3 Site Geology and Subsurface Conditions

The site is underlain by the following geologic units:

- Alluvial Deposits (Qal) – consists of poorly sorted, gravelly, coarse sand with minor silt and gravel deposited in stream channels.
- Decomposed Granodiorite (Kgrd) – consists of granodioritic grus weathered from outcrops.
- Granodiorite (Kgr) – consists of granodiorite with abundant corestones surrounded by grus.

General site geology is granodiorite outcrop at higher elevations, decomposed granodiorite on slopes and alluvial deposits in stream and meadow areas. The geologic map is attached as Plate 2.

The following summary of site soil is based on the USDA Soil Survey reviewed.

- Elmira (Ev) - loamy coarse sand, wet variant, glacial outwash drainageways, nearly level to gently sloping, slow runoff and slight erosion hazard;
- Loamy Alluvial Land (Lo) – recent alluvium adjacent to stream channels
- Cagwin – Rock Outcrop Complex (CaD) – 5-15% slopes, 85-95% soil, 5-15% rock outcrop, slow runoff and moderate erosion hazard;
- Cagwin – Rock Outcrop Complex (CaE) – 15-30% slopes, 75-95% soil, 5-25% rock outcrop, in disturbed areas the runoff is rapid and erosion potential is high;
- Cagwin – Rock Outcrop Complex (CaF) – 30-50% slopes, 75-95 % soil, 5-25% rock outcrop, if soil is bare of vegetation runoff is rapid and erosion hazard is high;
- Rock Outcrop – Cagwin Complex (RtG) – 50-70% slopes, 50-75% soil, 25-50% rock outcrop, if soil is bare of vegetation runoff is very rapid and erosion hazard is very high
- Rock Outcrop – Toem Complex (RtF) – 30-50% slopes, 50-75% soil, 25-50% rock outcroprunoff is rapid and erosion hazard is high;
- Rock Outcrop – Toem Complex (RcF) – 30-50% slopes, 50-75% soil, 25-50% rock outcrop, if soil is bare of vegetation runoff is rapid and erosion hazard is high;
- Rock Outcrop – Toem Complex (RtG) – 50-70% slopes, 50-75% soil, 25-50% rock outcrop, runoff is very rapid and erosion hazard is very high;
- Rock Land (Ra) – 5-75% slopes, rock outcrop and stones cover 50-90% of surface area, runoff is rapid and erosion hazard is slight.

The majority of site soils are characterized by rock outcrop with Cagwin and Toem soil development. Loamy soils including Ev and Lo are found in and near drainage.

Kleinfelder reviewed a geotechnical investigation report for a proposed residential project located adjacent to the west of the subject site. Surface soils are identified as silty sand. The report identifies the depth to granodiorite bedrock as 3-7 feet below ground surface (bgs). Groundwater, apparently perched on bedrock, was encountered at a depth of 4.5-6 feet bgs.

Kleinfelder also reviewed a geotechnical investigation report for a STPUD water storage tank located on a parcel within the subject site boundary. Soil encountered generally consisted of sand, silty sand and sandy gravel. Granitic bedrock was encountered at depths of 2.5-6.5 feet bgs. Groundwater was encountered at depths of 11-13 feet bgs.

3.4 Geologic Hazard Evaluation

3.4.1 Introduction

Potential geologic hazards at the site corridor include proximity to potentially active faults, debris flows, rockfall, avalanche and liquefaction resulting from subsurface soil conditions.

3.4.2 Faulting

South Lake Tahoe is in a region that is traditionally characterized by moderate to high seismic activity. The active Tahoe Valley fault is located approximately 3 kilometers (km) to the southwest; the Genoa and West Tahoe Valley faults are located approximately 5 km and 12 km from the site, respectively. The Genoa and Tahoe Valley faults are capable of producing earthquakes with estimated magnitudes of 7.4 and 7.0, respectively (dePolo, et al, 1997). Multiple other active faults are located in the vicinity of the subject site. A major seismic event on these faults could cause moderate to high ground shaking at the site.

Based on review of the Preliminary Map of Pleistocene to Holocene Faults in the Lake Tahoe Basin, one potentially active fault crosses the site. The referenced map defines “potentially active” as a fault that cuts or displaces deposits of late Pleistocene (Tioga Stage) or Holocene age, either onshore or offshore. Portions of three other faults are located on the subject site, as shown on Plate 3. Insufficient data is available to determine the recency of movement on these

faults. Traversing the western portion of the subject site from west to east, a fault of unknown activity is located near the shallow break in slope to the west of the existing barn. This fault trends northeast-southwest. A potentially active fault is located near the large break in slope to the east of the day use/ ropes course area, trending northeast-southwest. Near the southern boundary of the subject site two faults of unknown activity branch from the potentially active fault. One fault trends upslope to the southeast and the other fault trends northeast-southwest and crosses the western and eastern portions of the subject site.

Based on the Index to Official Maps of Earthquake Fault Zones, the site is not located in an Alquist-Priolo Earthquake Fault Zone.

3.4.3 Seismicity

The project site and its vicinity is in an area traditionally characterized by moderate to high seismic activity. The site has experienced moderate to strong shaking due to several earthquakes in the past. Some of the major events in the area are the 1948 Magnitude 6.0 (M6.0) and 1966 (M5.9) Dog Valley earthquakes located approximately 60 km and 65 km to the north, respectively, and the 1857 (M6.0) North Tahoe earthquake located approximately 45 km to the north. Other significant events near the site include: the 1887 (M6.3) and 1914 (M6.4) Sierra Nevada Frontal earthquakes located about 35 km and 70 km to the northeast, respectively; and the 1948 (M6) Verdi earthquake, about 65 km to the north.

3.5 Secondary Seismic and Geologic Hazard Evaluation

3.5.1 Liquefaction and Earthquake Induced Settlement

Soil liquefaction is a condition where saturated, granular soils undergo a substantial loss of strength and deformation due to pore pressure increase resulting from cyclic stress application induced by earthquakes. In the process, the soil acquires mobility sufficient to permit both horizontal and vertical movements if the soil mass is not confined. Soils most susceptible to liquefaction are saturated, loose, clean, uniformly graded, and fine sand deposits.

The available literature review indicates that most of the sandy soils below the groundwater table are dense in nature, and therefore not as susceptible to liquefaction during a seismic event. However, locations where shallow groundwater and/or less dense sandy soil is encountered may be more susceptible to liquefaction. The majority of the subject site is located in areas that will

experience the least severity of shaking during an earthquake. These areas are typically underlain by shallow bedrock. Portions of two unnamed drainages located on the subject site are mapped as having a moderate severity of shaking during an earthquake. These drainages are located near the western site boundary. The main access road crosses one of the drainages near the Nevada-California state boundary. Portions of a drainage located near the northern boundary of the western portion of the site are subject to variable severity of shaking, as shown on Plate 4. The drainages may also be subject to increased potential for liquefaction.

3.5.2 Near Fault Issues in Structural Design

In recent years, many modern structures located near a seismic source have been severely damaged or collapsed. The severe damage and/or collapse is attributed to near fault motions that are characterized by energetic unidirectional velocity pulses (Singh, 1984, 1985). What makes these motions particularly damaging is the impulse (area undergoing the acceleration multiplied by the mass). A structural system that yields during a long duration pulse (impulse loading) may experience very large permanent deformations and/or collapse. The extent of these actions depends on the strength and natural period of the structure and the structural articulation, as well as the amplitude, duration, and shape of the pulse. The near fault pulse type motions can be particularly damaging because they can accumulate inelastic deformations in one direction and their consideration in the near fault conditions should be properly evaluated.

3.5.3 Landslides and Seismically-induced Slope Instability

The possibility of landslides and seismically induced slope instability at the subject site is considered moderate due to the topography of the site area. However, the majority of structures and proposed use areas are not located near steep slopes. Hiking trails and any other development on or near steep slopes are more likely to be subject to landslides and slope instability. The proposed ropes course at the easternmost day use area is located adjacent to a steep slope and numerous rock outcrops. Portions of this slope experienced a forest fire in 2002. While vegetation remains on the slope, the effects of the fire may increase the potential for erosion and thereby increase the potential for landslides and slope-instability. Multiple areas of rock outcrop were observed on the subject site and many additional outcrops are likely present on areas of the site not observed. A potential for seismically-induced rockfall exists.

3.5.4 Seiches

A seiche is an oscillation of a body of water in an enclosed basin that is caused by local changes in atmospheric pressure, aided by winds, and occasionally, earthquakes. The site is located uphill of Lake Tahoe, and based on its distance from the Lake Tahoe shoreline the site would not likely be affected by seiches.

3.5.5 Flood and Debris Flow Hazard

We reviewed the South Lake Tahoe Folio, Flood and Debris Flow Hazards Map (Harrill, 1977), which includes the subject site. This map indicates that three tributaries of Edgewood Creek are located on the subject site. No areas of debris flow hazard are mapped on the subject site at these drainages. However, the main access road crosses a drainage near the Nevada-California state line, and a low potential for debris flow should be considered during any structure placement.

4 LIMITATIONS

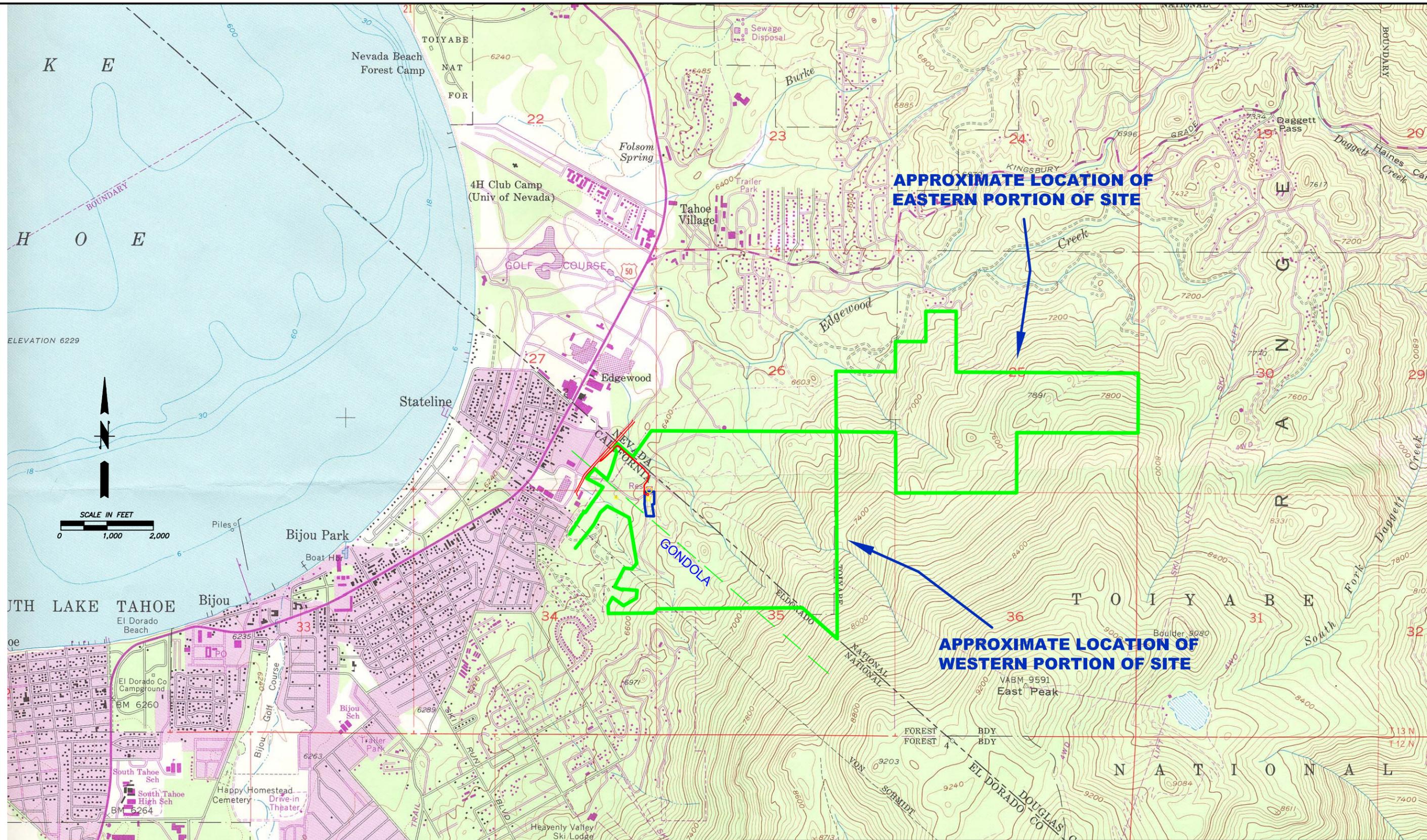
Conclusions contained in this report are based on our field reconnaissance, literature review and our understanding of the proposed construction. The study was performed using a mutually agreed upon scope of work. More detailed, focused, and/or thorough investigations can be conducted. Further studies will tend to increase the level of assurance; however, such efforts will result in increased costs. If Design Workshop wishes to reduce the uncertainties beyond the level associated with this study, Kleinfelder should be contacted for additional consultation.

The soils data used in the preparation of this report were obtained from borings made for previous investigations by others. It is possible that variations in soils exist between the points explored. No warranty, express or implied, is made.

This report may be used only by Design Workshop and for the purposes stated, within a reasonable time from its issuance. Land use, site conditions (both on- and off-site), or other factors including advances in man's understanding of applied science may change over time and could materially affect our findings.

APPENDIX A

Plates



Reference: South Lake Tahoe Quadrangle
California-Nevada
7.5 Minute Series (Topographic)
H. F. Bonham Jr. and J. L. Burnett, 1976



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RENO, NEVADA 89502
Tel. (775) 689-7800

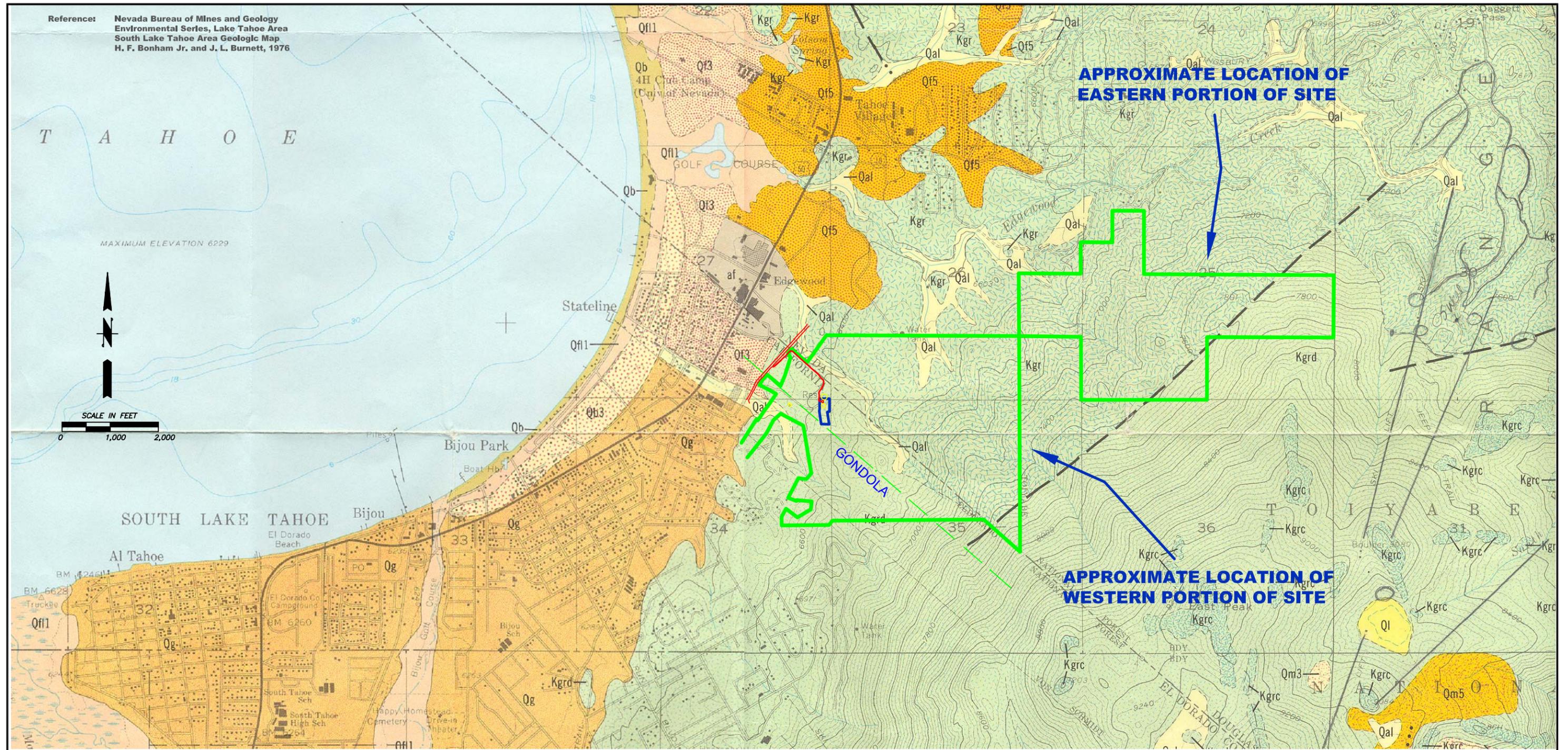
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SITE VICINITY MAP

VAN SICKLE BI-STATE PARK
STATELINE NEVADA/CALIFORNIA
SEPTEMBER 2004

PLATE

1

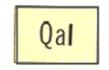


References: Nevada Bureau of Mines and Geology Environmental Series, Lake Tahoe Area South Lake Tahoe Area Geologic Map H. F. Bonham Jr. and J. L. Burnett, 1976

APPROXIMATE LOCATION OF EASTERN PORTION OF SITE

APPROXIMATE LOCATION OF WESTERN PORTION OF SITE

LEGEND:



Qal Alluvial deposits. Light brown, moderately to poorly sorted, gravelly coarse arkosic sand and minor silt and gravel deposited in stream channels. Includes some sandy silt deposited in meadow areas.



Kgr Granodiorite. Granodiorite with abundant residual corestones, Kgrc, surrounded by grus, Kgrd. Rock is biotite-hornblende granodiorite with oscillatory zoned plagioclase (An 35-45), orthoclase, and quartz and approximately 15 to 20 percent biotite and hornblende. Magnetite and sphene are common accessory minerals. Plagioclase shows partial alteration to sericite and epidote. Biotite is partly chloritized. Gradational contact with mafic granodiorite, Kgrm.



Kgrd Decomposed granodiorite. Extensive areas where granodiorite is weathered to grus. Grus thickness is greatest (up to 30 m) in areas of low relief and is shallower near granitic corestones, Kgrc, and areas of high relief. Weathering is pre-Tioga in age.



Contact. Solid where accurately located. Dashed where indefinite, inferred or gradational. Includes indefinite boundaries of surficial deposits.



Fault. Dashed where approximately located, dotted where concealed.



Crest line of glacial moraines.



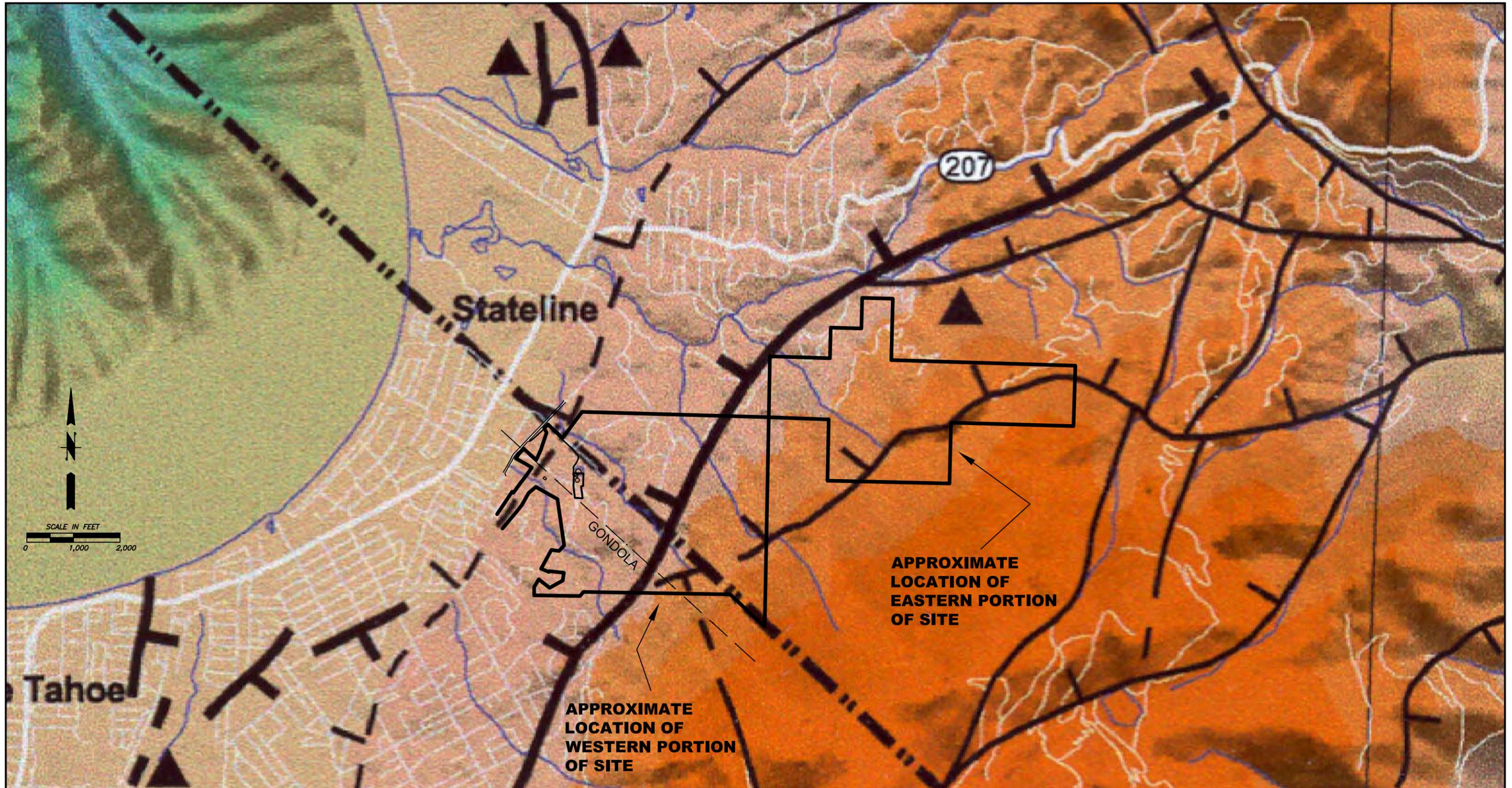
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GEOLOGIC MAP

VAN SICKLE BI-STATE PARK
STATELINE NEVADA/CALIFORNIA
SEPTEMBER 2004

PLATE

2



Fault lines:

-  Dashed where approximately located
-  Bar showing dip direction
-  Thick line = cuts latest Pleistocene or Holocene deposits (potentially active)
-  Thin line = Insufficient data to determine recency of movement

Reference: Preliminary Map of Pleistocene to Holocene Faults in the Lake Tahoe Basin, California and Nevada, Nevada Bureau of Mines and Geology Open-File Report 2000-4

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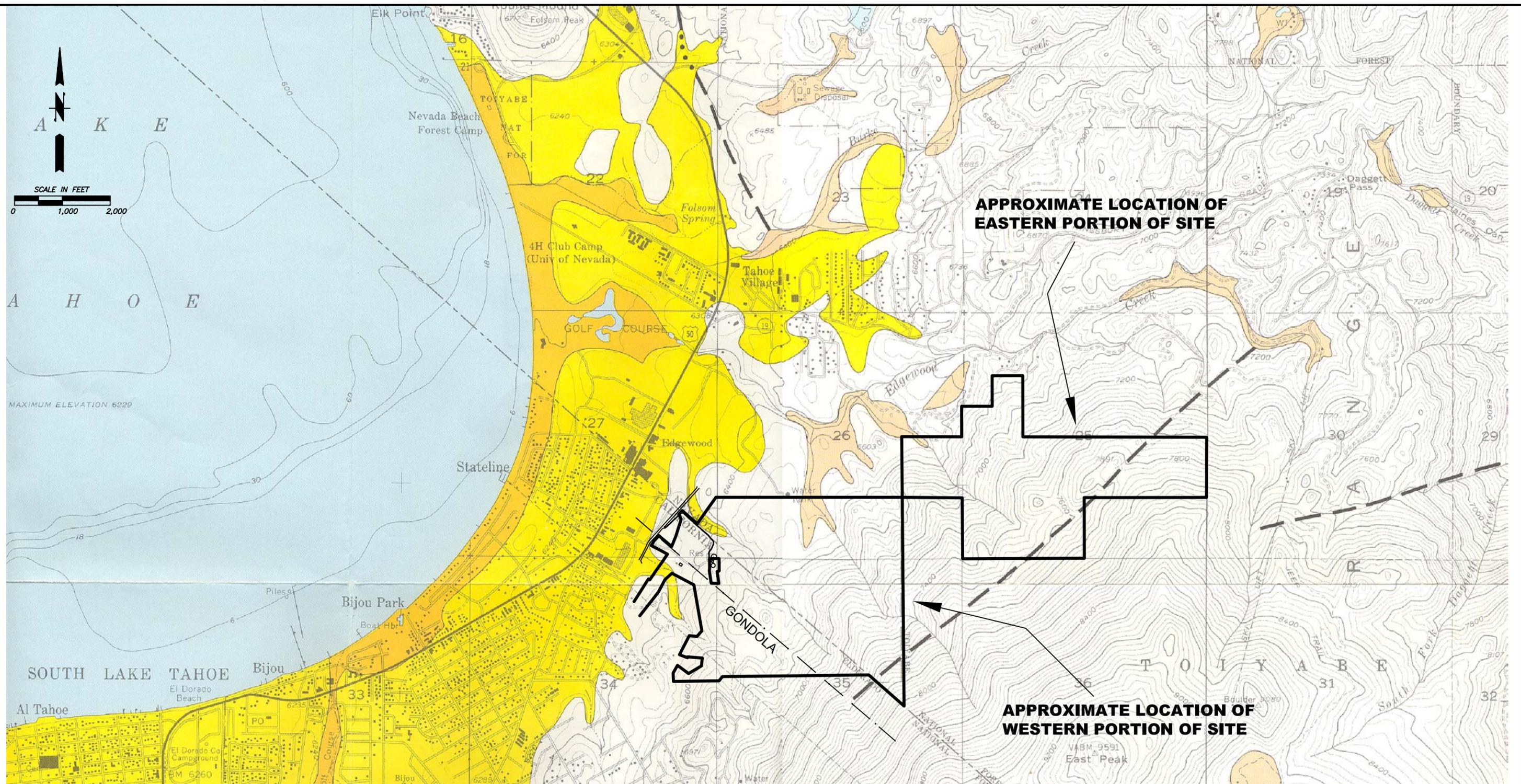
PROJECT NO. 49096.01

FAULT LOCATION MAP

VAN SICKLE BI-STATE PARK
 STATELINE NEVADA/CALIFORNIA
 SEPTEMBER 2004

PLATE

3



LEGEND:

- Greatest severity of shaking. Possible severe liquefaction. Underlain by slightly gravelly medium sands and moderately sorted medium sands. Water table is less than 3 meters (10 ft) from the surface.
- Moderate severity of shaking. Underlain by boulder to cobble gravels, slightly gravelly medium sands and medium sands. Depth to ground water less than 10 meters (33 ft).
- Moderate severity of shaking. Underlain by unconsolidated outwash and till deposits. Depth to ground water less than 10 meters (33 ft).
- Least severity of shaking. Underlain by bedrock.

- Variable severity of shaking. Thin, unconsolidated sand and gravel deposits in bedrock areas.
- Approximate location of faults. No faults of known or suspected Quaternary age (<1.8 m.y.) have been recognized in this quadrangle; therefore, the potential for surface rupture is inferred to be low.

References: South Lake Tahoe Quadrangle
Nevada Bureau of Mines and Geology
Lake Tahoe Area Map 2Ai
Dennis T. Trexler and John W. Bell, 1979

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EARTHQUAKE HAZARDS MAP

VAN SICKLE BI-STATE PARK
STATELINE NEVADA/CALIFORNIA
SEPTEMBER 2004

PLATE

4



Photo 1:
Facing north from outcrop
near proposed day use area
(ropes course).



Photo 2:
Existing barn near
proposed visitor center.

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PROJECT NO.: 49096.01

PHOTOGRAPHS

Design Workshop
Van Sickle Bi-State Park
Stateline, Nevada/California

PLATE

5



Photo 3:
Drainage area near existing
road and Nevada/California
border.

