US Army Corps
of Engineers ®
Sacramento District

Martis Creek Lake and Dam
Master Plan Update

Martis Creek, Placer and Nevada Counties, California

2016

TABLE OF CONTENTS

TABLES

FIGURES

PERTINENT DATA

GENERAL	
Location of Dam	Located on Martis Creek, near Truckee, California, Nevada County
Operating and Managing Agency	U.S. Army Corps of Engineers (USACE)
Purposes	Flood control & future water supply
Authorization	1962 Flood control Act, Public Law 87-874
Year Construction Started	1971
Year Dam Placed in Operation	1972
Drainage Area	39 square miles
Flows at Dam Site	
Average	23 cubic feet per second
Maximum of Record	1880 cubic feet per second
Minimum of Record	0 cubic feet per second
Maximum Annual	58,300 acre feet
Spillway Design Flood Peak Inflow	12,400 cubic feet per second
DAM AND EMBANKMENT	
Type	Rolled, earth filled
Fill Quantity	2,465,000 cubic yards
Concrete (all structures)	Total = 30,900 cubic yards control chamber + outlet works = 18,900 cubic yards Spillway = 12,000 cubic yards – concrete structures are only located in the control chamber, outlet works, and spillway.
Height Above Streambed	113 feet
Crest Elevation	5858 feet
Crest Length	2670 feet
Crest Width	20 feet
Freeboard	5.1 feet
OUTLET	
Location	Right abutment
Intake Structure – at elevation 5780 sill	5 x 5 Vertical Shaft
Conduit Type	Single barrel, reinforced concrete
Conduit Size	4 x 4
Emergency Gates (Type) Number and Size	Hydraulic slide 2 -3.5'x 4.0'

Control Gates (Type) Number and Size	Slide 2 -3.5'x 4.0'
Maximum Outlet Capacity (elevation 5,838)	580 cubic feet per second
SPILLWAY	
Location	Left abutment
Type Gate	Uncontrolled, paved
Crest Elevation	5838 feet
Crest Length	25 feet
Discharge Capacity (elevation 5,838)	580 cubic feet per second
LAKE	
Elevation Minimum Pool Flood Control/Joint Use Pool (Bottom) Gross Pool Spillway Design Flood Pool	 5,780 feet 5,808.3 feet 5,838 feet 5852.9 feet
Storage Capacity Minimum Pool Flood Control/Joint Use Pool (Bottom) Gross Pool Spillway Design Flood Pool Flood Control Storage Space	 800 acre feet 5,400 acre feet 20,400 acre feet 34,600 acre feet 15,000 acre feet
Area Minimum Pool Flood Control/Joint Use Pool (Bottom) Gross Pool Spillway Design Flood Pool	 72 acres 312 acres 768 acres 1,145 acres

LAKE DESIGN MEMORANDUMS
US ARMY CORPS OF ENGINEERS REPORTS, MARTIS CREEK LAKE

DM NUMBER	Date	Title	DATE APPROVED
1	Nov 64	Hydrology	OCE 26 Jan 65
2	Jul 65	Water Quality Control	SPD, 23 Aug 65
3	Aug 65	Reservoir Capacity	OCE, 4 Apr 66
4	May 67	Relocations	OCE, 20 Jul 67
5A	May 66	Preliminary Master Plan	OCE, 26 Sep 66
6	Jan 67	General Design	OCE, 22 Jun 67
7	May 66	Concrete Materials	SPD, 25 May 66
8	Dec 66	Site Geology	OCE,21 Mar 67
9	Dec 66	Access Road	OCE, 8 Feb 67
10	Dec 66	Real Estate	OCE, 19 Sep 67
11	Mar 67	Spillway & Outlet Works	OCE, 23 Feb 68
12	Mar 67	Embankment & Foundation	OCE,16 Jun 67
13	Apr 68	Reservoir Regulation	OCE, 22 Jan 69
14	Apr 67	Instrumentation	OCE, 19 Jun 67
15	Aug 69	Public Use Plan and Initial Recreation Facilities	OCE, 19 Dec 69

ACRONYMS

ACHP	Advisory Council for Historic Preservation
ARPA	Archeological Resource Protection Act
BO	Biological Opinion
CDFW	California Department of Fish and Wildlife
CFR	Code of Federal Regulations
CFS	Cubic Feet per Second
CNDDB	California Natural Diversity Data Base
CNPS	California Native Plant Society
CWA	Clean Water Act
DM	Design Memorandum
DSAP	Dam Safety Assurance Program
DSM	Dam Safety Modification
EA	Environmental Assessment
EM	Engineer Manual
EP	Engineer Pamphlet
ER	Engineer Regulation
ESA	Endangered Species Act
FONSI	Finding of No Significant Impact
HQUSACE	Headquarters, U.S. Army Corps of Engineers
LRWQCB	Lahontan Regional Water Quality Control Board
MOU	Memorandum of Understanding
MU	Management Unit
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NRHP	National Register of Historic Places
OHWM	Ordinary High Water Mark
OMP	Operational Management Plan
PL	Public Law
RWQCB	Regional Water Quality Control Board
SHPO	State Historic Preservation Officer
T&E	Threatened and Endangered Species
U.S.	United States
USACE	United States Army Corps of Engineers
U.S.C.	United States Code
USFS	United States Forest Service
USGS	United States Geological Survey
USFWS	United States Fish and Wildlife Service
WRDA	Water Resources Development Act
USDA	U.S. Department of Agriculture

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CHAPTER 1 – INTRODUCTION

1.1 PROJECT AUTHORIZATION

The Truckee River and Tributaries Project, Nevada and California, were authorized by the Flood Control Act of 1962 (Public Law 87-874), substantially in accordance with the recommendations of the Chief of Engineers in House Document Number 435, 87th Congress 2nd Session.

Improvement and management of the land and water resources for public purposes were authorized by Section 4 of the Flood Control Act of 1944, as amended. The Federal Water Project Recreation Act of 1965 (Public Law 89-72), as amended, modifies Section 4 authority and provides for Federal and non-Federal sharing of first costs of recreation and fish and wildlife developments as well as non-Federal operation and maintenance at reservoir projects authorized after January 1, 1965. Similar requirements are being administratively applied to reservoir projects authorized before 1 January 1965.

1.2 PROJECT PURPOSE

Martis Creek Lake and Dam Project is authorized for flood risk management, water supply, conservation, and recreation, as part of the Truckee River and Tributaries Project. The project will not be operated for water supply or conservation purposes until a demand develops.

1.2.1 Flood Risk Management

The Martis Creek Lake and Dam Project has been operated by the USACE for flood risk management purposes only to this date. The reservoir capacity is 20,400 acre-feet at gross pool (elevation 5,838.0 feet) and of that, it is estimated that only 15,000 acre feet will ultimately be required for flood risk management operations.

1.2.2 Conservation

Conservation operations of the Truckee River Basin Reservoirs, which includes Martis Creek Lake, Prosser Creek Reservoir, Stampede Reservoir, and Boca Reservoir, are affected by decrees and agreements in connection with water rights on the Truckee River. The conditions imposed on the river system by these actions and regulations by the Secretary of the Interior, are administrated by the Federal Court appointed Water Master in Reno, Nevada. The total demand for conservation water in the Truckee River Basin system is largely a function of water that is available during the rainy season and the forecasted runoff from snowmelt. The forecasts are made by the Truckee Basin Water

Committee based on measurements of snow depth and water content at selected stations. Martis Creek Lake currently does not have a water conservation designation.

1.2.3 Recreation

The USACE is the nation's leading Federal provider of outdoor recreation opportunities. As host to about 370 million visitors a year, the USACE plays a major role in meeting the outdoor recreation needs of Americans. The USACE recreation projects contribute economically and socially to the communities in which they are located, providing a natural resource setting for visitors to reap the benefits of engaging in outdoor activities to their physical, mental, and emotional health. The USACE Natural Resources Management Mission is to manage and conserve those natural resources, consistent with ecosystem management principles, while providing quality outdoor public recreation experiences to serve the needs of present and future generations. In all aspects of natural and cultural resources management, the USACE promotes awareness of environmental values and adheres to sound environmental stewardship, protection and compliance and restoration practices. The USACE manages for long-term public access to, and use of, the natural resources in cooperation with other Federal, state, and local agencies as well as the private sector. The USACE integrates the management of diverse natural resources components such as fish, wildlife, forests, wetlands, grasslands, soil, air, and water with the provision of public recreation opportunities.

Martis Creek Lake and Dam Project as a flood risk management project and potential future municipal and industrial water supply project is limited in recreation opportunities to minimum pool elevations (71 acres), and therefore restricts powered vessels on project waters. The minimum pool is located some distance from existing permanent recreation facilities in the campground area but takes advantage of the scenic beauty and shade provided by trees and other vegetation above gross pool. Although not a motor powered vessel recreation lake, Martis Creek boasts paddle sports, camping, hiking, fishing, wildlife viewing, outdoor winter sports, and day use areas for other outdoor recreational opportunities.

1.3 WATERSHED AND PROJECT LOCATION

The Martis Creek watershed is located in the Sierra Nevada Geomorphic Province, east of the Sierra Nevada crest and part of the larger Tahoe-Truckee River Basin of California and Nevada. The watershed covers an area of approximately 42.7 square miles and drains to the Truckee River in the Town of Truckee, California. Elevations in the Martis Creek watershed range from 8,617 feet in the headwaters to 5,680 feet at the mouth. The upper watershed is mountainous, underlain by volcanic bedrock. Upper elevations near Mt. Pluto and Northstar have been glaciated, leaving relatively old and well-developed fine-grained soils in most of the upper watershed. Many past and current land uses (such

as urbanization, grazing, or road-building) compact or diminish the infiltration capacity and overall function of the soils while increasing runoff and nutrient release to streams. Since these geologic units and fine-grained soils are prone to rapid erosion when disturbed, extensive incision often occurs in channels downstream of disturbed areas. The lower watershed is located in Martis Valley, with well-developed alluvial fans at the mouths of upper drainages that inter-finger with a deep sequence of layered glacial outwash, volcanic deposits of the Lousetown Formation, and water-bearing alluvium of the Prosser and Truckee Formations.

Martis Creek originates in the southwestern portion of the watershed near Sawtooth Ridge, and is met by four perennial and primary tributaries where it crosses Martis Valley 1) West Martis Creek, 2) Middle Martis Creek, 3) East Martis Creek, and 4) Dry Lake Creek. Significant smaller first and second-order tributary streams are present in each of these sub-watersheds and areas along Martis Valley proper (Truckee River Watershed Council, 2012).

The Martis Creek Lake and Dam Project is located in a valley on the east side of the Sierra Nevada crest immediately to the north of Lake Tahoe. The valley descends to an elevation of about 5,700 feet in the vicinity of the dam site and is surrounded on three sides by rugged mountains that rise to heights of about 8,500 feet. Martis Creek flows northerly and joins the Truckee River about 3 miles downstream from the town of Truckee. Although located within the external boundaries of the Tahoe National Forest, only a small portion of the watershed lands of Martis Creek are administered by the U. S. Forest Service.

Martis Creek Lake and Dam Project's neighbors include the residential communities of Northstar, Lahontan and Martis Camp. Other neighbors are the Truckee Tahoe Airport, Teichert Aggregates, and the Waddle Ranch Conservation Area which is part of the Truckee Donner Land Trust.

1.4 PURPOSE OF THE MASTER PLAN

Master Plans are required for civil works projects and other fee-owned lands for which the USACE has administrative responsibility for management of natural and historic resources. The Master Plan provides a programmatic approach to the management of all of the lands included within the Martis Creek Lake boundary. The Master Plan is the basic guiding document outlining the responsibilities of the USACE, pursuant to Federal laws to preserve, conserve, restore, maintain, manage, and develop the project lands and associated resources. The Master Plan is a planning document anticipating what could and should happen, with the flexibility to adapt to changing conditions over the life of the plan. Detailed management and administration functions are handled in the Operational

Management Plan (OMP), which translates the concepts of the Master Plan into operational terms.

The primary goals of the Master Plan are to prescribe an overall land management plan, resource objectives, and associated management concepts, which (1) Provide the best possible combination of responses to regional needs, resource capabilities, suitability, as well as expressed public interests or desires consistent with authorized project purposes; (2) Contribute towards providing a high degree of recreation diversity within the region; (3) Emphasize the particular qualities, characteristics, and potentials of the project; and, (4) Exhibit consistency and compatibility with national objectives and other state and regional goals and programs.

The Plan identifies recreational opportunities and measures to preserve and protect natural and cultural resources. The Plan also outlines development needs, analyzes special problems, and provides guidance on public use, water quality, invasive species, natural areas, and historic properties within the USACE boundaries. The Plan does not address reservoir water levels and should not be confused with the on-going Dam Safety Modification Project or the Water Control Manual.

1.5 MASTER PLAN UPDATE

The first Martis Creek Lake Master Plan was published in 1977. Since its initial publication, the USACE has updated its policies directing the development and implementation of Master Plans. Specific Master Plan requirements are contained in Engineer Pamphlet (EP) 1130-2-550 Project Operations – Recreation Operations and Maintenance Guidance and Procedures, which was last updated on January 30, 2013. The current guidance includes revised categories of Land Classifications used to define project lands, as well as shifting from a construction-based document to a policy-based document. The policy also includes requirements for an interdisciplinary team approach to be used for the development, reevaluation, and supplementation or updating of Master Plans. Coordination with other agencies and the public is an integral part of the master planning process.

CHAPTER 2 – PROJECT SETTING AND FACTORS INFLUENCING RESOURCE MANAGEMENT AND DEVELOPMENT

2.1 PROJECT ACCESS

Interstate 80 provides the main access to the Martis Valley, particularly for travelers from Sacramento, the Bay Area and Reno. Interstate 80 runs from San Francisco, through the Town of Truckee, to Reno and then continues east.

State Route 267 is a two-lane highway running in a general northwest-southeast alignment from Interstate 80 in Truckee to State Route 28 in Kings Beach. State Route 267 bisects the Martis Creek Project.

2.2 DESCRIPTION OF THE RESERVOIR

The project provides for flood control and recreational purposes. In the future, if the need develops, Martis Creek can be used for water supply as well. The entire capacity of 20,400 acre feet at gross pool is designated for flood control, however an 800 acre-foot minimum pool is maintained year-round. Martis Creek supplies approximately 30 percent of the total flood control space provided by four Truckee River Basin Reservoirs.

2.3 HYDROLOGY (SURFACE WATER, GROUND WATER)

The Truckee River Basin encompasses approximately 3,060 square miles in the states of California and Nevada. The project headwaters lie in the Sierra Nevada Mountains above Lake Tahoe and end in Pyramid Lake, a terminal lake in the Nevada desert. The Truckee River is Lake Tahoe's only outlet, flowing north at Tahoe City, and continuing 15 miles until it reaches the town of Truckee. In Truckee, the river merges with the Donner Lake drainage area west of town, the Martis Creek drainage to the south and east of town, and the Prosser Creek, Trout Creek and Little Truckee River drainages to the north and east, before continuing east 90 miles to its terminus. Elevations in the Martis Valley area range from approximately 5,800 feet above mean sea level (msl) along the valley floor to approximately 8,600 feet above msl along the southern mountain ridges. General geographic boundaries of the Martis Valley include the Truckee River to the north and west, the Lake Tahoe Basin to the south, and the California/Nevada State Line to the east. Natural features located within the Martis Valley area include the Truckee River, Martis Creek, Dry Lake, Gooseneck Lake, and steep terrain along with forested areas.

2.4 WATER QUALITY

Surface water within the Truckee River Basin is of good quality and primarily originates as mountain snowmelt. However, exposure to pollutants and sedimentation generated from human activity and development has impaired the River within the vicinity of Truckee. According to the Lahontan Regional Water Quality Control Board

(LRWQCB), the Truckee River is on the Clean Water Act (CWA) Section 303(d) list of impaired water bodies for elevated levels of sedimentation, iron, and phosphorus and the Regional Water Quality Control Board's (RWQCB) "Watch List" for chloride and total dissolved solids (TDS). "Impaired" refers to water bodies that do not or are not expected to meet water quality standards despite compliance with the National Pollutant Discharge Elimination System (NPDES) permit requirements.

Water quality in other tributaries and adjacent water bodies to the Truckee River have been found to be impaired due to elevated methyl tertiary-butyl ether (MTBE) levels. These water bodies include Summit Creek and Donner Lake. In addition, Martis Creek is on the LRWQCB "Watch List" for nutrients.

2.4.1 USACE Water Quality Management Program

The USACE Water Quality Management Program for Civil Works Projects is described by the USACE primary water quality regulation – Engineer Regulation (ER) 1110-2-8154, "Water Quality and Environmental Management for the USACE Civil Works Projects." ER 1110-2-8154 was updated in 1995 to encourage a holistic, ecosystem approach to water quality management.

The diversity and magnitude of impacts that the projects and water management activities have on water quality are significant. The physical, chemical, and biological character of water is changed as it moves through the USACE projects, and water control decisions determine if projects have a positive or negative impact on water quality. The impacts of projects and their operation are often far-reaching, affecting the aquatic environment and its usefulness quite distant from the project.

As stewards of a significant percentage of the nation's aquatic environment, the U.S. Army Corps of Engineers has a responsibility to preserve, protect, and where necessary, restore water quality altered by the USACE projects. This requires a comprehensive understanding of the interactions of uses and users of the resource.

2.4.2 General Water Quality Concerns

Under present operation plans, Martis Creek Lake has the potential for algae blooms during warmer temperatures and when conditions are right (light, nitrogen, and phosphorus). The nutrient–rich waters of the inflow paired with shallow depth of the lake (which keeps much of its volume in a euphotic zone) promotes heavy growth of blue-green phytoplankton during the summer.

2.4.3 Water Quality Monitoring at Martis Creek Project

There is on-going, bi-annual water quality monitoring for operations at Martis Creek. The USACE historically performs water quality sampling at Martis Creek Lake during the spring and Late Summer/Fall (two discrete events). Data is collected via both digital instrumentation readings (temp, pH, DO, depth, conductivity, turbidity, etc.) and wet samples for laboratory analysis (nutrients, metals, alkalinity, sulfates, chloride,

phytoplankton, etc.). Samples are collected both in the lake and at a location that is characteristic of the lakes primary inflow. The wet samples are shipped to a contracted laboratory for analysis. This program provides a "snapshot" of the lakes water quality status for two days a year.

The U.S. Army Corps of Engineers has supplemented the monitoring performed for Operations with a much more detailed program. Due to the strict water quality standards within the region, more significant baseline of water quality conditions is needed. A large portion of the supplemental program is done utilizing digital instrumentation. The USACE currently has two constant monitoring systems at the lake collecting data twice hourly. Readings are collected from these through a buoy in the lake and a point downstream of the dam, within the creek channel. The monitoring also includes monthly digital instrument readings at several inflowing stream locations in order to better characterize the water quality from the watershed. Additional wet samples have been collected to provide some data around the lake during times of the year not covered by the bi-annual monitoring.

2.5 CLIMATE

The seasonal character of the climate is one of long, wet, cold winters and short, dry summers with mild temperatures. Most of the annual precipitation received is snow. Freezing temperatures can occur any time of the year. The average minimum temperature is above freezing only from mid-May to mid-September.

2.6 TOPOGRAPHY, GEOLOGY, SOILS, AND SEISMICITY

2.6.1 Topography

The Martis Creek Lake and Dam Project lies in a valley 1.5 miles (2.4 km) upstream from the junction of Martis Creek and the Truckee River. Draining a watershed of roughly 41 square miles (106 km2), Martis Creek is the largest tributary to enter the Truckee from the south or east upstream from Reno, Nevada. Elevations in the watershed vary from about 5,700 feet (1,740 m) at the base of the dam to 8,742 feet (2,664 m) on the watershed boundary at the top of Martis Peak.

2.6.2 Geology, Soils, and Seismicity

Martis Creek Lake and Dam Project rests on eroded Pleistocene glacial outwash deposits which appear to have originated from the Donner Lake area. These outwash deposits form a series of terraces, the highest of which makes up the left bank of the lake. The right bank of the lake rests upon stream deposits of the Truckee formation and also contains basaltic volcanic deposits which predate the glacial epoch. The area is geologically active with five earthquakes of Richter magnitude greater than 4.0 occurring within 7 miles of the lake since 1934. A 5.4 magnitude quake occurred 12 September

1966. A north-south trending fault passes near the right abutment of the dam. Based on historical evidence, quakes of magnitude as great as 6.5 can be expected within the area.

There are 3 geological units involved in the foundation at Martis Creek Dam. The right abutment's foundation consists of colluviums and some alluvial material derived from the Dry Lake volcanics. These are generally basaltic in composition approximately Pliocene to Pleistocene in age.

Donner Lake age outwash deposits underlie most of the left abutment and most of the groundwater seepage associated with it. The age of the Donner Lake glaciations is controversial, with estimates ranging from 100,000 to 800,000 years. At Martis Creek Dam, the deposit is a hybrid of regular outwash and deltaic deposits. The basal portions of the Donner Lake outwash are composed of sediments with a high percentage of cobbles and large boulders (5 plus feet in diameter). At one location, approximately 40-50% of the material was coarser than 3 inches in diameter. The coarseness of these materials indicates a high energy fluvial depositional environment. Overlying the basal unit are glacially derived deltaic deposits composed mostly of well to poorly graded sands with some inter-bedded gravel and cobbles. These sands represent deltaic deposits developed within the Donner Lake glacier that occupied portions of the basin and delivered large volumes of sediment to the Truckee River Canyon. A lake appears to have formed during this time, though it is not clear if the glacier or sediment blocking the canyon is the reason for the blockage. Fore set and bottom set bedding are well exposed at a commercial gravel pit less than a half mile downstream of the dam. The Donner Lake deposits range from 60-100 feet thick beneath the left embankment of the dam and the spillway areas.

Beneath both of these units is the Prosser Creek Formation (Birkeland, 1961). Earlier reports misidentified these deposits as the Truckee Formation (Tertiary) (USACE, 1967), but this was clarified by fieldwork in 2008. Proper identification of these deposits contributed to an improved understanding of the local geology and the conceptual geologic model for the site. This formation is generally composed of fine grained gravel, sand, silt and clay deposited when a volcanic flow blocked the ancestral Truckee River canyon during the Pliocene to Pleistocene age (Birkeland, 1961), creating a lake in the Truckee basin. The observed thickness of the Prosser Creek Formation varies from a few feet to over thirty feet. At Martis Creek Dam, the formation has been informally divided into 3 members. The uppermost member is informally referred to as the Prosser Creek Formation Fluvial Member, consisting of inter-bedded fine gravel, sand, silt and clay. Where exposed at the surface, these sediments are cross bedded, indicating a fluvial depositional environment.

Beneath this is the Prosser Creek Formation Lacustrine Member. The key feature of these sediments is what has locally been referred to as the "Blue Silt." This is a distinctive dark blue gray deposit that grades downward from sandy silt to clay (lean to fat) at depth. Birkeland (1961) did not describe this deposit, nor has a description been

made in any other geologic work in this area. The "Blue Silt" layer is present beneath most of the dam and adjacent areas. In addition to its utility as a marker bed, this deposit also forms the aquitard between the water table aquifer (source aquifer for the foundational seepage) and a deeper aquifer. Where exposed, the "Blue Silt" is covered in heavy vegetation due to the presence of year round seeps and springs at the top of the layer. This vegetation may have prevented its identification in the past. Adjacent clays and silts of different color are also included in this member. Beneath the dam, the Prosser Creek Formation Lacustrine Member deposits range between 15 to 25 feet in thickness. To the west of the Polaris fault zone, these deposits thin to approximately 10 feet in thickness.

Beneath the "Blue Silt" is what is currently being called undifferentiated deposits of the Prosser Creek Formation. These deposits are heterogeneous, locally indurated and over 100 feet thick. It is suspected that these sediments represent older valley fill that could be related to the Truckee Formation. However, because of their depth of burial, no outcrops are available to examine for correlation.

The undifferentiated Prosser Creek Formation sediments are underlain by a vesicular basalt flow(s) that are occasionally encountered at various depths. Radiometric dating of the basalt indicates an age of approximately two million four hundred thousand years (2.4 Ma), placing it solidly within the Pliocene.

2.7 FISH AND WILDLIFE RESOURCES

2.7.1 Fisheries

The following sections summarize the general fish species found in aquatic habitat types within the primary and extended project areas. Special-status species and other habitat functions and resources are recognized and addressed in the following sections.

a. Riverine. Riverine habitat in the project area includes Martis Creek and the Truckee River. Martis Creek is a perennial stream that is a tributary to the Truckee River. Martis Creek, downstream from Martis Dam, supports Tahoe sucker, Lahontan redside shiners, and speckled dace, but may also have small populations of mountain sucker.

   The natural hydrology of the Truckee River is dominated by spring snowmelt peaks of low to moderate magnitude. In very dry years, sections of the river can go dry for extended periods of time (USFWS 2003). Flows typically range between 0 and over 5,000 cfs, with average years ranging between 400 and 4,500 cfs. Because of the construction of numerous flood control structures, peak flows, in all but the largest flood peaks, have been tempered. Since the 1960s, the Truckee River has undergone drastic modifications that reduce habitat complexity and fish passage. The lower reaches have been channelized and cut off from their historical floodplains.

The Truckee River supports strong populations of native mountain whitefish, Paiute sculpin, Lahontan redside shiner, speckled dace, mountain whitefish, Tahoe sucker and mountain sucker. The lower reaches of the Truckee River also support small populations of Lahontan cutthroat trout. Nonnative fishes found in the Truckee River include rainbow, brown and (uncommonly) brook trout, carp, largemouth and smallmouth bass, green sunfish, black crappie, channel catfish, brown bullhead, fathead minnow, and mosquito fish (Reclamation 2008).

b. Lacustrine. Lacustrine habitat in the project area is limited to Martis Creek Lake. The predominance of Eurasian milfoil limits the habitat value of the reservoir. The Martis Creek Lake and Dam Project supports native Tahoe suckers with smaller populations (considered to be uncommon) of Lahontan redside shiner and speckled dace. It also supports nonnative brown and rainbow trout, as well as small populations of green sunfish and smallmouth bass (Reclamation 2008).

2.7.2 Fish Stocking Practices

Martis Creek Lake is designated as Wild and Heritage Trout Waters by California Department of Fish and Wildlife (CDFW), and is managed as a self- sustaining brown trout (*Salmo trutta*) and rainbow trout (*Oncorhynchus mykiss*) fishery (Hanson, 2013). Lahontan Cutthroat trout (LCT) (*Oncorhynchus clarki henshawi*) was listed as an endangered species in 1970 (Federal Register Vol. 35, p.13520). In 1975, under the Endangered Species Act of 1973 as amended (ESA), the LCT was reclassified as threatened to facilitate management and to allow for regulated angling (Federal Register Vol. 40, p.29864). LCT were introduced into Martis Creek Lake in 1978 by the California Department of Fish and Wildlife (CDFW), after populations of other trout species had been reduced or eliminated through the application of piscicides (chemical fish poison) to create a zero-kill fishery (Frank Pisciotta, personal communication, Tahoe-Truckee Fly Fishers). From the late 1970's through the early 1980's, the lake provided angling for trophy-size lahontan cutthroat trout. However, in the mid to late 1980s, green sunfish and suckers began to invade and reduce the productivity of the fishery. This declining trend continued into the 1990s, causing the fishery to become less popular (Frank Pisciotta, personal communication). In 1995, the U.S. Fish and Wildlife Service (USFWS) released its recovery plan for LCT, encompassing six river basins within LCT historic range, including the Truckee River basin which includes Martis Creek.

Lahontan Cutthroat trout populations are currently low, although rainbow and brown trout currently flourish (Tahoe-Truckee Fly Fishers). The fishery is augmented with the stocking of a recreational species of fingerling LCT. An average of approximately 10,000 fingerling LCT have been stocked into the reservoir since 2000 with a high of about 38,000 fingering LCT stocked in 2006 (Hansen, 2013). Presently, CDFW is attempting

to establish a self- sustaining trout fishery at the lake with a nearly annual allotment of LCT stocking. Each year, fingerlings and sub-catchables are planted in the lake, depending on fishery production (Bill Summer, CDFW, personal communication).

2.7.3 Vegetative Resources and Wildlife

Four main floral communities within the Martis Creek Lake and Dam Project area were surveyed for general presence data during the spring and summer of 2009 and 2010. They include the spike rush, herb-forb, sagebrush, and Jeffery pine floral community. Table 1 highlights the general plant list for all plants observed and identified within the Martis Creek Lake and Dam Project area.

a. Spike Rush Community. A floral community where spike rush are the dominant herb in the ground canopy, the area is typically defined as a wetland, meadow or seep. Wet meadows at all elevations generally have a simple structure consisting of a layer of herbaceous plants. Shrub or tree layers are usually absent or very sparse; they may, however, be an important feature of the meadow edge (Mayer 1988). In late summer, small mammals may visit the drier state of wet meadows where the spike rush floral series occur; however, the meadows are generally too wet to provide a suitable habitat (Mayer 1988). Mule deer may feed in wet meadows, particularly seeking forbs and palatable grasses, while waterfowl, especially mallard ducks, frequent streams such as Martis Creek that flow through. Various frog species are abundant and six species of trout (Brown, cutthroat, golden, rainbow, eastern brook, and Mackinaw) inhabit streams of the Sierra Nevada, presumably occurring in perennial streams of wet meadows (Mayer 1988).

b. Herb Forb Community. A floral community that is most often dominated by grasses or sedges in the ground canopy and is typically defined as a meadow or seep in the drier subalpine and alpine regions. The shrub or tree layer is usually absent or very sparse. Stands of this floral community are extensive and may mix with other meadow, forest and woodland communities at a fine scale at subalpine and alpine elevations, especially in Alpine and Subalpine meadow habitats (Sawyer 1995). Very similar to that of the spike rush community, the wildlife takes advantage of the drier periods throughout the year with lush vegetation while larger wildlife like the coyote, bear, or various avian species such as raptors (e.g. northern harrier) and sparrows (e.g. sage sparrow), along with a wide variety of insects may use resources available in the herb-forb plant community.

c. Sagebrush Community. A floral community where big sagebrush (Artemisia tridentate) is the dominant shrub in the canopy and is typically defined as mixed scrub or sagebrush steppe shrub. Deciduous shrubs and trees are sometimes sparsely scattered within this community type (Mayer 1988). The sagebrush type habitat is very important to wildlife because it serves the more

sought after game animals. It is a major winter-range type habitat for migratory mule deer. Many herds spend the summer in Sagebrush-Ponderosa Pine complexes at middle and high elevations (Mayer 1988). It is also occupied by jackrabbits, cottontail rabbits, ground squirrels, least chipmunk, kangaroo rats, wood rats, pocket mice, deer mice, grasshopper mice, sagebrush vole, and the California bighorn sheep naming only a few of the inhabitants. Birds of the sagebrush type include the chukar, gray flycatcher, pinyon jay, sage thrasher, several sparrows, and hawks (Mayer 1988).

d. Jeffery Pine Community. Jeffrey Pine are important trees within the canopies of floral communities that range from lower montane to upper montane coniferous forests. Jeffery Pine is a transitional or migratory habitat for deer and can be extremely important to deer nutrition in migration holding areas. A mixture of early and late successional stages, closely interspersed, provide a good general wildlife habitat (Mayer 1988). Mule deer browse on young pine buds and the seeds provide food for Stellar's jay, woodpeckers, Clark's nutcrackers, Cassin's finch, red crossbills, evening grosbeaks, mice, chipmunks, and tree squirrels. Chipmunks and nutcrackers cache the seeds for later meals, and as a result, assist in seed dispersal. An even wider variety of species use pine bark, leaves, and cavities for foraging, nesting, and hiding (CDFW 2009).

Table 1. Plants observed and identified within the Martis Creek Lake and Dam Project area during the spring and summer of 2009 and 2010

Species Name	Common Name	Species Name	Common Name
Abies concolor	Fir	*Ivesia sericoleuca*	Plumas ivisea
Achillea millefolium	L. Yarrow	*Ivesia* spp.	Mousetail
Agoseris retrorsa	Spear-leaved agoseris	*Juncus* spp.	Rush
Agoseris spp.	Dandelion	*Juniperus occidentalis*	Western juniper
Agropyron desertorum	Desert Wheatgrass	*Lemna minor*	Duckweed
Allium obtusum	Lemmon Sierra Onion	*Lomatium nevadense*	Nevada lomatium
Amelanchier alnifolia	Western Serviceberry	*Lupinus argentcus*	Silvery lupine
Angelica lineariloba	Sierra Angelica	*Lupinus grayi* S.	Watson Gray's (Sierra) lupine
Arctostaphylos spp.	Manzanita	*Lupinus latifolius*	Broadleaf lupine
Arnica mollis	Soft Arncia	*Lupinus spp.*	Lupine
Artemisia bigelovii	A. Gray Low Sage	*Mimulus guttatus*	Seepspring monkeyflower
Artemisia tridentata	Nutt. Big Sage	*Montia chamissoi*	Toad lily
Aster chilensis	Common aster	*Paeonia brownii*	Western peony
Balsamorhiza macrolepis var. *macrolepis*	Balsam root	*Parvisedum pumilum*	Sierra stonecrop
Bromus spp.	Brome	*Pascopryuem smithiii*	Western wheatgrass
Calyptridium umbellatum	Pussy paws	*Penstemon rydbergii*	Nelson Rydberg's (Meadow) penstemon
Camassia quamash	Common camas lily	*Perideridia* spp.	Yampah
Carex spp.	Sedge	*Phleum pretense*	Timothy grass
Castilleja applegatei	Indian paintbrush	*Pinus jefferyi*	Jeffery pine
Castilleja exserta	Purple owl's clover	*Pinus ponderosa*	Ponderosa pine
Castilleja pilosa	Parrothead indian paintbrush	*Plantago major*	Common plantain
Ceanothus prostratus	Squawcarpet	*Poa palustris*	Fowl bluegrass
Ceanothus prostratus	Benth. Prostrate ceanothus	*Populus tremuloides*	Quaking aspen
Ceanothus spp.	Ceanothus (wild lilac)	*Potentilla glandulosa*	Sticky cinquefoil
Ceanothus velutinus	Hook Snowbrush	*Pterospora andromedea*	Pinedrop
Chrysothamnus spp.	Rabbitbrush	*Purshia tridentata*	Antelope bitterbrush
Claytonia perfoliata	Miner's lettuce	*Rumex* spp.	Dock
Collomia grandfloria	Largeflower collomia	*Salix lemmonii*	Lemmon's willow
Delphinium spp.	Larkspur	*Sidalcea oregana*	Oregon sidalcea
Division: Bryophyta Moss		*Thysanocarpus curvipes*	Fringepod
Dodecatheon jeffreyi	Van Houtte Sierra shooting star	*Trifolium longipes* Nutt.	Long-stalked clover
Elocharis acicularis	Spikerush	*Triteleia hyacinthine*	White brodiaea
Epilobium glaberrimum	Glaucus willowherb	*Wyethia mollis*	Mules ears

Species Name	Common Name	Species Name	Common Name
Erigeron peregrines	Wandering daisy	*Eriogonum umbellatum* Sulfer	buckwheat
Eriogonum marifolium Marum	leaved buckwheat	*Hemizonia* spp.	Tarweed
Eriogonum ovalifolium Cushion	buckwheat	*Hordeum pusillum*	Little barley

2.7.4 Ecological Setting

A variety of habitat types are present within the Martis Valley, which closely follow the land cover types described above. They form a mosaic of habitats that support a variety of native wildlife species. Annual variability in environmental conditions influence the abundance and distribution of these communities. Many wildlife species use more than one land cover type as habitat, and the proximity of one habitat to another may be essential for some species.

In general, most of the project area can be grouped into the following primary wildlife habitat types, classified under the California Wildlife Habitat Relationship system (CDFG 2008): wet meadow, montane riparian, sagebrush, ponderosa pine, riverine, and lacustrine. The following sections summarize the general conditions and functions of these wildlife habitat types. Special-status species are discussed in the following sections.

a. *Wet Meadow*. Wet meadow was delineated within 394.48 acres of the Martis Creek Lake and Dam Project. Wet meadow habitats can be composed of a variety of vegetation types and usually exist between fresh emergent wetlands and drier meadows or grasslands. Within Martis Valley, wet meadow habitat is composed of wet montane meadow and dry montane meadow plant communities. Several secondary channels meander through the wet meadow; these are tributaries to the main channel of Martis Creek and likely change position from season to season and year to year. These wetlands may be classified, according to the Cowardin Classification System, as a palustrine emergent wetland with persistent vegetation. This habitat can provide valuable foraging habitat for waterfowl, shorebirds, and some larger mammals such as mule deer. Wet meadow can also provide valuable foraging and breeding habitat for reptiles and amphibian species, such as mountain garter snake and Pacific chorus frog, and a resting and foraging habitat for migrating species, such as sandhill crane. Vegetation in the wet meadow is dominated by Lemmon's willow, widefruit sedge, beaked sedge, annual hairgrass, meadow barley, and spike bentgrass in the wetter areas, and goldenrod, Kentucky bluegrass, near navarretia (*Navarretia intertexta* ssp. *propinqua*), and Mexican rush were observed in the transitional areas.