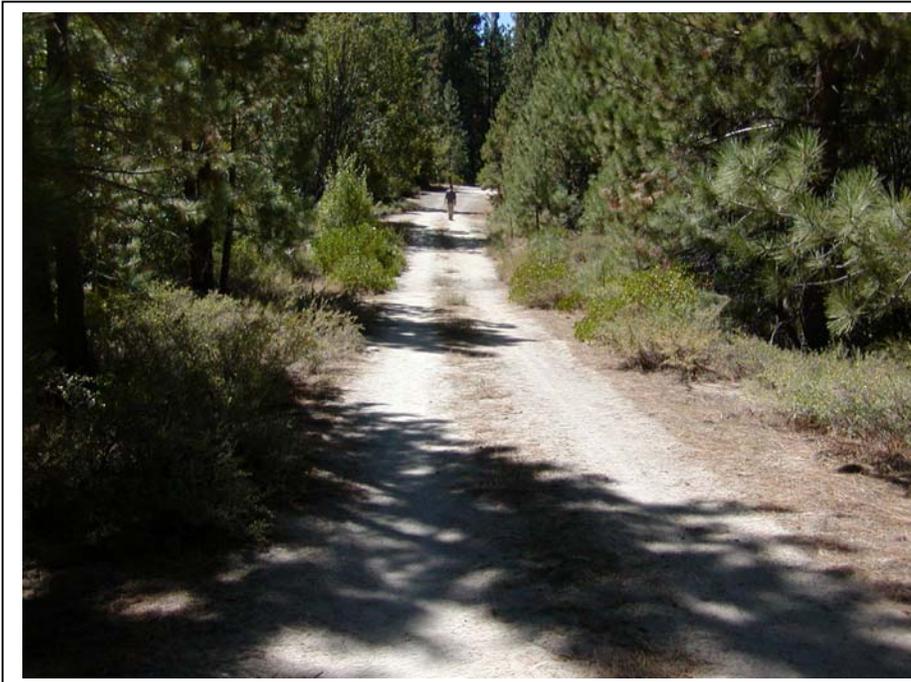


Photo 4:
Facing southwest, existing
road crossing drainage near
Nevada/California border.

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PLATE

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Photo 5:
Meadow area near
proposed day use area
(ropes course).



Photo 6:
Facing east toward barn
area near proposed day use
area (ropes course). Steep
slopes and bedrock outcrop
shown in burn area.

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PLATE

7

SENSITIVE SPECIES, NOXIOUS WEEDS, AND STREAM ENVIRONMENT ZONE SURVEY

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Plant Community Descriptions and SEZ Identification**

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1.0 INTRODUCTION

Vegetation surveys were conducted during 2001 and 2002 throughout the 154+/- acres of land owned by the State of California (California Tahoe Conservancy). The purpose of the surveys were to 1) identify plant communities 2) survey for sensitive plants species, 3) identify and locate all noxious weeds, and 4) identify and map Stream Environment Zones (SEZs). In addition, a thorough survey of all identifiable plants was conducted to develop a more complete flora of the area. In this report, survey findings for plant communities, plant species, and the presence of SEZs, are described and utilized to assess pre-development conditions of the site.

2.0 ENVIRONMENTAL SETTING

The majority of the project area is composed of mixed conifer forest with dominant overstory species including Jeffrey pine (*Pinus jeffreyi*), and lodgepole pine (*Pinus contorta ssp. murrayana*). Portions of the survey area are comprised of Scouler's willow and other plant species that are primary indicators for SEZs. A few large, old growth sugar pines (*Pinus lambertiana*) along with trees of various age classes, are scattered in the vicinity of the Heavenly Valley ski area gondola.

The project area is mountainous with a semi-arid climate. Annual precipitation occurs mostly in the form of winter snow and/or spring rain. Summers typically are dry and warm, with average daytime temperatures in the 80-degree (F) range. Elevation of the project area ranges from approximately 6,325 to 7,500 feet.

2.1 Upland Vegetation

Vegetation community structure in the project area is primarily forested and contains relatively small, dispersed patches of sagebrush, montane chaparral, aspen, montane riparian, and meadow habitats. The forested habitats in the project area are dominated by an overstory of Jeffrey pine forest and white fir (*Abies concolor*). Other overstory species, including incense cedar (*Calocedrus decurrens*) and sugar pine (*Pinus lambertiana*), occur as a component of the forest association. The two dominant plant communities included upper montane coniferous forest (NDDDB/Holland type and status) of the Jeffrey pine series, and montane riparian scrub of the mountain alder series (Sawyer, Keeler-Wolf, 1995).

The project area also contains sagebrush and montane chaparral communities. The sagebrush habitat type is dominated by mountain sagebrush (*Artemisia tridentata ssp. vaseyana*), and includes components of the montane chaparral habitat type including mountain whitethorn (*Ceanothus cordulatus*), and huckleberry oak (*Quercus vaccinifolia*). Understory species found within the project area include pine mat manzanita (*Arctostaphylos nevadense*), white squaw currant (*Ribes cereum.*), huckleberry oak (*Quercus vaccinifolia*), tobacco brush (*Ceanothus velutinus*), green manzanita (*Arctostaphylos patula*) and chinquapin (*Chrysolepis sempervirens*).

2.2 Stream Environment Zones

Montane riparian habitat type is dominated by willow (*Salix scouleriana*, *S. lemmonii*, *A. geyeriana*), and to a lesser extent mountain alder (*Alnus incana ssp. tenuifolia*). Other riparian/SEZ overstory species include black cottonwood (*Populus trichocarpa*) and quaking Aspen (*Populus tremuloides*). These habitats occur in discontinuous patches along the edges of streams, roads, ephemeral drainages and in areas with a higher water table within the project area. Aspen stands are interspersed throughout the survey area, generally occurring near a stream or within a low-lying area.

The Tahoe Regional Planning Agency (TRPA) defines a stream environment zone (SEZ) as a biological community that derives its characteristics from the presence of surface water or a seasonal high groundwater table. An SEZ is delineated by the presence of drainage ways and

floodplains, including adjacent marshes, meadows, and riparian vegetation. SEZs are riparian areas identified by the presence of at least one primary indicator or three secondary indicators (TRPA 1988).

Primary Indicators:

- Evidence of surface water flow, including perennial, ephemeral and intermittent streams, but not including rills or human-made channels;
- Primary riparian vegetation;
- Near surface groundwater (less than 20 inches from the surface);
- Lakes or ponds;
- Beach soil; or
- One of the following alluvial soils:
 - Elmira coarse sand, wet variant; or
 - Marsh.

Secondary Indicators:

- Designated flood plain;
- Groundwater within 20-40 inches of the surface;
- Secondary riparian vegetation; and
- One of the following alluvial soils:
 - Loamy alluvial land;
 - Celio gravely loamy coarse sand; or
 - Gravely alluvial land.

3.0 METHODOLOGY

3.1 Pre-field Research

Prior to the field survey, the U.S Fish and Wildlife Service and the California Department of Fish and Game Natural Diversity Data Base were consulted to obtain information on the sensitive plant species potentially occurring within the vicinity of the project area. Six species were identified in the literature search. Habitat requirements for the six species, including elevation ranges, slope positions, soil types, and precipitation were reviewed. The phenology of each rare plant was reviewed to ensure the survey would be conducted at the appropriate time of year to allow positive species identification in the field.

The California Department of Food and Agriculture was consulted for the current list of Noxious Weeds. The Noxious Weed Index was obtained and reviewed.

Table 1. Sensitive species with potential to occur in the project area

Botanical Name	Common Name	Suitable Habitat	Status
<i>Arabis rigidissima var demota</i>	Galena Creek rock cress	x	SI
<i>Berberis sonnei</i>	Truckee Barberry		E
<i>Draba asterophora v asterophora</i>	Tahoe draba		SI
<i>Draba asterophora v macrocarpa</i>	Cup Lake draba		,SI
<i>Lewisia. longipetala</i>	Long-petaled lewisia		SI
<i>Rorippa subumbellata</i>	Tahoe yellow cress		P, SI, E2

- (E) USFWS Endangered Species
- (T) USFWS Threatened Species
- (P) USFWS Proposed Species
- (SI) TRPA Special Interest Species: Regional Plan for the Lake Tahoe Basin: Code of Ordinances, 1987, list updated April 2002
- (E2) State of California Endangered

3.2 Field Research

Approximately 100 acres of the proposed project area were surveyed on foot by two botanists in late August 2002 and mid June 2003. The two sampling dates allowed for identification of a maximum number of species. The early sampling date in 2003 was not an ideal time for identification of some sensitive species. Plant communities were identified and species were documented during the surveys. Some very steep terrain in the southeastern portion of the project area was not surveyed since no habitat for sensitive species occurs there and occurrence of noxious weeds in these remote areas is unlikely. Development of recreational facilities in these areas is also unlikely (Steve Noll, Design Workshop. personal communication). Plant species within the project boundary were identified to the lowest possible taxonomic level. Habitats most likely to support sensitive species, such as rocky outcrops, were surveyed intensely. A project area species list is included in Appendix 1.

SEZs were documented in five major drainages, and in areas adjacent to or in proximity to the drainages, as well as a small seep. SEZs are defined by the Tahoe Regional Planning Agency "...if any one of the following key indicators is present or, on the absence of a key indicator, if any three of the following secondary indicators are present" (TRPA 1988). 'Primary riparian vegetation' is listed as a key indicator, and was the primary factor use in defining SEZs for this survey. A wide array of plant species were identified and documented throughout the SEZ communities. A project area map at a scale of 1 inch = 200 feet was provided to map the SEZ communities and is included in Appendix 2. Due to the scale of the map and the severity of the topography, the widths of the SEZ boundaries are approximate. Scouler's willows were scattered through much of the project area. Since this is considered to be an 'upland' willow, individual occurrences were not documented as SEZs. An area with three or more Scouler's willow was considered SEZ and mapped accordingly. GPS coordinates were recorded for general SEZ locations.

Noxious weeds were identified, mapped, and GPS coordinates recorded.

4.0 RESULTS

4.1 Flora

Two survey periods resulted in optimum conditions for species identification. A list of the plant species encountered during the two surveys is included in Appendix 1.

4.2 Sensitive Plant Species

No sensitive plant species were encountered within the project area. Suitable habitat for the sensitive plant species of concern was not found during the 2003 survey.

4.3 Noxious Weeds

A large stand of noxious weeds, including hoary cress (*Cardaria draba*), bull thistle (*Cirsium vulgare*), and Canada thistle (*Cirsium arvense*) was located in the meadow off Park Avenue, west of the cluster of buildings. They were also located on both sides of the dirt end of Park Avenue , 11S 0245467, UTM 4315530; 11S 0245461, UTM 4315515. In 2000, Russian knapweed was located in SEZ # 4 near the water tanks. These locations are shown on the map in Appendix 2.

4.4 SEZ identification and Mapping

Six stream environment zones were identified and mapped within the project area (Appendix 2). The exact measurements for these areas were not calculated or included within the scope of

work for this survey. SEZ overstory vegetation was dominated by willow, primarily Scouler's willow with some Lemmon's and Geyer's willow, as well as Mtn. alder (*Alnus incana* ssp *tenuifolia*). The shrub component included Nevada currant (*Ribes nevadense*), thimbleberry (*Rhubus parviflorus*), and Wood's rose (*Rosa woodsii*). Understory herbaceous plants were dominated by blue wildrye, (*Elymus glaucus*), Kentucky bluegrass (*Poa pratensis*) meadow barley (*Hordeum brachyantherum*) creeping wildrye (*Leymus triticoides*), Baltic rush (*Juncus balticus*), slender sedge (*Carex praegracilis*), creeping bentgrass (*Agrostis stolonifera*), Nebraska sedge (*Carex nebrascensis*), cinquefoil (*Potentilla gracilis*) and Western aster (*Aster occidentalis*). A wide variety of forbs were noted and are included in Appendix 1.

SEZ #1: WP #198, 11S 0246222, UTM 4314974

This SEZ occurs in a drainage just northeast of the gondola in a band averaging 100 ft. across. Dominant overstory species included Scouler's willow and Mountain alder.

SEZ #2 WP#199 11S 0246091, UTM 4315146

This SEZ occurs northeast of SEZ #1 and connects to the system located on the Nevada side of the park, which was previously mapped in 2000. It is dominated by herbaceous species of grasses and forbs.

SEZ #3: WP#213 11S 024212, UTM 4315630.

This is a large system that begins west of the gondola and continues down the drainage to Lake Parkway. It varies in width from a narrow band of 50- 100 ft. to wider bands of vegetation 400-500 feet. Vegetation was very diverse with Nebraska sedge, and beaked sedge (*Carex utriculata*) dominating the understory in places. SEZ vegetation is composed of a variety of tree/shrub and graminoid species throughout the drainage.

SEZ #4: WP#201, 11S 0245512, UTM 4315778

SEZ #4 occurs in the vicinity of the South Tahoe Public Utility District's tanks. Overstory species were dominated by willows. Understory species were mostly herbaceous. Two noxious weeds were located, namely Russian knapweed (*Centaurea repens*) and bull thistle (*Cirsium vulgare*).

SEZ #5: WP#212, 11 S 0245853, UTM 4315168

This was a very small site located west of the top section of SEZ #1 on the upper portion of the project area, below a rock outcrop, and within the waterline. Scouler's willow occurred in the overstory. Understory species were dominated by species of sedge, rush, and creeping bentgrass.

SEZ #6: WP #216, 11S 0245091, UTM 43151181

This area was located at the end of Chonokis. It included a spring area on the slope which connects to the SEZ. Souler's and Lemmon's willow occurrences in the overstory, with a mix of graminoids and forbs in the understory.

The field map was provided to Design Workshop, and was entered into an electronic file by their office.

RECOMMENDATIONS

The 5 major drainages and SEZ #5 may require wetland delineations to determine jurisdictional wetland boundaries for proposed future development. Wetland delineations need to be conducted at the appropriate time of year (e.g. peak flows, peak flowering). SEZ boundaries may need to be verified and measured in order to calculate total acreage values for local agency compliance.

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Appendix 1

Plant Species List

FAMILY	SCIENTIFIC NAME	COMMON NAME
Asclepiadaceae	<i>Asclepias fascicularis</i>	Milkweed
Apiaceae	<i>Heracleum lanatum</i>	Cow parsnip
	<i>Osmorhiza chilensis</i>	
	<i>Perideridia parishii</i> ssp. <i>latifolia</i>	Yampah
Apocynaceae	<i>Apocynum androsaemifolium</i>	Bitter dogbane
Asteraceae	<i>Achillea millefolium</i>	Yarrow
	<i>Agoseris glauca</i>	
	<i>Antennaria corymbosa</i>	Pussy-toes
	<i>Antennaria rosea</i>	Pussy-toes
	<i>Arnica chamissonis</i> var. <i>foliosa</i>	Arnica
	<i>Artemisia douglasiana</i>	Mugwort
	<i>Artemisia tridentata</i> var. <i>vaseyana</i>	Mountain sagebrush
	<i>Aster breweri</i>	Brewer's aster
	<i>Aster foliaceus</i> var. <i>parryi</i>	Aster
	<i>Aster integrifolius</i>	Wavy-leaved aster
	<i>Aster occidentalis</i>	Aster
	<i>Cardaria draba</i>	Hoary cress
	<i>Centaurea repens</i> *	Russian knapweed
	<i>Chamomilla suaveolens</i>	Pineapple weed
	<i>Chorispura tenella</i>	Blue mustard
	<i>Chrysothamnus nauseosus</i>	Rubber rabbitbrush
	<i>Cirsium andersonii</i>	
	<i>Cirsium arvense</i> *	Canada thistle
	<i>Cirsium vulgare</i> *	Bull thistle
	<i>Conyza Canadensis</i>	Horseweed
	<i>Ericameria bloomeri</i>	
	<i>Erigeron breweri</i> var. <i>porphyreticus</i>	Brewer's daisy
	<i>Erigeron divergens</i> var. <i>divergens</i>	
	<i>Gnaphalium canescens</i>	
	<i>Hieracium albiflorum</i>	Hawkweed
	<i>Lactuca serriola</i>	Prickly lettuce
	<i>Machaeranthera canescens</i>	Hoary aster
	<i>Microseris nutans</i>	Nodding microseris
	<i>Senecio integerrimus</i>	Sneezeweed
	<i>Senecio triangularis</i>	
	<i>Solidago canadensis</i>	Canada goldenrod
	<i>Sonchus oleraceus</i>	Common sow thistle
	<i>Taraxacum officinale</i>	Dandelion
<i>Tragopogon dubius</i>	Oyster plant	
<i>Wyethia mollis</i>	Mule's ears	
Betulaceae	<i>Alnus incana</i> ssp. <i>tenuifloia</i>	Mountain alder
Boraginaceae	<i>Cryptantha</i> sp.	Cryptantha
	<i>Plagiobothrys leptocladus</i>	
Brassicaceae	<i>Arabis holboellii</i>	
	<i>Arabis platysperma</i>	
	<i>Arabis sparsiflora</i>	Rock cress
	<i>Cardaria draba</i> *	Hoary cress
	<i>Descurainia pinnata</i> var. <i>halictorum</i>	Tansy mustard
	<i>Erysimum capitatum</i>	Wallflower
	<i>Lepidium densiflorum</i>	Peppergrass

	<i>Sisymbrium altissimum</i>	Tumble, Jim Hill mustard
Caprifoliaceae	<i>Symphoricarpos mollis</i>	Creeping snowberry
Caryophyllaceae	<i>Stellaria longipes</i> var. <i>longipes</i>	Chickweed, starwort
	<i>Sagina saginoides</i>	Pearlwort
Chenopodiaceae	<i>Chenopodium album</i>	Pigweed, lamb's quarters
Cyperaceae	<i>Carex amplifolia</i>	Sedge
	<i>Carex athrostachya</i>	
	<i>Carex douglassii</i>	Douglas' sedge
	<i>Carex lanuginosa</i>	Wooly sedge
	<i>Carex microptera</i>	
	<i>Carex multicosata</i>	Sedge
	<i>Carex nebrascensis</i>	Nebraska sedge
	<i>Carex praegracilis</i>	Ross' sedge
	<i>Carex rossii</i>	Slender sedge
	<i>Carex subfusca</i>	
	<i>Carex utriculata</i>	Large beak sedge
Cupressaceae	<i>Calocedrus decurrens</i>	Incense cedar
Dennstaedtiaceae	<i>Pteridium aquilinum</i> var. <i>pubescens</i>	Braken fern
Equisetaceae	<i>Equisetum arvense</i>	Horsetail, scouring rush
Ericaceae	<i>Arctostaphylos nevadensis</i>	Pinemat manzanita
	<i>Arctostaphylos patula</i>	Greenleaf manzanita
	<i>Pterospora andromedea</i>	Pinedrops
	<i>Pyrola picta</i>	White-veined wintergreen
	<i>Sarcodes sanguinea</i>	Snow plant
Fabaceae	<i>Astragalus cicer</i>	Cicer milkvetch
	<i>Lathyrus lanszwertii</i>	
	<i>Lotus nevadensis</i> var. <i>nevadensis</i>	Nevada bird's-foot
	<i>Lotus purshianus</i> var. <i>purshianus</i>	Bird's-foot trefoil
	<i>Lotus purshianus</i>	
	<i>Lupinus andersonii</i>	Anderson's lupine
	<i>Lupinus grayi</i>	Gray's lupine
	<i>Lupinus latifolius</i>	Lupine
	<i>Lupinus lepidus</i> var. <i>ramosus</i>	Dwarf lupine
	<i>Lupinus polyphyllus</i> var. <i>burkei</i>	Lupine
	<i>Melilotus officinalis</i>	Yellow sweet-blossom clover
	<i>Trifolium longipes</i> var. <i>nevadense</i>	Clover
	<i>Vicia Americana</i> var. <i>americana</i>	American vetch
Fagaceae	<i>Chrysolepis sempervirens</i>	Bush chinquapin
	<i>Quercus vaccinifolia</i>	Huckleberry oak
Grossulariaceae	<i>Ribes nevadense</i>	Mountain pink currant
Hydrophyllaceae	<i>Nemophila pedunculata</i>	Fivespot
	<i>Phacelia hastate</i>	Phacelia
Hypericaceae	<i>Hypericum formosum</i>	St. John's wort
Juncaceae	<i>Juncus balticus</i>	Wiregrass
	<i>Juncus ensifolius</i>	Iris-leaf rush
	<i>Juncus nevadensis</i>	Nevada rush
	<i>Juncus orthophyllus</i>	
Lamiaceae	<i>Monardella odoratissima</i>	Coyote mint
	<i>Stachys ajugoides</i> var. <i>rigida</i>	Hedge nettle
Liliaceae	<i>Allium bisceptrum</i> var. <i>bisceptrum</i>	Aspen onion
	<i>Smilacina stellata</i>	False Solomon's seal
	<i>Veratrum californicum</i> var. <i>californicum</i>	Corn lily

Malvaceae	<i>Sidalcea oregana</i> var. <i>spicata</i>	Checker mallow
Onagraceae	<i>Circaea alpina</i> ssp. <i>pacifica</i>	
	<i>Epilobium angustifolium</i> var. <i>circumvagum</i>	Fireweed
	<i>Epilobium brachycarpum</i>	Willow herb
	<i>Epilobium ciliatum</i> var. <i>ciliatum</i>	Willow herb
	<i>Gayophytum diffusum</i>	Ground smoke
Orchidaceae	<i>Platanthera leucostachys</i>	Bog-orchid
Pinaceae	<i>Abies concolor</i>	White fir
	<i>Pinus contorta</i> var. <i>murrayana</i>	Lodgepole pine
	<i>Pinus jeffreyi</i>	Jeffrey pine
	<i>Pinus lambertiana</i>	Sugar pine
Plantaginaceae	<i>Plantago lanceolata</i>	English plantain
Poaceae	<i>Achnatherum lemmonii</i>	Lemmon's needlegrass
	<i>Achnatherum occidentale</i> ssp. <i>occidentalis</i>	Western needlegrass
	<i>Agrostis stolonifera</i>	Creeping bent
	<i>Bromus carinatus</i>	California or Mountain brome
	<i>Bromus tectorum</i>	Cheatgrass
	<i>Calamogrotis</i> sp.	Canarygrass
	<i>Dactylis glomerata</i>	Orchard grass
	<i>Deschampsia danthoniodes</i>	
	<i>Deschampsia cespitosa</i> var. <i>cespitosa</i>	Tufted hairgrass
	<i>Distichlis stricta</i>	Inland saltgrass
	<i>Elymus elymoides</i> var. <i>elymoides</i>	Squirreltail
	<i>Elymus glaucus</i>	Blue wildrye
	<i>Elymus trachycaulus</i> var. <i>trachycaulus</i>	Slender wheatgrass
	<i>Elytrigia intermedia</i> var. <i>intermedia</i>	Intermediate wheatgrass
	<i>Festuca arundinacea</i>	Tall fescue
	<i>Festuca longifolia</i>	Hard fescue
	<i>Festuca ovina</i>	Tall fescue
	<i>Festuca pratensis</i>	Sheep fescue
	<i>Glyceria elata</i>	Fowl mannagrass
	<i>Hordeum brachyantherum</i>	Meadow barley
	<i>Leymus triticoides</i>	Creeping wildrye
	<i>Lolium perenne</i>	Perennial ryegrass
	<i>Melica aristata</i>	Awned melic
	<i>Phleum pratense</i>	Cultivated timothy
	<i>Poa bulbosa</i>	Bulbous bluegrass
	<i>Poa pratensis</i> var. <i>pratensis</i>	Kentucky bluegrass
	<i>Poa secunda</i> var. <i>nevadensis</i>	Bluegrass
	<i>Poa secunda</i> var. <i>ampla</i>	Sherman big bluegrass
	<i>Poa wheeleri</i>	
	Polemoniaceae	<i>Allophyllum gilioides</i> var. <i>violaceum</i>
<i>Collomia grandiflora</i>		Collomia
<i>Collomia linearis</i>		Collomia
<i>Leptodactylon pugens</i>		Granite gilia
<i>Linanthus nuttalli</i>		
<i>Linanthus ciliatus</i>		Whisker brush
<i>Linanthus nuttallii</i> ssp. <i>pubescens</i>		Nuttall's linanthus
<i>Phlox gracilis</i>		Annual phlox
<i>Polemonium</i> sp.		Polemonium

Polygonaceae	<i>Erigonum nudum</i>	Naked buckwheat
	<i>Eriogonum umbellatum</i>	Sulphur flower
	<i>Eriogonum wrightii</i>	Wright's buckwheat
	<i>Polygonum arenastrum</i>	Common knotweed, doorweed
	<i>Polygonum douglasii</i> var. <i>douglasii</i>	Knotweed
	<i>Rumex acetosella</i>	Sheep sorrel
	<i>Rumex crispus</i>	Curly dock
Portulacaceae	<i>Calyptidium monospermum</i>	Pussypaws
	<i>Claytonia rubra</i> ssp. <i>depressa</i>	
	<i>Claytonia perfoliata</i> ssp. <i>perfoliata</i>	
Primulaceae	<i>Dodecatheon</i> sp.	Shooting start
Ranunculaceae	<i>Aquilegia formosa</i>	California columbine
	<i>Delphinium depauperatum</i> .	Dwarf larkspur
	<i>Ranunculus occidentalis</i>	Western buttercup
	<i>Thalictrum fendleri</i>	Meadowrue
Rhamnaceae	<i>Ceanothus cordulatus</i>	White thorn
	<i>Ceanothus prostrates</i>	Squaw carpet
	<i>Ceanothus velutinus</i>	California-lilac
Rosaceae	<i>Amelanchier utahensis</i>	Serviceberry
	<i>Cercocarpus ledifolius</i>	Mountain mahogany
	<i>Fragaria virginiana</i>	Mountain strawberry
	<i>Geum macrophyllum</i>	Bigleaf avens
	<i>Geum triflorum</i>	Prairie smoke
	<i>Potentilla glandulosa</i> ssp. <i>reflexa</i>	Cinquefoil
	<i>Potentilla gracilis</i> var. <i>fastigiata</i>	Cinquefoil
	<i>Prunus emarginata</i>	Bittercherry
	<i>Purshia tridentata</i>	Bitterbrush
	<i>Rubus parviflorus</i>	Thimbleberry
	<i>Rosa woodsii</i> var. <i>ultramontana</i>	Interior rose
	<i>Symphoricarpus mollis</i>	Creeping snowberry
Rubiaceae	<i>Galium aparine</i>	Bedstraw
	<i>Galium trifidum</i> var. <i>pusillum</i>	Bedstraw, cleavers
	<i>Kelloggia galiodes</i>	
Salicaceae	<i>Populus tremuloides</i>	Aspen
	<i>Populus trichocarpa</i>	Black cottonwood
	<i>Salix exigua</i>	Coyote willow
	<i>Salix geyeriana</i>	Geyer's willow
	<i>Salix lemmonii</i>	Lemmon's willow
	<i>Salix lucida</i> var. <i>lasiandra</i>	Shining willow
	<i>Salix scouleriana</i>	Scouler's willow
Scrophulariaceae	<i>Castilleja miniata</i>	Indian paintbrush
	<i>Collinsia parviflora</i>	Blue-eyed Mary
	<i>Mimulus guttatus</i>	Yellow monkeyflower
	<i>Mimulus lewisii</i>	Lewis' monkeyflower
	<i>Mimulus primuloides</i>	Primrose monkeyflower
	<i>Pedicularis semibarbata</i>	Lousewort
	<i>Penstemon gracilentus</i>	Pride of the mountain
	<i>Penstemon newberryi</i>	Beardtongue
	<i>Penstemon rydbergii</i> var. <i>oreocharis</i>	Beardtongue
	<i>Penstemon speciosus</i>	
	<i>Verbascum thapsus</i>	Woolly mullein
<i>Veronica peregrina</i> var. <i>xalapensis</i>	Purselane speedwell	

*State listed Noxious weeds

Appendix 2

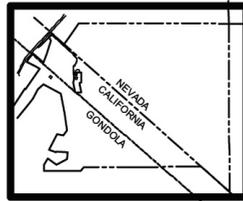
SEZ Map

	<i>Polygonum arenastrum</i>	Common knotweed, doorweed
	<i>Polygonum douglasii</i> var. <i>douglasii</i>	Knotweed
	<i>Rumex acetosella</i>	Sheep sorrel
	<i>Rumex crispus</i>	Curly dock
Portulacaceae	<i>Calyptridium monospermum</i>	Pussypaws
	<i>Claytonia rubra</i> ssp. <i>depressa</i>	
	<i>Claytonia perfoliata</i> ssp. <i>perfoliata</i>	
Primulaceae	<i>Dodecatheon</i> sp.	Shooting start
Ranunculaceae	<i>Aquilegia formosa</i>	California columbine
	<i>Delphinium depauperatum</i> .	Dwarf larkspur
	<i>Ranunculus occidentalis</i>	Western buttercup
	<i>Thalictrum fendleri</i>	Meadowrue
Rhamnaceae	<i>Ceanothus cordulatus</i>	White thorn
	<i>Ceanothus prostrates</i>	Squaw carpet
	<i>Ceanothus velutinus</i>	California-lilac
Rosaceae	<i>Amelanchier utahensis</i>	Serviceberry
	<i>Cercocarpus ledifolius</i>	Mountain mahogany
	<i>Fragaria virginiana</i>	Mountain strawberry
	<i>Geum macrophyllum</i>	Bigleaf avens
	<i>Geum triflorum</i>	Prairie smoke
	<i>Potentilla glandulosa</i> ssp. <i>reflexa</i>	Cinquefoil
	<i>Potentilla gracilis</i> var. <i>fastigiata</i>	Cinquefoil
	<i>Prunus emarginata</i>	Bittercherry
	<i>Purshia tridentata</i>	Bitterbrush
	<i>Rubus parviflorus</i>	Thimbleberry
	<i>Rosa woodsii</i> var. <i>ultramontana</i>	Interior rose
	<i>Symphoricarpus mollis</i>	Creeping snowberry
Rubiaceae	<i>Galium aparine</i>	Bedstraw
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	<i>Veronica peregrina</i> var. <i>xalapensis</i>	Purselane speedwell