   In addition to natural habitat features present across the project area, artificial structures also provide a habitat for cavity nesting birds. Though these boxes were intended for bluebirds and kestrels, other species often occupy them. Historically, the boxes have been occupied by mountain chickadees, tree swallows, and house wrens.

b. *Montane Riparian*. Montane riparian habitat covers approximately 29 acres within the project lands. Within Martis Valley, montane riparian habitat is composed of the montane riparian scrub plant community. Montane riparian

habitat supplies a number of valuable elements essential for survival of many wildlife species. This habitat provides cover, foraging, and nesting habitat for a number of species; different species utilize various different aspects of this habitat for their survival. The typically linear nature of montane riparian habitat, including that within the project area, offers unique opportunities for use as migration corridors by mammal species. In addition, the linear quality optimizes edge habitat, which can be highly productive for wildlife. In general, montane riparian habitat is valuable for a multitude of wildlife species, including birds, mammals, reptiles, and amphibians.

c. *Sagebrush*. Sagebrush habitat covers approximately 634 acres and represents a mesic to dry shrub community within the Martis Valley. It acts as a transition between wetter meadow/riparian habitats and forested habitat present within the project area, and includes the silver sagebrush scrub and sagebrush scrub upland vegetation communities. It offers valuable cover, foraging, and nesting habitat for a number of wildlife species and is especially important to larger game animals, including mule deer. Many species of small mammals and songbirds use this habitat for breeding and foraging. The presence of these types of smaller wildlife such as mice and voles also makes this habitat valuable for foraging raptors, including the red-tailed hawk. Some amphibian and reptile species also make use of this habitat type (e.g., western fence lizard).

d. *Ponderosa Pine Forest*. Within the project area, the ponderosa pine forest habitat is sparse and consists primarily of isolated stands of mid- to large-sized trees with low canopy cover. Snags, which provide important habitat for various wildlife species (e.g., nesting birds, resting mammals, and as hunting perches for raptors), are limited throughout the project area. Ponderosa pine forest habitat covers approximately 422 acres and is composed of the ponderosa pine forest plant community.

Ponderosa pine forests provide habitat for a variety of birds, such as woodpeckers, nuthatches, and kinglets. Within the project area, forest habitat has a unique value because of its close proximity to large open meadow habitat. Consequently, the ponderosa pine forest habitat within the project area has specific value in providing perch sites for raptors like the red-tailed hawk, great-horned owl, and Cooper's hawk. It also may provide a suitable nesting habitat for species such as mountain chickadee, white-breasted nuthatch, northern flicker, and white-headed woodpecker.

Ponderosa pine forests also provide a suitable foraging and denning habitat for a variety of mammal species, such as Golden-mantled ground squirrel, California ground squirrel, western gray squirrel, Douglas' squirrel, and yellow-pine chipmunk. Ponderosa pine trees offer a potential roosting habitat for common bat species, such as hoary bat and little brown bat, and also

provide important habitat for larger mammals, such as raccoon, coyote, black bear, and possibly mule deer.

e. *Riverine.* Riverine habitat within the primary project area consists of Martis Creek and its tributaries, which flow throughout the area and constitute 8 acres. Riverine habitat provides water for a number of wildlife species and also supports foraging habitat for a number of water birds as well as bat species that feed on emergent insects supported by stream environments. Shallow, vegetated areas at the stream margin can support a number of aquatic insects as well as amphibians, which provide food for a variety of water birds, such as great blue heron and American dipper. A number of amphibian species may also be supported by riverine habitat present within the project area and include the pacific chorus frog.

f. *Lacustrine*. Approximately 56 acres of lacustrine (open water) habitat are present at Martis Creek Lake. The predominance of Eurasian milfoil reduces the amount of available nutrients in the water, thus limiting the number of fish and other aquatic life present in the reservoir; a significant problem at the lake. However, the reservoir provides foraging habitat for a number of waterfowl and shorebird species, including American coot, mallard, and western grebe. The open water habitat within the project area also holds added value for nesting waterfowl and shorebird species because of its close proximity to wet meadow, montane riparian, and sagebrush habitats.

2.7.5 Threatened and Endangered Species

Threatened and endangered species include those communities, species, and ecological resources or values that receive special protection through the Endangered Species Act (ESA), CWA, policies, or regulations. Sensitive biological resources addressed in this section include sensitive communities, special-status species, and wildlife movement corridors.

Research through the USFWS indicates that there are three special-status animal species that could occur in the project region. These animals are rated likely or possible to occur because the study corridor has some areas of suitable habitat or occurrences are documented from the project region. The special-status animal species with potential to occur within the study corridor are identified in Table 2 below The USFWS Endangered Species List was reviewed for federally endangered and threatened species that can be affected by projects in those USGS quadrangles (USFWS 2013a).

2.7.6 Special Status Plants

Research through the U.S. Fish and Wildlife Service (USFWS) indicates that there are no plant species designated under the federal Endangered Species Act as threatened or endangered that may occur in the project vicinity.

2.7.7 Migratory Bird Species

Birds are protected by the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. Any activity that results in the take of migratory birds or eagles is prohibited unless authorized by the USFWS. There are no provisions for allowing the take of migratory birds that are unintentionally killed or injured. Any person or organization who plans or conducts activities that may result in the take of migratory birds is responsible for complying with the appropriate regulations and implementing appropriate conservation measures. The list of migratory birds that could potentially be affected by activities in this location based on USFWS research are presented in Table 3.

Table 2. Special-Status Wildlife Species Evaluated for Potential to Occur in the Project Area

Common Name	Legal Status[1]	Habitat	Potential for Occurrence[2]
Amphibians			
Sierra Nevada yellow-legged frog *Rana sierrae*	USFWS: E	Occurs in upper elevation lakes, ponds, bogs, and slow-moving alpine streams. Most Sierra Nevada populations are found between 6,000–12,000 feet elevation. Almost always found within 3 feet of water, and associated with montane riparian habitats in forest and wet meadow vegetation types. Uses lakes and streams, from high gradient streams with plunge pools and waterfalls, to low gradient sections through alpine meadows. Small streams are generally unoccupied and have no potential breeding locations because of the lack of depth for overwintering and refuge.	**Unlikely to occur.** No documented occurrences of this species exist within the project area. A historic population was present on Mt. Rose approximately 10 miles east of the project area. However, the last occurrence documented in that area was in 1935.
Fish			
Lahontan cutthroat trout *Oncorhynchus clarkii henshawi*	USFWS: T	Lakes and riparian stream habitats.	**Does occur.** Cutthroat trout historically have been found in Martis lake. Over the past few years CDFW has placed hatchery trout in the lake as well.

Source: USFWS IPac Trust Resources Report 2016

[1] Legal Status Definitions

Federal:

D Delisted (no ESA protection)

E Endangered (legally protected)

T Threatened (legally protected)

C Candidate for listing

[2] Potential for Occurrence Definitions

Unlikely to occur: Species is unlikely to be present on the project site because of poor habitat quality, lack of suitable habitat features, or restricted distribution of the species.

Could occur: Suitable habitat is available at the project site and project site is within the range of the species, known occurrences exist in the project vicinity but not at the project site, or other factors indicate some or all of the species life history requirements may be met by habitats present within the project area.

Known to occur: The species, or evidence of its presence, was observed at the project site during reconnaissance surveys, or was reported by others.

Key: USFWS = U.S. Fish and Wildlife Service

Table 3. Migratory Bird Species with Potential to Occur in the Study Area

Migratory Bird Species	Season	Migratory Bird Species	Season
Bald Eagle *Haliaeetus leucocephalus*	Year-round	Calliope Hummingbird *Stellula calliope*	Breeding
Black Rosy-finch *Leucosticte atrata*	Year-round	Flammulated Owl *Otus flammeolus*	Breeding
California Spotted Owl *Strix occidentalis occidentalis*	Year-round	Green-tailed Towhee *Pipilo Chlorurus*	Breeding
Fox Sparrow *Passerella iliaca*	Year-round	Long-billed Curlew *Numenius americanus*	Breeding
Greater Sage-grouse *Centrocercus urophasianus*	Year-round	Olive-sided Flycatcher *Contopus cooperi*	Breeding
Lewis's Woodpecker *Melanerpes lewis*	Year-round	Sage Thrasher *Oreoscoptes montanus*	Breeding
Peregrine Falcon *Falco peregrinus*	Year-round	Snowy Plover *Charadrius alexandrinus*	Breeding
Pinyon Jay *Gymnorhinus cyanocephalus*	Year-round	Swainson's Hawk *Buteo swainsoni*	Breeding
Short-eared Owl *Asio flammeus*	Year-round	Virginia's Warbler *Vermivora virginiae*	Breeding
Western Grebe *Aechmophorus occidentalis*	Year-round	Willow Flycatcher *Empidonax traillii*	Breeding

Williamson's Sapsucker *Sphyrapicus thyroideus*	Year-round	Brewer's Sparrow *Spizella breweri*	Breeding

2.7.8 Sensitive Communities

Sensitive communities are those of special concern to resource agencies because of their rarity and/or value as wildlife habitat, or those that are afforded specific consideration under Section 404 of the CWA and other applicable regulations. This concern may be caused by the locally or regionally declining status of such habitat, or because they are important habitat to common and special-status species. Many of these communities are tracked in CDFW's Natural Diversity Database, an inventory of the locations and conditions of the state's rarest plant and animal taxa and vegetation types (CNDDB 2013).

a. ***Wetlands***. Wetland habitats in the project area, including wet montane meadow, montane riparian scrub, silver sagebrush scrub, Martis Creek, Martis Creek Lake Reservoir, and ephemeral drainages, would be considered sensitive habitats as defined above (See Figure 1). Most of the areas within these habitats would be designated as Stream Environment Zones. These areas would likely be considered jurisdictional by the USACE and the Lahontan RWQCB under Section 404 of the CWA and the Porter-Cologne Act. In addition, CDFW has jurisdiction over activities affecting the beds and banks of drainages traversing the project area and their adjacent riparian vegetation. On 17 and 18 September 2013, wetland delineation surveys by the USACE Regulatory Division staff were conducted within approximately 1,919-acres of the Martis Creek Lake and Dam Project. This delineation was conducted in accordance with the 1987 Wetland Delineation Manual (on-line edition) and the Regional Supplement to the USACE Wetland Delineation Manual: Western Mountains, Valleys and Coast Region (Version 2.0). The purpose of the study is to provide an accurate quantification and delineation of waters of the United States, including wetlands, as defined by the USACE under Section 404 of the CWA for the project area.
The project area ranged from approximately 5,690 to 5,930 feet above mean sea level (msl) and is located in Sections 5, 7, 8, 17-20, 29, and 30 of the U.S. Geological Survey (USGS) 7.5-minute Martis Peak and Truckee Quadrangles, Township 17N, Range 17E (See Figure 2). Walking the boundary of each wetland type with a hand-held, sub-meter accurate GPS unit, most of the wetlands, including all wetlands south of North Shore Boulevard, were mapped. The wetlands and stream system downstream of the dam were mapped primarily through aerial signature interpretation coupled with data and observations of the same signatures in the southern portion of Martis Creek Lake and Dam Project.

All wetlands within the Martis Creek Lake and Dam Project have a direct surface connection to either Martis Creek Lake or the Truckee River; both traditional, navigable waters. Relatively permanent waters present in the project area include the main channel of Martis Creek and several of its tributaries.

The following types of aquatic resources were mapped by the USACE Regulatory Division in 2013:

1. *Intermittent Drainage*: Intermittent drainages were mapped to their Ordinary High Water Marks (OHWM) and were distinguished from open water and wetland types primarily because they appear to flow or have open water for shorter duration (i.e., they have flowing water during certain times of the year), when groundwater provides water for stream flow. During dry periods, intermittent streams may not have flowing water. Runoff from rainfall is a supplemental source of water for stream flow. Approximately 0.50 acres of these features were delineated.

2. *Open Water*: Martis Creek and Martis Lake were delineated as open water as it is determined to be their general condition under normal climatic conditions. They are characterized by inundation from 1 to 6+ feet deep and were delineated to their respective OHWM's. Although it fluctuates seasonally, the creek flows through wet meadows, seasonal wetlands and some uplands. Martis Creek is a perennial creek with pool and riffle complexes, and flows into the lake where water impounded by the dam is released into a portion of the creek below the dam; it then flows into the Truckee River, an interstate water. Vegetation observed along the channel of Martis Creek includes Lemmon's willow, beaked sedge, widefruit sedge, longanther rush and clustered field sedge. The channel varies from approximately 5 to 20 feet wide and flowing water was observed during the fall field investigation. At least one beaver dam was present, just upstream of the lake, where water was impounded to form a wider pond which was also mapped as open water. Approximately 64.95 acres of open water were delineated within the Martis Creek Lake and Dam Project.

3. *Scrub-Shrub Wetland*: These wetlands are dominated by Lemmon's willow, beaked sedge, widefruit sedge, and Mexican rush. This habitat type is generally located along the channel of Martis Creek. The soil is saturated or sandy in most places, and redox dark surface, loamy gleyed matrix, and depleted below dark surface were observed in some areas. Wetland hydrology indicators observed include saturation, surface water, water table, drift deposits, surface soil cracks, inundation and saturation visible on aerial imagery, drainage patterns, oxidized rhizospheres along living roots, geomorphic position, and FAC-Neutral test. These wetlands may be classified, according to the Cowardin

Classification System, as a palustrine scrub-shrub wetland with broad-leaved deciduous overstory. (PSS1) (Cowardin 1979). The U.S. Fish and Wildlife Service (USFWS) classify some of these areas as such in the National Wetlands Inventory (NWI); the area along Martis Creek downstream of Martis Creek Lake Dam is classified in the NWI as palustrine scrub shrub wetland (USFWS 2010). Approximately 29.32 acres of scrub-shrub wetlands were delineated within the Martis Creek Lake and Dam Project.

4. *Seasonal Wetland***:** The seasonal wetlands in the study area are characterized by shorter duration saturation or periodic inundation when compared to other wetland types in the study area. These areas are characterized by sedges, Lemmon's willow, tall annual willowherb, creeping wildrye, groundsmoke, and silver sagebrush. Redox dark surface, a primary hydric soil indicator, was observed in all plots. Hydrology indicators observed in the seasonal wetlands include saturation visible on aerial imagery, geomorphic position, and the FAC-neutral test. USFWS includes these wetlands in the NWI within the PEM1 category. Approximately 12.85 acres of seasonal wetlands were delineated within the study area between Martis Creek and wet meadows and uplands.

5. *Wet Meadow***:** The wet meadow in the study area is dominated by Lemmon's willow, widefruit sedge, beaked sedge, annual hairgrass, meadow barley, and spike bentgrass in the wetter areas, and goldenrod. Kentucky bluegrass near navarretia (*Navarretia intertexta* ssp. *propinqua*), as well as Mexican rush, were observed in the transitional areas. Redox dark surface, a primary hydric soil indicator, was observed in all sample points. Other hydrology indicators observed include surface soil cracks, oxidized rhizospheres along living roots, drainage patterns, geomorphic position, and the FAC-neutral test. Several secondary channels meander through the wet meadow; these are tributaries to the main channel of Martis Creek and likely change position from season to season and year to year. These wetlands may be classified, according to the Cowardin Classification System, as a palustrine emergent wetland with persistent vegetation (also PEM1). Approximately 394.48 acres of wet meadow were delineated within the Martis Creek Lake and Dam Project

Non-jurisdictional habitats account for approximately 1,477 acres of the project area consisting of dry montane meadow, sagebrush scrub upland, ponderosa pine forest, barren/ruderal, and developed land. These habitats are non-jurisdictional under Section

404 of the CWA because these areas are not dominated by hydrophytic vegetation, lack hydric soils, do not have sustainable hydrology, and/or are located outside an OHWM (USACE 2011).

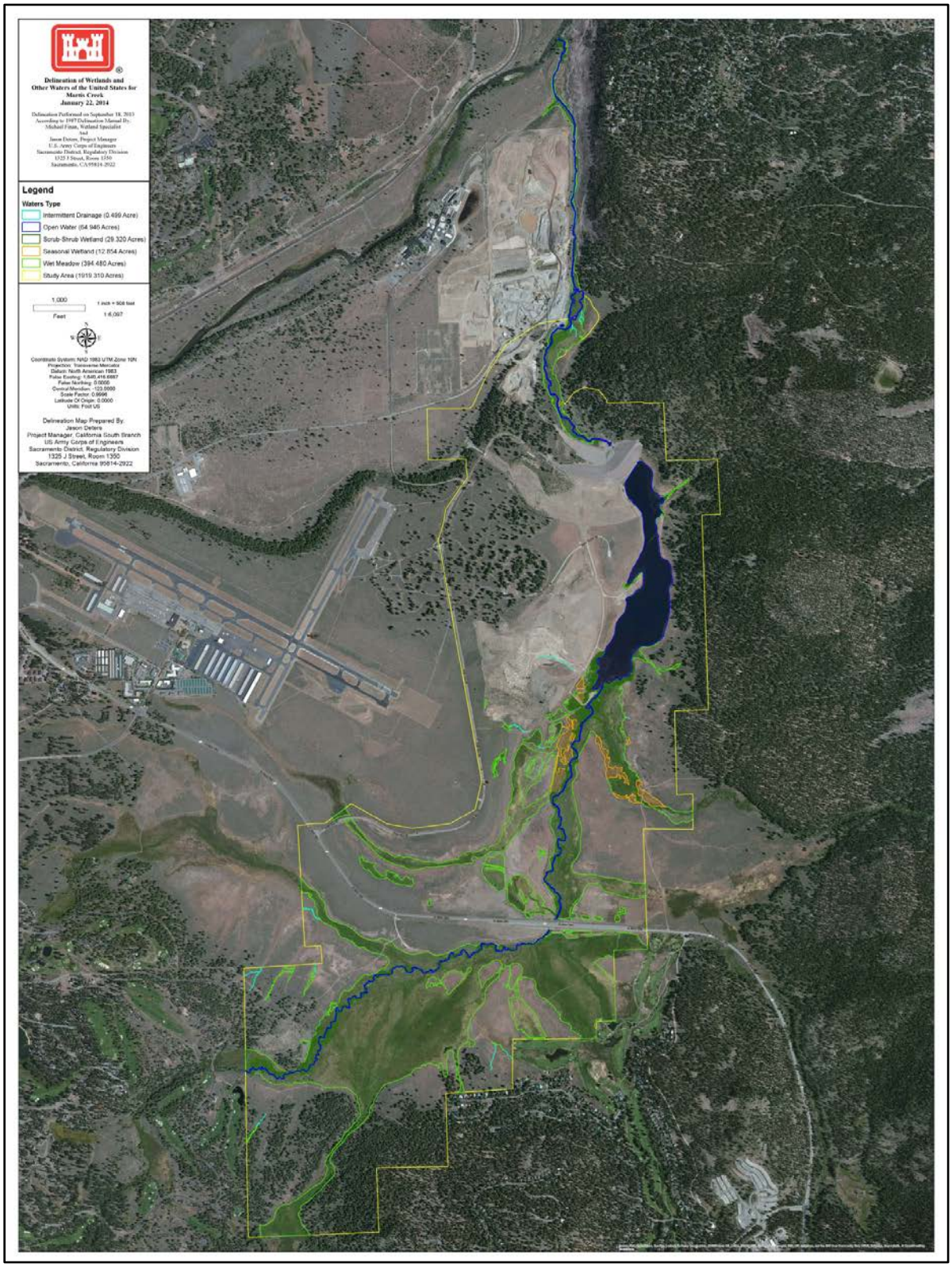

Figure 1. Delineation of Wetland and other Waters of the U.S. Martis Creek.

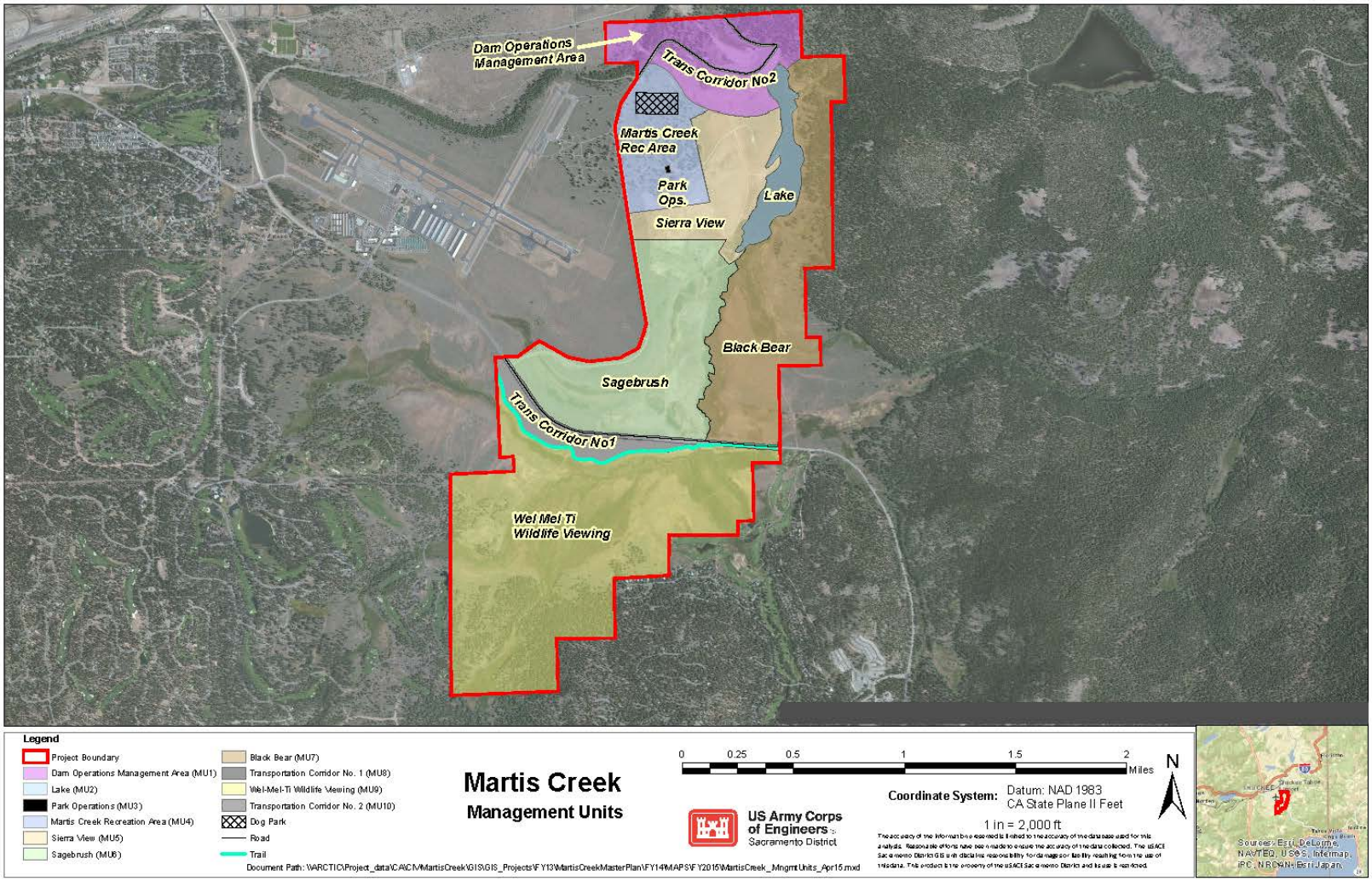

Figure 2. Site, Management Units, and Vicinity of the Project Area.

2.8 BORROW AREAS

The Truckee River Watershed Council's 2011, *Martis Water Shed Assessment,* provides information regarding historic borrow areas at the Martis Creek Lake Project and the effects that the excavation of these areas has had on the environment through time. According to the assessment, *"The area between Highway 267 and Martis Dam is within the Martis Dam maximum pool, and has been heavily disturbed. Legacy impacts in this area may be somewhat associated with land use (grazing and logging) in the upper watershed, but the most extensive and extreme disturbance is associated with quarrying and borrow pit excavation during construction of Martis Dam and Highway 267. A number of small channels have been re-routed or destroyed, while other small channels have formed as rills and gullies on artificially steepened slopes with insufficient soils to support vegetation. A small tributary flows into Martis Creek downstream of the Highway 267 crossing. This stream appears to be perennial (flowing in early September 2011), and currently flows in a straightened ditch through a number of borrow pits."*

Additionally within the Martis Water Shed Assessment there are contributions made by Lindström (2011) that describe the historic development and usages of the borrow pits. *"…a borrow pit from where materials were dug to sand the summit. This "quarry" is shown on modern USGS maps, being located on the north side of SR 267, west of the Martis Creek crossing, and east of the Wildlife Viewing Parking Area.) One winter they let water into the sand, it froze, couldn't be dug out so they lost their contract. To further supplement income, the Joergers also mined subsurface gravels that were used in construction of the dam. In addition the family operated a sand and gravel quarry on their land near the present Sierra Meadows subdivision.*

Another large gravel borrow pit is located near the center of Martis Valley. The quarry is accessed by a dirt road that exists westward from the Wildlife Viewing Parking Area. This access road appears to connect the borrow pit south of SR 267 to another large gravel pit on the north side of SR 267 (directly across from the Wildlife Viewing Parking Area)".

2.9 MINERAL AND TIMBER RESOURCES

Historically, prior to the establishment of the project, exploitation of resources included timber harvest, gravel mining, and grazing. Reestablishment of trees on lands previously forested has been spotty. Only sagebrush now inhabits the non-forested area to the west of the campground where rotting stumps reveal the previous extent of tree cover. Prior to project completion, gravel extraction was being accomplished at two locations within the project boundary at the western end of the present wildlife area and in the area immediately north of Highway 267 and west of the Martis Creek Project. Both areas were

contoured and seeded, and the areas are gradually returning to a more natural habitat but the mining scars are still evident.

2.10 PALEONTOLOGY

No intensive paleontological surveys have taken place at the Martis Creek Lake and Dam Project. Until studies are conducted, the potential paleontological importance of certain areas within the Project can be inferred by identifying the paleontological importance of exposed rock units within the Project. Because the areal distribution of a rock unit can be easily delineated on a topographic map, this method is conducive to delineating parts of the site that are of higher and lower sensitivity for paleontological resources.

A paleontologically important rock unit is one that has a high potential paleontological productivity rating and is known to have produced unique, scientifically important fossils. The potential paleontological productivity rating of a rock unit exposed at the Martis Creek Lake Project refers to the abundance/densities of fossil specimens and/or previously recorded fossil sites in exposures of the unit in and near the Project. Exposures of a specific rock unit are most likely to yield fossil remains representing particular species in quantities or densities similar to those previously recorded from the unit in and near the Project.

The Martis Creek Lake and Dam Project is underlain by a number of geologic formations, each of which is described below, along with its age and paleontological sensitivity.

- Alluvium (Holocene age: less than 11,000 years Before Present (BP)). This formation consists of poorly sorted stream and basin deposits that range from clay to boulders. By definition, in order to be considered a fossil, an object must be more than 11,000 years old.

- Landslide Deposits (Holocene: less than 11,000 years BP). Assorted geologic materials that were carried downhill and deposited at lower elevations as the result of a landslide. By definition, in order to be considered a fossil, an object must be more than 11,000 years old.

- Glacial Deposits (Pleistocene: approximately 12,000 – 1.8 million years BP). Undivided glacial till, moraine, and outwash. As glaciers expand and contract over time, rocks are jumbled together and crushed; therefore, the probability of encountering unique, significant fossils is low, and this formation is considered to be of low paleontological sensitivity.

- Nonmarine Sedimentary Rocks (Pleistocene: approximately 12,000 – 1.8 million years BP). Fluvial and lacustrine deposits of gravel, sand, silt, and clay. Thousands of fossils have been recovered from Pleistocene-age sedimentary rocks throughout the State of California. Therefore, this formation is considered to be of high paleontological sensitivity.

- Pliocene Volcanic Rocks (basaltic). This formation consists of basalt, latite, and basaltic andesite flows that range from approximately 1.8 – 5.3 million years BP The remains of a cinder cone are located immediately north of the town of Truckee; thus, this formation at the Martis Creek Lake Project, along with portions of the same formation in a roughly circular area in the vicinity of Truckee, are likely the result of a volcanic eruption that occurred during the Pliocene. Because of the nature of the geologic materials produced during an eruption, fossils are not likely to be present, and this formation is considered to be of low paleontological sensitivity.

- Miocene-Pliocene volcanic rocks (i.e., Mehrten Formation). This formation consists of sandstone, siltstone, andesite flows, and andesitic pyroclastic rocks including mudflow brecccia, tuffs, tuff breccia, volcanic sediments, and conglomerate. The age of this formation ranges from approximately 9 – 20 million years BP Thousands of fossils have been recovered from the Mehrten Formation throughout the Sierra Nevada; therefore, this formation is considered to be of high paleontological sensitivity.

2.11 CULTURAL RESOURCES

The Martis Valley area derives much of its sense of identity from the rich fabric of its local history. This heritage is retained and made more tangible to the present generation through the existence of historical properties and prehistoric sites that have survived the passage of time

2.11.1 Prehistoric Context

Archaeologists working in the Truckee River basin, including the Martis Valley, typically operate within the framework of the culture historical sequence first developed by Heizer and Elsasser (1953) who identified what they referred to as the Martis and Kings Beach cultural complexes. Archaeologists, often Robert Elston and his collaborators, have subsequently updated this scheme (e.g. Elston et al 1977; Zeier and Elston 1986; Elston et al 1994). Their most recent version defines the following time periods: Tahoe Reach phase (10,000[+]-8000 BP); Spooner phase (8000-5000 BP); Early Martis phase (5000-3000 BP); Late Martis phase (3000-1300 BP); Early Kings Beach phase (1300-700 BP); Late Kings Beach phase (700-150 BP) (Elston et al 1994).

Tahoe Reach and Spooner Phases

Few dated components have been excavated in the Northern Sierra from the Tahoe Reach or Spooner Phases. A few carbon dates and a handful of sites bearing old projectile point styles comprise the bulk of the evidence. Elston and colleagues obtained a single date of 9049 calibrated radiocarbon years before present (cal BP) from small chunks of unassociated carbon from the deepest artifact-bearing stratum at site CA-PLA-164 (Elston et al 1977: 151). On another site studied in the course of the same project, CA-PLA-23, Elston noted the presence of Parman type projectile points (cf. Layton 1970), that had been associated with components of similar antiquity elsewhere in the Great Basin. Similar wide-stemmed points (commonly referred to collectively as Great Basin Stemmed) were found at the Alder Hill basalt quarry, CA-NEV-884/H, in a depositional package dated to 8990 cal BP (McGuire et al 2006: 80). Two radiocarbon dates from the Spooner Lake site (26-DO-38), located a little more than 2 miles east of Lake Tahoe, indicated occupation there as early as 7930 cal BP or at least 5682 cal BP (Elston 1971). Elston suggested that the thick bifurcated stem (Pinto type) and concave-based lanceolate (Humboldt type) points found at the Spooner Lake site might be diagnostic of that period.

Subsequent research has demonstrated a considerably longer persistence of the Humboldt type projectile point, and Pinto points occur very infrequently in Sierran contexts. Great Basin Stemmed points, on the other hand, are relatively common. This has given rise to what is known as 'the Spooner problem'—does the dearth of Pinto points mean that the area was more or less uninhabited after 8000 BP until 4000 BP? Or have archaeologists simply failed to identify the projectile point or points that characterize this period? McGuire and colleagues (2006:87) attempted to resolve this confusion by simply stretching the Martis Phase, and the associated suite of projectile points, across an immense stretch of time from 7000 to 1300 BP.

Numerous lines of evidence suggest that Spooner Phase occupational intensity in the area was, in fact, very low. Out of 40 radiocarbon dates from archaeological contexts in the vicinity of Martis Creek Lake, only three fall between 8000 and 5000 cal BP—two from the Spooner Lake site and one from CA-PLA-5. There are no radiocarbon dates at all between 5854 and 7930 cal BP. Out of a sample of hundreds from the area, the frequency of obsidian hydration dates from the Spooner Phase is similarly almost non-existent (Figure 3). Climatologic data indicate that this period was one of increased aridity (Antevs 1948, Wigand and Rhode 2002). Precipitation decreased sufficiently to lower the water level in Lake Tahoe to the point where it no longer drained into the Truckee River (Lindström 1990).

Early Martis Phase

After approximately 4500 BP, archaeological visibility in the area picks up again. This florescence marks the onset of the Early Martis phase. Archaeologists have debated the

sequence of Martis phase projectile points since the first formally developed projectile point key was derived in the late 1970s by Leventhal (Elston et al 1977) as a modified version of Thomas's (1970) Gatecliff typology. Previously Heizer and Elsasser (1953) and Elsasser (1960) had defined types, but a means of metrically discriminating between them had not yet been developed. The 1977 scheme attempted to sort the Elko and Martis series by comparing them to the sequence established at Gatecliff Rockshelter and by developing a rough seriation along with Steamboat points (Elston et al. 1977:161). It held that the Elko contracting stem points occurred earliest, after the transition from Pinto points, and corner-notched and eared varieties were later.

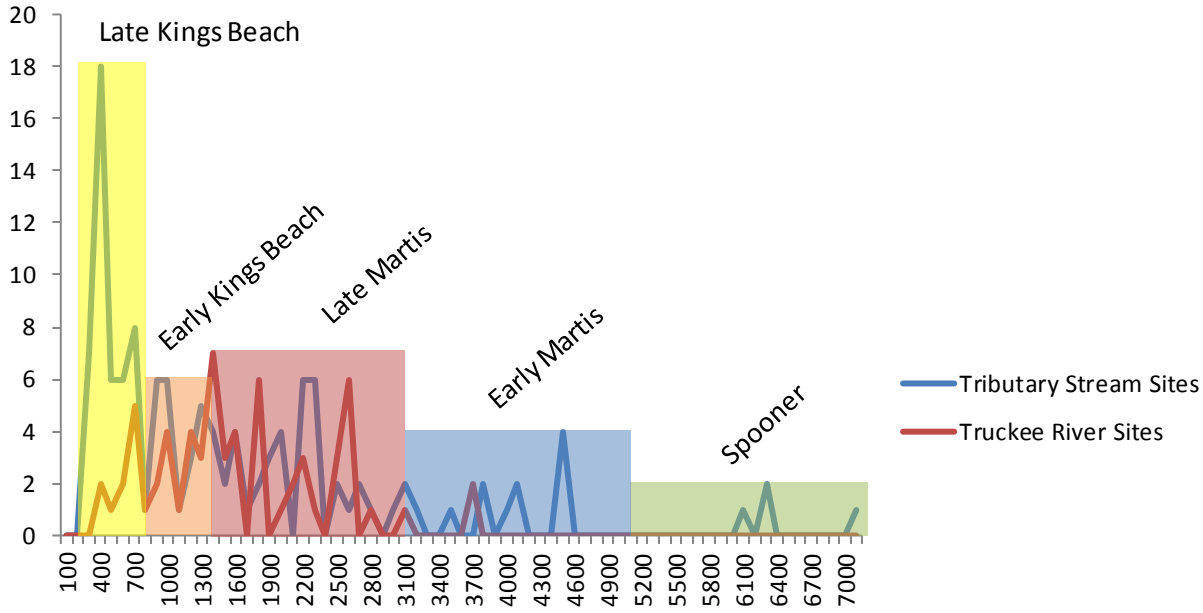

Figure 3. Frequency of Obsidian Hydration Dates from Upland Archaeological Contexts in the Truckee River Basin.

Rosenthal (2002) suggested that corner-notched and leaf shaped dart points might occur more frequently in older contexts than do contracting stemmed dart points. He based this assessment on the frequencies of point types in a few stratified sites on the west slope of the Sierra Nevada. The proportions he observed are not overwhelming, however, and leaf shaped, stemmed, and corner notched points co-occurred in nearly every level.

The most recent effort to clarify the Sierran projectile point sequence was undertaken by McGuire and colleagues (2006) using obsidian hydration data. Unfortunately, the range of hydration values they noted for the problematic dart points fail to sort them any better. The data suggest that, as Elston and others had hypothesized, contracting stemmed and leaf shaped dart points, along with side-notched dart points, may have in fact pre-dated corner-notched examples. Again the data were not conclusive; the distributions of hydration readings from the various dart point types overlapped significantly.

People during the Martis Phases made use of a tool kit focused on bi-face technologies made using either basalt or sinter. There seems to be strong correlation between the preferred lithic material and proximity to its source. Indications that one material type or another was preferred for reasons beyond geography come from site 26Wa5577 in the Truckee Meadows (Kautz and Simons 2004); the site is located along Steamboat Creek, roughly equidistant to sources of both basalt and sinter. The earliest component there, dated securely to the Early Martis Phase (around 5000 cal BP), is dominated by basalt. Late Martis components from the same site, dating from approximately 3000-1300 BP, show an increased emphasis on sinter. Bi-face technology dominated both periods.

During the Martis phases in general, and perhaps especially during the Early Martis phase, people probably led a highly mobile lifestyle, moving around seasonally, exploiting resources as they became available. Elston (1986) suggests that the Martis phase subsistence strategy was centered on large game and processed seeds. Generally abundant projectile points and ground stone milling equipment support this assessment. Direct dietary evidence is largely lacking, largely due to the high acidity of montane soil that rapidly degrades botanical and faunal evidence.

Late Martis Phase

The Late Martis phase is represented by another increase in archaeological visibility (see Figure 3), in terms of both radiocarbon and obsidian hydration dates. There is no apparent change in the types or frequencies of projectile points, and the ground stone technology seems to have remained generally the same. The earliest radiocarbon dates associated with hearths and hot stone cooking features recovered in the Truckee River basin come from this period (Bloomer and Lindström 2006:111-124). These features are associated with preparing a broad variety of food resources, many of which are calorically enhanced or even made edible by the process (Wandsnider 1997). This development may reflect resource intensification or an expansion of diet-breadth brought about by population pressure or environmental stresses.

Towards the end of the Late Martis phase and the beginning of the Early Kings Beach phase, people began to adopt an adaptation of seasonal sedentism. Early pithouses were generally shallow but large, in some cases more than 6 meters in diameter (Zeier and Elston 1986:69). These features are limited to lower elevation sites to the east where conditions in the winter are more temperate (e.g. Miller and Elston 1979; Zeier and Elston 1986).