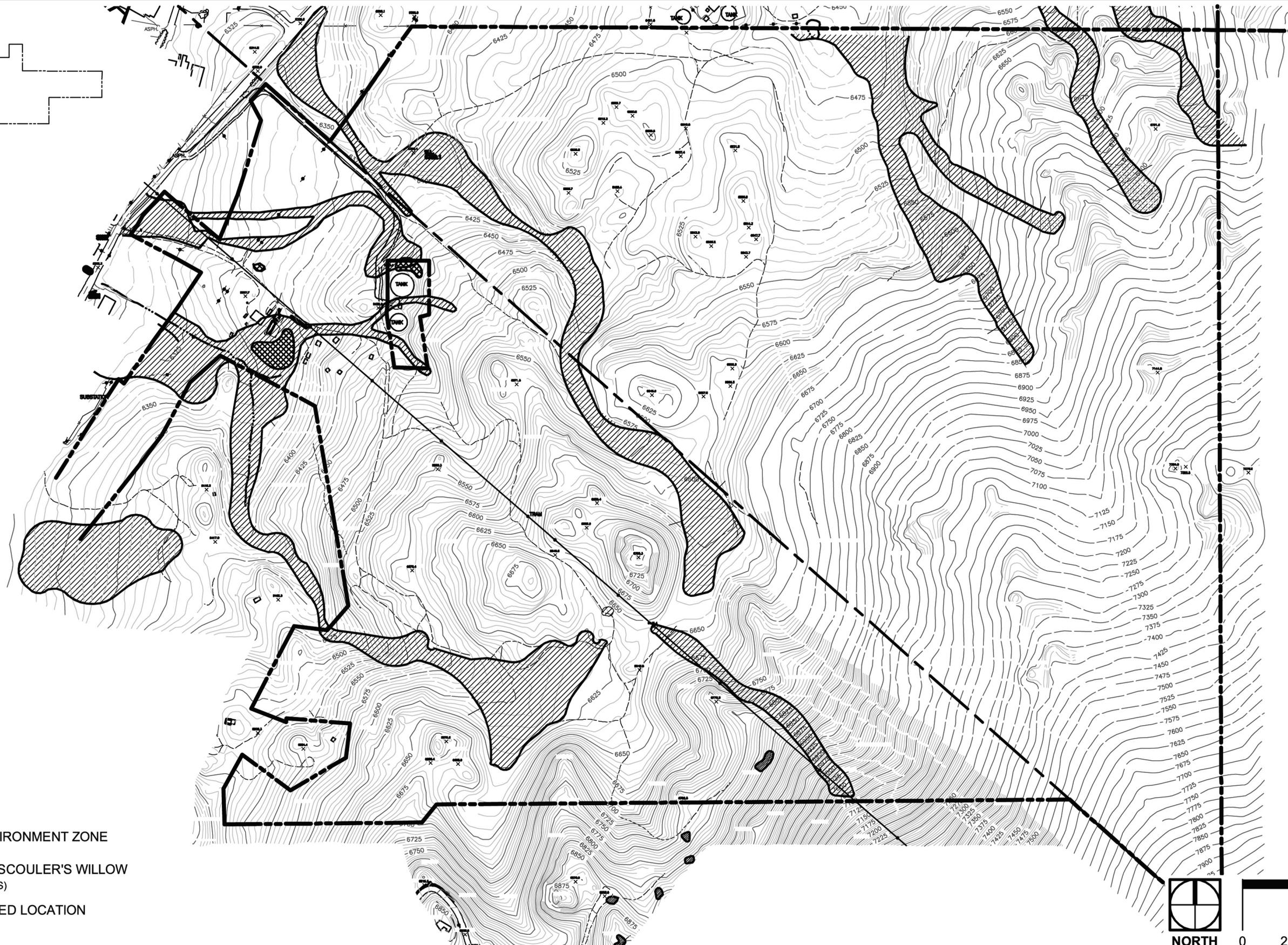
*State listed Noxious weeds

Appendix 2

SEZ Map

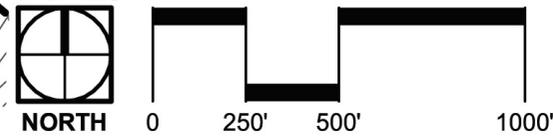


KEY MAP



LEGEND

-  STREAM ENVIRONMENT ZONE
-  SCATTERED SCOULER'S WILLOW
(UPLAND SPECIES)
-  NOXIOUS WEED LOCATION
(REFER REPORT)



21 September 2004

Mr. Steve Noll
Design Workshop, Inc.
298 Kingsbury Grade, Suite 3
Stateline, NV 89449

SUBJECT: VAN SICKLE STATE PARK, 2002 - 2004 BIOLOGICAL SURVEY
RESULTS SUMMARY

Dear Mr. Noll;

In preparation of the master plan for Van Sickle Bi-State Park, Parsons has annually performed wildlife surveys in all suitable habitat within the project area from 2002 through 2004. Surveys for both northern goshawk and California spotted owl were completed to protocol for each of the three field seasons. A summary of each species surveys is provided below:

California Spotted Owl

Methods: Three years of surveys (2002, 2003 & 2004) have been conducted and completed in potentially suitable habitat within and surrounding the project area. Surveys were conducted according to the United States Forest Service "Protocol for Surveying for Spotted Owls in Proposed Management Activity Areas and Habitat Conservation Areas" (March 12, 1991, Revised February 1993). The survey points used during the 2002 and 2003 field season were utilized again in 2004 to provide continuity of data collected. A fourth visit was performed in 2004, utilizing a continuous calling approach while hiking across the survey area. Attached please find a map showing the locations of the calling points used (Figure 1). Data sheets for 2004 are attached herewith. Data sheets for 2002 and 2003 surveys have previously been provided.

Results: No auditory or visual detections of California spotted owls were documented within the survey area during 2002, 2003 or 2004. One incidental visual observation of a juvenile northern saw-whet owl (*Aegolius acadicus*) was recorded on 2 July 2003.

Northern Goshawk

Methods: Three years of surveys (2002, 2003 & 2004) have been completed in suitable habitat within and adjacent to the project area for northern goshawk. In 2004, two visits were completed to protocol during the month of July. All surveys were conducted according to "Survey Methodology for Northern Goshawks in the Pacific Southwest Region, U.S. Forest Service" (14 May 2002). Call points delineated for the 2002 and 2003 northern goshawk surveys were used for the 2004 surveys. Goshawk surveys were conducted using the broadcast acoustical survey method. Attached please find a map showing the delineated habitat and the location of all survey points (Figure 2). Data sheets for 2004 are attached herewith. Data sheets for 2002 and 2003 surveys have previously been provided.

Results: No auditory or visual detections of northern goshawk were documented within the survey area in 2004.

One northern goshawk was observed on 2 July 2003 as an incidental detection. The individual was observed flying from north to south approximately 30 feet overhead. The bird was identified as an adult, based on plumage coloration. The individual was observed flying over two small ridges and was lost out of sight. The area was searched with no auditory or visual detections. No other sightings, detections or sign of northern goshawk were observed. It should be noted Nevada Division of Wildlife performed dawn acoustical surveys within the project vicinity during the month of March. No detections of northern goshawk were observed during their survey efforts.

A vocal approach of an adult northern goshawk was documented on 26 June 2002. Visual confirmation occurred and a stand search was performed on 27 June 2002 with the assistance of Nevada Division of Wildlife (NDOW) personnel. Various vocal calls (wail and alarm) were observed during the stand search. A nest was not located during the surveys or the stand search. NDOW biologist Shawn Espinosa documented two different goshawks in the stand, however their reproductive status was undetermined. It should be noted the Gondola Fire burned the stand where the 26/27 June detections occurred.

A vocal non-approach of a goshawk was documented on 31 July 2002. Visual confirmation did not occur while searching the area. A stand search was performed with NDOW and TRPA on 2 August 2002. No evidence or sign of a nest was recorded in this location. A map is attached documenting the locations of all detections.

The completion of the 2004 field surveys for northern goshawk and California spotted owl results in meeting the two year protocol for these species. Based on Appendix A of the California spotted owl survey protocol, since no detections were documented, and the two year protocol was met, "the negative results may be considered accurate for two additional years without conducting additional surveys." The two-year timeline starts on the last day of the last survey, which would be 18 August 2003. Therefore, if implementation of the project would commence prior to 18 August 2006, no further surveys for California spotted owl would be necessary. However, if construction does not commence prior to this date, two-year protocol surveys must be conducted. The northern goshawk protocol does not include any discussion as to validity of surveys for any duration of time after protocol has been met. However, since northern goshawks have been detected during both in 2002 and 2003, it is recommended surveys for northern goshawks continue in an effort to determine if the goshawks detected are nesting within the project vicinity.

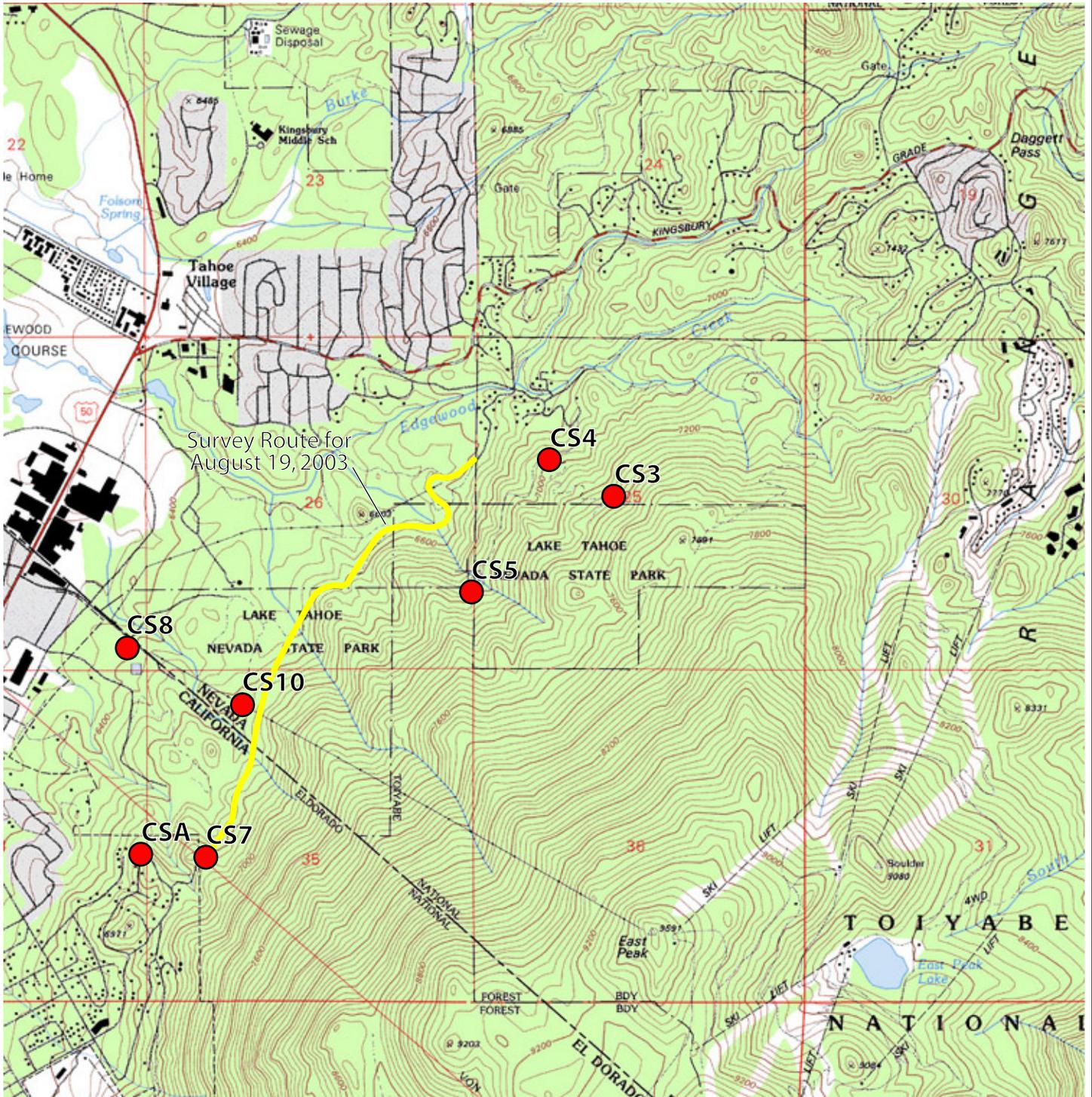
If you should have any questions regarding the surveys performed for the 2002, 2003 or 2004 seasons, please do not hesitate to contact me at (775) 588-2440.

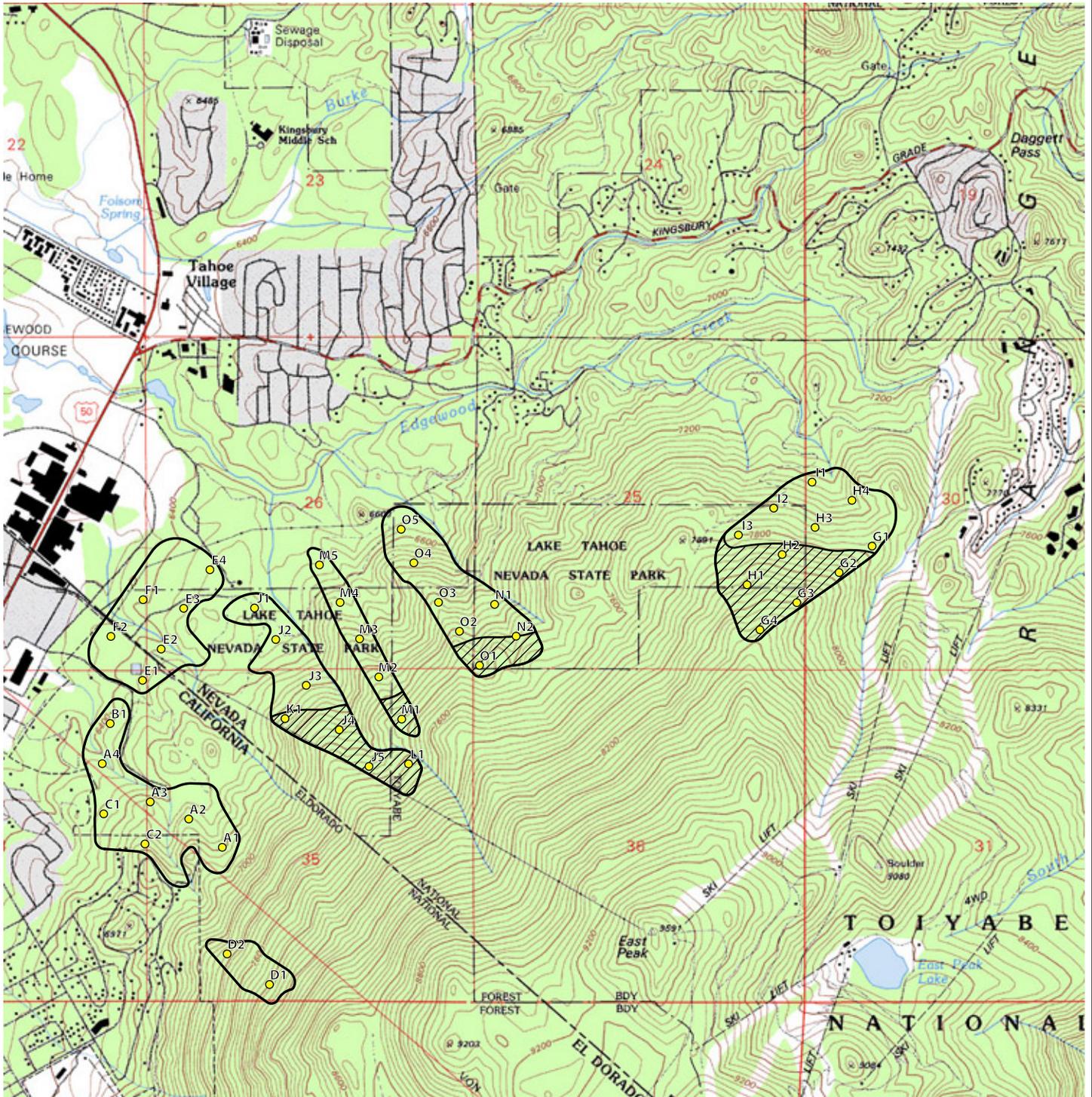
Regards,

Garth Alling
Senior Planner/Biologist

Enclosures

CC: Jenny Jeffers, NDOW, with enclosures
Sloan Gordon, TRPA, with enclosures





Shaded areas indicate habitat burned by the Gondola Fire, July 2002. Habitat no longer suitable

Northern Goshawk Broadcast Survey Form- USFS-Lake Tahoe Basin Management Unit

Site: VAN SICKLE STATE PARK

Surveyors: G. ALLING J. STURPIT

Date: 13 JULY 04

Visit #: 1 Outing #: 1 Quad: SLT T ___ R ___ sec(s)

Quad: _____ T ___ R ___ sec(s)

Weather: % cloud cover: start 0 end 0 precip: start 0 end 0 temp: start 50 °F end 70 °F Beaufort wind speed: start 2 end 1

RESULTS

Det. #	Time	Call Type	A,V, Both	Bearing	Distance (m)	Easting	Northing	Comments (describe behavior, gender, age)
								INCIDENTAL SIGHTING OF SHARP SHINNED HAWK @ SICKLE @ 0710

MAP: Attach map of survey polygon and denote call stns (use ①), sightings (use det. # to specify, use Δ), plucking posts, nests and transect locations.

Table below: Describe habitat at each call stn, nest, sightings, and plucking posts below. List all other bird spp. observed at stn. in comments section.

Call points, nests, plucking posts:	Time	Slope (%)	Canopy Cover	Woody debris	Shrub cover	Comments
A1 0523-0529						NR
A2 0535-0541						NR
A3 0544-0550						NR
A4 0554-0600						NR
B1 0604-0610						NR
E1 0616-0622						NR
E2 0626-0632						NR
E3 0637-0646						NR
E4 0650-0656						NR
B1 0700-0706						NR
J2 0711-0716						NR

Northern Goshawk Broadcast Survey Form- USFS-Lake Tahoe Basin Management Unit

Site: VAN SICKLE STAMP TRAIL
 Date: 14 JULY 04

Surveyors: G. ALLING, J. STUTIPH

Visit #: 1 Outing #: 2 Quad: SCT T _____ R _____ sec(s)
 Quad: _____ T _____ R _____ sec(s)

Weather: % cloud cover: start 0 end 0 precip: start 0 end 0 temp: start 54 °F end 64 °F Beaufort wind speed: start 1 end 1

RESULTS

Det. #	Time	Call Type	A,V, Both	Bearing	Distance (m)	Easting	Northing	Comments (describe behavior, gender, age)
								NOTED: APPELODONTIA BURROWS w/ VEG EVIDENCE E EDGE OF BURN ≈ 20m FROM STREAM CHANNELS Below M2

MAP: Attach map of survey polygon and denote call stns (use ①), sightings (use det. # to specify, use △), plucking posts, nests and transect locations.
Table below: Describe habitat at each call stn, nest, sightings, and plucking posts below. List all other bird spp. observed at stn. in comments section.

Call points, nests, plucking posts:	Time	Slope (%)	Canopy Cover	Woody debris	Shrub cover	Comments
M1 0732-0738						
O1 0746-0753						
O2 0759-0805						
O3 0813-0818						
O4 0824-0833						
M5 0843-0849						
M4 0910-0917						
M3 0925-0937						
M2 0956-1002						

Nevada's 2003 Outdoor Recreation Plan

Chapter 3 Summary

1. Outdoor Recreation Facilities Most Needed in Local Community

Camping

- Camping
- Camping for motor home
- Camp club with a bus

Family

- Family picnic areas
- Family recreation areas

Golf

- Frisbee golf courses

Historical

- Historical areas

Horseback Riding

- Horseback riding areas

Open Space Areas

- Open Area – natural
- Places to rock hound
- Preserve areas for education
- Shaded passive areas

Other

- Horseshoe tournaments

Parks

- Free parks
- Parks for running
- Parks with area for walking
- Parks – any kind

Picnic

- Picnic areas

Support facilities

- Bathrooms
- Working water fountains

Trails

- Bike paths
- Continuous hiking, walking, biking trails
- Hiking access trails and parking areas
- Hiking trails
- Jogging trails
- Mountain bike trails
- Running trails
- Trailheads onto public lands
- Walking trails

Winter

- State run x-country ski trails
- Winter sport recreation area – x-country ski paths, sledding

2. Outdoor Facilities Most needed Outside Local Community

Camping

1. Campgrounds
2. Campgrounds w/play areas and full bathroom facilities, shade trees
3. Campgrounds, bike trails, wildlife viewing
4. Camping areas
5. Camping areas, picnic facilities, hiking trails
6. Camping facilities (with no RV parking allowed – tents, small campers only)!!
7. Camping resorts
8. Primitive camping
9. Improved camping facilities w/tables, toilets and garbage disposal

Events

- Guides at some parks

Natural Areas

- Hiking areas with nothing man made (signs or picnic areas)
- More wildlife preservation areas

Parks/Greenbelts

- More places to rock hound
- More protected areas
- Parks with running/walking paths, picnic areas
- Clean, up to date RV parks
- Parks, campgrounds
- Plain old parks for walking, sitting on a park bench
- Well managed recreation areas

Picnicking

- Picnic areas

Sightseeing

- Sight seeing of animals, land areas, historical sights

State Parks

- More state parks – campgrounds, more trails for kids/children
- More state parks – camping areas

Support Facilities

- Restrooms
- Showers

Trails

- Bike trails
- Bike trails, hiking trails
- Educational hikes
- Hiking trails, jogging trails, paths
- Hiking – safe areas, picnic opportunities
- More hiking trails with parking areas/more bike paths/more mountain bike trails
- Mountain bike trails – all levels
- Nature or natural trails, bike trails horse trails
- Nature trails
- Walking or jogging paths. Areas that encourage birds

Winter Sports

- Winter sport recreation, x-country skiing, sledding, picnic

3. Outdoor Recreation Activity Participation

Percent of Population – Top 10

1. Pleasure driving – 55%
2. Picnicking – 47%
3. Walking, without a dog – 41%
4. Swimming in a pool – 40%
5. Wildlife viewing – 39%
6. Swimming in a lake or stream – 38%
7. Hiking – 37%
8. Walking, with a dog – 34%
9. Lake Fishing – 34%
10. Motorboating – 33%

Respondent Mean Number of Participation Days – Top 10

1. Walking, with dog – 71 days
2. Jogging – 50 days
3. Roller Hockey – 44 days
4. Walking, without dog – 37 days
5. Off Road dirt biking – 35 days
6. Bicycling – 33 days
7. Soccer – 33 days
8. Horseback riding – 30 days
9. In line skating/skateboarding – 29 days
10. 4 wheeling – 27 days
11. Pleasure driving – 26 days
15. Wildlife viewing – 21 days
18. Cross country skiing – 15 days
20. Mountain biking – 15 days
22. Hiking – 13 days
25. Tent camping – 11 days
29. Vehicle camping -

California's State Park System Plan 2002

Summary

1. Parks use is 50% higher than 15 years ago

2. Rating of Outdoor Recreation Importance to Quality of Life

Very Important

- 1987 – 43.6%
- 1992 – 56.1%
- 1997 – 61.9%

3. Californians' Top 15 Activities (by participation) – 1997 survey of public opinions and attitudes on outdoor recreation

1. Walking (recreational)
2. Visiting museums, historic sites
3. Use of open grass or turf areas
4. Driving for pleasure
5. Beach activities
6. Visiting zoos and arboretums
7. Picnicking in developed sites
8. Trail hiking
9. Swimming in lakes, rivers, ocean
10. Attending outdoor cultural events
11. General nature wildlife study
12. Attending outdoor sports/events
13. Camping in developed sites
14. Swimming
15. Bicycling (on paved surfaces)

4. Latent Demand is for Traditional Recreational Opportunities

1. Camping in developed sites
2. Trail hiking
3. General nature wildlife study
4. Visiting museums, historic sites
5. Walking (recreational)
6. Picnicking in developed sites
7. Camping primitive sites
8. Use of open grass or turf areas
9. Attending outdoor cultural events
10. Bicycling (on paved surfaces)

Many State Park System campsites are full and turn people away throughout the year. Very few campsites have been added in the last 10 years and, even if 325 campsites a year were added, this would not enable State Parks to meet demand.

TRPA 1999 Tahoe Recreation Survey

1. Visitor – 631 responses

Primary purpose of Trip

50%+ - sightseeing

1/3 – activities in Tahoe setting

on trip

50%+ - 3-6

1/3+ - 1-2

Duration of stay

50% - - 2-3

25% - 4-7

Time of year

Summer – 2/3

Winter – 20%

Recreation activities

Swimming – 16%

Passive Beach Activities – 9%

Camping in developed campgrounds – 9%

Hiking – 28%

Biking – 16%

Downhill skiing/snowboarding – 23%

Importance of natural setting

Very important – 85%

Dislikes

Too many people – 22%

Too much traffic – 17%

Where from?

Bay area – 26%

Sac – 14%

LA – 10%

Other CA - 8%

Age

25-29 – 15%

30-39 – 27%

40-49 – 20%

Annual household income

Less 35,000 – 20%
35-60000 – 34%
60+ - 37%

Ethnicity

Caucasian – 73%
Asian – 11%
Hispanic – 7%

2. Resident – 219 responses

Residence status

Permanent – 78%
Seasonal – 19%

Where do you live?

SLT – 43%
Stateline/ZC – 7%

Areas for recreation?

South Shore/Stateline – 65%
Back country/USFS land – 38%

Why travel outside community?

Vacation – 27%
Recreation – 17%

Recreation activities

Swimming – 13%
Passive beach activities – 18%
Camping in developed campgrounds – 5%
Rock Climbing – 3%
Hiking – 43%
Biking – 30%
Mountain biking – 9%
Downhill skiing/snowboarding – 50%

Importance of natural setting

Very important – 76%

Dislikes

Too many people – 30%
Too much traffic – 31%

Age

18-24 – 26%
25-29 – 14%
30-39 – 21%
40-49 – 18%

Annual household income

Less 35,000 – 35%
35-60000 – 26
60+ - 30

Ethnicity

Caucasian – 84%
Hispanic – 7%
Asian – 3%

TRPA Summer 2000 User Preference Survey and Focus Group Research

This survey was completed via intercept/mail survey and focus groups. The results fully support continued public investments in the Lake Tahoe recreation spectrum.

1. User profile

- Predominantly mid-aged with moderately high income and education
- Residents more likely to have no children at home
- Visitors more family oriented
- Less ethnically diverse than overall population
- Predominantly from CA/NV
- 48% stay from 3-6 nights

2. Recreation participation

- Most popular: going to the beach, walking, trail hiking, swimming and sightseeing
- Residents more likely to trail hike, mountain bike, backpack, canoe and kayak. Favorites: trail hiking, mountain biking
- Visitors prefer beach activities, sightseeing, driving for pleasure, shopping and gaming. Favorites: beach activities, sightseeing, swimming

3. Recreation User Perceptions

- Most important attributes: beach quality, recreation site maintenance, traffic, security and crowding
- Most important facility attributes: beach access, forest access, town pedestrian areas, day use availability, trails
- Access and availability of day use and camping areas present the greatest need for improvement

4. General areas of issue

Transportation and crowding

- Issues range from crowding and related access and recreation quality issues.
- Getting around the Basin remains one of the primary impacts on the Lake Tahoe experience
- According to survey/focus group responses, efforts to acquire lands for public use and access should continue to hold a priority position and be expanded to the extent feasible
- Efforts to provide pedestrian oriented destinations within the Basin should continue

Quality

- A comparative analysis between the overall importance of listed recreation attributes and respondents' experience with attributes reveals gaps in recreation quality and priorities for addressing perceptions.
- Attributes broken into two categories: conditions and facilities
- Expectations for condition attributes are very high – indicating that those who recreate within the Basin expect an exemplary experience
- Residents are more likely to be dissatisfied with recreation at Lake Tahoe than visitors

- Crowding and traffic are issues of critical concern, particularly with residents, who rate these attributes as fare more important than average as well as give the Basin much lower performance ratings
- Ratings for recreation site maintenance indicates an emerging recreation issue
- Value and cost – residents see region as more costly than desired
- For the facilities category, scores are most problematic for access: identified as the most important, yet show substantial gaps in performance (findings complement identified problematic conditions of traffic and crowding)
- Availability of day use and camping areas is an area of concern
- Visitors are less satisfied with scenic areas at viewing sites and in natural areas
- Visitors indicated a desire for improvement in cultural offerings, interpretive signage and ADA

5. Priorities

High Importance/High Performance

This category identifies issues that are a perceived strength for recreation within the Basin. Policies and actions should be maintained and results monitored. Improvements may contribute to an exemplary experience. Includes attributes that meet/exceed average importance ratings and meets/exceeds average experience rating/users expectations.