Kings Beach Phases

The adoption of the bow and arrow around 1300 BP marks a significant technological change concurrent with the onset of the Early Kings Beach phase. Small arrow points of the Rose Spring and Gunther types became common, gradually replaced by Desert series

points during the Late Kings Beach phase. People continued to seasonally occupy upland parts of the Truckee River basin, but the specific nature of that occupation is not well understood.

These later periods are well represented by radiocarbon dated features, obsidian hydration data, and numerous projectile points. Invariably, however, later components are stratigraphically mixed with earlier ones. Kings Beach phase features have been recovered at CA-PLA-5 (Ataman 1999), CA-NEV-199 (Rondeau 1982), and CA-PLA-163 (Bloomer and Lindström 2006). People occupied all three sites during earlier periods as well; separating the components has been problematic.

Data from more substantial winter village sites in western Nevada have formed the basis for most of what is known about the Kings Beach phase. Many of these sites are located in aggradational geologic settings, especially the Truckee Meadows, where stratigraphic separation of components is possible. Botanical and faunal remains from these sites indicates a clear subsistence emphasis on a variety of plant foods, rabbits, hares, and occasionally fish (e.g. Zeier and Elston 1986; Clay 1996). Additionally, intensive exploitation of acorns and pinyon pine nuts seems to have arisen during the Late Kings Beach Phase (Elston 1986), resources which may be associated with the numerous cup mortars found on bedrock milling stations throughout the Truckee River basin and Martis Valley itself.

2.11.2 Protohistoric Context

When European-American influences began to permeate the Truckee River basin, the area was occupied by Washoe-speaking people. Located in the northwestern portion of the Washoe core area, people living in the Truckee River basin were called Wel Mel Ti meaning simply "northerners" (Rucks 2011).

The Martis Valley contains numerous resources of interest to the Wel Mel Ti. Mammalian fauna of economic importance included: cottontail (Sylvilagus sp.), chipmunk (Tamias spp.), squirrels (Spermophilus spp.), jackrabbits and hares (Lepus spp.), mule deer (Odocoileus hemionus), black bear (Ursus americanus), and probably pronghorn antelope (Antilocapra americana), grizzly bear (Ursus arctos), and bighorn sheep (Ovis canadensis). Fish were very important to the Wel Mel Ti, numerous species are found in the Truckee River including mountain whitefish (Prosopium williamsoni) that spawned in Martis Creek prior to construction of the dam (Rucks 2011). People probably made use of numerous birds, and there are historical accounts of native people consuming crickets and grasshoppers (Rucks 2011: Appendix C). Plant species used commonly for food included camas (Camassia quamash), balsamroot (Balsamorhiza spp.), bulrush (Scirpus spp.), onion (Allium spp.), lily (Calochortus spp.), pine nuts (Pinus spp.), strawberry (Fragaria spp.), and gooseberry (Ribes spp.).

There are no Washoe place-names in the Martis Valley itself though Wel Mel Ti were known to occupy the area (Rucks 2011: 67). Typically, the Washoe would winter at substantial village sites in lower elevation areas to the east. Oral histories however, indicate that some permanent village settlements were located at higher elevations including Datsásit mál'im detdéhi, a camp on Donner Creek, located a few miles west of the Martis Valley. The seasonality and nature of Wel Mel Ti occupation of the Martis Valley is not fully understood.

2.11.3 Historic Context

The European-American history of Martis Creek begins with the early development of mining, railroads, and logging-timber industries in the Truckee River Basin, which includes the Martis Valley. At the onset, incoming European-Americans recognized the astounding natural beauty and economic potential of this part of the Washoe Indian territory. The first emigrant trans-Sierra crossings occurred during the 1840s and 1850s, the first transcontinental railroad arrived in the 1860s, and the first transcontinental auto road was built in the 1910s. The Martis Valley was positioned favorably within the transcontinental corridor, with easy access to wood, water, and recreational resources. The time periods discussed below serve as 'historic context' with which recovered archaeological material from the Martis Creek area can be associated.

Early Emigrant Settlement (1830-1850)

The first American settlers to cross the Sierra Nevada were members of the Stephens-Murphy-Townsend party of 1844. A member of this group, Moses Shallenberger, built the first cabin at Donner Lake when circumstances forced him to winter there. This cabin was used a year later by the ill-fated Donner Party. Throughout the 1840s emigrant settlers arrived in increasing numbers of wagon crossings, not all of them successful; the Donner Party was one of the biggest tragedies, and the most notorious. Unprepared for the severe and early storms in 1846, and without a guide to lead them through the mountains, nearly the entire party perished. The area fell into disfavor towards the end of the decade and did not receive substantial numbers of incoming settlers until the Comstock Lode boomed in 1859, creating a demand for great quantities of lumber (Derr 1981:4).

Settlement in the Martis region really did not resume until after 1849, after gold was discovered at Sutter's Mill on the American River (Starr 2005:78). Previously, most of the westward migration was along the Oregon Trail to the north. During the Gold Rush, the Martis-Truckee route became popular, and settlements and commercial establishments grew along the trail. Settlement in the Martis Valley began in the 1850s initially supported by early mining operations, but quickly switched to logging and timber and the associated railroad construction that later dominated the region as a whole. On October 12, 1849, California assumed statehood (Starr 2005:90).

Early Mining Period Along Martis Creek (1849-1865)

Many Gold Rush immigrants passed through the Truckee River basin, most of them following the Truckee River corridor and then crossing the Sierras across the infamous Donner Pass. Overall, the initial years of the Gold Rush had little direct effect on the Martis Valley. During the discovery of silver in Nevada in 1859, a reverse migration occurred; miners headed east through the Truckee River basin to the Comstock Lode. Despite this flurry of nearby mining activity, the Truckee River basin remained sparsely settled.

In 1863 the town of Gray's Station was established where the town of Truckee would eventually grow. This same year, a number of quartz ledges were found in the Martis Valley. Miners flooded in and established the Red, White, and Blue Mining District. Nearby Elizabethtown became the hub for the region (Lindström et al. 2007). Like most boom-towns in the region, Elizabethtown was short-lived, and was abandoned when the ore quickly played out (Lindström 1995:8). Meanwhile S.S. Coburn acquired Gray's Station and changed the name to Coburn's Station in 1864. Four years later the station burned down and was rebuilt as Truckee (Derr 1981:4).

Mining operations in Martis Valley extracted silver from quartz using board sluices similar to long shallow wooden troughs flushed with water. Groups of 'sourdoughs' often excavated separate holes, that were hidden from sight in the shallow excavations, in an attempt by the miners to keep individual finds close to their pockets, so as not to cause unusual excitement among their fellow workers that could cause the diggers to plunder each other's finds. This type of mining was described as 'coyoting', the pits or shafts being "coyote holes". By 1883, the Red, White, and Blue Mining District collapsed.

The primary literature makes no mention of placer mining in the Red, White, and Blue district (Lindstrom et al 2007:24), nonetheless it is possible that some more industrious miners engaged in limited placer mining along specific waterways in a search for free gold washed down from the ore deposits.

Any archaeological manifestation of the early mining period in the Martis Valley region is expected to be ephemeral at best, given the industry's short tenure in the region. Nonetheless, several mine exploration pits have been recorded in the hills surrounding Martis Valley (Ludwig 2001). Until recently, no placer mining features had been recorded in the Truckee Basin. Lindström (2007) encountered rudimentary placer workings in the Truckee River area that closely resemble the shallow hand mining and/or ground sluicing methods utilized during this period. Additionally, the USACE archaeologists have tentatively identified possible placer mine tailings at Martis Creek Lake but the authenticity of these finds remains an open issue.

Railway Transportation in Martis Valley 1860-1890

Although the Truckee River basin served as passage for emigrant wagons during the 1840s and 1850s, very little settlement occurred in the area until the early 1860s. In 1863, the transcontinental railroad began construction of a passage through the region in response to the burgeoning growth of settlements and the expansion of the regional logging industry. Completion of the transcontinental railroad in 1869 gave rise to other developments in the transportation, lumbering, ice, agriculture, and dairying production industries.

In 1868, Coburn's Station became one of the first transcontinental rail stations in the area. The rail line ran directly to the Martis Creek Station, located on the Truckee River at the confluence with Martis Creek. The Martis Creek Station was the terminus of the Sisson Company flume, which served Hawthorne's Mill, Samuel McFarland's Mill, and the Richardson Brothers' Mill, all located on various tributaries of Martis Creek. As early as 1874, two railroad side tracks serviced Richardson Brothers' mill and box factory at the station.

Logging and Lumber Mills on Martis Creek (1870-1910)

In the 1860s, the booming Comstock Lode created a demand for tremendous quantities of lumber but it was the construction of the Central Pacific Railroad that transformed the region into a major logging and timber industry center. Local mills supplied cordwood for fuel and lumber and ties for railroad construction. By the time railroad construction was completed in 1868-69, new markets for wood products had grown and the area boasted over eighteen sawmills numerous shingle mills, charcoal and brick kilns, a chair factory, and a furniture factory (Lindström 1995:8).

Martis Valley contained several lumbering operations from 1872 to 1906, serving markets from California to Utah. One of the earliest lumbermen in the Truckee Basin was George Schaffer. Schaffer is particularly important because he later built a series of sawmills on Martis Creek between 1867 and 1871. Schaffer's third Martis Creek mill cut 35,000 feet of lumber per day to serve his California and Utah markets. Schaffer's fourth mill, also located on the west branch of Martis Creek, operated from 1883 to September 1905 when it burned. This fourth mill had a daily output of 90,000 feet. In addition to his mills, Schaffer operated a two-mile railroad that hauled logs from the logging camps to the mills. He also flumed his lumber to the individual lumber yards located southeast of Truckee (Wilson 1992:78).

Other lumbermen operating in Martis Creek included Samuel McFarland, who ran three steam-powered saws on the south fork of Martis Creek. He transported his lumber to the railroad in a flume owned by Sisson and Company.

The other primary lumber operation in the Martis Valley was the Richardson Brothers Mill, established on West Middle Martis Creek in 1874. The USACEUSACE archaeologists have recently identified features that are probably associated with the Richardson Brothers rail and flume operations. The Richardson Brothers employed 35 men at the mill and another 40 in their box factory. They used flange-wheeled steam locomotives and flat cars on rails made of pine logs to transport their lumber. In 1883, the Richardsons moved their mill site a few miles south, up the same creek, where they operated until 1906. All logging operations in Martis Valley had effectively ended by 1910 (Lindstrom 1995:10; Wilson 1992:67-68).

Cordwood formed a principal adjunct to the lumber business. A number of wood contractors concentrated solely on cutting cordwood to meet the fuel demands of railroads and ore mills. Efficient procedures were developed to obtain cutovers after a timber harvest and to convert the residues into cordwood. The flume system rendered the cordwood business especially profitable. Sisson and Company had substantial land holdings in Martis Valley; operating wood camps in the forests and floating cordwood down flumes to Martis Creek Station (Lindstrom et al. 2007:37).

Charcoal production was an important aspect of the logging industry in the Martis Valley. During the 1860s decade, charcoal was produced in earthen kilns. These were generally constructed in cut over areas within a few miles of Truckee. In 1877, Sisson and Company constructed three charcoal kilns at Martis Creek Station. In 2010, the USACE archaeologists recorded the remains of one such kiln (Coyote 36) at Martis Creek Lake towards the north end of the property.

Chinese Labor in Martis Valley 1870-1890

The California Gold Rush of 1849 attracted a huge wave of ethnic groups to the west. The spread of mining and ancillary industries from California to Nevada brought many individuals to the forests of the Sierra Nevada. The dominant lumber operations employed an ethnically-diverse labor force which included French-Canadians, Italians, Portuguese and Chinese. Although the Chinese participated in early mining activities until the imposition of a foreign miner tax, in the Sierra they continued to be active in lumbering and the construction of the Central Pacific Railroad (Lindström and Hall 1994: 91-92; Ataman 1999).

Contemporary Anti-Chinese sentiment in the nation took legal form with the passage of the Chinese Exclusion Act of 1882. The law accompanied racial tensions aggravated by the replacement of European-Americans by Chinese workers who frequently worked for lower wages. French-Canadian and Chinese woodcutters erupted in violence in 1867-1868 during the “Woodchopper’s War”. By the 1880’s, most of the large lumber companies began hiring Indians to replace the expelled Chinese workers in the region.

Despite this ethnic Asian expulsion, many of the Chinese retreated into the forest and lived in isolated refugee cabin-style settlements (Lindström 1993).

Late 19th century Chinese labor is a burgeoning research topic in cultural resources investigations conducted within the Pacific West (e.g. Hardesty 1988; Praetzellis and Praetzellis 1997; Schulz and Allen 2004; Valentine 2002). For a complete treatise on historic Chinese lumbering in the Sierra, the reader is directed to Chung's (2003) study. Chinese laborers were employed to build and operate the Sisson and Company flume along Martis Creek in 1872 and were later employed to work the company's charcoal kilns at the Martis Creek Station in 1877. The USACE archaeologists have noted evidence of both of these activities within the Martis Creek Lake property.

Dairy Ranching, Sheepherding, and Ice Production in Martis Valley 1870-1930

During its initial settlement years, plentiful water and feed in Martis Valley provided ranching and farming opportunities for the influx of emigrants who settled in the Truckee region. The naming of Martis Valley is attributed to an early rancher's claim of "Murti's Valley" on the 1865 General Land Office Survey Plat (Lindstrom et al. 2007:39). The rich meadowlands of Martis Valley became a center for dairying operations, and descendants of these dairying families continue to own and maintain ranches. The florescence of the dairy business in Martis Valley occurred over a 70-year span (1860 to 1930). Butter was the chief product since milk would spoil in the days before refrigeration. The butter was not only for human consumption; thousands of pounds of butter were also sold to the Richardson Brothers Lumber Company to grease the log skids of their log pole railroads.

Another prominent Martis Valley dairyman was Samuel Cavitt, who operated a dairy on River Street in Truckee. Samuel Cavitt began his Martis Valley operation with 50 cows on land homesteaded by his uncle and father (James H. Cavitt) years earlier. Cavitt sold his Martis Valley dairy operation to the Joerger dairy (the Martis Valley dairy mogul) in 1917. Site CA-PLA-491/H at Martis Creek Lake includes the remnants of the Cavitt ranch.

During the 1850s, more than 500,000 sheep were recorded crossing Nevada on their way to the market towns of the California Gold Rush. By the next decade, the trend had reversed as millions of sheep were driven from California to the mining towns of Nevada. Sheep herds were large, sometimes numbering at least 1,000 head, and often involved seasonal 'transhumance' of the herds over treks of several hundred miles.

Most of this sheep herding was done by immigrant Basque shepherds. The Basque left a legacy of their passing on the landscape in the form of carved aspens, many of which still can be seen today around Lake Tahoe (Lindstrom et al. 2007:41), though none are found at Martis Creek Lake. Sheep herding continued in Martis Valley through the 1960s.

Recent archaeological surveys recorded the remains of a sheep ranch in the Martis Valley dating between the 1920s and the early 1960s (Lindström 1992).

Two substantial ice works complexes were located along the Truckee River (The Tahoe Ice Company, site KEC-303-6), one at the confluence of Martis Creek (Truckee Ice Company, site NEV-182/H) (Lindström et al. 2007). Prior to the establishment of ice works in the Sierra Nevada, San Francisco and Sacramento received their ice via sailing ships from Boston. Eastern ice was costly and undependable so closer sources were sought in Alaska. After the first transcontinental railroad through the Truckee was completed in 1868 and across Donner Pass in 1869, ice could be harvested and transported cost-effectively, enabling the Truckee-Martis region to locally dominate this industry.

The Truckee-Martis ice met demands for cooling rather than domestic consumption. Principal clients for ice refrigeration were mining, lumber companies, and early agricultural markets utilizing ice-cooled rail cars for transportation of vegetables and fruits.

The expulsion of the Chinese in 1886 opened a niche for Indian labor, where the local newspapers reported that, "with no competition from the Chinese, Indians were doing well in Truckee" (Nevada State Journal in Lindström et al. 2007:50). The railroad permitted Indians to ride free which encouraged Washoe and Northern Paiute involvement in the industries of Truckee.

Early Modern Recreation Era in Martis Valley (1930-1950)

With the completion of the first transcontinental railroad in the Truckee-Martis region in the mid 1860's, local businessmen and individual entrepreneurs were poised to take advantage of recreation and tourism opportunities. These industries received an unexpected boost after the Great Depression essentially wiped out the more established industries. The Truckee-Martis auto road in opened in 1910, paralleling the railroad right-of-way. Recreational camping, hiking, and modern ski resorts now characterize the Truckee-Martis area.

2.11.4 Archaeological Work in the Martis Valley

Archaeological Inventories

The Martis Creek Lake and Dam Project has been surveyed in its entirety three times (Wilson and Wilson 1966, Jones et al. 1982, Perry et al. 2013). The first survey to have included any part of the valley was Heizer and Elsasser's (1953) broad ranging survey of the Sierra Nevada. Offermann (1993) surveyed along State Route 267 where it passes through the Martis Creek Project. A small portion of the APE was surveyed in 1995 for the Martis Timber Harvest Plan (Lindström 1995). Recently Waechter and colleagues

(2010) surveyed along the right of way of a power line that also passes through the valley. Lindström (2011) completed a small survey for the proposed Martis Valley Trail project.

The majority of the sites discussed below were encountered in the course of the 1966 and 1982 surveys along with the ongoing Corps effort. Offermann (1993) recorded a number of small sites and isolates along 267, all of which grade together. It is likely that the USACE archaeologists will combine these with the very substantial site CA-PLA-5. Lindström (1995) significantly expanded the boundary of site CA-PLA-485/H. The power-line survey located a single new site at the Martis Creek Project, a lithic scatter designated "TS" (Waechter et al 2010). Lindström's 2011 survey did not result in the discovery of any new sites, though her work did include substantial revisions and updates to a number of site records.

Excavations were undertaken at the Martis Creek Lake and Dam Project in 1957 by Sacramento State College in Ratchet Cave (Wilson and Wilson 1966) and on CA-PLA-272 (Arnold 1957). More recent excavations were conducted by Summit Envirosolutions on CA-PLA-5 in 1996 (Ataman 1999). Far Western Anthropological Research Group conducted analyses on material recovered from their 2011 excavations on CA-PLA-272 and their 2013 testing of CA-PLA- 5.

Archaeological Research Themes in the Martis Valley

The development of an exhaustive list of archaeological research themes for the Martis Valley would be far beyond the scope of the Master Plan. The following short list is intended to illustrate the range of archaeological resources found at Martis Creek Lake and to offer a glimpse into the research potential these resources offer. Context for these research themes is provided above in the brief synopses of the history and prehistory of the Martis Valley.