Conditions:

- Beach Quality
- Staff Attitude
- Security

Facilities:

- Forest Access
- Unpaved trails
- Paved Trails
- Scenic Viewing Areas

High Importance/Low Performance

Issues that fall into this category signal noteworthy problems and potential negative impacts on the quality of Lake Tahoe as a sustainable recreation destination. Classification in this category may indicate a crisis level issue that requires immediate attention. Attributes meet average importance ratings but fail to meet expectations.

Conditions:

- Traffic
- Crowding
- Maintenance
- Cost and Value

Facilities:

- Beach Access

Low Importance/High Performance

Issues that may require less of a commitment of resources; additional improvements may elevate to exemplary level. Perceived importance should be monitored for increasing usage. Though these attributes are below average importance, user expectations are exceeded.

Conditions:

- Camping Quality

Facilities

- Educational Programs
- Visitor Centers
- Cultural Events
- Cultural Attractions
- Disabled Access

Low Importance/Low Performance

While this category does not require the same level of effort as High Importance categories, it can signal additional recreational needs. Efforts allocated to these issues may help increase the overall quality of recreation in the Basin. Attributes received lower than average importance scores and did not meet user expectations.

Conditions:

- Day Use Quality

Facilities

- Town Strolling Areas
- Day Use Availability
- Camping Availability
- Directional Road Signs
- Nature Viewing Areas
- Interpretive Signs

6. Public Investment

Perceptions of need can help identify relative priorities for recreation planners. Respondents queried in six categories: land acquisition, access, education, modernized facilities, new facilities, and environmental protection.

Very few respondents indicated that public funding for recreation should be reduced. Environmental protection rated highest, with 77% of respondents indicating a need for increased spending in this category. Over half of respondents indicated that increased spending was also important for land acquisition. Spending for new facilities is contentious amongst residents, though a combined 75% desire either maintained or increased spending in this category.

7. Focus Groups

The bulk of respondents have been residents of the Basin for an extended period of time - and are therefore familiar with recreation opportunities in the region and have a perspective on changes in patterns and associated impacts. Interesting note: TRPA was considered responsible for nearly all recreation related issues!

FG1 – South Shore

General

- Concerned with town amenities – bike paths, sidewalks, beaches
- Perceived public policy slant towards tourism to the detriment of resident interests
- More resistant to the idea of users paying for associated recreation costs
- User fees should protect regular use patterns – expected resistance to increased user fees
- Traffic and crowding primary problem – no specific solutions
- Recognition of impacts of personal vehicle use and unwillingness of drivers to use alternative transportation
- Area closures not well accepted protection alternative – acquisition favored
- Access – impacted by overuse, traffic and crowding
- Greater public awareness and user education, interpretive/regulation/directional signage – increase in resource agency presence and enforcement
- TRPA regulations fall heaviest on less affluent

Recreation Perspectives

- Perceived lack of developed recreation areas, walkways and open space
- Noted amount of garbage/lack of maintenance
- Decided tourist orientation
- Recreation Access
- Traffic creates access issues
- Private property creates access issues at beaches – high water should mark public access
- City used eminent domain for downtown project – why not beaches?
- User conflicts

Environmental Perspectives

- Rated as highest priority – perception is that we abuse privileges
- Desolation wilderness – overuse has required user fee
- Corporate position has taken a hold
- Traffic – require use of public transportation
- Rules don't apply to those with money – protections should be equitable

Closure and Protection of Recreation Areas

- No net loss in recreation access
- Education and information – alternative mitigation
- Additional enforcement and staffing of sensitive areas

FG2 – North Shore

General

- Concerned with user conflicts – outlying areas and H2O (xcountry skiing/snomos, hikers/mtn bikers)
- Believe they are more environmentally conscious
- User fees should protect regular use patterns – expected resistance to increased user fees
- Traffic and crowding primary problem – specific solutions included better bike paths and buses
- Recognition of impacts of personal vehicle use and unwillingness of drivers to use alternative transportation
- Area closures not well accepted protection alternative – limits by use type favored – motorized vehicles and vessels
- Access – impacted by overuse, traffic and crowding
- Greater public awareness and user education, interpretive/regulation/directional signage – information regarding managers for specific resources

Recreation Access

- Traffic creates access issues
- Private property creates access issues at beaches – high water should mark public access
City used eminent domain for downtown project – why not beaches?
- User conflicts

Conclusions and Applications to Survey Results

- Traffic and Congestion – underscores that issues impact perception of access and availability
- Resident v. visitor perspectives – survey analysis breakout findings by these two groups should be a guide to recreation priorities
- Education and information – public information approach as mitigation, at the least, public relations will help
- Clarify land manager/TRPA mission

TRPA 2002 Desired Future Conditions Study

Nearly half of all visitor activities (48.6%) are developed recreation oriented. Just over one quarter of visitors pursues urban centered activities and nearly 22% of visitor activities are dispersed. Residents were similar with respect to proportion of developed activities (48.2%) but preferences are different in the urban and dispersed categories, with one third likely to participate in dispersed activities and less than twenty percent to participate in urban recreation. Combining these results, developed recreation is clearly the activity classification of choice among respondents, with dispersed and urban second and third most popular, respectively.

Data indicate that planning decisions which effect the developed recreation classification will have a broad based impact, while decisions which include urban, will, to some degree, affect visitors and those which effect dispersed activities will have a greater affect on the resident population.

According to data obtained in the 2000 Summer User Survey, age is the primary determining factor in recreation preferences. As such, the DFC study calls out a need for planners to be cognizant of the changes in needs and preferences for developed and urban recreation, as well as easier access and better information and signage for dispersed areas.

Improvements and additions were identified as desirable first at developed secondly at urban sites and included parking and traffic improvements, modernized rest rooms and improved maintenance and cleanliness. A small percentage identified improvements in the dispersed category, but these were concentrated to additional hiking and biking trails.

Supply and capacity – planning priorities

The DFC Study identified, based on 2000 Summer User Survey respondent data, a hierarchy of facility planning priorities. The hierarchy included the following categories (note: R denotes Resident response, N denotes Non-Resident):

High – High Need, At Capacity/Overcrowded

- Accessible Beaches (R/N)
- Beaches, Parks to Picnic or BBQ (R/N)
- Paved Bike Trails (R)

Mid – High Need, Below or At Capacity

- Places to Go for a Walk (R/N)
- Paved Bike Trails (N)
- Mountain Bike Trails (R)
- Playgrounds (R)
- Hiking Trails (N)
- Cultural Attractions and Events (R)

Mid – Low Need, At Capacity/Overcrowded

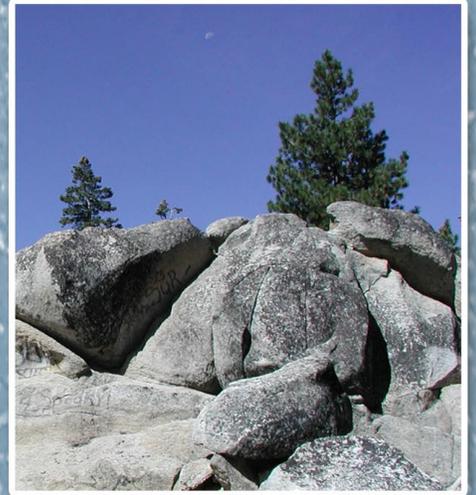
- Marinas (R/N)
- Developed Campsites for Tent RV (R/N)

- Campsite in Primitive Areas (R/N)
- Vista Points or Overlooks (R)

Low – Low Need, Below or At Capacity

- Hiking Trails (R)
- Mountain Bike Trails (N)
- Community Parks (R/N)
- Playgrounds (N)
- Cultural Attractions and Events (N)
- Vista Points or Overlooks (N)

Van Sickle California/Nevada Bi-State Park Lake Tahoe RV Market Investigation



April 2004

for



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I. Introduction

Van Sickle California/Nevada Bi-State Park is situated on adjoining Nevada and California Public Lands on the south-east side of the casino corridor in South Lake Tahoe. The Nevada Division of State Parks, the California Tahoe Conservancy and California State Parks have instigated a planning process which will result in the first bi-state park between Nevada and California, and the one of the first bi-state parks in the nation.

"Van Sickle California/Nevada Bi-State Park" was initiated 13 years ago by Jack Van Sickle, who donated 542 acres to the State of Nevada, specifically for a new park facility. Early planning studies conducted by Nevada State Parks and Design Workshop, a local land planning and recreation planning firm, identified an additional 150 acres in California adjacent to the Nevada property. The addition of this land would greatly improve public accessibility, expand the park acreage and preserve the 140 year-old Van Sickle Barn in its current location. It is one of the oldest structures left standing in the Tahoe Basin. The California Tahoe Conservancy subsequently bought the Californian property for incorporation into the new bi-state park.

Master Plan options are currently being prepared for the park by Design Workshop. The process will first involve collection and analysis of a range of data that will lead into the development of conceptual designs and the subsequent preparation of the Master Plan that will be adopted by Nevada State Parks, the California Tahoe Conservancy and the California Department of Parks and Recreation.

Initial design schemes prepared for the park investigated providing facilities for camping and recreational vehicles (RVs). This market study analyzes if demand exists for such facilities. In addition, it outlines demographics and travel trends for the recreation and RV market, both nationally and state-wide for California and Nevada, and investigates the number and type of facilities currently provided in the Lake Tahoe area.

The market investigation found that the RV camping industry is growing nationally and at state levels for California and Nevada. The growth is projected to continue as Baby Boomers, the predominant age group that owns RV's, continue to travel and upgrade their recreational vehicles. Demand for campsites in California is growing, particularly in the Tahoe Basin where campgrounds are filled to capacity or overcrowded, both for primitive camping facilities, and for developed campgrounds with hookups. There is a trend towards providing more services, with campgrounds that have recently upgraded their facilities. It will be important to develop amenities that support the campground, including trails and interpretive displays, to market RV travelers, particularly given that the site does not have direct access to Lake Tahoe. The park site has some characteristics including topography that may limit the number of fully serviced sites available, but there is also demand for campsites with no hookups for smaller RV's and tent camping.

II. RV Demographics & Travel Trends

A. National RV Ownership Demographics

The recreational vehicle industry is growing at a steady pace in the United States. There was a 40 percent increase in the number of RVs on the road between 1997 and 2001.¹ In 2003, record RV sales revenues were reported in the industry. RV shipments in 2004 are expected to reach their second highest level in 25 years² and the market is predicted by the Recreation Vehicle Industry Association to continue to strengthen due to a stronger economy, lower interest rates and international instability, boosting domestic travel.

University of Michigan studies project that the number of RV-owning households in the U.S. will rise 15 percent between 2001 and 2010, outpacing overall U.S. household growth of 10 percent. This is largely due to aging baby boomers entering their prime RV-buying years over the next decade. A consumer demographics study, completed by the University of Michigan Survey Research Center in May 2001, found that 7.6 percent of all vehicle-owning households in the U.S. owned an RV. The baby boomers are the fastest growing group of RV owners and want an interactive travel experience with the opportunity for education and interaction with the environment.³

A RV Consumer Demographics Study, commissioned by the Recreation Vehicle Industry Association and prepared by University of Michigan Survey Research Center conducted telephone interviews from January 2001 through June 2001 with 3,000 randomly selected participants. The findings of the survey included:

- Almost 10 percent of those 55 and over own an RV
- 8.9 percent of those in the age group 35-54 own an RV
- The number of RV owning households is estimated to rise to nearly 8 million in 2010, a gain of 15 percent from 1991
- In 2001, the average RV owner was married, owned a home and had an annual household income of \$56,000.⁴

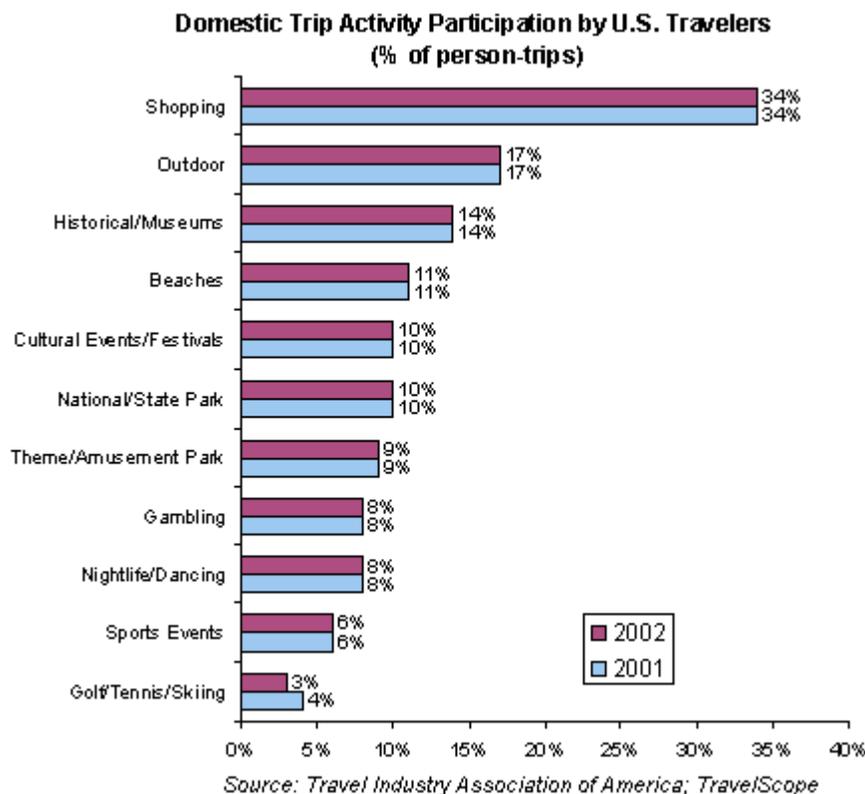
B. National Travel Trends, Including RV

Nearly 70 percent of RV owners expect to travel the same amount or more in winter 2004 as they did in winter 2003.⁵ Campground attendance increased nationally by 4 to 6 percent in the past summer season according to the National Association of RV Parks and Campgrounds.⁶ This is supported by Travel Industry Association of America research that identifies camping as “the number one outdoor vacation activity in America. The average age of travelers who go camping is 37 and their median household income is \$43,000”.⁷ RV camping figures at national parks fell from 4.4 million to 2.4 million from 1980 to 2001. However, there is a general trend for RV’ers to use private campgrounds rather than public campgrounds.

A survey of RV owners completed in Fall 2003 by Robert Hitlin Research Associates and commissioned by the Recreation Vehicle Association, found that the favorite activity of RV’ers was camping, cited by 80 percent of survey respondents. Fishing was cited at 49 percent, hiking at 42 percent, attending craft and harvest festivals at 42 percent and shopping at 40 percent, were also mentioned as popular activities enjoyed by RV’ers.⁹

Data published by the Travel Industry of America (TIA) identifies domestic trip activity participation by U.S. travelers. 2002 figures indicate that shopping attracts the highest percentage with 34 percent, followed by “outdoor” at 17 percent, and historical/museums at 14 percent. See Figure 1.

Figure 1 – Popular Activities for U.S. Travelers



“Outdoor” trips include camping in an RV or tent, and one in six, or 17 percent of domestic trip activity can be attributed to this activity. TIA found that 65 million Americans took at least one, one –way trip of 50 miles or more, away from home to visit a national or state park and/or forest in 2002.^{10 11}

Recreation trend data developed by Western Management Consultants, suggests that the RV market will continue to seek active, outdoor recreation in natural settings. Recent sales trend information shows “bi-modal growth”, there is both a demand for larger more luxurious RV’s and at the other end of the spectrum, smaller folding trailers and small towables. Market demand information suggests that the affluent but aging, active baby boom segments will increasingly demand high quality, highly serviced RV campgrounds. Key components of a successful campground are identified as:

- Clean, quality services, especially common area services
- Basic utilities – power (30 amp), water, sewer/pumpout
- Level, wide, private sites with well planned hookups and good pull throughs
- Enhanced services: RV rental units, fixed roof accommodation, pools, clubhouse, store, laundry, cable, phone, modem
- Programming – interpretation and entertainment for children and adults
- Value added services: beach, rental services
- Diversity of revenue centers for the RV campground operator

A number of market segments are identified, including;

- RV renter/adventurer
 - o US and Canadian visitors tend to seek campgrounds with hookups (mostly water, electrical – 30 amp & sewer)
 - o Users are interested in equipment rental
 - o Well-located sites near attractions, treed sites and good landscaping are popular
 - o There is a low demand for 50 amp power, telephone, cable, internet hookups
 - o This market would spend time searching out their destination and looking for an experience “off the beaten track”
 - o Campgrounds for this market are likely to be provincial and national parks more than privately operated RV campgrounds
- The RV “Full Timer”
 - o Landscaped, full amenity destination sites
 - o Full service including pull throughs, full hook-up, telephone (modem), community centers, stores/services, nearby vehicle services, and other amenities
 - o Often are members of RV clubs, seeking out affiliated members to obtain lower rates
 - o Look for “branded” sites such as KOA
- The RV “Destination Camper”
 - o Predominantly a family market
 - o Full service campground required, with children’s learning programs, community center, pool/water play facilities
- The RV “Club Traveler”
 - o Connects with one or more clubs to travel in a group to a desirable location.

- The trips are organized by the club, and all logistics are provided by the club for a fee
- They look for full service sites where possible, but also event organization and staging from the destination area
- Generally around 20-30 units
- The RV “Independent Camper”
 - Forms the largest market segment of the RV market, and is the most variable
 - Travels mostly on weekends, even during the summer period. ¹²

C. California RV Ownership Demographics

Camper/RV's accounted for 2 percent of all California travel in 2001.¹³ According to figures from the California Travel & Tourism for 2002, RV's/campers/trailers accounted for 1.6 percent (3.6 million) of all California leisure trips, with 1.5 percent (2.9 million) of California residents using RV's/campers/trailers, compared to 2.2 percent (0.6 million) of non-residents. These figures have fluctuated since 1999, when RV's/campers/trailers accounted for 1.7 percent of all California leisure trips, rising to 2.1 percent in 2001. The numbers of California residents using RV's/campers/trailers has fallen by 0.4 percent from 1999 to 2002, and the number of non-residents using RV's/campers/trailers has grown by 0.2 percent within the same period.

Western Tourism Development Associates identifies the "typical RV owner (including owners of travel trailers and other towables) as 48 years old, married, with an income of \$47,000 per year and no children living at home. Loading up a recreational vehicle and heading to the great frontier (or at least dreaming about it) is becoming a popular pastime among younger travelers as well, with nearly one in four households headed by 35-54 year olds intending to buy an RV".¹⁴

Bill Mathews from RV Travel World in Sacramento believes there has been an increase in sales of RV's since September 11, 2001 due to families spending more leisure time together. He commented that there are two market sectors; the first will buy a high end motorhome and intend to use it for traveling semi-full time (70 to 80 percent of these buyers are baby boomers and have owned RV's or trailers before); the second are people ranging in age from 25-30 years, looking for middle to upper price range trailers and 5th wheels for weekend use.

D. California Travel Trends, including RV

Leisure travel throughout California is mainly undertaken by Californians. The Rural Tourism Marketing Handbook, available on the California Tourism website, states that 8 out of 10 California tourists are Californians. Most of these travelers use their own vehicles for travel (71 percent) and travel no more than 3-4 hours to reach their destination. More vacations are being taken closer to home, and for shorter periods, with twice as many people staying for four days or less as those staying for more than five days.

The Strategic Marketing Group conducted a random survey of 600 California residents, 200 each in Los Angeles, the San Francisco Bay Area and Sacramento. The purpose of the study was to understand the attitudes and behaviors of those surveyed with regard to vacation trips. The sample is important as San Francisco and Sacramento provide a large market for Tahoe. The figures for Sacramento and San Francisco show a larger number of people from these areas are likely to take a vacation incorporating an outdoor adventure or rural trip than those from Los Angeles. Those surveyed from Sacramento were more likely to stay in camping or cabin style accommodations than those from San Francisco and Los Angeles, which is consistent with the closer proximity of available facilities in the Sierra Nevada Mountains.¹⁵

Figure 2 – Type of Vacation

Likelihood of Vacation type:	(Very or Somewhat Likely)			
	Total	Los Angeles	San Francisco	Sacramento
Cruise	15 %	16 %	15 %	13 %
Theme Park	18 %	18 %	21 %	14 %
Snow Skiing	12 %	8 %	16 %	12 %
Beach or Lake	35 %	32 %	38 %	35 %
Outdoor Adventure or Eco-Tourism	18 %	14 %	19 %	20 %
Learning a Foreign Language	8 %	7 %	12 %	7 %
An All-inclusive Resort	11 %	12 %	11 %	9 %
Visiting a Big City	24 %	18 %	33 %	21 %
Taking a Rural Trip	19 %	13 %	21 %	24 %
Sightseeing	23 %	21 %	22 %	26 %
Gambling	14 %	8 %	21 %	14 %
Arts & Culture	17 %	13 %	22 %	15 %

Figure 3 – Lodging Type

Types of Lodging Accommodations likely to be used on next trip:			
	Los Angeles	San Francisco	Sacramento
Full Service Hotel	27 %	24 %	24 %
Mid-Level Hotel	22 %	24 %	26 %
Economy Hotel	16 %	21 %	16 %
Casino Hotel	13 %	6 %	7 %
Condominium	5 %	8 %	6 %
Family/Friends	7 %	7 %	5 %
RV/Mobile Home	3 %	2 %	5 %
Cabin/Camping	3 %	4 %	7 %
Other/Don't Know	9 %	12 %	9 %

Demand for California State Parks facilities is growing. The California Tourism Website identifies that reservations for RV camping spaces in California State Parks in the summer of 2002 were 12-15 percent higher than 2001.¹⁶ The State Park System Plan 2002, notes that camping is in high demand - “In 2001, the State Park reservation contractor handled over 350,000 camping transactions. That is an increase of 13.6 percent in just three years... The State Park system has been able to add very few campsites during the last ten years... Demand is so high that if the State park system were to add 325 campsites a year, it would not keep up with demand”.¹⁷ There was a 12.3 percent increase in State Park attendance in the Lake Tahoe Area from the 1998/1999 fiscal year to the 2001/2002 fiscal year.¹⁸

A study was undertaken for the California Roundtable on Recreation, Parks & Tourism and California Tourism, in July 2000 by Dean Runyan Associates, titled “Campers in California – Travel Patterns & Economic Impacts”. The main findings of this report are useful to help establish the potential user of facilities in the Lake Tahoe Basin and are as follows:

- The highest number of developed campsites in California was identified in the High Sierra Nevada Mountains: “The High Sierra has the greatest number of U.S. Forest Service campsites and National Park Service campsites in the state.”¹⁹
- Private/commercial campgrounds account for over two-thirds of all campsites in the state

Camping Trips in California

- 87 percent of all campers in California are in-state residents.
- State Park campers took the fewest number of annual trips.
- State Park users took the shortest trips, an average of 4.3 nights.
- Most camping parties traveled less than 300 miles to reach their destination.
- Over half of the State Parks users traveled under 100 miles to reach their camping destinations.
- State Parks Users were more likely to stay in one campground for the length of their stay. National park users were more likely to spend time at more than one campground.

- Two thirds of all campers travel to their destinations using 5th wheel trailers of motorhomes/RV's.
- Over half of State Park and National Park users prefer automobiles or trucks and use tents.
- Campers who brought extra vehicles (towed or belonging to additional members of the party) were most often Private/Commercial facility users.

Camping Party Demographics

- 82.2 percent of campers were with family members on camping trips, approx. 40 percent of this number were with friends and 15 percent were with an organized group.
- More than 60 percent of all camping parties had 2 adults, and 60 percent had no children.
- The majority of adult campers are over 50 years of age.
- State Park adult campers had the lowest average age of 44 years.
- Annual incomes of campers in 1999/2002 were relatively affluent; over two-thirds had annual incomes of \$50,000 or more per year. This was consistent between different types of campground facilities.

Camping Activities

- Walking/Day hiking, sightseeing and picnicking were the most popular activities of respondents.
- Private/commercial campers rated visiting a museum of historical site as their second favorite activity after walking/day hiking.
- State park users were most likely to participate in off-road activities of all kinds.

Camping Trip Satisfaction

- State park users expressed general satisfaction for facilities but identified conditions under which they would take more overnight camping trips. The most popular responses included; easier to reserve sites and fewer crowds.

Economic Impacts of Camping

- Expenditures of all campers have generally increased throughout the 1990's, especially those using private/commercial campgrounds.
- "Expenditures by campers using Private/Commercial campgrounds were \$2.5 billion, which accounts for over 80 percent of all camping expenditures. Expenditures by those using public campgrounds (Local Parks, State Parks, BLM/Forest Service/Corps.) were \$500 million." ²⁰
- In the High Sierra Nevada Mountains, overnight camper expenditure in 1999 for private campgrounds was \$141 million, compared with \$104.7 million in public campgrounds. (This is the narrowest margin shown for all tourism regions listed in California.)
- More than 20 percent of all public camping expenditures in California occur in the High Sierra region.

Select Conclusions of Report

- California campers are predominantly empty nesters and retired people
- Camping in California is an activity primarily participated in by relatively affluent, well-educated people

- Non-whites in California are relatively less likely to be campers
- Many campers camp with friends and/or organized groups
- California camping is dominated by private/commercial campground use²¹

Generally in California it appears that campers tend towards using private facilities, with a wide margin between expenditure in private campgrounds and public campgrounds. In Tahoe this margin is considerably smaller, indicating a stronger use of public campgrounds. More than 20 percent of all public camping expenditures in California occur in the High Sierra Nevada Mountains region, indicating there is a dominant existing use of the High Sierra Nevada Mountains by recreationists seeking a camping experience.²²

E. California Recreation Trends

California State Parks published “Public Opinions & Attitudes on Outdoor Recreation in California 1997”, in March 1998. The report concludes that “based on latent (unmet) demand and public support, Californians believe that nine outdoor recreational activities should have top priority for the expenditure of public funds: walking, trail hiking, camping in developed sites, camping in primitive sites, general nature study, use of open grass areas, picnicking in developed sites, visiting museums/historic sites, and visiting zoos and arboretums.”

The report profiles ‘Public Opinions & Attitudes on Outdoor Recreation in California’, concluding that there is a general shift in use towards more undeveloped areas. The following table from the report provides figures pertaining to visits to outdoor recreation areas.

The report identifies that recreation activity patterns in California have changed between 1987 and 1997. General nature study and cross-country skiing have steadily increased. Off-highway use of 4-wheel drive vehicles stayed consistent overall. The use of motorcycles and ATVs has increased. Bicycling has increased about 10 percent since 1992, but mountain biking off paved surfaces decreased from an average of about 28 to 21 days per year. Several activities exhibited growth in 1992 and then declined to about their 1987 levels. Activities in this category include walking; camping in developed sites; camping in primitive areas; picnicking in developed sites; kayaking, rowboating, canoeing, and rafting; saltwater and freshwater fishing. Slight decreases are evident in the number of days camped, both for developed and primitive camping. For both types of camping, the average number of participation days dropped about 20 percent between 1992 and 1997. The drop in participation levels for many activities may reflect the aging demographic of survey participants. The proportion of respondents in the less than 25-year category has steadily declined over the decade, while the proportion of respondents in the 41 to 50 year-old age group has steadily increased.

Figure 4 – California State Park Visits

VISITS TO OUTDOOR RECREATION AREAS (1987,1992 and 1997)

	Not at all			Once or twice per year			Several times per year			Once or twice per year			Once per week			At least 2-3 times per week		
	1987	1992	1997	1987	1992	1997	1987	1992	1997	1987	1992	1997	1987	1992	1997	1987	1992	1997
	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
Natural and undeveloped areas	50.3	9.3	9.7	26.2	25.4	28.7	16.5	37	36.8	4.5	15.7	13	1	6.3	5.9	1.6	6.3	5.8
Nature oriented parks & recreation areas	31.4	9.7	8.8	30.5	27.7	22.1	27.7	39.9	43.3	7.8	14.8	16	1.4	4.9	5.6	1.2	3.1	4.1
Highly developed parks & recreation areas	21.2	12.6	11	16.3	21.6	20.9	28.5	30.1	28.5	19.3	17.3	19	8.8	10.5	12	6	7.9	8.5
Historical or cultural buildings, sites or areas	40	13.1	12.8	31.4	39.8	38.4	21.3	32.3	37.2	6.5	12.3	9.5	0.4	1.2	1.4	0.4	1.3	0.8
Private, not public, outdoor recreation areas & facilities	51.4	30.2	25.8	16.7	23.9	28	17.1	24.7	22.7	7.8	11.4	10.6	3.3	5.7	7.4	3.7	3.9	5.5

Source: CIC Research Inc,
(California State Parks, 1997)

California State Parks compare the state specific figures to national recreation figures from the National Survey on Recreation and the Environment (NSRE) conducted in 1982 and 1994, finding that the results are similar for each. It was noted that the California State Parks document generally showed a higher rate of participation in activities than the NSRE report. For the California study, 84 percent reported walking as an activity, compared to two-thirds of the national sample. Nearly 75 percent of Californians queried in the 1997 survey indicated they visited historic sites or museums as compared to 44 percent from the NSRE national sample. The trend in California is for a higher level of participation in recreation activities than in other States.