Prehistory

P1 Early Holocene land use and subsistence
P2 "Spooner problem" Mid-Holocene occupation
P3 Middle-Archaic adaptations and change
P4 Middle/Late Archaic (Martis/Kings Beach) transition
P5 Hot-stone cooking and associated adaptations
P6 Archaic projectile point sequences
P7 Late Archaic use of upland environments
P8 Basalt lithic technology
P9 Patterns of lithic procurement and exchange

History

H1 Proto-historic Washoe land use
H2 Early Emigrant Settlement (1830-1850)
H3 Early Mining Period along Martis Creek (1849-1865)
H4 Railway Transportation in Martis Valley (1860-1890)
H5 Logging and Lumber Mills on Martis Creek (1870-1910)
H6 Chinese Labor in Martis Valley (1870-1890)
H7 Historic Dairy Ranching, Sheepherding, and Ice Production in Martis Valley (1870-1930)
H8 Early Modern Recreation Era in Martis Valley (1930-1950)

The research themes have been coded for easy reference in Table 4 of known sites that follows. Note that most of these sites have been subject to cursory recordation. Sites may bear the potential to inform themes we did not associate with them, and some themes may be irrelevant to sites where we suspected their relevance. Considerably more work is required to determine the real research potential of all these sites.

Furthermore, it should be noted that not all the research themes are of equal importance, nor is it implied that any two sites coded the same bear the same potential to inform the themes for which they have been coded. As an example, nearly all the prehistoric sites have been coded P8; they bear the potential to increase our understanding of prehistoric basalt tool stone technologies. This is true of both light surface scatters on relict glacial outwash terraces and sites with substantial buried, possibly stratified cultural deposits located along the toe slopes of those terraces. The latter type of site would be more informative.

Table 4. Archaeological Sites Known to Exist at Martis Creek Lake

Designator	Description	Age	Notes	Likely Research Themes
CA-NEV-73	Rockshelter	prehistoric	Ratchet Cave	P7, H1
CA-NEV-421	Lithic scatter	prehistoric		P3, P6, P8
CA-NEV-422	Lithic scatter	prehistoric	FGV source	P3, P6, P8
CA-NEV-423 (CA-PLA-482)	Lithic scatter	prehistoric	Also PLA-482. FGV source.	P3, P6, P8, P9
CA-NEV-424	Lithic scatter	prehistoric		P3, P8
CA-NEV-425	Lithic scatter	prehistoric	FGV source	P3, P8
CA-PLA-005	Lithic scatter, probable occupation site	prehistoric	Partially disturbed site. Includes substantial cultural deposits with milling and thermal features	P1, P2, P3, P4, P5, P6, P7, P8
CA-PLA-272	Lithic scatter, probable occupation site	prehistoric	Mostly located on Forest Service land, partially within the Corps property. Includes stratified deposits, milling features, house pits, and midden.	P1, P3, P4, P5, P6, P7, P8, H6
CA-PLA-476H	Placer mining tailings	historic		H3, H7
CA-PLA-477	Lithic scatter	prehistoric	Wide-stemmed (Early Holocene) projectile points	P1, P3, P8
CA-PLA-478	Lithic scatter	prehistoric	Not relocated, may have been mis-plotted (see Coyote 28).	
CA-PLA-479	Lithic scatter	prehistoric		P3, P8
CA-PLA-480	Lithic scatter	prehistoric	A possible stratified deposit, large site, includes milling features. Sinter and Sutro Springs obsidian may suggest an East side affiliation.	P3, P6, P7, P8
CA-PLA-481	Lithic scatter	prehistoric	A possible stratified deposit, large site, includes a wide-stemmed point, milling features, and copious ground stone.	P1, P3, P6, P7, P8
CA-PLA-483/H	Historic and proto-historic homestead/camp	mixed	Includes historic features, debris, and a few incipient BRMs; old Joerger Ranch	H1, H7, H8
CA-PLA-484/H	Lithic scatter and historic debris	mixed	Possible rock ring. Historic debris dating from the 1920s-40s.	P1, P3, P8, P9, H7, H8
CA-PLA-485/486/H	Lithic scatter and historic water management features	Mixed	Portion off Corps land was evaluated as NR ineligible by Lindström and Bennett (1995). Historic features are outside USACE property.	P3, P7, P8, H7, H8
CA-PLA-487/H	Lithic scatter and historic debris	mixed	Includes the Richardson Bros. logging rail line bed. Auger testing in 2013 found no subsurface materials.	P3, P8, H5, H7, H8
CA-PLA-488/H	Lithic scatter and historic debris	mixed		P3, P8, H7, H8
CA-PLA-489	Lithic scatter	prehistoric		P3, P8
CA-PLA-490	Lithic scatter, probable occupation site	prehistoric	Numerous BRMs/slicks, an arrow point, and a historic wood feature.	P3, P4, P7, P8, H1
CA-PLA-491/H	Historic ranch and prehistoric lithic scatter; probable occupation site	mixed	Old Cavitt Ranch site.	P3, P5, H1, H7

Designator	Description	Age	Notes	Likely Research Themes
CA-PLA-2442H	Placer mining tailings	historic		H3, H7
Coyote 02	Lithic scatter	prehistoric		P3, P8
Coyote 03	Lithic scatter	prehistoric		P3, P8
Coyote 09	Lithic scatter and historic debris	mixed	Scattered, infrequent historic debris	P3, P8
Coyote 10	Lithic scatter	prehistoric		P3, P8
Coyote 12	Buried lithic scatter	prehistoric	Buried in the meadow, visible only in a stream cut.	P3, P6, P8
Coyote 16	Lithic scatter	prehistoric	Pinto Point	P2, P3, P8
Coyote 17	Lithic scatter	prehistoric	Located on a high spot in the floodplain	P3, P6, P8
Coyote 18	Lithic scatter	prehistoric	Previously recorded as "TS"	P3, P8
Coyote 21	Lithic scatter	prehistoric		P3, P8
P-29-45	railroad bed and a telegraph line	historic	Donner and Truckee RR (1893-1901). Telegraph line may not be associated.	P7, H1, H4, H5
Coyote 28	Lithic scatter/ lithic procurement	prehistoric	Possibly PLA-478	P3, P7, P8, P9
Coyote 32	Lithic scatter	prehistoric		P3, P8
Coyote 33	Historic trash scatter	historic	Barrel dump, mid-20th century	H7, H8
Coyote 34	Historic trash scatter	historic	Debris and an abandoned dirt road	H7, H8
Coyote 36	Charcoal kiln	historic	Chinese-type charcoal kiln; good integrity (1860s to 1877)	H6
Coyote 37	Burned wood and hand-cut stumps	historic		H5, H7
Coyote 39	Historic camp, possibly Chinese	historic	Late 19th to early 20th century, some possibly Chinese style pottery.	H6
Coyote 41	Segregated reduction locus	prehistoric	Decortication, a light scatter of FGV	P3, P7, P8
Coyote 44	Rock ring	unknown	Likely a Late Archaic house-pit	P7, H1,
Coyote 45	Talus pits	unknown	Possible talus pits—storage?	P3, P7, H1
Coyote 46	Historic Mill Site	historic	"Davie's Mill" Late 19th to early 20th century lumber mill.	H5
Coyote 47	Lithic scatter	prehistoric	Hunting camp (?)	P3, P6, P8
Coyote 48	Talus pits	unknown	Possible talus pits—storage?	P3, P7, H1
Coyote 49	Lithic scatter	prehistoric		P3, P8
FS-05-17-57-784	19th Century Chinese camp	historic	Formerly included in PLA-272 (Partially Forest Service Land)	H6
Sullo 1	Lithic scatter	prehistoric		P3, P8
Sullo 2	Lithic scatter	prehistoric	Possible cooking feature	P3, P5, P8
Sullo 3	Bedrock milling station	prehistoric	12 cups, 1 slick	P3, P7
Sullo 4	Bedrock milling station	prehistoric	5 cups; located near a substantial spring.	P3, P7

2.11.5 Protection of Cultural Resources

Past impacts

Impacts to the prehistoric cultural resources in the Martis Valley began with the original construction of transportation corridors through the valley and with the advent of European-American ranching in the area. The first railroad line passed through the valley to the North of modern day Highway 267. Its construction disturbed a few small lithic scatters that are visible today but the impact seems relatively slight.

Prior to the intensive ranching activities of the early twentieth century, vegetation in the valley was significantly different. According to a local account, vegetation in the 1870s was "open Ponderosa forests with grassland under and around the trees" (Wilson and Wilson 1966:3-4). The current dense cover of sage and bitterbrush gradually took over with grazing activities. This has significantly impacted the historic setting.

The original auto road followed very closely the modern highway, and vestiges of it remain. It can be seen clearly immediately south of Highway 267 near the existing Wildlife Viewing Area. This road, and the subsequent highway, passed directly through two large and significant sites: CA-PLA-5 and CA-PLA-6. In addition to the damage done by road construction, the road opened the valley to arrowhead collectors and pot-hunters who subsequently removed hundreds of projectile points and other artifacts from various sites in the valley.

Excavation of borrow materials for construction of the dam, and dam construction itself entirely obliterated at least three archaeological sites and damaged several others. Sites SN-4, SN-10, and SN-11, recorded in 1966 by Wilson and Wilson, were destroyed. Dam construction also heavily impacted sites CA-PLA-5, CA-PLA-6, CA-PLA-478, CA-PLA-479, and CA-NEV-421, though parts of the sites remain. In Wilson and Wilson's estimation, based on the standards of the day, none of these sites were considered significant. To date, none have been formally evaluated for inclusion in the National Register of Historic Places.

Numerous hiking and jogging trails exist in the valley. Some were constructed by the Corps and are formally maintained, while others were built privately without government authorization. Many of these trails pass through archaeological sites. These sites have been impacted, both by the construction of the trails, and by the increased access the trails provide for collectors and pot-hunters.

The Tompkins Memorial Trail, an authorized project, cut through one of the more important sites in the Martis Valley, CA-PLA-272. The majority of this site is located on a parcel of Forest Service property that borders the Martis Creek Lake and Dam Project property. Only a small portion of the site extends into the USACE land. Impacts to this

site predated the construction of the trail and were notably severe. In 1995 John Betts produced a detailed site record noting ten examples of illicit excavation and a number of other smaller impacts. Far Western Anthropological Research Group analyzed the results of their excavations on the site to ascertain the significance of what remains there and the degree to which the cultural deposits have been impacted.

Known on-going impact agents

The existing trail system is continually maintained and sees heavy visitation especially in the area south of Highway 267. Foot traffic creates erosion and degrades site integrity through time. Illegal artifact collecting has occurred and continues to occur at Martis Creek Lake and Dam Project. Federal laws prohibit the collection of archaeological resources on federal lands.

Future impacts

Trails and developments at Martis Creek Lake and Dam Project will only be constructed after full compliance with Section 106 of the National Historic Preservation Act has been ensured. These projects are not expected to result in any further unmitigated impacts.

The popularity of the valley for outdoor enthusiasts and artifact collectors is unlikely to wane. Impacts associated with these activities will continue to erode the integrity of the archaeological record of the Martis Valley.

Protection

Cultural Resources within the Martis Creek Lake property are afforded protection under the Archaeological Resources Protection Act of 1979 (ARPA) and the National Historic Preservation Act of 1966 (NHPA). ARPA sets forth a process for permitting the excavation or collection of archaeological resources on public or Indian lands and establishes criminal penalties, including fines and incarceration, for the unauthorized excavation or collection of such resources.

Section 106 of the NHPA requires federal agencies to consider impacts to significant cultural resources (historic properties) incurred in the course of undertakings funded or permitted by the government. This requires federal agencies to identify and evaluate cultural resources for significance; to consult with the State Historic Preservation Officer, Native Americans, and the public; and to provide mitigation for any adverse effects their projects might have on significant resources.

The Section 106 process will be followed prior to the authorization of any projects within the Martis Creek Project. This means that future projects will either be designed in such a way that they do not damage or otherwise impact significant cultural resources; or the damage they may cause will be mitigated, typically through archaeological data recovery projects. Section 110 requires that federal agencies be good stewards of the cultural

resources located on their lands. This includes a responsibility to maintain and preserve any historic structures, to conduct surveys to identify cultural resources on their lands and evaluate the significance of those resources.

The 1966, 1982, and 2013 archaeological surveys have identified most, if not all, of the cultural resources present within the boundaries of Martis Creek Lake and Dam Project. The sites have not yet been fully described however, and none have been evaluated for their significance. This work will be performed over time as funding and resources allow.

2.12 DEMOGRAPHICS

According to the U.S. Census Bureau, the Town of Truckee's 2009 population includes approximately 16,260 residents and 6,252 households with an average household size of 2.54 persons. The median age of the population is 36.7 years, which is slightly older than the statewide average. As shown below, Department of Finance population projections indicate that Truckee is expected to have a permanent population of approximately 20,213 by 2025. See below:

Table 5. Current and Projected Population, Placer, Nevada, and Surrounding Counties.

County	2000 Population	Projected Population			Percentage Average Annual Growth Rate (2000–2035)
		2012	2025	2035	
Placer	248,399	355,328	424,134	487,173	2.75
El Dorado	158,288	180,712	218,379	242,330	1.52
Nevada	91,872	97,182	108,863	114,664	0.71
Sacramento	1,230,501	1,435,153	1,643,263	1,821,378	1.37
Sutter	79,202	95.065	119,011	145,637	2.40
Yuba	60,334	72,615	90,103	104,599	2.10

Source: DOF 2011, 2012

2.13 ECONOMICS

Information regarding employment, personal income, and other economic conditions was obtained from the 2000 and 2010 Census, related investigations in the USACE library, and from the city and county. Several demographic variables were analyzed to characterize the effect on community and surrounding area, including population size and distribution, the means and amount of employment, and income generation.

The great majority of populations that would utilize the Martis Creek Lake and Dam Project area reside in the immediate vicinity of Truckee and the North Star community with a smaller residential area in Nevada County at Donner Summit. However, there are smaller satellite communities, such as Floriston and Glenshire, which are some distance the Martis Creek Project.

Income and Housing

The Truckee area is rather affluent. The median household income is approximately $67,750 compared to $58,186 for Nevada County and the statewide average of $60,392. Using the income group distribution from the American Community Survey, the estimated mean income comes out to $82,837 for the Town of Truckee. The household count in 2010 came out to 6,252, with a total aggregate income of nearly $518 million.

Table 6. Income Distribution

Income Range	Households	%	Total Income	Average Income
Under $20,000	380	6.1%	$3,829,115	$10,084
$20,000 to $29,999	566	9.1%	$14,148,101	$25,000
$30,000 to $39,999	297	4.7%	$10,622,485	$35,808
$40,000 to $49,999	706	11.3%	$30,429,826	$43,127
$50,000 to $69,999	979	15.7%	$58,778,512	$60,070
$70,000 to $99,999	1,259	20.1%	$108,137,127	$85,910
$100,000 to $119,999	447	7.1%	$49,158,716	$110,000
$120,000 to $149,999	545	8.7%	$73,302,222	$134,427
$150,000 and Over	1,075	17.2%	$169,493,196	$157,711
TOTAL	6,252	100.0%	$517,899,300	$82,837

Source: ADE based on ACS 2006-2010 data.

Housing Data

Much of the housing in Truckee is used as second homes by families living in the Bay area and other California and Nevada locations. In the Tahoe Donner development, about 5,000 units are not permanently occupied and in the Glenshire development there are about 350 second homes. About 1,000 other second homes exist elsewhere in Truckee. Data from the California Department of Finance shows a total housing inventory of just over 12,800 units in 2011, with about half of them occupied full-time.

Table 7. Population and Housing

Year	Population	Total Housing Units	Occupied Housing Units	Percent Vacant	Persons Per HH
2000	13,864	9,757	5,149	47.2%	2.69
2009	16,230	12,136	6,405	47.2%	2.53
2010 Census Benchmark	16,180	12,803	6,343	50.5%	2.55
2011	16,212	12,807	6,345	50.5%	2.56
Source: ADE based on data from the CA Dept of Finance and the US Census.					

Tourist Expenditures

As noted above, nearly half of all housing units in and around Truckee are used for seasonal or recreational purposes. These units may be used as vacation rental units or second homes, or some combination of both. The Truckee Visitor Center has one of the highest visitations rates of all 18 California Welcome Centers, receiving more than 60,000 visitors each year. A recent survey of visitors conducted by the Truckee Chamber of Commerce indicated that only 4 percent of respondents had visited the Visitor center. If this proportion were true for all visitors, it would mean that about 1.5 million visitors

pass through and stop in Truckee per year. Anecdotal information from various event organizers suggests that indeed Truckee's weekend population swells to two or three times its resident population during peak seasons.

Economic Impacts

The overall visitor spending for Nevada County totaled approximately $264 million in 2009. This spending occurs in a variety of different categories, most prominently in accommodations and food service establishments. Overnight visitors staying in hotels or rental homes accounted $153 million in total visitor spending, and 48 percent of all spending not occurring in accommodations.

The general trend has shown a steady increase in Transient Occupancy Tax (TOT) collections since 2000; however the trend peaked in 2008 and subsequently declined in 2009. In Truckee, the TOT collections recovered in 2010, but did not recover across the rest of Nevada County.

2.14 RECREATION FACILITIES, ACTIVITIES, AND NEEDS

Visitors to the Martis Creek Lake and Dam Project can enjoy an assortment of recreational activities. Swimming, paddling, day hikes, picnicking, camping, wildlife viewing, and fishing are the predominant outdoor pastimes enjoyed on and around Martis Creek Lake and Dam.

2.14.1 Recreation Activities Available at the Martis Creek Lake and Dam Project

- *Ranger Programs*: Campfire programs are presented in the amphitheater from July through Labor Day. The amphitheater is located in the center of the campground. Parking is available just outside of the campground; accessible parking is available at the amphitheater.

- *Camping*: 25 non-electric campsites are available on a first-come, first-serve basis at the Alpine Meadows Campground. Campsites have a paved parking space, picnic table, tent pad(s), fire ring and a barbecue grill. Water faucets and vault restrooms with running water are also provided. Firewood is available for purchase.

- *Boating*: Martis Creek Lake allows non-motorized watercraft. No motorized (gas or electric) boats are permitted.

- *Fishing*: Martis Creek Lake was the first "catch and release trophy trout" lake established in California. Varieties include rainbow, brown and Lahonton Cutthroat trout. Anglers must use flies, barbless hooks and

artificial lures only, live bait is not permitted. No fishing is allowed in the streams above the lake.

- *Hunting*: Hunting may occur in designated areas at Martis Creek Lake and Dam during California Department Fish and Wildlife designated hunting seasons. Only shotguns and bows and arrow are allowed. A map of designated hunting areas can be seen in Figure 4.

- *Hiking*: The Martis Creek Wildlife Area, offers the Thompson Memorial Trail on the west side of Highway 267, a 4.3 mile hiking and biking trail that loops around the valley. The trail goes along Martis Creek, through conifer forests and open meadows. Spring wildflower displays are from late June to early July. Also, the trailhead for the 1,400 acre Waddle Ranch Conservation Area is at the end of Martis Dam Road. From there you can access miles of forested trails throughout the Conservation Area.

- *Day Use*: Picnicking facilities, fishing access, and portable restrooms are available at the Sierra View Recreation Area. Park facilities are closed during the winter months but cross-country skiing and snowshoeing are permitted. Winter parking space is limited.