F. Nevada RV Ownership Demographics

The Nevada Department of Motor Vehicle (DMV) figures for RV and travel trailer registrations indicate a steady rise from January 2001 to December 2003 of 8 percent, with the most dramatic increase of 5 percent occurring between January 2003 and December 2003.²³

G. Nevada RV Travel Trends

The Nevada Tourism Agency has instigated a \$1 million advertising campaign to spur recreational vehicle travel to the State. The agency will be working with RV manufacturers, publications and dealerships over a three-year period to promote Nevada, using a three-year contest to give away an RV worth \$100,000. Entries can be submitted at RV parks in Nevada.

The Nevada Commission on Tourism commissioned a study to compile occupancy data for RV parks which will also establish park visitor origins. The general trend observed to date is that large numbers of tourists and RV campers from Washington, Texas, Illinois and Oregon are drawn to Nevada.²⁴

H. Nevada Recreation Trends

Existing recreation uses with the highest levels of participation in Nevada are:

- | | |
|---------------------------------|------|
| 1. Pleasure driving | 55 % |
| 2. Picnicking | 47 % |
| 3. Walking, without a dog | 41 % |
| 4. Swimming in a pool | 40 % |
| 5. Wildlife viewing | 39 % |
| 6. Swimming in a lake or stream | 38 % |
| 7. Hiking | 37 % |
| 8. Walking, with a dog | 34 % |
| 9. Lake Fishing | 34 % |
| 10. Motorboating | 33 % |

Source: (SCORP, 2003)

Nevada's 2003 Statewide Comprehensive Outdoor Recreation Plan (SCORP) identifies facilities most needed in local communities and outside the local community. In both cases, camping is listed. Types of facilities listed for each vary and often overlap. Outside their local communities, the most needed facilities respondents identified as needed in order were:

1. Campgrounds
2. Campgrounds w/play areas and full bathroom facilities, shade trees
3. Campgrounds, bike trails, wildlife viewing
4. Camping areas
5. Camping areas, picnic facilities, hiking trails
6. Camping facilities (with no RV parking allowed – tents, small campers only)!!
7. Camping resorts
8. Primitive camping
9. Improved camping facilities w/tables, toilets and garbage disposal

Other facilities listed as needed include: events and guides at parks, natural areas with no public facilities, parks and greenbelts, recreation areas, clean up-to-date RV parks, picnic areas, more state parks with campgrounds and facilities for children, trails of varying descriptions, and winter sport recreation facilities including cross country skiing and sledding. Many of these activities could be provided for at Van Sickle Bi-State Park.

I. Lake Tahoe Recreation Trends

In California it appears that campers are more apt to use private facilities, with a wide margin between expenditure in private campgrounds and public campgrounds. In Lake Tahoe this margin is considerably smaller, indicating a stronger use of public campgrounds. More than 20 percent of all public camping expenditures in California occur in the High Sierra Nevada Mountain region, indicating that recreationists seeking a camping experience gravitate to the High Sierra Nevada Mountains.²⁵

Nearly half of all visitor activities (48.6 percent) in the Lake Tahoe Basin are oriented towards recreation uses, utilizing developed recreation facilities. Just over one quarter of visitors pursues activities centered in urban areas and nearly 22 percent of visitor activities are dispersed and do not rely on the provision of facilities.²⁶

The largest Nevadan group of users for the Van Sickle California/Nevada Bi-State Park will be from the Reno or Carson Valley areas. Facilities most needed, as identified in the Nevada 2003 Statewide Comprehensive Outdoor Recreation Plan (SCORP) are campgrounds with modern facilities such as bathrooms, play areas, bike trails, picnic facilities, hiking trails. Camping resorts and “no RV” campgrounds were also identified.

The Tahoe Regional Planning Agency (TRPA) commissioned a recreation survey in 1999 that provides a visitor profile for the Lake Tahoe Basin. Six hundred and thirty one responses were received. Results are summarized below:

Figure 5 – TRPA Recreation Survey Results

1. Primary purpose of trip:	
Sightseeing	more than 50 % of visitors
Activities in Tahoe setting	30 % of visitors
2. Number of people on trip:	
3-6 people	more than 50 % of groups
1-2 people	more than 33.3 % of groups
3. Duration of stay	
2-3 days	50 % of visitors
4-7 days	25 % of visitors
4. Time of year visiting	
Summer	66.6 % of visitors
Winter	20 % of visitors
5. Recreation activities	
Swimming	16 % of visitors
Passive Beach Activities	9 % of visitors
Camping in developed campgrounds	9 % of visitors
Hiking	28 % of visitors
Biking	16 % of visitors
Downhill skiing/snowboarding	23 % of visitors

6. Importance of natural setting	
Very important	85 %
7. Dislikes	
Too many people	22 %
Too much traffic	17 %
8. Where from?	
Bay area	26 %
Sacramento	14 %
LA	10 %
Other CA	8 %
9. Age	
25-29	15 %
30-39	27 %
40-49	20 %
10. Annual household income	
Less than \$35,000 annually	20 %
\$35-\$60,000	34 %
\$60,000 and above annually	37 %
11. Ethnicity	
Caucasian	73 %
Asian	11 %
Hispanic	7 %

This information is supplemented by a User Preference Survey prepared by the TRPA in the summer of 2000. The survey identified a visitor user profile that was predominantly mid-aged with moderately high income and education, with a family, less ethnically diverse than the overall population, and predominantly from California and/or Nevada. For 48 percent of these visitors, trip duration is three to six nights. The study also identifies that according to recreation user perceptions, access and availability of day use and camping areas present the greatest need for improvement.

In 2002 a Desired Future Conditions Study was prepared by the TRPA. A hierarchy of facility planning priorities was established based on 2000 Summer User Survey respondent data. Developed campsites for tents and RV's, and campsites in primitive areas were both identified as being at capacity or overcrowded, with a perception that there was a mid to low need for these facilities. It should be noted that survey respondents were comprised of both residents and visitors.

Significance to Van Sickle California - Nevada Bi-State Park

The RV market is growing nationally, with Baby Boomers (age 55 and over) being the fastest growing group of RV travelers. Another large market segment is the age group of 35 to 54. These two market segments result in “bi-modal demand” for RV’s, one end of the market is looking for larger, more luxurious RV’s, and the other end for smaller folding trailers and small towables. Nationally, there is a trend for RV’ers to use private campgrounds rather than public campgrounds, and generally corresponding with a high level of service including power, water and sewer/pumpout.

Data collected from California supports that there is growth in the RV industry, with the average RV traveler being 48 years old and married, with an income of \$47,000 per year and no children living at home. This suggests that California travelers fall into the end of the market that favors smaller folding trailers and small towables. Figures from Nevada indicate a steady rise in the number of RV and travel trailer registrations in recent years, with a sharper increase in 2003.

The majority of Californian travelers are from California, with most people not traveling more than 3 to 4 hours to reach their destination and only staying for four-days or less. This locates Lake Tahoe as a popular vacation destination within reach of the large population center of Sacramento and the Bay Area, including San Francisco. The largest proportion of visitors to Tahoe is from the Bay Area. Residents surveyed from Sacramento (the next largest group) were more likely to stay in camping or cabin style accommodation than those from San Francisco or Los Angeles. The Nevada Tourism Agency has instigated a \$1 million campaign to spur recreational vehicle travel to the State. Large numbers of RV travelers from Washington, Texas, Illinois and Oregon currently visit Nevada. The large population center of Reno is within easy traveling distance of Lake Tahoe.

Demand for California State Parks facilities is growing, with Lake Tahoe figures being consistent with the general trend. There is a perceived need for improved reservation systems in campgrounds. The High Sierra region has the highest number of US Forest Service campsites and National Park Service campsites in the State. Annual incomes of campers in California are generally high and consistent between different types of campgrounds. Generally it appears that campers tend to use private facilities in California, with a wide margin between expenditure in private campgrounds and public campgrounds. In Lake Tahoe this margin is considerably smaller, indicating a stronger use of public campgrounds. More than 20 percent of all public camping expenditures in California occur in the High Sierra Nevada Mountain region.

General national recreation trends suggest that camping is increasing, being the number one outdoor vacation activity in America. Californian recreation studies indicate that Californians have a higher participation rate in active recreation than nationally. However, some activities have dropping participation rates, which can be attributed to an aging population. Walking/day hiking, sightseeing and picnicking were the most popular activities of campers, followed by visiting a museum or historic site. Nevada’s 2003 Statewide Comprehensive Outdoor Recreation Plan (SCORP) identifies facilities most needed in local communities and outside the local community. In both cases, camping is listed, with varying levels of service. Picnic areas and trails are often listed in association with campgrounds. A study prepared by TRPA in 2002

identified developed campsites for tent/RV and primitive campsites as being at capacity or overcrowded in the Lake Tahoe Basin. The perception of those surveyed was that there was a mid to low need for these facilities.

The Lake Tahoe area has a large existing and potential market for campers due to the beauty of the area (85 percent of visitors to the Lake Tahoe Basin regard the natural setting as very important), the rising popularity of camping as an activity and its geographic proximity to large population centers in Nevada and California. It is a unique market in that existing data indicates that use of public campgrounds is more prevalent than in other areas. The natural beauty of the Lake Tahoe Basin and range of recreational opportunities offered make it an attractive destination.

III. Analysis of Existing Facilities

A. Introduction

In evaluating appropriate potential programming for RV facilities at the Van Sickle California - Nevada Bi-State Park, a comparative analysis was undertaken for properties within the Lake Tahoe Basin and nearby Carson City and Carson Valley.

Characteristics of properties that were studied included: facility location, number of spaces provided, type of hookups available, maximum vehicle size, whether tent accommodations are available, cost information, amenities provided, operating season, and occupancy information.

B. Lake Tahoe Existing Facilities

Properties within the Lake Tahoe Basin

Sixteen properties within the Lake Tahoe Basin were studied. Selection criteria for inclusion in the present study included location within the Tahoe Basin and size of facility (over 25 campsites). This comparative study is intended to provide an overview of the types of facilities and amenities that existing properties within the Lake Tahoe Basin provide for the RV user. Properties studied included:

- Camp Richardson Resort
- Campground by the Lake
- DL Bliss State Park
- Emerald Bay State Park – Eagle Point
- Sugar Pine Point State Park
- Lake Tahoe State Recreation Area
- Fallen Leaf Campground
- Meeks Bay Campground
- Meeks Bay Resort
- Nevada Beach Campground
- Zephyr Cove Resort
- William Kent Campground
- South Lake Tahoe KOA Campground
- Sandy Beach Campground
- Tahoe Pines Campground
- Tahoe Valley Campground

Location of Properties

Out of the properties studied, two are located in Nevada and 14 are located in California. From the perspective of location within the Lake Tahoe Basin, eight properties are located on the South Shore, three are on the North Shore and five are located on the West Shore. Refer Figure 6.

Management and Ownership

Five properties are publicly owned and operated – four by California State Parks and one by the City of South Lake Tahoe. Six properties are publicly owned by the United States Forest Service (USFS) and managed by concessionaires. A total of five properties are privately owned and operated.

Both properties in Nevada are owned by the USFS and operated by concessionaires. Out of the eight properties on the south shore, one is under public ownership and management, four are USFS owned and concessionaire operated and three are privately owned and operated.

Figure 6 – Lake Tahoe RV Campground Locations

Case Study - Lake Tahoe RV Campground Locations



1. Zephyr Cove Campground
2. Nevada Beach Campground
3. Campground by the Lake
4. Tahoe Valley Campground
5. Tahoe Pines Campground
6. SLT KOA Campground
7. Camp Richardson Resort
8. Fallen Leaf Campground
9. Eagle Point Campground
10. DL Bliss State Park
11. Meeks Bay Campground
12. Meeks Bay Resort
13. Sugar Pine Pont State Park
14. Willam Kent Campground
15. Tahoe State Recreation Area
16. Sandy Beach Campground

Facility Size

Of the properties studied, 44 percent have between 51 and 100 RV sites and 25 percent have between 100 and 200 sites. Properties with 20 to 50 sites and over 200 sites each comprise 15 percent of the market.

Hookups are provided at 50 percent of the properties studied. Of those that do not provide hookup service, half are publicly owned and operated (by California State Parks) and the other half are publicly owned and privately operated (forest service/concessionaire). All properties that provide hookups offer full service levels (water, electric, sewer), with varying levels of additional amenities such as telephone, cable and modem.

The majority of properties (69 percent) are located on, or within close proximity (1/2 mile or less) to Lake Tahoe. With the exception of Fallen Leaf Campground, the remainder of properties are 3 or more miles from lake access.

Amenities provided by properties vary widely, though it is apparent that those facilities owned and operated by the California State Parks depend on the aspiration of guests to enjoy the surrounding environment. Properties such as KOA, Tahoe Valley Campground, Campground by the Lake, Zephyr Cove and Camp Richardson provide a higher level of services including showers, restrooms, grocery/convenience stores, etc.

Zephyr Cove Resort, a forest service owned, concessionaire operated property, has recently undergone a renovation and expansion process which resulted in a higher level product than is typically found at most Forest Service/State Park properties. Improvements include: realignment and paving of existing roadways on the property, expansion of sites to accommodate modern vehicles, and modern services including water, sewer, electric (20/30/50), telephone and cable. Camp Richardson Resort is currently in the master planning process to update the property in similar fashion to Zephyr Cove.

Operations

Operations information was available from the following properties: Camp Richardson Resort, Zephyr Cove Resort, Nevada Beach, William Kent, Meeks Bay, Fallen Leaf and South Lake Tahoe KOA.

All properties indicated that they are at 100 percent occupancy on weekends and holidays throughout the summer months (Fourth of July through Labor Day). During this period, midweek occupancy averages fluctuate between 75 percent and 85 percent. Nevada Beach Campground runs at 100 percent occupancy for the majority of the season – typically from mid June through mid September.

Properties that offer year round operations indicated that availability is dependent on snow levels during the winter months and that occupancy is below the 50 percent mark during the typical off season.

Camp Richardson, Zephyr Cove and South Lake Tahoe KOA cater to a family oriented demographic, providing a high level of amenities and services. The remaining facilities offer a lower level of service and cater to a more varied clientele; it appears that the natural setting of Lake Tahoe and proximity to outdoor activities – lake activities, hiking, fishing, natural features – is the primary reason for visitation to these properties.

RV Accommodations at South Shore Casino Properties

Caesars Tahoe

Caesars Tahoe has an existing policy which does not permit sleeping in the property's parking lot, thus technically precluding overnight stays in an RV. However, property management is reportedly wary of alienating any potential guests and enforcement of the policy is therefore relaxed. Enforcement currently is on a case basis, based on occupancy: if the property has vacancies, the desire is for RV'ers to stay within the property; if the resort hotel is booked, the property will not turn people away and permits them to remain overnight in an RV. The caveat here is that, if the property is booked and allows RV parking, it causes conflicts with available parking for property customers. Additionally, there are no services for RV's at the Caesar's property.

The general impression of need, as indicated by Caesar's management, is that RV facilities are underbuilt during peak periods (July through September). Caesar's often receives calls inquiring about the policy for RV'ers and RV'ers definitely utilize the property for gaming, dining and entertainment. Caesar's has expressed that the property would benefit from an RV facility in their back yard. In addition, such a facility would enable management to better enforce the existing policy (i.e., "we don't allow overnight stays in our parking lot, but there are RV accommodations across the street...").

Horizon Casino Resort

Similar to Caesar's, the Horizon Casino Resort has an existing policy which technically does not permit sleeping in the property's parking lot. However, this policy is loosely enforced and the property does have 23 extra deep spaces at the rear of the parking lot and will issue a permit allowing RV's to "sleep" in the lot for up to four days. There are, however, no facilities and dumping is expressly prohibited.

From Memorial Day through September, the RV spaces within the Horizon lot are full on holidays and weekends. During the midweek in the summer, and other times of the year, one to two spaces on average are utilized. While direct contact with guests is limited, management indicates that the majority of RVers are empty nesters.

Horizon has entertained the idea of an RV Park. Management recognizes that there is a market for RV accommodations on their property. Any plans would be to formalize the existing use of the parking lot area with hookups, and a store to provide essentials. Any more extensive development plans were not divulged.

Figure 7 - Lake Tahoe RV Camping Facilities

Facility	Location	# of RV Spaces	Hookups	Full	Water/Electric	Water Only	Cable	Max Vehicle Size	Tent	Cost	Season	Amenities
Camp Richardson Resort	SLT, CA	109	Y	Y	Y	Y	N	35'	Yes	\$19-\$32	May-Oct	Proximity to lakefront, restaurant, general store, trails, wilderness; shopping, dining in South Lake Tahoe
Campground by the Lake	SLT, CA	50	Y	Y	Y	Y	N	Varies	Yes	\$21-\$29	May-Oct	Proximity to lakefront, El Dorado Beach, recreation center, ice arena, Bijou Park, golf, restaurants, laundry; shopping, dining in South Lake Tahoe
DL Bliss State Park	Tahoma, CA	141	N	N	N	N	N	18'	Yes	\$20	June-Sept	Proximity to lake, trails, Balancing Rock Nature Trail
Emerald Bay State Park - Eagle Point	Tahoma, CA	100	N	N	N	N	N	21'	Yes	\$20	Mid June-LaborDay	Proximity to lake, trails, Vikingsholm, Fannette Island
Sugar Pine Point State Park	Tahoma, CA	175	N	N	N	N	N	32'	Yes	\$20	May-Nov (175 sites); year-round (18 sites)	Proximity to lake, trails, Vikingsholm
Tahoe State Recreation Area	Tahoe City, CA	27	N	N	N	N	N	24'	Yes	\$20	June-Sept	Proximity to lake, Tahoe City
Fallen Leaf Campground	SLT, CA	201	N	N	N	N	N	45'	Yes	\$20	May-Oct	Proximity to Desolation wilderness, Fallen Leaf Lake, trails, swimming, water skiing, fishing, hiking, bike trails; flush toilets; garbage facilities; firewood; groceries
Meeks Bay Campground	Meeks Bay, CA	21	N	N	N	N	N	40'	Yes	\$17	May-Oct	Proximity to lakefront, trails, swimming, water skiing, fishing, hiking, bike trails; firewood
Meeks Bay Resort	Meeks Bay, CA								Yes			Proximity to lake, marina, trails
Nevada Beach Campground	Round Hill, NV	54	N	N	N	N	N	45'	Yes	\$22-\$24	May-Oct	Proximity to lakefront, trails, grocery, gas, laundry (1/2 mile); firewood, flush toilets on site
Zephyr Cove Resort	Zephyr Cove, NV	93	Y	Y	-	-	Y	Varies	Yes	\$15-\$48	Year round	Proximity to lakefront, trails, stables, store, restaurant, marina
William Kent Campground	Sunnyside, CA	65	N	N	N	N	N	45'	Yes	\$16	May-Oct	Proximity to lakefront, Truckee River, trails, swimming, fishing, hiking, bike trails; grocery, laundry, shopping, dining in nearby Tahoe City; firewood on site
KOA Campground	SLT, CA	60	Yes	Y	Y	Y	Y	40'	Yes	\$34-\$42+	Apr-Oct (all sites); some availability year round	Showers/restrooms; laundry room; grocery store; heated pool; dump station; playground; game room; gift shop; picnic area; BBQs; fire rings
Sandy Beach Campground	Tahoe Vista, CA	44	Yes	-	-	-	N	35'	?	\$15-\$20	N/A	N/A
Tahoe Pines Campground	SLT, CA	60	Yes	-	-	-	N	40'		\$19-\$25	N/A	N/A
Tahoe Valley Campground	SLT, CA	350	Yes	-	-	-	Y	none	No		N/A	N/A

Significance to Van Sickle California - Nevada Bi-State Park

Analysis of comparable properties within the Lake Tahoe Basin indicate that the number of publicly owned properties that provide hookups is relatively low; where hookups are provided, water and electric services are offered. California State Parks properties do not offer hookups. The City of South Lake Tahoe property, Campground by the Lake, offers water and electric, and has a dump station.

Zephyr Cove and Camp Richardson, both USFS owned and privately operated properties, provide full hookups. In fact, these properties have recently undergone, or are currently in the planning process for, significant renovation and upgrades to facilities and amenities. The remaining USFS owned and concessionaire operated properties do not offer hookup services.

Privately owned properties, by contrast offer full hookups and typically cater to a more family oriented, destination demographic. The majority of publicly owned properties have proximity (within 1/2 mile) to Lake Tahoe; all three privately owned properties are three or more miles from Lake Tahoe. While the Van Sickle California - Nevada Bi-State Park property does not have existing lake access, it is possible that such provisions for such access may be developed through partnerships with the Lakeside Beach property. This property caters to residents and visitors in the Park Avenue/Stateline area.

Currently there are no designated group camping areas within the Tahoe Basin. Small groups of campers are able to find sites together but there is no ability to book a specific group site with amenities to cater for a private group, particularly a group of RV's.

Finally, it is worth considering whether the proximity to the casinos may provide an additional draw for visitors. Conversations with both Caesars Tahoe and Horizon Casino Resort management indicate that there is a sector of the public that utilizes the casino properties for an RV staging area – despite the lack of hookup services and the parking lot atmosphere. There may be an untapped market here for the Van Sickle property, particularly with creative programming and marketing.

C. Properties in the Carson Valley/Carson City Region

In addition to the properties within the Lake Tahoe Basin, six properties within the Carson Valley/Carson City region were evaluated and included:

- Comstock Country RV Resort
- Pinon Plaza Resort RV Park
- Carson Valley Inn RV Resort
- Silver City RV Resort
- Topaz Lodge and Casino
- Topaz Lake Park

Location of Properties

Out of the properties studied, two are located in Carson City and four are located in Carson Valley (Minden or Gardnerville). All properties are within 30 to 45 minutes from the south shore of Lake Tahoe.

Management and Ownership

Five facilities are privately owned and operated and one is publicly owned and operated by Douglas County Parks and Recreation.

Facility Size

Four of the properties studied have between 50 and 100 RV sites, while one has between 100 and 200 sites and one has over 200 sites.

Hookups are provided at 100 percent of properties studied. The majority of properties offer full service levels (water, electric, sewer), with varying levels of additional services such as telephone, cable and modem. Topaz Lake Park offers water, electric and dump services only.

Topaz Lake Park is the only property located within a recreation area. All other properties are located at casino resort properties or are stand alone RV parks or resorts.

All properties studied offer basic amenities, such as showers and restrooms. In addition, a number of the properties offer amenities such as pools, spas, clubhouses, game rooms, sport courts, laundry, convenience stores, fuel stations, restaurants, etc.

Figure 8 - Greater Lake Tahoe Region (Carson Valley/Carson City) RV Camping Facilities

Facility	Location	# of RV Spaces	Hookups	Full	Water/Electric	Water Only	Cable	Max Vehicle Size	Tent	Cost	Season	Amenities
Comstock Country RV Resort	Carson City, NV	151	Yes	Y	-	-	Y	40'	No	\$25+	Year Round	Pool, spa, basketball, volleyball, private telephone service, modem connection, propane, supplies, restroom facilities, convenience store, laundry, arcade, free cable, group kitchen facilities
Pinon Plaza Resort RV Park	Carson City, NV	48	Yes	Y	-	-	N	40'-50'	No	\$15+	Year Round	Modem line in main building, casino, bowling center, café, steakhouse, lounge, saloon, laundromat, restrooms, showers, common lawn areas, proximity to golf
Carson Valley Inn RV Resort	Minden, NV	60	Yes	Y	-	-	Y	52'	No	\$22	Year Round	laundry, shower facilities, dump station, pet area, data port, restaurants,
Silver City RV Resort	Minden, NV	203	Yes	Y	-	-	Y	42'	Yes	\$30	Year Round	Laundry, showers, pool, spa, playground, fishing pond, fitness area, clubhouse, grocery, gas, diesel, propane, slot machines
Topaz Lodge and Casino	Gardnerville, NV	59	Yes	Y	Y	-	Y	none	No	\$24	Year Round	Restaurant, casino, fuel station, grocery
Topaz Lake Park	Gardnerville, NV	61	Yes	N	Y	-	N	none	Yes	\$15+	Jan-Sept	dump station, RV/boat storage facility, beach/lake access, boat launch, proximity to wilderness access, showers/toilets, playground, picnic area, nature viewing

Significance to Van Sickle Bi-State Park

The properties that are located in the Carson City/Carson Valley area differ significantly in both form and function from those properties located at Lake Tahoe. With the exception of Topaz Lake Park, valley properties are typically oriented in an RV park fashion, where asphalt is the predominate feature, as opposed to campground style. Full hookups and various amenities are the norm, rather than the exception, and 50 percent of properties evaluated are located at hotel/casino properties.

D. Operational Costs & Revenue of Existing Facilities

Information regarding operational costs and revenues of existing campgrounds is difficult to obtain due to its proprietary nature, particularly for private campgrounds. Available information has been included below:

City of South Lake Tahoe Owned and Operated Property

Campground by the Lake

<i>Total Revenues:</i>	\$364,000
<i>Total Expenditures:</i>	\$264,000
<i>Staff Costs:</i>	\$172,500
<i>Capital Imp:</i>	\$ 10,000
<i>Maintenance:</i>	\$ 81,500

According to the above figures, Campground by the Lake took in 75 percent more in revenues than the total amount expended for the 2002/2003 season. Staff costs, which included full time and temporary staff, as well as all benefits, totaled \$172,500 for the operating season – 65 percent of total operating expenditures and 47 percent of total revenues. Capital improvement costs, totaling \$10,000, were 6 percent of operating expenditures and 3 percent of season revenues. Maintenance costs, which totaled \$81,500, came to 31 percent of total expenditure and 22 percent of total revenue.

United States Forest Service Owned Properties

Properties owned by the USFS are operated by private companies acting as concessionaires. As such, information regarding operations and maintenance costs is considered proprietary and not available for use in this analysis.

Don Lane, Recreation Forester with the Lake Tahoe Basin Management Unit, provided a model for estimating revenues for the following facilities: Fallen Leaf Campground, Meeks Bay Campground, Nevada Beach Campground and William Kent Campground. In addition, Mr. Lane provided insight into figures for staff, facility improvement and agency rent costs for these properties. Note that figures were not available for operations costs such as sewer, electric, telephone, garbage, insurance, etc.

Fallen Leaf Campground

<i>Estimated Total Revenues:</i>	\$394,500
<i>Estimated Staff Costs:</i>	\$ 38,000
<i>Maintenance Improvements:</i>	\$ 34,000
<i>Estimated Agency Rent (paid to USFS):</i>	\$ 31,500

Based on the above figures, staff costs for Fallen Leaf Campground are approximately 10 percent and maintenance improvements (re-roof toilet building, replace three water valves, replace 10 picnic tables, replace post and rail barriers and water system repair) approximately 9

percent of estimated total revenues from the 2003 season. Agency rent is estimated at 8 percent of total estimated revenues.

Meeks Bay Campground

<i>Estimated Total Revenues:</i>	\$ 65,400
<i>Estimated Staff Costs:</i>	\$ 19,200
<i>Maintenance Improvements:</i>	\$ 13,400
<i>Estimated Agency Rent (paid to USFS):</i>	\$ 5,200

Based on the above figures, staff costs for Nevada Beach Campground are approximately 29 percent and maintenance improvements (perimeter fencing and ADA modifications to one site) approximately 20 percent of estimated total revenues for the 2003 season. Agency rent is estimated at 8 percent of total estimated revenues.

Nevada Beach Campground

<i>Estimated Total Revenues:</i>	\$114,300
<i>Estimated Staff Costs:</i>	\$ 28,800
<i>Maintenance Improvements:</i>	\$ 12,000
<i>Estimated Agency Rent (paid to USFS):</i>	\$ 9,100

Based on the above figures, staff costs for Nevada Beach Campground are approximately 25 percent and maintenance improvements (replace five picnic tables, replace post and rail barriers and relocate bulletin board) approximately 10 percent of estimated total revenues for the 2003 season. Agency rent is estimated at 8 percent of total estimated revenues.

William Kent Campground

<i>Estimated Total Revenues:</i>	\$146,200
<i>Estimated Staff Costs:</i>	\$ 19,200
<i>Maintenance Improvements:</i>	\$ 12,500
<i>Estimated Agency Rent (paid to USFS):</i>	\$ 11,700

Based on the above figures, staff costs for William Kent Campground are approximately 13 percent and maintenance improvements (re-roof toilet building, fence repair and replace 20 fire rings) approximately 9 percent of estimated total revenues for the 2003 season. Agency rent is estimated at 8 percent of total estimated revenues.

Significance to Van Sickle Bi-State Park

In the group of campgrounds for which information could be gathered (largely public campgrounds), maintenance improvements range from 10 to 20 percent of total revenue. Agency fees average around 8 percent of total revenue. Staff costs vary widely depending upon the level of service and density of campsites.

IV. Conclusions and Recommendations

Conclusions

Results of this analysis indicate that the RV camping industry is growing nationally, a trend that is being reflected in California and Nevada travel trends and vehicle license and registration numbers. This trend is predicted to continue for a number of years as Baby Boomers, the largest group of RV owners, continue to travel and upgrade their recreational vehicles.

Participation in recreation activities in California is generally higher than in other States. Demand for California State Parks facilities is growing, with reservations for RV camping spaces in California State Parks in the summer of 2002, 12-15 percent higher than 2001. The 2002 State Park System Plan notes that camping is in high demand. This trend is supported by figures from the Lake Tahoe area. There was a 12.3 percent increase in State Park attendance in the Lake Tahoe Area from the 1998/1999 fiscal year to the 2001/2002 fiscal year.

A Desired Future Conditions Study prepared in 2002 by the TRPA identified that developed campsites for tents and RV's, and campsites in primitive areas were both at capacity or overcrowded. This is supported by information provided by management of existing facilities in the Lake Tahoe Basin that suggests that properties are filled to capacity or overcrowded during the peak periods of summer weekends and holidays. During the remainder of the year, occupancy is at 75 to 80 percent. However, certain properties, such as Nevada Beach Campground are at 100 percent occupancy for the majority of the season. Despite this information, there is a perceived mid to low need for additional facilities from recreationists themselves. Winter facilities are provided by only a few properties and are at 50 percent occupancy or lower.

Based on existing facility composition, it appears that the camping/RV market in Lake Tahoe uses campgrounds without full services, consistent with the use of small RV's, towables and tent camping. However, based on properties that have recently undergone, or are currently in the planning process for, property renovations, there is a general trend in Lake Tahoe towards providing more developed campsites with full services including power, water, sewer hookups, and telephone and cable connections. During peak season there is "spill over" from these campgrounds, suggesting that there would be a demand in Van Sickle Bi-State Park for additional RV/camping facilities, including sites for large RV's with full hook-ups.

The Van Sickle Bi-State Park site has a number of physical constraints that will influence the type, number and location of camping sites able to be provided. Land capability classification carried out by the TRPA has designated specific areas that will be suitable for the location of facilities, based upon soil type, steepness of slope and a range of other considerations. Some of these areas may be accessible to smaller RV's, towables and vehicles with tents but not to large RV's, thereby limiting the number of fully serviced spaces available.

Campgrounds in the Tahoe Basin for which revenue information was available tended to be low service sites (with no hookups) that charge from \$15 to \$23 per night per site. Those that were in close proximity to the Lake charged the higher range of fees. These sites attracted fees for the 2003 summer season that averaged around \$2,360 per site. Campground by the Lake provided

the most appropriate data available for comparison to Van Sickle Bi-State Park, with 50 RV sites that provide hookups. These sites averaged \$3340 each over the 2003 summer period.

Based on information obtained from other campgrounds in the Tahoe Basin, it is expected that Nevada State Parks could attract a concessionaire fee of around 9 percent of total revenue of a campground. General maintenance costs for campgrounds with low levels of service range between 10 to 20 percent of total revenue. Providing a higher level of service could result in expected annual maintenance costs of 20 to 25 percent of total revenue.

Surveys indicate that preferred camper activities include picnicking, walking/hiking and visiting museums, and the natural setting is very important to 85 percent of visitors to Lake Tahoe. Due to the types of desired experiences expressed by campers (including RV campers), Van Sickle Bi-State Park is positioned to provide access to a number of these activities from one location. Having no direct access to the lake could prove a disadvantage for a campground in this location, but this could be mitigated by access to the urban facilities of South Lake Tahoe, including the casinos.

Recommendations

Based on RV travel trend information and a comparative analysis of existing facilities within the Lake Tahoe Basin and nearby Carson City/Carson Valley, the following recommendations are made:

- The majority of new campsites developed should accommodate smaller RV's, towable trailers and tents.
- A portion of the sites (approx. 12) should accommodate large RV's. Limitations prescribed by site conditions will be the determinant for this number.
- Hookups should be provided where possible as they are lacking in many existing campgrounds and there is a trend towards having more services in Tahoe campgrounds.
- The majority of visitors come to Tahoe to experience a natural setting. Any campground development must ensure the integrity of the site environment is maintained.
- Group camping could provide a potential market.
- An easy to use reservation system should be a part of any new campground developed.
- A maintained winter campground for RV's is not suggested due to high operational costs and general low occupancy for other similar facilities. A hike in tent area for winter camping may be viable.
- A campground at Van Sickle Bi-State Park should be integrated with recreation opportunities to appeal to the market. This includes hiking, biking, historical and environmental education opportunities/interpretive facilities and links to shopping areas and the casinos.
- Easy access and/or provision of a shuttle bus to recreation areas and to access points for the Lake should be considered.
- Target and advertise to empty nesters, as they form the main group of campers.
- A sewer dump may not be required as the majority of visitors are in the Basin for four to six nights.

- Pricing of sites in other campgrounds range from \$16 to \$25 per night for no hookups to \$28 to \$50 for full hookups. Van Sickle Bi-State Park could attract the upper range of these figures, given its proximity to the urban facilities of South Lake Tahoe.
- As Master Plan options are further developed, it is advised that a cost analysis be prepared for the implementation of the Master Plan, including infrastructure.

V. Appendix

A. ENDNOTES

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California/Nevada Bi-State Park

Master Plan
Interpretive Sections

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Introduction

The Interpretive Opportunity at Van Sickle

Straddling the Nevada-California state line, Van Sickle California/Nevada Bi-State Park is a truly remarkable place. Its very nature, a single park administered by two states, makes Van Sickle unique. Few, if any, other state parks in the United States can claim to be “bi-state” parks. But Van Sickle is more than that.

Comprising more than 700 acres, this park preserves a relatively pristine segment of verdant conifer forest, something not often seen in the state of Nevada. Its proximity between one of earth’s most beautiful bodies of water, Lake Tahoe, and the towering peaks of the Sierra Nevada range helps create an ambience that makes Van Sickle Bi-State Park special. As it is from time immemorial, these woodlands are a haven for a rich diversity of plants and animals. In addition, these lands have long blessed people with food, shade, water, timber and recreation.

Today, an intriguing dichotomy is found in Van Sickle’s adjacency to the modern trappings of man: casinos and other business structures, enormous water tanks and the soaring towers of a ski gondola. Here, towering pines and thick undergrowth flourish only a few hundred feet from the sounds of slot machines and blackjack tables, adding to the uniqueness of this park.

A unique opportunity of a forested park within walking distance of a growing community.

Realizing the need to preserve some of these precious natural resources, Jack Van Sickle, owner of the land for more than 50 years, arranged for the transfer of the property, including its cultural resources, to the states

of Nevada and California with the goal of preserving it for the benefit and enjoyment of present and future generations. The result was the establishment of Van Sickle California/Nevada Bi-State Park.

The Need for Interpretation at Van Sickle Bi-State Park

The [Van Sickle California/Nevada Bi-State Park Lake Tahoe RV Market Investigation](#) indicates the recreational vehicle industry is growing nationally as well as in Califor-



nia and Nevada, and is likely to continue to grow. That report also points out that existing facilities for RV and other camping are filled to capacity or overcrowded during peak travel months. The plan goes on to recommend that Van Sickle Bi-State Park be developed to ease that demand by developing campsites to accommodate RVs, towable trailers and tents.

Once the park opens and visitors begin enjoying its natural and cultural ambience, these visitors will have information needs. Much of the quality of the visitor experience at Van Sickle arises naturally out of the site's superb urban/natural setting and the ambience of its historic buildings and facilities. But much of the historical and environmental story that lies beneath the surface requires conscious communication in order for visitors to understand and appreciate its deeper significance. And much of the "how to" information that will help visitors be better stewards of the environment can only be provided through transfer of specific information to visitors.

Achieving this kind of communication in an unobtrusive yet available way is the province of the park's on-site interpretive program. The term "interpretation" has long been applied to visitor communication programs at national parks, historic sites, and other facilities most often operated by public agencies. The development of a comprehensive, coordinated interpretive program at Van Sickle is an application of this kind of visitor communication.

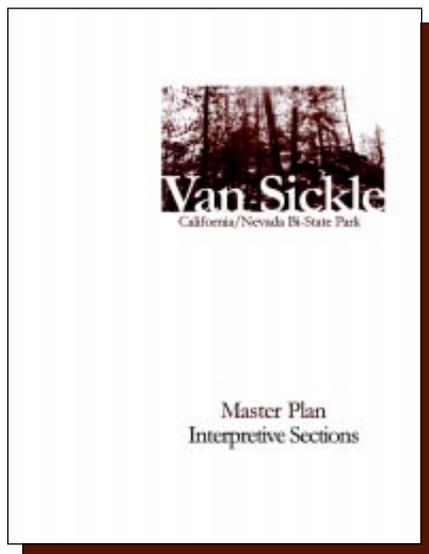
About This Report...

The Interpretive Master Plan section of this report is intended to achieve two broad purposes:

- It synthesizes an overall strategy for interpretation at Van Sickle and its associated facilities, defining the themes and information to be presented, the sites and facilities at which such interpretation will be offered, and the specific components and media that will deliver the information.
- It establishes general and specific criteria that will guide those who will design and implement the interpretive program, helping to ensure that a delicate balance be maintained in the visitor experience between unstructured discovery and directed communication.

NOTE: While this document sets forth an interpretive approach, the contents and recommendations are subject to review, approval and/or change by the Nevada Division of State Parks, California Tahoe Conservancy and California Department of Parks and Recreation.

In addition, it is important to note that this report consolidates known



This plan is a guiding document in a dynamic process.

information, summarizes research results and sets the direction intended for the project. During subsequent planning and design phases, the planning/design team and the committee will make many decisions about final messages and more precise communication specifications and locations. While this is intended as the guiding document, better ideas or new opportunities may emerge down the line that change the directions described here.

This plan should, therefore, be considered a guiding document in a dynamic process. It should be followed to the degree practical while leaving opportunity for enhancements.

Interpretive Planning Assumptions

To help analyze the interpretive opportunities at Van Sickle California/Nevada Bi-State Park, and to make certain that the Design Workshop/Consortium West planning team and representatives of the Nevada Division of State Parks (NDSP), California Department of Parks & Recreation (CDPR), the USDA Forest Service (USDAFS), California Tahoe Conservancy (CTC) and other interested entities are operating in unison, the interpretive planning team has formulated a set of interpretive planning assumptions. These assumptions are based on inferences drawn from discussions with and materials provided by NDSP and CDPR representatives; on the characteristics of the park's potential audiences for interpretation; and on the themes that are appropriate for interpretation.

The assumptions listed below represent the first step in the preparation of the interpretive section of the park master plan.

Assumptions about the interpretive master plan:

- The overall goal of the interpretive master plan is to recommend the ultimate development strategy that will most effectively accomplish the goals and objectives of NDSP and CDPR for Van Sickle Bi-State Park.
- The interpretive master plan should address the possibility of phasing interpretive development, establishing priorities for development as funding becomes available.
- Consideration should be given in this planning effort to incorporating interpretation inside the gondola cabins or on the gondola towers.
- The findings and recommendations resulting from the *April 2004 Van Sickle California/Nevada Bi-State Park RV Market Investigation* should help drive the interpretive development at the park.
- The interpretive master plan is neither a static nor final document that, once approved, will not change; rather it should be dynamic report that allows for new or better ideas that might evolve in the planning and design processes.



The park provides a spectacular view of the lake and beyond.

Assumptions about the visitors and the visitor experience at Van Sickle Bi-State Park:



Many visitors are within walking distance while staying at the nearby casinos.



The historic Van Sickle barn will not be open to the public however, if funds become available the barn could be open for future interpretation.

- Van Sickle Bi-State Park will be primarily a recreation-based park (mountain biking, hiking, camping, etc.) as opposed to a historical or natural history park.
- Although there will be multiple audience types who will utilize the park's interpretive program, based on the findings and recommendations of the *April 2004 Van Sickle California/Nevada Bi-State Park RV Market Investigation*, the primary audience for interpretation will be recreational vehicle users.
- Although these visitors will not come to the park primarily to have an interpretive experience, interpretation should be considered an important aspect of the recreational experience visitors will have in the park.
- The interpretive program should concentrate on the Tahoe Basin in general and the South Lake Tahoe area in particular and should relate to both the cultural and natural history of this region.
- Other agencies and facilities around Lake Tahoe are already interpreting many of the same concepts and themes that are appropriate for interpretation at Van Sickle (i.e., geology, cultural history, lake water clarity, etc.); nevertheless, such overlap should not preclude Van Sickle's interpretive program from incorporating these same themes.
- For the foreseeable future, the historic Van Sickle barn will not be open to the public, and there will be no interpretation inside the barn. However, if funds become available and effective security measures can be effected, considerations could be given to opening the barn for interpretation.
- Interactivity between visitors and the park's interpretive program will be a key to effective communication; therefore, the interpretive components should be as "hands-on" as is feasible, involving as many senses as possible.
- Orienting visitors to Van Sickle Bi-State Park as a whole, including hiking trails and other recreation opportunities, should be a part of the park's interpretive program.
- Both NDSP and CDPR possess or have access to historical and natural artifacts that could be integrated into the park's interpretive presentations.
- A coordinated graphic approach should be used for all displays to help provide visual unity for visitors, resulting in a more cohesive visitor experience.

- As much as is feasible, outdoor interpretive media, including colors and materials, should be unobtrusive and blend with the park's natural surroundings.
- Most visitors will not be interested in reading long texts; therefore, graphic solutions and interactive devices are preferable to written texts in the interpretive media.
- The park's interpretive program should encourage visitors to interface with the park's natural environment in a manner that protects the watershed and preserves the natural resources found there.

Assumptions about management constraints and considerations:

- The park staff and budgets will be limited; therefore, the interpretive exhibits should be as maintenance-free as possible.
- Although stewardship and sustainability should be part of the interpretive message at Van Sickle, they should be blended into the overall storyline rather than being a stand-alone presentation.
- The park's interpretive efforts should dovetail with interpretation to be included in the proposed Greenway Trail that borders on Van Sickle.
- Budgetary constraints will dictate that the interpretive development at Van Sickle will need to be accomplished in phases.
- Campfire programs, living history and other live interpretive presentations should be a part of the park's interpretive program.
- In the ultimate interpretive development at the park, a resale area operated by the Sierra State Parks Foundation should be incorporated into the design of a park visitor center.
- There are no stated budgetary constraints for interpretive development at Van Sickle Bi-State Park; however, the interpretive media should provide the needed communication at a reasonable cost and without requiring unnecessary maintenance or other on-going expenses.

Interpretive exhibits should be as maintenance-free as possible.

Park Objectives for Interpretation

One of the purposes of any interpretive program is to achieve certain goals and objectives for the agency sponsoring that program. Based on discussions with representatives of Nevada Division of State Parks, California Department of Parks & Recreation, the USDA Forest Service and the California Tahoe Conservancy, the planning team has formulated an overall goal and various objectives that the Van Sickle Bi-State Park interpretive program should accomplish.

The park provides quality opportunities for the visitor to learn about and enjoy the ecological diversity, cultural history, and wildlife.

Overall Goal For Interpretation:

Provide the visiting public with quality opportunities to learn about and enjoy the ecological diversity, cultural history, wildlife and scenic views at the park in a manner compatible with the purposes for which the Van Sickle Bi-State Park was established.

To help achieve this goal, the park's interpretive program should accomplish the following objectives:

- Provide visitors, through the development of new interpretive media, an opportunity to learn about and experience the unique natural history of the Lake Tahoe Basin without negatively impacting the park's natural resources.
- Enable visitors to enjoy an unstructured interpretive experience in the park.
- Foster a deeper understanding of, and greater appreciation for the Lake Tahoe ecosystems, including the diversity of natural communities and their interdependence.
- Protect the park's natural and cultural resources by helping visitors understand why these resources are important and what visitors can do to protect them.
- Create a feeling of warmth and welcome for visitors through the interpretive displays in an atmosphere that invites visitors to relax without feeling rushed.



- Provide a valuable, memorable and safe interpretive experience to visitors without requiring the services of Van Sickle staff.
- Encourage a safe, quality recreational experience by informing visitors of the opportunities, requirements, regulations, constraints and safety factors relating to recreational activities to ensure protection of visitors and the basin's natural ecosystems.

A short walk from an urban environment and you find yourself in what feels like a secluded forest setting.



Audience Analysis

At Van Sickle California/Nevada bi-State Park, interpretation is considered an amenity for campers. This is consistent with the nationwide and regional trends toward providing more facilities and services in public campgrounds. Increasingly, interpretation is considered by campers to be a key component of a desirable and satisfying camping experience. This statement becomes more accurate as you move along a continuum from primitive camping to full size RV camping.

It is a clear conclusion from the RV Market Investigation (Design Workshop 2004) that most campers at Van Sickle will be using smaller RVs and tent trailers. About 12 sites will accommodate larger RVs. Who will be inside these outfits?

The Nevada Tourism Agency is targeting the RV market from all over the West, in addition to Tahoe's traditional market originating in the San Francisco Bay area and Sacramento.

The Lake Tahoe Visitor Association is conducting destination marketing, which aims to increase visitor length of stay, resulting in a higher daily expenditure. Building upon the summer Shakespearean Festival, they are targeting cultural tourists.

These marketing efforts dovetail nicely with the camping trends mentioned above, leading the interpretive planning team to expect that RV campers should be Van Sickle's target market for interpretation. Based on that, the park's interpretive program will be communicating primarily with:

- Empty-nesters; no children in party
- Baby-boomers; current ages 40-58
- Well-educated visitors
- Relatively affluent visitors
- Urban residents, especially Bay area and Sacramento

Expect that RV campers should be Van Sickle's prime market for interpretation.





Other characteristics of the target audience include:

- Long length of stay: 2-5 nights, all at Van Sickle campground
- Nearly all will camp during the five warmest months
- Active recreationists, considering their ages, who will be interested in:
 - trail hiking and nature study
 - photography
 - biking on easy trails
 - shopping
 - gambling
 - cultural and natural history interpretation

Because of the close proximity to the nearby casinos we expect another major activity of the visitors to the park is gambling.

Analysis of Interpretive Resources

Van Sickle California/Nevada Bi-State Park contains a rich variety of resources that can both contribute to the effectiveness of the interpretive program or present challenges to effective communication. These resources can be grouped into three broad categories as they relate to the development of the park's interpretive program:

- **Site, Building, Facilities, Location** — tangible, physical things like the Van Sickle barn, the log cabin, the tourist cottages, the park's conifer forest etc. each with some significance or contribution to the information and interpretive program.
- **Potential Interpretive Media**—resources that could be developed to enhance the communication of information throughout the park.
- **Information/Interpretive Themes** — intangible concepts arising from the tangible resources that could be communicated to visitors — the park's forest ecosystem, the cultural and natural history and ecology of the area, the concepts that the environment teaches, the recreation opportunities found at the park and in the basin, etc.

This section of the interpretive master plan analyzes each of these resources and delineates the “pros and cons” of each with the aim of creating a dynamic plan for communication with visitors.

THE SETTING FOR INTERPRETATION

Site, Buildings, Facilities and Location



A stunningly beautiful setting just a very short distance from a busy city environment.

One of the key elements or resources in any interpretive program is the setting in which communication will occur. Each such setting is a combination of elements which may affect the interpretation, either positively or negatively. The interpretive planning team has carefully analyzed the various communication settings at Van Sickle Bi-State Park in an attempt to identify not only those areas or resources that will enhance the interpretation, but also pinpoint those aspects of the site that could detract from effective communication. The purpose of this section is to summarize the findings of the team, including providing general recommendations to the Nevada Division of State Parks (NDSP), California Department of Parks & Recreation (CDPR), the USDA For-

est Service (USDAFS), California Tahoe Conservancy (CTC) and other interested entities as well as the architects and landscape architects for creating the best possible setting for interpretation to take place.

In the broad sense, almost everything at Van Sickle Bi-State Park could be considered a part of the park's "permaculture;" i.e. a potential on-site interpretive resource. The most important of these resources are:

- **The Park's Forest Ecosystem** — Although the Van Sickle site is not totally virgin habitat, the forest ecosystem's ability (with the help of concerned and interested people) to restore itself has created a well-preserved example of a Sierra Nevada conifer-dominated forest. The park's natural areas afford an excellent buffer for shielding from visitors the human development just north of the park, and provide an outstanding opportunity to communicate with visitors about the many unique facets of the ecosystem. In any new development, including interpretation, preserving as much of the natural areas of the park should be one of the highest priorities.
- **The Van Sickle barn, log cabin and tourist cabins** — Located in the lower center of the park, the barn is the centerpiece of the park's cultural resources. This enclosed, wooden building, dating to the 1860s, is the oldest structure on the property and is an excellent example of a mid-Eighteenth Century barn. Some "improvements," such as a back-lighted painting of horseback riders have been added to the barn, although that element has suffered the effects of the Tahoe Basin's climatic extremes. Given its imposing presence and its historical significance, the barn has great potential for some type of permanent interpretive media (interior or exterior) to communicate with visitors about the cultural history of the park and the buildings.



Van Sickle's log cabin (below) and tourist cabins (above) also afford excellent opportunities to give visitors a first-hand glimpse of Tahoe Basin life in a by-gone era.

Van Sickle's log cabin and tourist cabins also afford excellent opportunities to give visitors a first-hand glimpse of Tahoe Basin life in a by-gone era. As with the barn, consideration should be given to restoring the log cabin and at least one of the tourist cabins to a period style and allowing visitors to enter them to experience them first hand. It goes without saying that such development should only be undertaken with effective security measures in place to protect the structures and their contents.



- **The forest fire origin site** — Situated adjacent to the gondola line toward the upper reaches of the park, this is the spot where a cigarette, apparently thrown from the gondola, started a recent forest fire that eventually burned hundreds of acres of forest. At this location, a visitor can trace the spread of the fire as it driven northeastward by high winds. Although this site will eventually evolve into new forest, for many years it could serve as a dramatic reminder of what can happen when people are careless. This spot could also be a good

location to explain to visitors the role played by fire in the life cycle of the forest.

The Park Site

As with the park's buildings and other facilities, Van Sickle Bi-State Park's overall location presents some opportunities and challenges to effectively communicating with visitors. Its close proximity to Park Avenue and the accompanying commercial development is both a boon and a bane. This nearness to human development means that the park is relatively accessible to visitors, providing them with a convenient and safe opportunity to interact with the natural environment, but also the ability to easily visit the casinos and other businesses found there. Except for the park's entrance corridor and the water storage tanks found just above the barn area, the forest's thickness virtually eliminates views of the surrounding development that contrasts starkly with the park's natural environment. The obvious downside to this closeness includes both the visual intrusion resulting from the gondola's route through the heart of the park and the auditory encroachment from nearby traffic and the surrounding development. Fortunately, the gondola is relatively

The park's overall location presents some opportunities and challenges to effectively communicating with visitors.



quiet, and despite its visual intrusion, it might be incorporated into the park's cultural history interpretation. Judiciously located berms and other landscaping techniques could help control the noises emanating from traffic and commercial development near the park.

From a perspective outside the park, Van Sickle Bi-State Park's entrance location presents some challenges. At present, virtually all visitors coming to or passing through Stateline and South Lake Tahoe travel along U.S. 50, thus missing the entrance to the park entirely. To make visitors aware of the park and how to get to its entrance, effective signing along U.S. 50 and Park Avenue will be a critical element in the park's information and interpretive development.

POTENTIAL INTERPRETIVE MEDIA

Communication Media

A wide variety of communication media could be used to present the interpretive themes and concepts at different locations at Van Sickle California/Nevada Bi-State Park. The primary limitations on media use are budgetary and spatial constraints, exposure to climatic extremes, and the need for maintenance and operation of any equipment used.

Specific media possibilities that appear to be appropriate for use in Van Sickle's information and interpretive program are listed below, divided into four major categories. The media specifically recommended for use at the park are delineated in the visitor experience section of this report.

- **Video/Computer Based Presentations** — incorporating existing and emerging technologies in the video and computer fields that provide opportunities for both traditional and interactive presentation of information.
- **Exhibits, Interpretive Panels, Signs and Markers** — two- and three-dimensional information components, ranging from museum-style exhibits to vehicular signing to trailside information and enrichment devices.
- **Printed Materials** — a variety of printed information, ranging from a park brochure to maps to special event flyers to in-depth reports on subjects of interest to visitors.
- **Live Interpretation / Information Services** — one-on-one and group dispensing of information by Van Sickle Bi-State Park staff and/or volunteers.

Each of these categories of interpretive media has its own relative merits and limitations.

Each kind of media has unique features that when capitalized on effectively can collectively achieve the intended objectives.

***Merits & Limitations of Video
and Computer-Based
Presentations - Summary***

MERITS

- *Flexible access to stored information*
- *Customized, changeable information*
- *Use of motion, visuals, sound, text*
- *Interaction between exhibit, user*
- *Effectively creates emotional responses*

LIMITATIONS

- *Limited number of users at one time*
- *Relatively high cost of equipment,
production, maintenance*
- *Less effective in presenting overall concepts
("big picture")*

**Video and Computer Based Presentations
Strengths and Limitations of Video/Computer Media**

Emerging and converging technologies in the video and computer fields have spawned a number of new types of visitor communication media. The most significant departure the electronic media make with past interpretive communication is in the flexibility they allow. In the past, interpretive presentations tended to be linear, with beginnings and ends. Exhibits, films, videos—all tended to provide communication experiences that worked visitors through an ordered linear sequence.

With the advent of computers and video disc technology, information can now be randomly accessed, or directed through visitor choices along branching "information trees." Computer programs can not only provide for flexible access to stored interpretive information, but the information can be customized to reflect seasonal or daily changes in weather conditions, flowering species, seasonal colors, special events, etc. Presentations can be a dynamic combination of computer graphics, computer generated text, "real-time" (movie) footage, animated graphics, or still photographic images, coupled with monaural or stereo sound.

These kinds of interactive presentations are generally most suitable for video kiosks or other one-on-one communication media. The strong individual visitor involvement associated with one-on-one interactive media is balanced against the limited number of visitors that can use such media at any one time and the relatively high cost per visitor contact. Such interpretive offerings are most effective when they are used to present specific information selected by visitors from a database that is usually far larger than any one visitor would ever be interested in seeing.

Because they tend to focus on details, interactive presentations are less effective in giving visitors an overview or helping them see the big perspective of a particular concept or topic. In addition, computers and other electronic devices are sensitive to climatic extremes, limiting their use in outdoor situations at the park. Furthermore, certain visitors, especially older people who have not grown up in the computer generation are still intimidated by such devices, preferring to utilize more traditional media to obtain information.

Some recent experiments have successfully tested the use of interactive video techniques in instructor-facilitated group training that uses video segments from video cassette or video disc players. Specific segments are selected by group choices or by the instructor after seeing which ones would best assist the group in learning the desired concepts.

This is not to imply that linear video presentations have no place in present-day interpretive communication. Longer, sit-down video presentations in a specially constructed theater or suitable meeting room

are still able to provide a powerfully orchestrated learning experience similar to that provided by a good motion picture in a theater. And, available computer technology for linking video or DVD projectors can create powerful and effective multi-image video presentations.

The best opportunities for use of video/computer media at Van Sickle Bi-State Park appear to be:

- Interactive Kiosks in the lobby of the visitor center.
- Linear video presentations in a visitor center theater or other group location.
- Specific Development Guidelines for Video and Computer Media:
 - As a general rule, keep video sequences to the minimum time necessary to communicate the information. For sit-down presentations in a group setting, 10 or 15 minutes length is preferable, with no more than 20 minutes maximum. Individual video sequences for an interactive kiosk should aim for a length of 30 seconds or less, with a maximum of 2 minutes. Remember that the attention span of a visitor standing at a kiosk is extremely limited.
 - The audio portion of AV or computer presentations should be written for the ear, not for the eye. Conversational speech is significantly different than the written word, and a script written for the eye will sound stilted and formal when heard.
 - Words do not and should not fill every audible second of a video presentation. Use speaking only to the extent needed to communicate the material, letting visuals, sounds and even music provide a significant percentage of the learning experience.
 - For best results in video and computer media, use professionals who know both the technical and artistic parameters of these technologies. The current proliferation of “desktop” presentation and programming software makes it possible for almost anyone to produce video or computer presentations, but in the hands of the unskilled the results too often come off as amateurish and pedantic.

Exhibits and panel displays have the advantage of allowing visitors to select the pace and duration of the learning experience and to exit the experience at any time.