The Martis Creek Lake Park Office is open from late April through October due to winter weather conditions and staffed with a seasonal Park Ranger. The contact number for Martis Creek Lake from April-November is 530-587-8113 and from December-March is 530-432-6427.

The Public use of the Martis Creek Lake and Project is subject to the Rules of Title 36-Parks, Forests and Public Property, Volume I Chapter III, Corps of Engineers, Department of the Army, Part 327 - Rules and Regulations Governing Public Use of Water Resource Development Projects administered by the Chief of Engineers. Except as otherwise provided in Title 36 or by federal law or regulation, state and local laws and ordinances shall apply on project lands and waters.

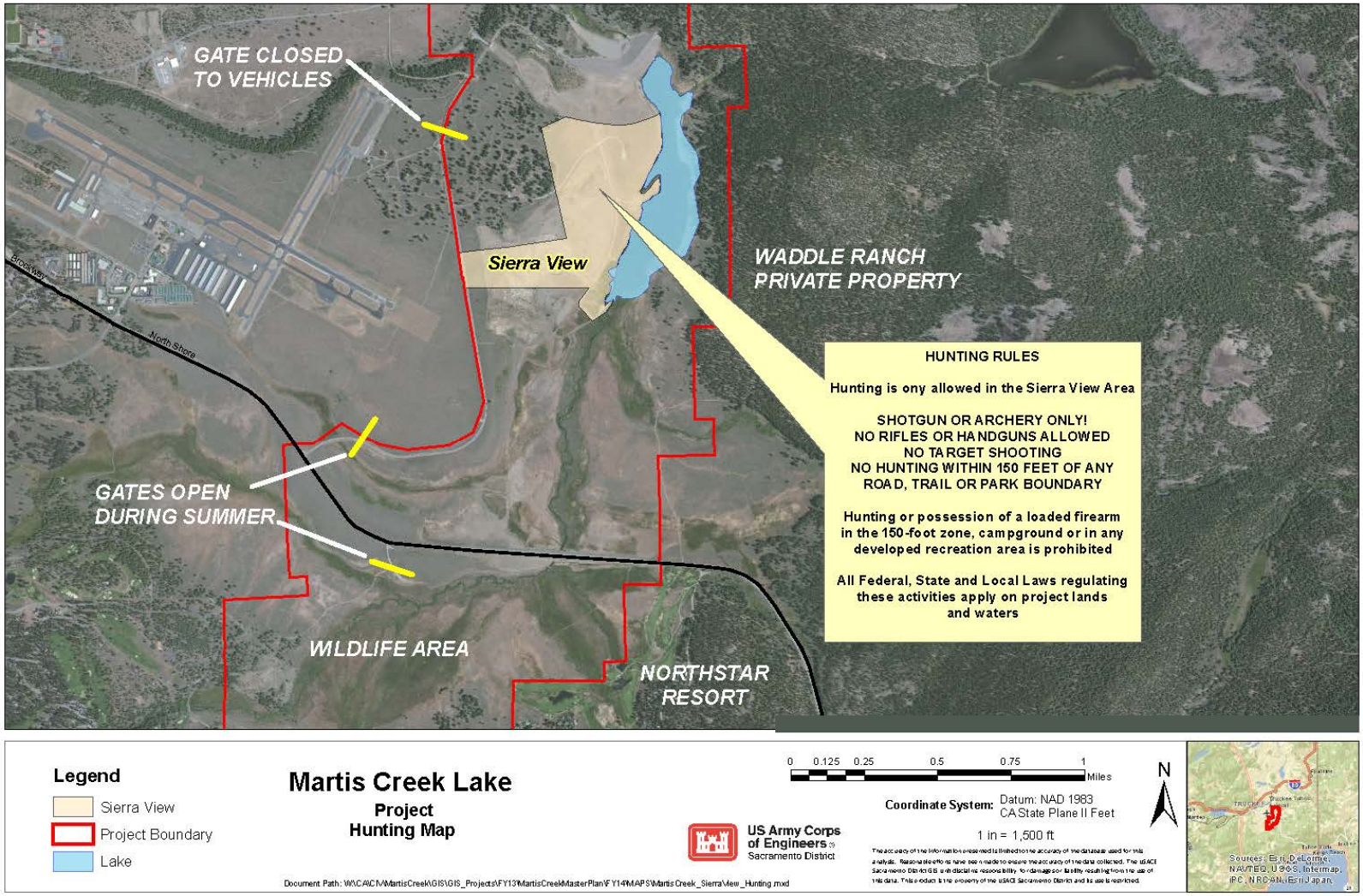

Figure 4. Map of Allowable Hunting

2.14.2 Zones of Influence

The Martis Creek Lake and Dam Project Zone of Influence has been determined from visitor surveys to include those counties situated with at least 50 percent of their population within 150 highway miles of the project. Martis Creek Lake is located within 20 miles of the California – Nevada state line via Interstate 80, and 11 miles via State Route 267 to State Route 28 therefore, a recreational analysis for both states included. This zone represents the area in which approximately 80 percent of the day-use visitors and 20 percent of the overnight visitors to Martis Creek Lake reside. It therefore has a direct influence upon the use of the lake and its parks.

The majority of the day use visitors are from the surrounding local communities, many whose primary home is located within the Zone of Influence, and second home is in the local community. The day use visitors predominantly use the Martis Creek Lake and Dam Project for walking, hiking, bicycle riding, and other exercise activities.

Martis Creek Lake and Dam Project is well suited for the types of recreational activities which it is being utilized. Further project development as proposed will not adversely affect the integrity of the resource characteristics. Development plans and management practices will continue to be periodically evaluated to assure proper resource use as well as the validity of planning assumptions utilized in this plan.

To place the following information in perspective, this Master Plan utilizes the California State Parks', California Outdoor Recreation Planning Program's (CORP) 2012 *Survey on Public Opinions and Attitude on Outdoor Recreation in California's* regional designations. Approximately 4,400 survey respondents from seven California regions, encompassing all of the state, were targeted for the survey. For purposes of this Master Plan only the three regions that are within the Zone of Influence are discussed in detail:

- **Northern California** - Shasta, Humboldt, Mendocino, Lake, Tehama, Siskiyou, Lassen*, Del Norte, Glenn, Plumas*, Trinity, Modoc and Sierra* Counties

- **Sierra** - Nevada,* Placer*, El Dorado*, Amador*, Alpine, Calaveras*, Tuolumne*, Mono*, Inyo and Mariposa Counties,

- **Central Valley** - Butte*, Yuba*, Sutter*, Colusa, Yolo*, Sacramento*, San Joaquin*, Stanislaus, Merced, Madera, Fresno, Kings, Tulare and Kern Counties

- (*) indicates the Counties in the Martis Creek Project's Zone of Influence.

- For Nevada, the Zone of Influence consists of Washoe, Pershing, Churchill, Storey, Carson City, Douglas, Lyon and Mineral Counties

2.14.3 Visitation

Visitation to the Martis Creek Lake and Dam Project reached a high of 107,600 in 2009. Visitation dropped in 2010 to 94,600 and dropped again in 2011 to 85,400. Historically, visitation was between 20,000 and 40,000 between 1987 and 2000 and increased steadily between 2000 and 2009.

2.14.4 Related Recreational Areas

The Tahoe-Truckee region contains a wide range of natural environments which meet a variety of recreational purposes for all seasons. In addition, the region has a long and rich history of human activity. Many of these natural and historic areas have been conserved and made available for public use through State Parks, trust lands, historic monuments, national forests, wilderness areas, or other public recreation areas.

Martis Creek Lake is one of many areas in the region that contains natural and cultural resources. As noted above, its proximity to the cities of Truckee and Reno makes it a popular destination for visitors. The North Tahoe Public Utility District and the Tahoe City Public Utility District each operate several parks, beaches and trails around North Lake Tahoe. Camping and hiking opportunities are provided at national forests operated by the U.S. Forest Service and state campgrounds operated by California Department of Parks and Recreation. Other public recreational facilities in the region are operated by the USACE, Placer County Parks Division, and the Truckee-Donner Recreation and Park District.

2.14.5 Recreation Analysis

California

California State Parks' Planning Division develops the California Outdoor Recreation Plan (CORP), the statewide master plan for parks, outdoor recreation, and open space for California. The CORP provides policy guidance to all outdoor recreation providers, including federal, state, local, and special district agencies that provide outdoor recreational lands, facilities and services throughout California. The CORP is also the primary tool for prioritizing Land and Water Conservation Fund grant allocations to local governments.

The CORP is updated periodically. The most recent was produced in 2009. Research elements of the CORP are in the process of being updated as of 2016 At the time of this Master Plan update, two elements were available for review. The 2012 *Survey of Public Opinions and Attitudes on Outdoor Recreation* (SPORC) and the 2013 *Outdoor*

Recreation in California Regions. The remainder of the information presented below is from the 2009 CORP. More information regarding the two element reports such as the size of the survey sample and criteria can be found at:
http://www.parks.ca.gov/?page_id=23880

Trends and Challenges

Meeting the park and recreation needs for all current and future residents should be a goal of all park and recreation providers in California. Towards that end, it is essential that all park and recreation stakeholders have a basic understanding of both the state's demographics and the trends that are likely to influence the demand for outdoor recreation now and in the future.

One of the greatest challenges affecting park and recreation providers is the enormous increase in the number of new Californians. Most of California's growth has been in its major metropolitan areas such as Los Angeles, San Diego, and the San Francisco Bay Area.

Table 8. Projected Population Growth - Central Valley (2010-2040)

Counties	2010	2020	% Change 10-20	2030	% Change 20-30	2040	% Change 30-40
Sacramento	1,420,434	1,543,522	8.67%	1,708,114	11%	1,913,756	12%
Fresno	932,377	1,071,728	14.95%	1,241,773	16%	1,397,138	13%
Kern	841,146	1,057,440	25.71%	1,341,278	27%	1,618,681	21%
San Joaquin	686,588	810,845	18.10%	1,004,147	24%	1,213,708	21%
Stanislaus	515,205	589,156	14.35%	674,859	15%	759,027	12%
Tulare	443,066	526,718	18.88%	630,303	20%	722,838	15%
Merced	255,937	301,376	17.75%	366,352	22%	436,188	19%
Madera	151,328	185,056	22.29%	229,277	24%	278,011	21%
Butte	219,990	241,521	9.79%	284,082	18%	317,718	12%
lo	72,329	84,520	16.85%	101,812	20%	123,203	21%
Kings	152,656	176,647	15.72%	205,627	16%	235,129	14%
Sutter	94,669	108,939	15.07%	133,010	22%	172,475	30%
Yuba	72,329	84,520	16.85%	101,812	20%	123,203	21%
Colusa	21,478	24,886	15.87%	29,023	17%	33,273	15%
Total	5,879,532	6,806,873	15.77%	8,051,468	18%	9,344,348	16%

Table 9. Current Regional Demand - Central Valley

Top Facilities Used	%	Top Activities	%	Top Latent Demand for Activities	%
Picnic table, picnic pavilion	61.7	Walking	50.4	Picnicking in picnic areas (with tables, fire pits, or grills)	55.6
Unpaved trail	57.0	Eating/Picnicking	26.0	Walking for fitness or pleasure on paved surfaces	43.3
Open space to play	50.8	Playing	25.4	Driving on paved surfaces for pleasure, sightseeing, driving through natural scenery	41.1
Beach or Water Recreation area	47.3	Hiking on unpaved trails	22.3	Camping in developed sites with facilities such as toilets and tables (not including backpacking)	36.7
Scenic observation/wildlife viewing area	45.5	Sedentary Activities	19.9	Swimming in a pool	34.4

California now has 67 cities with populations exceeding 100,000 and 20 cities with populations exceeding 200,000. Cities are getting larger, squeezing out the open spaces for parks and disconnecting the state's biological resources. In 2000, California had an average of 217.2 persons per square-mile compared to the US average of 79.6.

Table 10. Projected Top Activity Participation Rates through 2040 - Central Valley

Year/Activity	Walking %	Picnicking %	Playing %	Hiking %	Sedentary %
2020	50.46	25.71	25.12	22.32	19.68
2030	48.03	24.23	23.67	21.25	18.54
2040	45.79	22.79	22.26	20.26	17.44

Table 11. Projected Population Growth - Northern California (2010-2040)

Counties	2010	2020	% Change	2030	% Change 20-30	2040	% Change 30-40
Del Norte	28,544	29,635	3.82%	30,861	4%	31,877	3%
Siskiyou	44,893	46,369	3.29%	48,883	5%	51,854	6%
Modoc	9,648	9,965	3.29%	10,347	4%	10,773	4%
Humboldt	134,663	139,132	3.32%	145,684	5%	147,873	2%
Trinity	13,713	14,352	4.66%	15,532	8%	17,030	10%
Shasta	177,472	199,814	12.59%	220,019	10%	242,016	10%
Lassen	35,136	35,934	2.27%	38,828	8%	40,909	5%
Mendocino	87,924	91,498	4.07%	94,812	4%	98,112	3%
Tehama	63,487	69,340	9.22%	77,437	12%	89,087	15%
Glenn	28,143	30,780	9.37%	33,552	9%	36,027	7%
Lake	64,599	71,228	10.26%	84,394	18%	97,884	16%
Plumas	19,911	20,731	4.12%	20,526	-1%	20,128	-2%
Sierra	3,230	3,034	-6.07%	3,125	3%	3,453	10%
Total	**711,363**	**761,813**	**7.09%**	**824,000**	**8%**	**887,022**	**8%**

Source: CA Department of Finance

Table 12. Current Regional Demand - Northern California

Top Facilities Used	%	Top Activities	%	Top Latent Demand for Activities	%
Unpaved trail	69.8	Hiking on unpaved trails	51.9	Picnicking in picnic areas (with tables, fire pits, or grills)	47.1
Picnic table, picnic pavilion	61.8	Walking	46.6	Camping in developed sites with facilities such as toilets and tables (not including backpacking)	39.7
Scenic observation/wildlife viewing area	60.9	Eating/Picnicking	35.5	Beach activities (swimming, sunbathing, surf play, wading,	38.2
Beach or Water Recreation area	57.5	Sedentary Activities	26.8	Shopping at a farmer's market	35.3
Paved trail	45.9	Camping	25.1	Walking for fitness or pleasure on paved surfaces	33.8
Open space to play	41.3			Attending outdoor cultural events	33.8

Table 13. Projected Top Activity Participation Rates through 2060 – Northern California

Year/Activity	Hiking %	Walking %	Picnicking %	Sedentary %	Camping %
2020	55.30%	28.46%	24.38%	22.99%	22.45%
2030	57.57%	29.63%	25.12%	23.68%	23.13%
2040	59.18%	30.46%	25.47%	24.02%	23.46%

Sierra Region

In relative terms, the Sierra region will see the second strongest growth rate after the Central Valley region of the seven regions discussed in this survey. The strongest growth is projected around a "core" of the northern counties of the region.

Table 14. Projected Population Growth - Sierra Region (2010-2040)

County	2010	2020	% Change 10-20	2030	% Change 20-30	2040	% Change 30-40
Nevada	98,639	104,343	5.78%	114,022	9%	127,457	12%
Placer	350,275	391,682	11.82%	442,505	13%	501,293	13%
El Dorado	180,921	203,095	12.26%	234,485	15%	263,579	12%
Tuolumne	55,144	55,938	1.44%	57,982	4%	60,593	5%
Calaveras	45,462	48,312	6.27%	53,001	10%	57,225	8%
Amador	37,853	39,352	3.96%	42,036	7%	44,200	5%
Mariposa	18,193	20,463	12.48%	22,186	8%	22,787	3%
Inyo	18,528	19,350	4.44%	20,428	6%	22,009	8%
Mono	14,240	15,037	5.60%	16,261	8%	17,614	8%
Alpine	1,163	1,172	0.81%	1,167	0%	1,172	0%
Total	820,418	898,745	9.55%	1,004,071	12%	1,117,928	11%

Source: CA Department of Finance

Table 15. Current Regional Demand – Sierra

Top Facilities Used	%	Top Activities	%	Top Latent Demand for Activities	%
Unpaved trail	68.4	Hiking on unpaved trail	79.0	Picnicking in picnic areas (with tables, fire pits, or grills)	53.1
Picnic table, picnic pavilion	61.4	Walking	48.3	Swimming in freshwater lakes, rivers and/or streams	40.7
Scenic observation/wildlife viewing area	57.2	Eating/picnicking	32.4	Day hiking on unpaved trails	40.7
Beach or water recreation area	53.9	Swimming	22.9	Swimming in a pool	38.3
Paved trail	47.8	Sedentary activities	20.8	Walking for fitness or pleasure on paved surfaces	37.0
Open space to play	44.0	-	-	Visiting historic or cultural sites	37.0

Table 16. Projected Top Activity Participation Rates through 2060 - Sierra

Year/Activity	Hiking %	Walking %	Picnicking %	Swimming %	Sedentary %
2020	51.84%	51.10%	33.86%	24.33%	21.74%
2030	52.25%	51.50%	33.78%	24.49%	21.69%
2040	51.93%	51.18%	33.12%	24.39%	21.26%
2050	52.81%	52.05%	33.17%	24.88%	21.30%
2060	54.59%	53.81%	33.77%	25.81%	21.68%

2012 Survey of Public Opinions and Attitudes on Outdoor Recreation in California (SPORC)

The purpose of the SPORC study is to understand Californians' opinions and attitudes about outdoor recreation and self-reported levels of physical activity in places where Californians recreate.

Findings from the 2012 Adult Surveys

A general summary of the statewide answers from the survey and specifically from regions (Northern California, Sierra, Central Valley) within the Zone of Influences are presented below.

Preferences and Priorities

- The most important facilities were wilderness type areas with no vehicles or development, play areas for children, areas for environmental and outdoor education, large group picnic sites, recreation facilities at lakes/rivers/reservoirs, and single-use trails.

- More than 60% of Californians thought more emphasis should be placed on protecting natural resources, maintaining park and recreation areas, protecting historic resources, and cleaning up pollution of oceans, lakes, rivers, and streams in park and recreation areas. About one third of respondents felt that less emphasis should be placed on providing opportunities for motorized vehicle operation on dirt trails and roads.

- Most respondents strongly agreed or agreed that fees should be spent on the area where they are collected, recreation programs improve health, rules and regulations need enforcement, the availability of recreation areas and facilities attract tourists, and recreation programs help reduce crime and juvenile delinquency.

Satisfaction with Park Facilities

- Most respondents (72.8%) reported being satisfied or very satisfied with current facilities or outdoor recreation areas' conditions. Approximately 26% of the respondents answered that parks were better than 5 years ago and 26% answered that they were not as good as 5 years ago.

- Park Fees - The respondents were more willing to pay between $11 to $50 to picnic and camp than other activities.

- Privatization Preferences - The respondents more strongly supported privatization of food and beverage and rental services, sponsorships of events, and general maintenance. Respondents were less supportive of privatizing total operations, law enforcement, and educational activities.

- Constraints to Park Use - Fear of gang activity, use of alcohol and drugs, and poor maintenance were the biggest factors limiting the respondents' ability to engage in physical activities in parks.