Exhibits and Interpretive Panels

Traditional workhorses in the interpretive field for many years, exhibits and interpretive panels provide effective means to present on-site information. At Van Sickle Bi-State, these media will likely carry a good part of the load in providing self service information to visitors, once a formal visitor center has been constructed.



All interpretive signage should fit with the natural setting of the park.

Exhibits and panel displays have the advantage of allowing visitors to select the pace and duration of the learning experience and to exit the experience at any time—something not always possible in other media, such as a theater presentation or guided tour. Done well, they allow visitors to determine the depth to which they wish to go in the hierarchy of information presented—ranging from gaining an understanding of an overall idea by means of a quick glance at a major graphic to learning detailed information in photo captions or plant labels.

Signs

Signs are different from interpretive panels either in being smaller or by their greater reliance on words and simplicity of message. Road signs typically use few words because of the need for legibility at automobile speeds, and may contain symbols or other simple graphics. Interpretive signs may include graphics or a photograph, but are smaller than an interpretive panel and generally focus on a single topic or concept.

Depending on the purpose of the information they communicate, signing at Van Sickle Bi-State Park can be divided into two general categories:

- **Informational/Identification Signs** — these signs identify locations and facilities, provide safety or other general information, or communicate interpretive information. They may be found along the entry road or along trails, or near or in buildings or other facilities. Size of these types of signs may vary considerably, from large identity signs at the Park entrances and facilities, to small safety or interpretive signs along a trail.
- **Directional Signs** — used to provide directions along roads and trails.

Markers and Labels

The primary distinction between signs and markers or labels is one of size. Markers and labels are generally small, often being only a few inches in dimension. In the Van Sickle Bi-State interpretive program, markers would be used most often to identify individual plants and animals or serve as numbering devices for interpretive trail stops.

The larger category of exhibits, panels, signs and markers may be divided into the following specific types, each of which has potential roles in the Van Sickle Bi-State Park interpretive program:

- **Museum Style Exhibits** — an overview of a subject or topics that can effectively use artifacts or physical objects to help in their communication. This interpretive medium typically includes large graphics, texts, artwork, or objects that are displayed on or in flat or three-

Merits & Limitations Exhibits, Interpretive Panels, Signs and Markers -Summary

MERITS

- *Self serve*
- *Create hierarchy of information*
- *Provide site specific information*
- *Allow use of colors, graphics, photos*
- *Use of artifacts, objects in exhibits*
- *Effective in presenting overall concepts*
- *Allow multiple users at same time*
- *Allow interaction with visitors*

LIMITATIONS

- *Involves fewer visitor senses*
- *Less effective in evoking emotion*
- *More difficult to change*
- *Lack of access to stored information*

dimensional structures of some kind. These structures may be wall-mounted, floor mounted, or suspended from overhead mountings. Graphics or objects they present may be displayed under glass or not, depending on the nature and value of the materials or the necessity of keeping them protected from visitor touching.

The primary potential location for museum style exhibits at Van Sickle Bi-State Park appears to be in new visitor center or inside the barn if that facility is opened to the public.

• **Interpretive/Information Panels** — combining graphics, texts and photographs to communicate information on a specific theme or topic, interpretive panels appear to be appropriate at the visitor center, and numerous outdoor locations such as campgrounds, the logging mill foundation and the forest fire origin site. At key interpretive or information locations, several interpretive panels could be grouped together in a kiosk, shelter or freestanding structure.

• **Trailhead Panels** — one-sided freestanding panels. This panel identifies the trail name and gives information on what there is to see and do along trail as well as trail safety and accessibility, and could include a brochure dispenser for a printed trail guide.

• **Trailside Interpretive Panels**—these low-profile display panels use graphics and/or text to provide site-specific information at key interpretive features. They are best suited to trails or locations that do not have a printed interpretive guide. Locations at Van Sickle that could utilize small trailside interpretive panels include:

- along interpretive trails
- at overlooks

• **Interpretive Signs**—generally mounted on low posts, these markers use numbers or graphic symbols to identify stops along trails, keyed to more detailed information in printed trail guides.

• **Species Labels** — Small unobtrusive post-mounted labels identify individual plant and animal species, and some could provide a brief interpretive text. Species labels would be appropriate in all areas of the park.

Specific Development Guidelines for Exhibits, Panels, Signs & Markers:

• In looking at designing and potential use of exhibits and displays, the approach to development at Van Sickle Bi-State Park should seek to provide a visitor experience that keeps exhibits, panels, signs and markers unobtrusive, blending in with their surroundings, and provided

Merits & Limitations of Printed Materials - Summary

MERITS

- *Ideal for in-depth interpretation*
- *Becomes souvenir for visitors*
- *Relatively inexpensive*
- *Use of color, graphics, photos*
- *Provide unobtrusive alternative to exhibits*
- *Relatively easy and inexpensive to change or update compared to other media*

LIMITATIONS

- *Potential litter producer*

only at locations where they will enhance the visitor experience by providing needed information or enrichment.

- Design, production, and placement of exhibits, panels, signs, and markers should uniform, providing graphic cohesion and design consistency throughout the park.

Printed Materials:

Park brochures, site maps, trail guides, news releases and press materials are just a few of the kinds of interpretive program materials that utilize the print media. They can range in complexity from process color booklets to simple informational flyers or news release sheets.

Printed materials provide residual value by giving visitors something they can take away with them, either as a reminder of their Van Sickle Bi-State Park experience or as an interpretive medium that provides more “in-depth” information than is generally possible in an exhibit or on an interpretive panel or sign. These souvenirs of their experience at the park may find their way into reference files or other places from which they can be retrieved for later use. While relatively inexpensive when compared with other interpretive/information media, the primary disadvantage of printed material lies in their potential as a litter producer throughout the park. High quality design will increase the perceived value and take-home potential of a printed piece.

Much of the in-depth presentation of information at Van Sickle Bi-State could be communicated with printed materials. These specifically include:

- **Park Brochure**— this small fold-out, printed in process color, could provide an overview to the entire park. Information could include a welcome; orientation and information about Van Sickle Bi-State and its programs; as well as basic “how-to” information about the location and opportunities afforded by the various park facilities and amenities.
- **Trail Guide** — this small pocket-sized publication could focus on individual interpretive trails, providing information keyed to numbers or graphic symbols identifying stops along the trails.

Specific Development Guidelines for Printed Materials:

- During the design phase of interpretive development, general visual/graphic criteria should be developed for all interpretive media throughout the park. These criteria should be followed during the development of printed materials to assure that all information components have a cohesive look and feel.

Merits & Limitations of Live Interpretation / Information Services - Summary

MERITS

- *One-on-one or group interaction*
- *Answers to specific visitor questions*
- *Personal touch*

LIMITATIONS

- *Effectiveness dependent upon staff or volunteer knowledge and people skills*

- Provision should be made at trailheads and other visitor gathering/dispersal points for recycling of trail guides and printed materials. This would help reduce a potential litter problem as well as getting longer life out of re-usable trail guides and eventual recycling of used printed material for paper.

Live Interpretation / Information Services (Staff and Volunteers)

This broad category encompasses all of the many ways that communication with visitors can take place through interaction with the Van Sickle Bi-State Park staff interpreters or volunteers who provide demonstrations or other presentations, or participate in special programs.

The interpersonal means of communicating between staff and visitors are some of the most effective ways to get the interpretive message across. In addition to the kind of information transfer that can take place in one-on-one or small group interactive communication, much that is intangible and positive can pass between an interpreter and his or her audience.

Despite the need and desirability for the self-service interpretive media identified above, the personal touch is still needed in the Van Sickle interpretive program, and every opportunity should be utilized to provide personal interaction between park personnel and volunteers, and visitors.

In addition to helping provide interpretation for larger groups at a given time, live interpretive services help make Van Sickle Bi-State Park more personal to visitors. And face-to-face communication allows for the kind of effective give-and-take and personalization of the subject matter that can be achieved in no other way.

POTENTIAL INTERPRETIVE THEMES

A wide variety of information themes and interpretive subject matter could be presented through the interpretive program at Van Sickle Bi-State Park. Some of these themes arise naturally out of the park, its natural setting and the Sotuh Lake Tahoe corridor's cultural history. Other kinds of information are more utilitarian, such as "Where am I?" "What can I do in the park?" "Where are the restrooms?" etc. Appropriately presented, each theme or concept can contribute to a meaningful visitor experience on the trail.

On the pages that follow, the major themes and sub-themes that appear to appropriate for interpretation are delineated in brief outline form and represent the recommended conceptual framework for Van Sickle's interpretive/ information program.

A wide variety of information themes and interpretive subject matter could be presented through the interpretive program at Van Sickle Bi-State Park.

I. ORIENTATION

A. To the Tahoe Basin

1. Other state parks and recreation areas
2. Communities and roads
3. Points of interest
4. Other features

B. To Van Sickle California/Nevada Bi-State Park

1. Campgrounds
2. Day-use areas
3. Interpretive opportunities
4. Rest rooms

C. To recreation opportunities

1. Trail biking
2. Hiking/walking
3. Photography
4. Camping
5. Fishing
6. Picnicking
7. Bird & wildlife observation
8. Nature enjoyment
9. Interpretation



The park not only has many natural resources for the visitor by a colorful history behind its creation.

II. PARK INFORMATION

- A. What's allowed
- B. What's not allowed
- C. Rules & regulations
- D. Safety
- E. Emergency information
- F. Current information (changeable)

III. TAHOE BASIN NATURAL HISTORY

A. Origins of the mountains, lake - Geology -

1. Mountain building – uplift & erosion
2. Plate tectonics

B. Climatic variations and their impacts

1. Glaciation
2. Orographic effects - rainshadow

C. Forest ecosystem

1. Riparian habitat
 - a. What is it?
 - b. Why is it important? (values)

2. Life in the forest
 - a. What animals live here? – Wildlife resources
 - b. What plants live here?
3. Forest succession (cycle of life)
 - a. What it is
 - b. Impact of logging on the forest cycle
 - c. Role of fire
4. Forestry management
 - a. Why do we do it?
 - b. Monitoring natural resources
 - Impacts on people
 - What is done
5. Urban/natural interface at the park

IV. TAHOE BASIN CULTURAL HISTORY

A. Native Americans

1. Prehistoric
 - a. Humans have lived here for 10,000 years
 - b. The Washoe Tribe
 - Nomadic people who have lived in area for 2,000 years
 - Basin was traditional hunting, fishing, gathering camping grounds
 - Lake and basin was sacred
2. Historic
 - a. Area largely ignored before 1848
 - b. Gold rush changed everything

B. Transportation corridor

1. Treasure seekers going west to California
2. Treasure seekers going east to the Comstock
3. Emigrants to California
4. Pony Express
5. Lincoln Highway

C. Euro-American settlement

1. Rush for gold & silver
2. Settlement of the Tahoe Basin
3. Logging and timber
4. The cattlemen
5. Tourism & recreation
6. Impacts of settlement and industry on the basin and lake's ecosystems



Natural rock fortresses abound around the park.

D. The Van Sickles

1. Henry van Sickle
 - a. One of original settlers of Carson Valley
 - b. Built Van Sickle Station Hotel in 1857
 - c. Prominent Genoa, Nevada citizen
 - d. Never owned Van Sickle park property
2. Jack van Sickle
 - a. Grandson of Henry
 - b. Born in Sacramento Valley Jan. 11, 1916
 - b. Moved to Nevada in 1936
 - c. Became major landowner, including current park property
 - d. Rancher raising cattle, horses, hay, Christmas trees
 - e. Donated current park land to states in 1989
 - f. Died November 29, 2003

E. History of historic structures on property

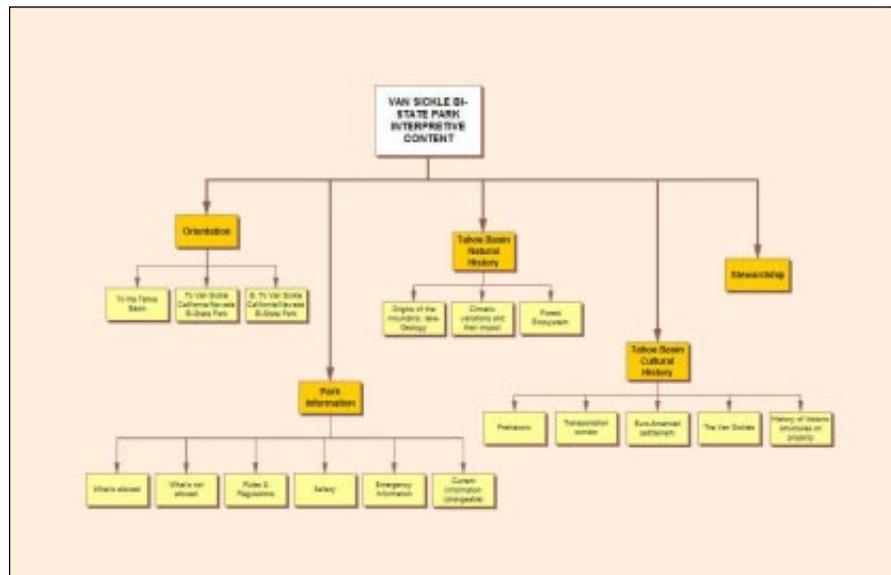
1. Barn
2. Log cabin
3. Tourist cabins
4. Logging mill

VI. STEWARDSHIP

A. Need at Van Sickle

B. How you can help

The diagrammed outline of the interpretive content.



Objectives for Visitor Communication

For the Van Sickle California/Nevada Bi-State Park interpretive program to be most effective, it is critical that clear communication objectives be established to guide the development of a meaningful strategy. With an eye to that end, the interpretive planning team has developed the following communication objectives. These objectives delineate what those who come in contact with the Van Sickle interpretive program should learn, how they should feel after experiencing the program and what they should do as a result.



These objectives delineate what those who come in contact with the Van Sickle interpretive program should learn, how they should feel after experiencing the program and what they should do as a result.

Educational Objectives – As a result of their exposure to the Van Sickle California/Nevada Bi-State Park interpretive/information signs, visitors should have an understanding of:

- The geographical context of Van Sickle California/Nevada Bi-State Park, showing the park boundaries and the visitor use facilities of the park; and the geographical context of the Tahoe Basin at large, including the various interpretive sites visitors can experience.
- The natural history of the Van Sickle area and Tahoe Basin, including the area's geology and the natural forces that have created the landscape we see today.
- What riparian areas are and the importance of and values associated with them; the various ecosystems associated with Van Sickle Bi-State Park and some of the plants and animals that live there; the benefits of riparian zones to both humans and wildlife.
- The orographic effects created by the main Sierra Nevada mountains, including the effects on the Carson Range.
- The cultural history of the Tahoe Basin and the Van Sickle property, including the prehistoric and historic Native American peoples who visited here; the arrival of the Euro-American fur traders, explorers, gold-seekers and emigrants; Euro-American settlement of the area and subsequent exploitation of the basin's natural resources; the historical features found in the park and their significance.
- The dangers created by human-caused forest fires, including the fire started by a cigarette at Van Sickle; the role of fire in forest succession and ecosystem health.

- The uniqueness of Van Sickle California/Nevada Bi-State Park as a park administered by a duality of states.
- The recreation opportunities associated with Van Sickle Bi-State Park that are available to people, including trail biking, walking/hiking, jogging, photography, picnicking, group use, bird and wildlife watching and interpretation.
- The impacts human activity can have on the park's and basin's natural setting; what visitors can do to mitigate those impacts and why visitors should do them.
- The rules and regulations that govern activities at Van Sickle California/Nevada Bi-State Park; how visitors can make their visit safer and more enjoyable.

Emotional Objectives – The emotions can be a powerful tool in communicating with visitors and users of Van Sickle California/Nevada Bi-State Park. As a result of their interaction with the park's interpretive program, visitors should feel:



The feelings that visitors leave the park with often provide the cement the holds all the other objectives together.

- Welcome and free to appropriately enjoy the park and its amenities.
- A sense of respect and awe for the natural processes at work at Van Sickle and the Tahoe Basin that have created this remarkable place.
- A sense of responsibility and urgency about conserving the ecological and cultural resources found in the park and in the Tahoe Basin, viewing these resources as a legacy to be preserved for present and future generations.
- A sense that they can help in the effort to preserve the natural setting of Van Sickle Bi-State Park and the larger basin, and that their contributions are meaningful and appreciated.
- Positive feelings about Van Sickle Bi-State Park, viewing the park as an asset to the local communities and a benefit to those who use it.
- Positive feelings about the Nevada Division of State Parks, California Tahoe Conservancy and California Department of Parks and a perception that the people involved with these entities are sensitive to both visitors' needs and the needs of the park's natural and cultural resources.



And the final challenge is to have the visitors leave their interaction with the park and all it offers with some positive action to achieve.

Motivational Objectives As a result of their interaction with the park's interpretive and information program, visitors should:

- Engage in a recreational experience in the park in which they might not otherwise have participated.
- Learn more about the natural ecosystems of the park and basin, the values associated with them, what more needs to be done to protect and enhance them.
- Exhibit behavior in the park that shows respect for Van Sickle's natural and cultural resources.
- Utilize the park and its amenities, including the interpretive and information media, in a respectful manner.
- Actively support conservation programs by getting involved in one or more organizations or activities that protect and enhance the natural and cultural resources of Van Sickle and the Tahoe Basin.

Recommended Interpretive Strategy

Given the park’s multiple campgrounds, day-use areas, features and other visitor areas, there will be no single visitor experience at Van Sickle. With that in mind, in this section of the plan the interpretive planning team will not attempt to describe a linear visitor experience; instead, a walk-through description of each of the major interpretive features found at the park will be provided. This description will include recommended interpretive media solutions at each location.

In general, to meet the information needs of all visitors regardless of interest or reason for coming to the park, there will be several types of information dispensed through the Van Sickle information/interpretive program. These include orientation and directions (helping visitors locate themselves and their destination in the park, then helping them get to that destination); general information needs (park functions, hours of operation, special activities or exhibits, rules, regulations, etc.); and enrichment (interpretation).

The central facility for communicating the park’s overall interpretive storyline will initially be an information/interpretive kiosk located near the historic barn. Here, the “big picture,” i.e., an overview of Van Sickle’s various interpretive themes will be presented. More site-specific treatment of the themes will be presented at appropriate locations and features throughout the park, creating a hierarchy of information that flows from the kiosk/visitor center outward, and maintaining cohesion in the entire interpretive program.

Approaching the Park



The park lies within a major destination resort area.

The visitor experience at Van Sickle Bi-State Park should actually begin before they arrive at the park itself. Since the park entrance is located away from U.S. Highway 50, the primary route used by out-of-area travelers, official highway signs alerting motorists to the park’s existence and location should be placed on that highway at locations that would allow drivers time to make the decision to turn on the streets leading to the park entrance. Similar signs should be placed on Park Avenue at approaches to the entrance.

To accommodate potential pedestrian visitors to the park, an interpre-

tive panel should be placed at the alley that leads from U.S. 50 to Park Avenue near the park entrance. This panel would alert pedestrians to the park's existence and location and inform them of the things they can see and do.

Information/interpretive Media

- Park ID/directional signs
 - U.S. Highway 50: Brown DOT signs (2 ea.)
 - Park Avenue: Brown DOT signs (2 ea.)
- Information/Interpretive panel (Alley entrance)



The park's entrance is just off a city street. From one world the visitor easily transitions into a totally new and natural one.

Park Access/Entrance

As visitors approach the park entrance, a large park identification sign will let visitors know that this is the park and guide them to the entrance.

Information Media

- Park identification sign

Historic Barn Area

Upon arriving at the historic barn area visitors will find an interpretive/information kiosk containing four large information and interpretive panels. The first will welcome visitors to Van Sickle Bi-State Park and help them orient themselves to the park itself as well as the Tahoe Basin. In addition, this panel will depict the recreation and other opportunities at the park as well as the rules and regulations governing use of the park facilities. Agency logos will inform visitors who is managing the park.

A second panel will provide visitors with an overview of the Tahoe Basin's natural history, including geology and forest ecology. Diagrams, cross-sections, color photos and texts will help visitors understand the complex processes of plate tectonics, uplift and erosion, and the rain shadow effect that have created the landscape visitors see today. Through other graphic elements and texts visitors will learn about Van Sickle's conifer forest environment, including some of the plants and animals found here.

The third panel in the kiosk will give a brief synopsis of the cultural history of the Tahoe Basin. Here visitors will learn that the basin, especially the south Lake Tahoe area, have long been a travel corridor for people including Native Americans, gold seekers, emigrants, the Pony Express, the Lincoln Highway and others. Visitors will also learn the

interesting story of industry in the Tahoe Basin, including logging, the railroad, livestock grazing, market fishing and early tourism.

The kiosk's final panel will help visitors understand some of the history of the Van Sickle property, especially from the time Jack Van Sickle purchased it until he transferred ownership to the states of Nevada and California. Visitors will learn the uses of the property, including ranching, trail rides and logging.

Near the kiosk, in close proximity to the historic Van Sickle structures, visitors will find additional interpretive panels that describe the history of the various buildings. At the barn visitors will learn interesting facts about this imposing structure including that it is one of the oldest structures in the Tahoe Basin, dating to the 1860s, and that Mr. Van Sickle moved the barn from its original location to this site.

Similar panels adjacent to one of the historic tourist cabins and the log cabin will briefly explain where these structures came from and how they were used. A final panel will interpret the corral and horse mounting station.

Information/interpretive Media

- Information/interpretive kiosk with four large, digitally produced interpretive panels
- Low profile, post-mounted interpretive panels
 - Barn
 - Corral/mounting station
 - Guest cottages
 - Log cabin

Interpretive Trail



Walking through the park trails and learning provides a welcome respite from the nearby urban environment.

Although its location is still to be determined, an interpretive trail is anticipated to be part of the visitor experience at Van Sickle. To provide visitors with the best experience possible, the trail will begin with a trailhead panel containing a map describing the trail's route, a brief explanation of what visitors can expect on the trail (trail length, time required, difficulty) and an overview of the trail's interpretive experience.

At appropriate sites along the trail visitors will find small, low-profile interpretive signs portraying site-specific concepts relating to the forest ecology. Included could be the importance of riparian areas, forest succession, role of fire in the forest, the forest anatomy (different layers of the forest), importance of fallen trees, transition zones, urban/natural interface, high altitude tree adaptations and plants and animals found here.

Information/interpretive Media

- Digitally produced trailhead panel
- Digitally-produced, post-mounted, low-profile interpretive trail signs

Logging Mill Site

Close by the foundations of the logging mill, visitors will discover two low-profile interpretive panels, one of which will describe the logging industry that was a major part of the Tahoe Basin history. Visitors will learn that much of the forests surrounding Lake Tahoe were denuded of trees to provide timber for the mines and buildings in Virginia City, Nevada as part of the mining frenzy of the 1850s and 1860s.

The second panel will help bring to life the logging mill at Van Sickle, the foundations of which are visible at this site. Visitors will learn about how timber was logged and how it was milled at this site.



The recent fire and the forest gradual restoration affords a special opportunity for interpretation.

Interpretive Media

- Interpretive panels

Group and Vehicular Camp Sites

At each of the group and vehicular camp sites visitors will find an interpretive panel describing, in greater depth than is possible in the kiosk panels, interesting concepts relating to cultural or natural history. These site-specific concepts would interpret some feature that visitors can see at each location. Some of these could include Lake Tahoe water clarity, geologic features, buildings or other structures, the orographic effect, Kingsbury Grade, interesting plants or animals and impacts of logging on the Van Sickle forest.

Also in close proximity to one of the campsites or the day-use area, visitors will find a small amphitheater or fire circle where evening ranger program could be held that could focus on interesting concepts relating to the park.

Interpretive Media

- Interpretive panels
- Interpretive amphitheater

Miscellaneous Sites

As with the campsites, interpretive panels located at certain sites throughout the park would further enrich the experience visitors have at Van Sickle Bi-State Park:



A simplified drawing of the park and possible interpretive sites.



- South Tahoe Greenway Bike Trail – Trailhead panels
- Access trail to Sierra Nevada crest trail – Trailhead panels
- Forest fire origin site - Interpretive panels
- Overlooks – Interpretive panels

PHASE II INTERPRETIVE DEVELOPMENT

When monies become available, it is anticipated that the Phase I interpretive development will be supplemented with additional facilities. With that in mind, the interpretive planning recommends the following enhancements:

Visitor Center

In the ultimate interpretive development scheme, this new facility will become the focal point for interpretation at Van Sickle. Located near the Historic Barn Area, this facility will house an information counter, interpretive displays, offices and a resale area. At the information counter visitors will be able to ask questions of and obtain a park brochure and other information from a park staff member. In the exhibit area visitors will find a series of interpretive displays that will provide an overview of Van Sickle's interpretive storyline. These dimensional exhibits will utilize a wide variety of media that will involve as many of the visitors' senses as possible to help visitors understand the interesting concepts associated with the park. The Sierra State Parks Foundation resale area will allow visitors to purchase books and other publications and mementoes to take home with them.

Interpretive Media

- Dimensional museum-style exhibits
- Graphic images, illustrations, diagrams, cross-sections, etc.
- Photomurals and photography
- Artifacts and objects
- "Low-tech" interactive devices
- Audio and A/V presentations
- Park brochure



The Van Sickle barn is the oldest structure on the property and is an excellent example of a mid-Eighteenth Century barn.

Historic Barn

The most imposing historic structure at Van Sickle, the historic barn will likely be an object of great interest to park visitors who will undoubtedly want to see what's inside. As part of the Phase II interpretive development, the interpretive planning team recommends opening the barn to visitors, either with guided tours or by allowing visitors to walk through the structure. The latter option would require interpretive devices as well as security measures to ensure the barn's integrity and

contents but would not require the services of park staff or volunteers as would be the case with guided tours. Small interpretive signs, designed to fit the feeling and décor of the barn, could provide self-service interpretation regarding the barn's features.

Guest Cottages



As with the barn, visitors are likely to want to see what the inside of the guest cabins looks like. Therefore, it is recommended that one of these cottages be restored to its period look and allow visitors to either enter or look inside from the entrance. Here, too, small interpretive signs could explain the various features of the cabin.

Interpretive Media

- Refurbished guest cottage w/ interpretive signs

Gondola



The park is in some ways a dichotomy, but with the right choices, presently being made by key people, it can become an incredible future opportunity.

Suggestions have been made to the interpretive planning team to investigate the possibility of having some type of interpretation for people riding the tram. Obviously, there is a variety of options for such interpretation including audio messages, in-car interpretive signs and signs mounted to the tram towers. Trying to incorporate an audio message inside the tramcars would be an excellent means for communicating some of the interesting concepts about the park. Unfortunately, outfitting all of the cars with an audio device would create an enormous initial cost and an on-going maintenance nightmare, making this option essentially impractical. Mounting in each tramcar a small interpretive sign would be somewhat less costly but would still require fabricating dozens of such panels. The third option, signs mounted to the gondola towers and visible to the moving cars, would be the least expensive alternative but would have to be large enough and contain an extremely short message in order to be read by tram riders. Perhaps a “Burma Shave” sign approach that has a series of short messages that invite tram riders to visit the park would be a viable alternative. In any of these alternatives, approval from the gondola owners would be required.

A computer model of the park and possible interpretive sites.

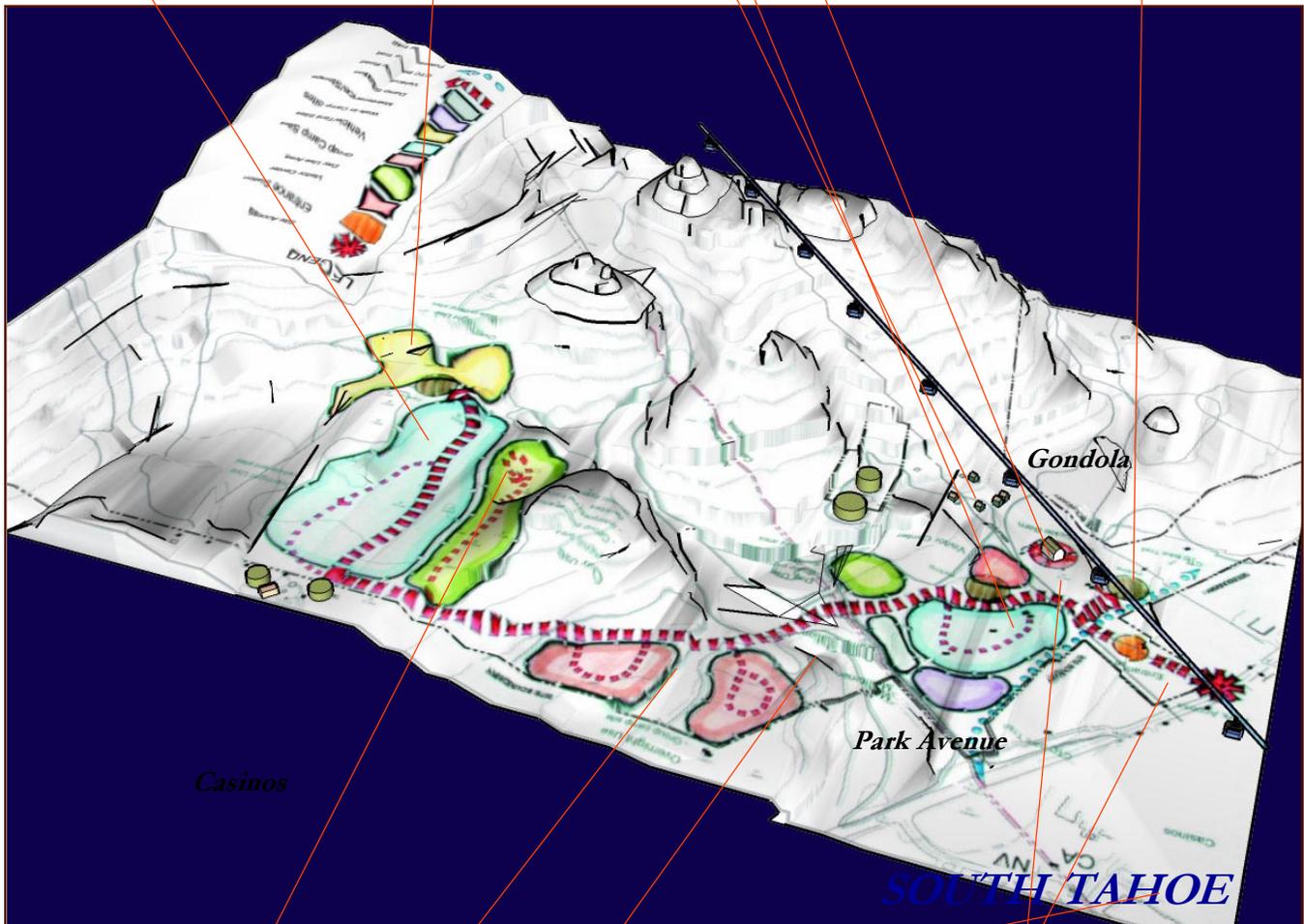
- Trail Orientation**
 • Orientation and Interpretation
- Fire**
 • Forest Restoration
 • Orientation and Interpretation signage

- Visitor Cabins**
 • Orientation and Interpretation

- Visitor Center**
 • Possible future site

- Barn**
 • Exterior Identification
 • Interior Interpretation
 • Live and A/V Shows

- Bike Tour**
 • Orientation Signage



- Area Orientation**
 • Orientation and Interpretation on overlooks

- Off Site**
 • Park Introduction
 • Walking Tour
 • Local Outdoor Opportunities

- Log Cabin**
 • Historical Interpretation
 • Signage

- Interpretive Signage**
 • Forest Ecology
 • Climatic Change with Elevation

- Logging Mill**
 • Exterior Identification
 • Interpretation
 • Live and A/V Shows

- Park Entrance**
 • Identification Signage

Implementation



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September 22, 2004

Steve Noll
Design Workshop, Inc.
P. O. Box 5666
StateLine, NV 89449

RE: Van Sickle Bi-State Park - Preliminary Traffic Analysis

Dear Mr. Noll:

Per your request, LSC Transportation Consultants, Inc. has analyzed the potential transportation impacts associated with the conceptual plans for Van Sickle Bi-State Park development. This 730-acre property is located south of the Caesars and Harrah's casinos and the newly completed Park Avenue Redevelopment in both Nevada and California, as shown in [Figure A](#). Per your document to LSC dated July 15, 2004, the proposed land uses are as follows:

- 7,000 Square Feet of Visitor Center,
- 63,425 Square Feet of Day-Use Picnic Area,
- 5,000 Square Feet of Maintenance Building (Approximately 3 Employees),
- 211,886 Square Feet of Group Campground (Maximum Capacity: 180 Persons),
- 484,224 Square Feet of Vehicle/Tent Campground (Approximately 100 Sites),
- 116,095 Square Feet of Walk-In Campground (Approximately 20 Sites), and
- Ropes Courses and Trailhead with 20 Parking Spaces.

Access to the project site is proposed to be provided by the southern leg to the Park Avenue (also called Heavenly Village Way)/Lake Parkway/Montreal Road intersection.

Initially, the 2010 "no project" design volumes are estimated with the existing roadway system, as well as with the preferred alternative (Alternative D) identified in the *U.S. Highway 50/Stateline Project Transportation Study* prepared for TRPA (LSC, February 19, 2004). Next, the trip generation and distribution of each of the proposed uses is discussed. Additionally, the future (2010)

LOS at study intersections is evaluated under two roadway scenarios: the existing roadway system, and Alternative D from the *U.S. Highway 50/Stateline Project Transportation Study*, with and without the proposed project. In view of the fact that this is only a preliminary traffic analysis, full evaluation of this project will require further analysis of transportation impacts. Finally, regional Vehicle-Miles of Travel (VMT) associated with the proposed project have been calculated.

2010 No Project Traffic Volumes

The 2010 design volumes with the existing roadway system were identified as the Year 2010 - 30th highest summer P.M. peak-hour traffic volumes presented in the *U.S. Highway 50/Stateline Project Transportation Study*. These traffic volumes include the full build-out of Stateline/Ski Run commercial, Phases IV and V of the Embassy Vacation Resort project, Heavenly Village (Park Avenue Redevelopment) project, and the Redevelopment Project 3, as well as the Van Sickle Bi-State Park site. It should be noted that a portion of the Redevelopment Project (phase 3A) is expected to be completed by 2010, and would consist of the convention center, night club, hotel and a portion of the retail land uses.

For the purpose of the *U.S. Highway 50/Stateline Project Transportation Study*, the traffic generated by the Van Sickle Bi-State Park was estimated based upon the provision of 100 parking spaces and 100 RV sites, per guidance provided by the Nevada State Parks Department. In order to estimate 2010 “no project” traffic volumes, these estimated Van Sickle Bi-State Park traffic volumes were subtracted from the 2010 traffic volumes presented in *U.S. Highway 50/Stateline Project Transportation Study*.

In addition, under Alternative D in the *U.S. Highway 50/Stateline Project Transportation Study*, double-lane modern roundabouts would be constructed at the US 50/Pioneer Trail and US 50/Lake Parkway intersections. In addition, Lake Parkway East (mountain side) would be expanded to four travel lanes (two travel lanes in each direction with a center two-way left-turn lane) to accommodate traffic passing through the area. Existing US 50 would be relocated to Montreal Road and Lake Parkway East (mountain side), thereby increasing traffic volumes adjacent to the project site. The 2010 volumes in the Alternative D “no project” scenario were estimated by diverting the existing US 50 through traffic volumes to the new US 50 route.

Trip Generation

In general, daily vehicle trip rates are based upon the TRPA *Trip Table* (TRPA, January 14, 2004) and peak-hour trip rates are estimated using the Institute of Transportation Engineers (ITE) *Trip Generation, 7th Edition* (ITE, 2003) manual. The ITE *Trip Generation* manual and TRPA *Trip Table* provide a rate for a “State Park” (ITE land use code 413). However, this information is based upon data obtained from much larger state parks, and does not accurately reflect the specific characteristics of the proposed park facilities. Therefore, it was necessary to perform a “person-trip analysis” in order to estimate project-generated vehicle trips. The estimates are primarily based upon the land use

information provided above, and LSC's understanding of the distribution of visitor trips over the course of a busy summer day at this type of facility.

The trip generation analysis is based on the following information/assumptions:

- **Visitor Center** - The visitor center trip rates are estimated based upon traffic data associated with similar facilities in the Tahoe area.
- **Day-Use Picnic Area** - A maximum of 20 picnic sites are assumed to be included in the Day-Use Picnic Area. Reflecting use by two groups per day, four (4) one-way vehicle trips are assumed to be generated by each picnic site over the course of a peak day. Ten percent of the total daily vehicle trips are assumed to occur during the P.M. peak hour.
- **Maintenance Area** - The daily and P.M. peak-hour trips associated with the maintenance facility are based on the "Warehouse" land use.
- **Vehicle/Tent Campsites** - Over the course of a peak day, 50 percent of the Vehicle/Tent Campsites are assumed to have one car per site, and the rest of the Vehicle/Tent Campsites are assumed to have two cars per site. It is estimated that each vehicle makes four one-way trips per day. In addition, ten service vehicle trips per day are expected to be generated by the Vehicle/Tent Campsites. The peak-hour trips generated by the Vehicle/Tent Campsites are estimated based on the "Developed Campground/RV Park" land use found in *ITE Trip Generation Manual, 7th Edition*. (This land use was not used in the daily trip calculations because the daily trip rates provided by the TRPA are based on acreage rather than the number of campsites, and the ITE does not provide daily trip rates for this land use.)
- **Group Campsites** - An average vehicle occupancy of 3.47 is assumed for trips associated with the Group Campsites, based on the TRPA "Visitor Home Based Recreation" vehicle occupancy. Four one-way trips per day are estimated to be generated by each vehicle. Ten percent of the estimated daily trips are assumed to occur during the P.M. peak hour, with an inbound/outbound split as identified in ITE land use code of "Developed Campground/ RV Park."
- **Walk-In Campsites** - Fifty (50) percent of the Walk-In Campsites are assumed to have one car per site, and the rest of the Walk-In Campsites are assumed to have two cars per site over the course of a peak summer day. Each vehicle is estimated to make four one-way trips per day. The portion of total daily trips occurring during the P.M. peak hour is based on the trip rates provided for the "Developed Campground/ RV Park" land use.
- **Ropes Courses/Trailhead** - It is assumed that people will stay an average of three hours per visit at the Ropes Courses/Trailhead, which results in a turnover rate of 3.3 times over ten hours of operation. Each vehicle associated with this parking area is expected to make one round-trip over the course of a peak day. About ten percent of the estimated daily trips are assumed to occur during the P.M. peak hour.

- **Internal Trips** - It is assumed that 50 percent of the trips associated with the Visitor Center and Maintenance Area are on-site (internal) trips, as well as ten percent of the trips generated by Ropes Courses /Trailhead. In order to remain conservative in this analysis, no internal trips are assumed to be made to/from the Day-Use Picnic Area and Campsites.
- **Non-Auto Trips** - Some of the trips generated by the proposed land uses are expected to be made via non-auto modes (transit, bicycle, pedestrian). Particularly given the site's proximity to Stateline destinations, it is estimated that 95 percent of the trips associated with the Visitor Center, Walk-In Campsites, and Ropes Courses/Trailhead are made via automobile. Ninety (90) percent of the trips made by Vehicle/Tent Campsite and Group Campsite users are estimated to be via automobile. All of the Day-Use Picnic Area and Maintenance Area trips are expected to be made via automobile.

The number of Daily Vehicle Trip-Ends (DVTE) and Peak-Hour Vehicle Trip-Ends (PHVTE) associated with the conceptual plan for the Van Sickle Bi-State Park were calculated, and the results are shown in [Table A](#). As indicated, a total of 1,224 DVTE and 97 PHVTE (60 inbound and 37 outbound) are expected to be generated by the proposed land uses. According to the TRPA *Code of Ordinances*, a significant traffic increase in this area is defined when DVTE would be increased by at least 200. Accordingly, the increase in daily trips is considered to be significant, and a full traffic study is required under the *Code of Ordinances*. As mentioned above, this is only a preliminary traffic analysis. Therefore full evaluation of transportation impacts has not been performed.

Trip Distribution and Assignment

The distribution of traffic arriving and leaving the project site is estimated based upon regional access patterns, existing turning movement data, as well as the locations of the residential population and commercial space within the South Lake Tahoe and Stateline areas. The estimated distribution pattern for the P.M. peak hours may be seen in [Table B](#). As shown, the majority of project-generated traffic is expected to travel to/from both directions on US 50 (52 percent). Almost one-quarter of trips generated by the Van Sickle Bi-State Park development (22 percent) are expected to travel to/from the newly completed Village Center (previously called Crescent V shopping center) and Heavenly Village area along Park Avenue (also called Heavenly Village Way).

Year 2010 Level Of Service

Intersection LOS was analyzed utilizing the *Synchro 5.0* (Trafficware, 2000) software, based upon the procedures presented in the *Highway Capacity Manual* (Federal Highways Administration, 2000). The LOS in the Year 2010 at each study intersection under each roadway alternative is shown in [Table C](#), and is discussed below.

US 50/Park Avenue

Under existing roadway conditions, the signalized US 50/Park Avenue intersection is expected to

operate at LOS F in the Year 2010, without the proposed project. As the TRPA standard is LOS D for signalized intersections (LOS E may be acceptable during peak periods not to exceed four hours per day), this intersection will operate at an unacceptable LOS. As indicated in [Table C](#), this intersection will continue to operate at LOS F with the proposed project, and the average delay per vehicle will increase by about 5.6 seconds (3.5 percent). Therefore, the proposed project will exacerbate an existing deficiency at the US 50/Park Avenue intersection. Project-generated traffic would comprise approximately 1.4 percent of all P.M. peak-hour vehicles through the intersection.

If Alternative D of the *U.S. Highway 50/Stateline Project Transportation Study* is implemented by 2010, then the LOS at this intersection will improve to LOS A, with or without the proposed project.

Park Avenue/Montreal Road

Under existing roadway conditions, the Park Avenue approach and Site Access approach on the four-way stop-controlled Park Avenue/Montreal Road intersection are expected to operate at LOS B or better in the Year 2010 without the proposed project. However, the Montreal Road approaches will operate at LOS F. The TRPA does not have a specific adopted standard for unsignalized intersection LOS. In general, intersections which have either a critical movement or approach which is identified as LOS F (including existing LOS F conditions that are exacerbated by a proposed project) are identified as an area of concern.

As indicated in [Table C](#), the worst approach on the Park Avenue/Montreal Road intersection will continue to operate at LOS F with the proposed project, with an increase in average delay per vehicle of over 21 seconds. Therefore, the proposed project will exacerbate an existing deficiency at this intersection. In addition, project-generated traffic would comprise about 6.7 percent of all P.M. peak-hour vehicles through the intersection.

According to the Federal Highway Administration's *Manual on Uniform Traffic Control Devices* (MUTCD, 2003), a peak-hour volume signal warrant is met at the Park Avenue/Montreal Road intersection with or without the project. If a traffic signal is provided by the Year 2010, this intersection would operate at LOS B or better, with or without the project.

Alternatively, if a single-lane roundabout is provided at the Park Avenue/Montreal Road intersection by the Year 2010, this intersection would operate at LOS A with or without the project.

With Alternative D of the *U.S. Highway 50/Stateline Project Transportation Study*, this intersection would be signalized. It would operate at an acceptable LOS (LOS C) in 2010, with or without the proposed project.

US 50/Lake Parkway

Under existing roadway conditions, the signalized US 50/Lake Parkway intersection is expected to operate at LOS E in the Year 2010, without the proposed project. According to the TRPA LOS standards for signalized intersections, LOS E may be acceptable during peak periods not to exceed four hours per day. However, the Douglas County LOS standards indicate that peak-period traffic flow should not exceed LOS D on all NDOT-maintained principal arterial roads (such as US 50). Therefore, this intersection is expected to operate at an unacceptable LOS in 2010.

As indicated in [Table C](#), the US 50/Lake Parkway intersection will continue to operate at LOS E with the proposed project, and the average delay per vehicle is expected to increase by approximately 0.8 seconds (1.2 percent). Therefore, the proposed project will exacerbate an existing deficiency at this intersection. Additionally, project-generated traffic would comprise about 0.5 percent of all P.M. peak-hour vehicles through the intersection.

Under Alternative D of the *U.S. Highway 50/Stateline Project Transportation Study*, a roundabout would be installed at this intersection. With a roundabout, the LOS at the US 50/Lake Parkway intersection would improve to LOS B in 2010, with or without the proposed project.

Vehicle-Miles of Travel

Impact on Vehicle-Miles of Travel (VMT) can be established based upon project trip generation and estimated average trip lengths. Average vehicle-trip length values were drawn from the TRPA regional transportation model. The trip length for vehicle-trips generated by the proposed project is based upon TRPA's average trip length for all visitor trip types. The project generated VMT is equal to the trip-length (in miles) multiplied by the DVTE generated by the project for each trip type.

As indicated in [Table D](#), the proposed project is estimated to increase daily VMT by 4,247 over the course of a peak day. The TRPA has not established a specific standard of significance on a project-by-project basis with regards to VMT. However, the TRPA has indicated that a VMT increase of 2,000 or more per day is considered by staff to be significant. According to this criteria, the impact of the proposed project on regional VMT is significant. In comparison with the TRPA's most recent assessment of 1,790,602 existing VMT in the Tahoe Basin, the proposed development is estimated to increase region-wide VMT by 0.24 percent.

Conclusions and Recommendations

The findings of this analysis are as follows:

- The project is expected to generate approximately 1,224 DVTE. Per TRPA regulations, therefore, a full traffic and air quality analysis is required.
- While the proposed project would increase regional Vehicle-Miles of Travel by 4,247, this level is considered to represent a significant increase.

- Under the existing roadway system, all of the study intersections will operate at an unacceptable LOS in the Year 2010, without the proposed project. The proposed project will not impact the LOS at the study intersections. However, due to the fact that the project-generated traffic will cause an increase in the average vehicular delays at all study intersections, the proposed project will exacerbate an existing deficiency at each intersection. However, if Alternative D of the *U.S. Highway 50/Stateline Project Transportation Study* is implemented, all study intersections will operate at an acceptable LOS, with or without the proposed project.
- Considering the relatively small impact of the project and the “no-project” deficiencies, it can be reasonably concluded that future deficiencies at US 50/Park Avenue and US 50/Lake Parkway are regional issues and not the specific responsibility of the proposed project. However, mitigating the substantially larger impacts at the Montreal Road/Park Avenue intersection is reasonably the responsibility of the proposed project. Provision of a traffic signal or single-lane roundabout at this location should therefore be provided as part of the proposed project. Alternatively, it may be possible through negotiations with TRPA to mitigate this impact through a significant contribution to the Blue Go transit program.

Respectfully Submitted,

LSC Transportation Consultants, Inc.

by _____
Gordon R. Shaw, PE, AICP, Principal

Encl: Table A through D
Figure A

TABLE A: Van Sickle Bi-State Park - Trip Generation

Description	ITE Land Use Code	Quantity	Unit	Trip Rates				Internal Capture Rate	Percent Non-Auto (Ped, Transit, Bicycle)	Project-Generated Vehicle Trips at Site Driveway			
				P.M. Peak Hour			DVTE			P.M. Peak Hour			
				Daily	In	Out				Total	In	Out	Total
PROPOSED USES													
Visitor Center	-	7	KSF	50.8	2.54	2.54	5.08	50%	5%	169	9	9	18
Day Use Picnic Area	-	20	Sites	-	-	-	-	0%	0%	80	4	4	8
Maintenance (Warehouse)	150	5	KSF	4.88	0.12	0.35	0.47	50%	0%	12	0	1	1
Campsite													
- Vehicle/Tent Campsite	416	100	Sites	-	0.26	0.11	0.37	0%	10%	549	23	10	33
- Group Campsite	-	180	Persons	-	-	-	-	0%	10%	187	14	5	19
- Walk-In Campsite	416	20	Sites	-	0.26	0.11	0.37	0%	5%	114	5	2	7
Day Use Ropes Courses / Trailhead	-	20	Parking Spaces	-	-	-	-	10%	5%	113	5	6	11
TOTAL PROPOSED USES										1,224	60	37	97

Source: LSC Transportation Consultants, Inc.

TABLE B: Van Sickle Bi-State Park - Trip Distribution

Origin/Destination	Distribution of Project Traffic
US 50 to West	34%
Pioneer Trail to West	8%
US 50 to East	18%
Park Avenue South of US 50	22%
Park Avenue North of US 50	2%
Lake Parkway West	2%
Casino Parking South of US 50 Along Lake Parkway East	10%
US 50 Between Park Avenue and Lake Parkway	4%
TOTAL	100%

Source: LSC, Inc.

TABLE C: Van Sickle Bi-State Park- Future (2010) Intersection Level of Service Summary

Intersection	2010 Summer P.M. Peak Hour - No U.S. 50 Project					2010 Summer P.M. Peak Hour - Alternative D				
	Intersection Control	No Project		Plus Project		Intersection Control	No Project		Plus Project	
		Delay (sec/veh)	LOS	Delay (sec/veh)	LOS		Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
US 50/Park Avenue Total Intersection ¹	Signalized	161.8	F	167.4	F	Signalized	9.6	A	9.5 ³	A
Montreal Road/Park Avenue/Site Access Total Intersection	4-Way Stop	54.7	F	66.4	F	Signalized	27.6	C	33.5	C
Northbound Approach		0.0	A	12.2	B					
Southbound Approach		12.3	B	13.9	B					
Eastbound Approach		59.4	F	81.1	F					
Westbound Approach		73.0	F	88.1	F					
US 50/Lake Parkway Total Intersection	Signalized	67.9	E	68.7	E	Roundabout ²	16.3	B	17.2	B

Note 1: Using 2000 Highway Capacity Manual (HCM) methodology and Level of Service (LOS) definitions.

Note 2: AASIDRA software was used to calculate roundabout LOS.

Note 3: A decrease in delay with project does not indicate that the project will improve the operational conditions.

Source: LSC, Inc.

TABLE D: Van Sickle Bi-State Park - Calculation of VMT

Description	TRPA Trip Type	DVTE ¹	Average Trip Length (mi) ²	VMT
PROPOSED LAND USE				
State Park	Average of Visitor Home Based Recreation Trips	1,224	3.47	4,247
REGIONWIDE VMT ³				1,790,602
PERCENT INCREASE IN REGIONWIDE VMT WITH PROPOSED PROJECT				0.24%

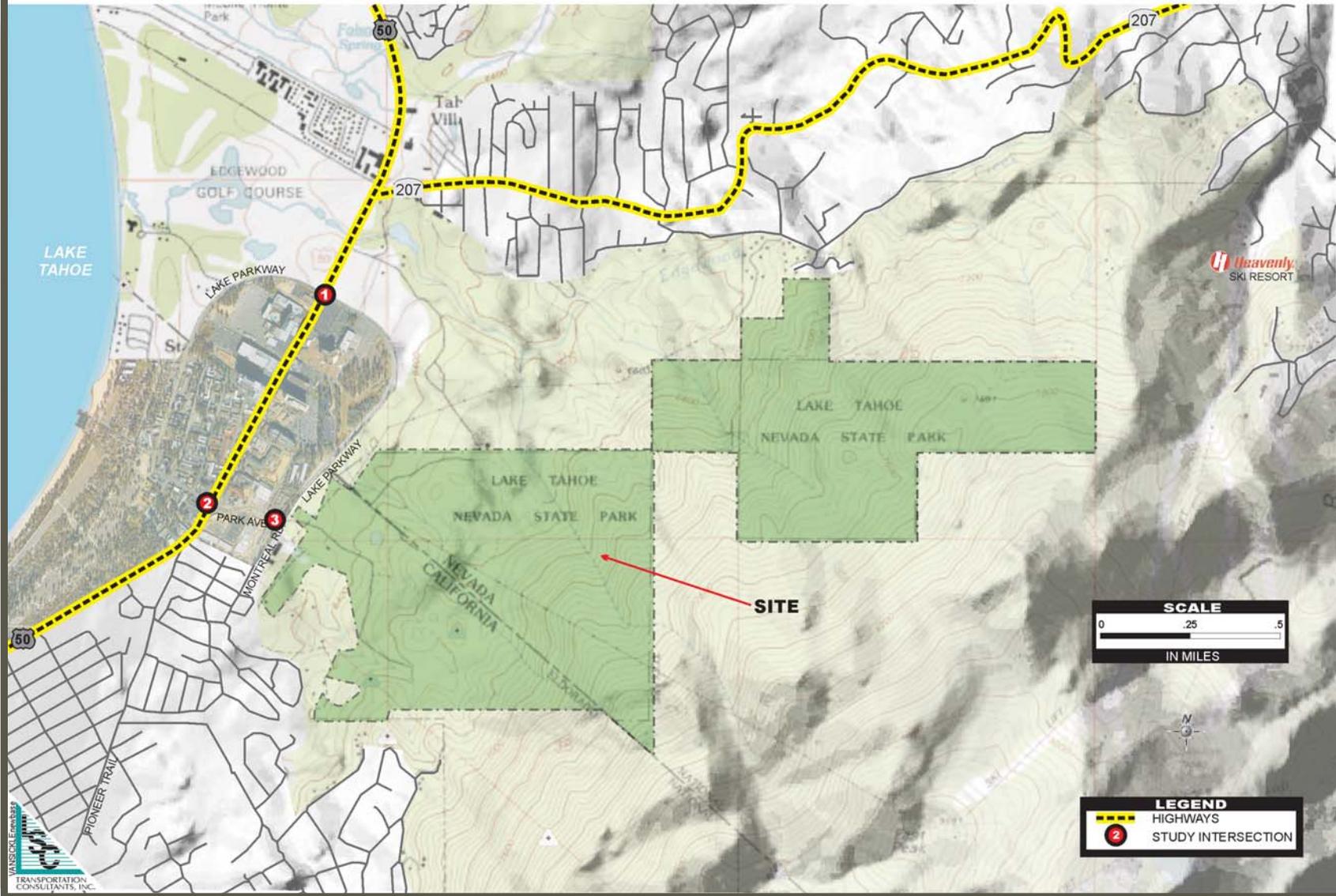
¹ Reference Table A.

² Based on TRPA's 1995 TRANPLAN Trip Length data.

³ Based on TRPA's 2001 Threshold Evaluation Draft.

FIGURE A

VAN SICKLE BI-STATE PARK STUDY INTERSECTIONS



Hi Lindy,

According to the Manual on Uniform Traffic Control Devices, the need for a traffic signal should be considered if all of the following criteria are met during the peak hour:

1. The total stopped time delay experienced by the traffic on one minor-street approach controlled by a stop sign equals or exceeds 4 vehicle-hours for a one-lane approach,
2. The volume on the same minor-street approach equals or exceeds 100 vehicles per hour for one moving lane of traffic, and
3. The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with 3 approaches or 800 vehicles per hour for intersections with 4 or more approaches.

Based on the US 50/Stateline Project Transportation Study, the Park Ave/Montreal Rd intersection meets all 3 criteria under existing summer conditions. A preliminary assessment indicates that Phase I of the proposed Van Sickle Bi-State Park Project would increase traffic volumes at this intersection. Therefore, a traffic signal should be considered, with or without the Van Sickle project.

Please let me know if you have any questions or comments.

Sara

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Engineer's Opinion of Probable Utility Construction Cost at Master Plan Level Design

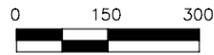
Description	Estimated Quantity	Units	Unit Price	Total Price
Utility Mains				
Water/Gas ¹ /Electrical ² Common Trench	8,564	LF	\$ 110	\$ 942,040
Sewer	8,083	LF	\$ 60	\$ 484,980
Communication ³	5,102	LF	\$ 40	\$ 204,080
Utility Main Subtotal				\$ 1,631,100
Utility Laterals⁴				
Visitor Center ⁵	1	EA	\$ 8,000	\$ 8,000
Maintenance Building ⁵	1	EA	\$ 8,000	\$ 8,000
Picnic Area Cooking Pavillion ⁶	1	EA	\$ 7,000	\$ 7,000
Toilet/Shower Buildings ⁶	6	EA	\$ 7,000	\$ 42,000
Toilet Buildings ⁷	2	EA	\$ 6,000	\$ 12,000
RV Sites ⁸	50	EA	\$ 7,000	\$ 350,000
RV Dump Station ⁹	1	EA	\$ 4,000	\$ 4,000
Utility Lateral Subtotal				\$ 431,000
Utility Subtotal				\$ 2,062,100
30% Construction Contingency				\$ 618,630
UTILITY TOTAL				\$ 2,680,730

General Notes:

- Costs do not include connection fees.
- Utility layout based on Overnight Focus and Base Plan drawings provided by Design Workshop.
- Assumes a single connection to main for each utility assumed on the California side, serving both California and Nevada sides of park.
- The Engineer's opinion of probable cost provided herein was prepared by the Engineer through exercise of experience and judgment in applying presently available cost data. It is recognized that the Engineer has no control over cost of labor and materials, or over competitive bidding procedures and market conditions. Thus, Engineer cannot warrant that the actual project construction costs will not vary from the Engineer's opinion of probable cost.

Specific Notes:

- ¹ Includes cost for installation of pipe and connections by gas provider. Site contractor will perform excavation and backfill in conjunction with common trench construction.
- ² Includes conduit and conductor.
- ³ Includes conduit and conductor for cable and telephone. Assumes will be in common trench with either Water/Gas/Electrical, or with Sewer.
- ⁴ Assumes 50-foot lateral lengths.
- ⁵ Water, sewer, gas, power and communication in common trench. (\$160/LF)
- ⁶ Water, sewer, gas and power in common trench. (\$140/LF)
- ⁷ Water, sewer and power in common trench. (\$120/LF)
- ⁸ Water, sewer, power and communication in common trench. (\$140/LF)
- ⁹ Water and sewer in common trench. (\$80/LF)



JWA CONSULTING ENGINEERS, INC.

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