- Travel Times - A majority of respondents (55.2%) reported spending between 5 and 10 minutes walking to the place they most often go to recreate. Meanwhile, a majority of respondents (54.5%) reported spending between 11 and 60 minutes driving there.

The largest percentages of the Sierra region respondents reported driving 21 to 60 minutes or walking 5 minutes or less to their most visited outdoor recreation area.

Quality of Life and Communities

- Californians rated clean air and water, their personal quality of life, prevention of crime, feeling safe, and having enough good jobs for residents, as the most important factors for their personal quality of life. Respondents were not as satisfied with these factors in their community

- Residents rated preservation of natural areas, the beauty of their community, and preservation of wildlife habitats as the community conditions most increased by parks and recreation in their community. Residents did not rate traffic control, a stable political environment, fair prices for goods and services, and good public transportation as being increased or decreased by parks and recreation.

Findings from the 2012 Youth Survey

Activity Participation

- When asked about their favorite activity, over 25% of youth cited soccer or swimming as their favorite outdoor activity. Other popular activities included biking (9.0%), basketball (8.0%), and hiking (7.3%).

- Most youth stated fun and enjoyment as the reason for participating in their favorite activity. Youth also indicated being with friends and family and exercise and fitness as other top reasons.

- Nearly one third (29.8%) of the youth answered that they participate in their favorite activity in an area or park in their neighborhood. An additional 24.9% engaged in their activity in an area or park beyond their neighborhood.

- Youth participated in their favorite activity primarily with friends (76.0%) or immediate family (55.4%). Slightly more than one third (34.1%) participated in the activity alone.

- The majority of youth said they got to their favorite outdoor activity when an adult drove them (39.5%) or they walked (31.5%). An additional 16.3% said that they rode a bicycle to their favorite activity.

- Walking on paved roads and trails (86.6%), swimming in a pool (79.8%), jogging or running (77.6%), and playing in a park (76.3%) were the outdoor activities that had the largest percentage of youth participation during the past 12 months.

- The activities youth would like to participate in more often included horseback riding (50.2%), camping (47.1%), mountain biking (46.3%), and backpacking (46.3%).

- Nearly all youth respondents are either kept from participating in outdoor activities or sometimes kept from activities because they are too busy (85.4%), it is too hot or cold outside (73.8%), or they'd rather be on the Internet (69.1%).

- Nearly 20% of youth indicated that providing areas that are just for kids their age would help them participate more often in outdoor activities and 18% felt that they needed more recreation areas closer to home.

- When asked about their participation in the 10 activities in the Children's Outdoor Bill of Rights, over 90% of youth had played in a safe place and ridden a bike. At least 80% had learned to swim and explored nature. Less than 59% had connected with the past, camped under the stars, gone fishing, or gone boating.

Interactions with Nature

- Youth agreed the most with the statement that "taking care of the environment is important to me" (67.8%). They agreed the least with the statement "I feel connected to the natural world around me" (42.4%).

Nevada

The Nevada Division of State Parks (NDSP) produced the Statewide Comprehensive Outdoor Recreation Plan (SCORP) for Nevada in 2010. The primary purpose of the SCORP was to enhance Nevada's outdoor recreation opportunities.

The 10 most popular outdoor activities for Nevadans are listed below:

1. Walking for pleasure 80.2%*
2. Family Gathering 74.2%*
3. View/Photograph natural scenery 64.5%*
4. Gardening or landscaping for pleasure 60.2%
5. Picnicking 59.0%*
6. Sightseeing 53.9%*
7. Driving for pleasure 53.6%
8. Visit centers, zoos, etc. 51.2%
9. View/photograph wildflowers, trees, etc. 49.2%*
10. Swimming in an outdoor pool 47.7%

*Available activity at Martis Creek Lake

Note that these activities require minimal equipment or specialized skill. These activities are largely informal and unstructured. Nevadans also have high participation rates in outdoor recreation with an educational component. These activities include visits to historic sites and interpretive centers as well as more specialized pursuits such as bird watching. Some of these activities require specialized equipment and knowledge, but the majority can be enjoyed by everyone.

Trends

In comparison to the 1995 National Survey on Recreation and the Environment (NSRE) survey, the 2009 survey provides a picture of participation trends. Participation in outdoor recreation is up by a substantial amount for many activities. Participation rates for many established, traditional, activities such as hiking, sightseeing, and wildlife viewing have increased both on a percentage basis and on gross number basis. The increases are significant for two reasons: first, the 1995 rates were already high; second the percentages increased despite the growing population. The fastest growing activities for Nevadans are listed in Tables 17, 18, and 19.

Table 17. Nature Based Activities

Activity	Percent participating 1995	Percent Participating 2009	Percent change in number of participants 1995-2009
Day hiking	22.7	42.4	159.9
Developed camping	19.7	28.1	141.6
Primitive camping	18.1	24.5	129.9
Backpacking	10.0	12.0	106.3
Mountain Climbing	9.7	10.6	84.3
Rock Climbing	6.5	6.9	80.5

Source: NRSE 1999-2009; USFS

Table 18. Viewing/ Learning Activities

Activity	Percent participating 1995	Percent Participating 2009	Percent change in number of participants 1995-2009
Viewing wildlife (besides birds)	28.4	45.8	173.5
View or photograph fish	12.1	.17.0	134.7
Sightseeing	46.9	64.8	134.7
Visit archaeological sites	18.8	23.5	112.2
Visit nature centers	44.4	49.9	90.3
Visit historic sites	35.8	37.1	75.7
View birds	23.6	23.2	66.3

Source: NRSE 1999-2009; USFS

Table 19. Activities in a Developed Setting

Activity	Percent participating 1995	Percent Participating 2009	Percent change in number of participants 1995-2009
Yard Games	29.1	77.3	351.3
Walk for pleasure	59.1	85.7	145.6
Family gathering outdoors	56.2	79.7	140.7
Bicycling	24.8	31.0	111.9
Picnicking	48.1	53.6	88.8

Source: NRSE 1999-2009; USFS

2.15 REAL ESTATE

The Martis Creek Lake and Dam Project comprises a total of 1,891 acres, of which 18.5 acres are held in flowage easements, 65 acres are withdrawn from the Tahoe National Forest, and 1,807.5 acres are owned in fee.

Acquisition Policy: The USACE Real Estate Management and Disposal program for Martis Creek is administered by the Real Estate Division in Sacramento accordance with all applicable laws, regulations, and policies. All requests for real estate related actions must be received via a written request made to the Martis Creek Operations Manager, who makes a recommendation through the Sacramento District Chief of Operations to the Chief of Real Estate.

Executive Order Surveys: Executive Order 12512, dated 25 April 1985, and the Federal Property Management Regulations contained in 41 CFR 101-47 require periodic review of project landholdings to determine if federal lands are being overused, underused, or are not being put to optimum use. To meet this requirement, the Sacramento District conducts inspections of all projects, including the Martis Creek Project.

Encroachments: The majority of encroachments on project lands are found to be adjacent landowners. Adjacent landowners sometimes expand their home based activities onto the USACE managed land without appropriate authorization. Occasionally, adjacent landowners will store machinery, construct gardens, build gates, or erect storage buildings on project land. These encroachments are usually minor in nature. Adjacent landowners sometimes find it difficult to readily define project boundaries in some areas. This occasionally results in unintentional encroachments.

Boundary Monumentation and Fencing: Emphasis has been placed on boundary monumentation on the Martis Creek Lake and Dam project lands. Extensive resources are expended on monumenting those areas currently managed for wildlife purposes and intensive public use. Fencing has also been a priority in both wildlife and recreation areas. Encroachments and boundary line disputes are generally reduced after fencing project boundaries.

Replacement boundary monuments will be constructed of brass or aluminum and follow governmental specifications. New or replacement witness paddles shall be an orange flexible carsonite post with a USACE boundary line sticker attached to it. Fencing may be used as a management tool to delineate project boundaries.

Outgrants: An outgrant is any real estate instrument used to convey an interest or temporary use of project land. The types of outgrants issued at Martis Creek Lake are leases, licenses, permits, and easements. The USACE has 13 outgrants issued on project lands

- **Leases**
  A lease is a contract between the owner (lessor or landlord) and the tenant

(lessee) setting forth the term of occupancy and the conditions under which the tenant may occupy and use the property. A lease conveys an interest in the property for a set time limit. There are currently no leases in effect at the Martis Creek Lake and Dam Project.

- **Licenses**
  A license grants authority to enter or use another's land or property without having ownership in it. It is revocable at will. Action without a license constitutes trespass. There are 3 licenses issued at the project.

- **Permits**
  A permit is a revocable privilege granted to another federal agency to use real property for a specific purpose without conferring possession. There are 2 permits issued to federal and local agencies for use of project lands.

- **Easements**
  An easement allows one party to use certain lands of another party. An easement conveys an interest in the property. Rights-of-way are the most frequent easement requests for public land. There are 8 easements for rights-of-way for communications, utilities, roads, and gas lines throughout the project.

Flowage Easements: Flowage easements acquired at the Martis Creek Lake and Dam Project give the Government a perpetual right to overflow the land when necessary as a result of construction, maintenance, and operation of the project. The Government also has the right to enter the easement lands as needed as well as to remove from the easement lands any natural or manmade obstructions or structures which, in the opinion of the Government, may be detrimental to the operation and maintenance of the project. The flowage easements were acquired subject to "existing easements for public roads and highways, public utilities, railroads, and pipe lines."

Historically, it has been the USACE policy to prohibit structures for human habitation on flowage easements acquired by the Corps. Construction and/or maintenance of non-habitable structures on the flowage easement are subject to prohibition or regulation by the District Engineer.

CHAPTER 3 – RESOURCE OBJECTIVES

3.1 GOALS AND OBJECTIVES

The terms "goal" and "objective" are often defined as synonymous, but in the context of this Master Plan, goals express the overall desired end state of the Master Plan whereas objectives are the specific task-oriented actions necessary to achieve the overall Master Plan goals.

The following excerpt from EP 1130-2-550, Chapter 3, expresses the goals for the Martis Creek Master Plan (Update).

> **GOAL A.** Provide the best management practices to respond to regional needs, resource capabilities and suitability, and expressed public interests consistent with authorized project purposes.
>
> **GOAL B.** Protect and manage project natural and cultural resources through sustainable environmental stewardship programs.
>
> **GOAL C.** Provide public outdoor recreation opportunities that support project purposes and public demands created by the project itself while sustaining project natural resources.
>
> **GOAL D.** Utilize the particular qualities, characteristics, and potentials of the project.
>
> **GOAL E.** Provide consistency and compatibility with national objectives and other federal, state, and local laws and regulations. Assure accountability for enforcement of these laws and regulations.

Objectives are defined as clearly written statements that respond to identified issues and that specify measurable and attainable activities for resource development and/or management of the lands and waters under the jurisdiction of the Sacramento District, Martis Creek Lake Project Office. The objectives stated in this Master Plan support the goals of the Master Plan, Environmental Operating Principles (EOPs), and applicable national performance measures.

The objectives are consistent with authorized project purposes, federal laws and directives, regional needs, resource capabilities, and take public input into consideration. Recreational and natural resources carrying capacities are also accounted for during

development of the objectives found in this Master Plan. The objectives in this Master Plan, to the best extent possible, aims to maximize project benefits, meet public needs, and foster environmental sustainability for Martis Creek Lake.

3.1.1 Recreational Objectives

- Evaluate need for improved recreation facilities (i.e. campsites, picnic facilities, viewing areas, all types of trails, dog off-leash area, courtesy docks, interpretive signs/exhibits, and parking lots) and increased public access on USACE-managed public lands and water for recreational activities (i.e. camping, walking, hiking, biking, fishing, wildlife viewing, etc.) . Goal A, C
- Optimize recreational development on the land resources within the project boundary while maintaining or improving the environmentally sustainable resources. Goal A, C
- Regularly monitor recreational resources to ensure the recreational experience, environmental quality, and public safety are maintained. Goal A, C
- Follow the Environmental Operating Principles associated with recreational use of waterways for all water-based management activities and plans. Goal B, C, E
- Increase universally accessible facilities on Martis Creek Lake. Goal A, C, E
- Evaluate need for commercial facilities on public lands and waters. Goal A, C
- Evaluate flood/conservation pool to address potential impact to recreational facilities (i.e. campsites, etc.). Note that water level management is not within the scope of the Master Plan. Goal A, B, C, D
- Ensure consistency with the USACE Recreation Strategic Plan and seek out partnership opportunities. Goal E

3.1.2 Natural Resource Management Objectives

- Evaluate flood/conservation pool levels to optimize habitat conditions, as long as there is no interference with the Project's other authorized purposes, i.e. flood risk management and water supply. Note that water level management is not within the scope of the Master Plan. Goal A, B, D
- Actively manage and conserve fish and wildlife resources, with an emphasis on special status species, by implementing ecosystem management principles. Goal A, B, D, E
- Use watershed approach during decision-making process. Goal E
- Optimize resources, labor, funds, and partnerships for protection and restoration of fish and wildlife habitats. Goal B, E

- Optimize resources, labor, funds, and partnerships for the prevention of invasive species in Martis Creek Lake. Goal B.
- Minimize activities which disturb the scenic beauty of the lake. Goal A, B, C, D
- Monitor erosion control and sedimentation issues at Martis Creek Lake. Goal A, B, E
- Identify and protect unique or sensitive habitat areas. Goal A, B, D, E
- Increase visitor awareness of impacts caused by misuse of natural resources through improved public participation programs, media information programs, and interpretive activities. Goal A, B, C, D
- Stop unauthorized uses of public lands such as unpermitted structures, clearing of vegetation, control of animals, unauthorized roadways, off-road vehicle (ORV) use, trash dumping, and poaching that create negative environmental impacts. Goal A, B, C, D, E
- Employ professionals in the fields of recreation, biology, forestry, landscape architecture, ecology, and related sciences to implement and monitor resource management programs. Goal A, B, C, D

3.1.3 Environmental Compliance Objectives

- Ensure compliance with Engineering Regulation ER 200-2-3, *Environmental Compliance Policies* for Martis Creek Lake and Dam. Goal A, B, E
- Comply with the USACE sustainability requirements. Goal B
- Improve the lake's water quality to sustain healthy fish and wildlife populations, habitat conditions, recreation opportunities, and avoid negative effects to public water supply, ensuring public health and safety. Goal A, B, C, D, E
- Include both point and non-point sources of water quality problems during decision making. Goal A, B, D, E
- Improve coordination, communication, and cooperation between regulating agencies and non-governmental organizations to resolve and/or mitigate environmental problems. Goal A, B, D, E

3.1.4 Visitor Information, Education, and Outreach Objectives

- Provide additional opportunities (i.e. town hall meetings) for collaboration between agencies, special interest groups, and the general public. Goal A, D, E
- Implement additional educational and outreach programs at the lake. Topics may include; water quality, history, cultural resources, water safety, recreation, nature, and ecology. Goal A, B, C, D, E

- Establish a network among local, state, and federal agencies concerning the exchange of lake policy and regulation related information for public education and management purposes. Goal A, D, E
- Increase public awareness of special activities at the facility. Goal A, B, C
- Promote the USACE water safety messaging. Goal A, C, D, E
- Educate visitors and volunteers on laws, regulations, and policies regarding, vegetation modification, earth moving activities, and control of animals (e.g. trail maintenance, erosion control, facility improvements, and leash laws). Goal A, B, C, D, E

3.1.5 Economic Impacts Objectives

- Balance economic and environmental interests involving Martis Creek Lake. Goal A, B, C, D, E
- Manage additional commercial development compatible with national Corps policy on both recreation and non-recreational outgrants on public lands classified for High Density Recreation. Goal A, B, C, D, E
- Work with local communities to promote tourism and recreation use of the lake to positively affect socioeconomic conditions surrounding the lake. Goal A, B, C, D, E

3.1.6 General Management Objectives

- Survey and mark the project boundaries to ensure they are clearly recognized in all areas. Goal A, B, D
- Establish access agreements with neighboring communities for their access gates into the Martis Creek Lake Wildlife Area. Goal A, B, D
- Maintain consistency with the USACE Campaign Plan (national level), IPlan (regional level), OPlan (District level). Goal E
- Ensure consistency with Executive Order 13148, 'Greening the Government Through Leadership in Environmental Management' (21 April 2000). Goal E
- Ensure consistency with Executive Orders 13423 and 13514, 'Strengthening Federal Environmental, Energy, and Transportation Management (24 January 2007) and 'Federal Leadership in Environmental, Energy, and Economic Performance (5 October 2009), respectively, to guarantee compliance with Leadership in Energy and Environmental Design (LEED) criteria for government facilities. Goal E
- Manage non-recreation outgrants, such as utility easements, in accordance with national guidance set forth in ER 1130-2-550. Goal E
- Ensure compliance with 36 CFR Section 327 Goal E

- Seek out partnership opportunities and establish a non-profit for Martis Creek Lake and Dam. Goal A

3.1.7 Cultural Resources Management Objectives

- Increase public awareness of regional history. Goal B, D, E
- Maintain full compliance with Section 106 and 110 of the National Historic Preservation Act; the Archeological Resources Protection Act; and the Native American Graves Protection and Repatriation Act on public lands surrounding the lake. Goal B, D, E
- Work with the Tribes to develop public outreach to educate the public regarding the traditional cultural landscapes and Native American interests in the Martis Valley. Goal A and B.

CHAPTER 4 – LAND ALLOCATION, LAND CLASSIFICATION, WATER SURFACE, AND PROJECT EASEMENT LANDS

4.1 LAND ALLOCATION

Lands are allocated by their congressionally authorized purposes for which the project lands were acquired. There are four land allocation categories applicable to the USACE projects:

1. *Operations*. These are the lands acquired for the congressionally authorized purpose of constructing and operating the project.

2. *Recreation*. These lands were acquired specifically for the congressionally authorized purpose of recreation. These lands are referred to as separable recreation lands. Lands in this allocation can only be given a land classification of "Recreation".

3. *Fish and Wildlife*. These lands were acquired specifically for the congressionally authorized purpose of fish and wildlife management. These lands are referred to as separable fish and wildlife lands. Lands in this allocation can only be given a land classification of "Wildlife Management".

4. *Mitigation*. These lands were acquired specifically for the congressionally authorized purpose of offsetting losses associated with development of the project. These lands are referred to as separable mitigation lands. Lands in this allocation can only be given a land classification of "Mitigation".

4.2 LAND CLASSIFICATION

In order to update the Master Plan and meet the current Land Classification definitions, maps included in the 1977 Master Plan were reviewed and translated to the new definitions. Table 20 provides an illustration of how the 1977 definitions translate to those used in this document.

In some cases, small changes were made to account for new development around the project. Such changes resulted in lands that were classified as Wildlife Management or Low Density Use being reclassified as Recreation. The overall intent of how a specific management area was to be used has not changed.

Land classification designates the primary use for which project lands are managed. Project lands are zoned for development and resource management consistent with authorized project purposes and the provisions of the National Environmental Policy Act (NEPA) and other Federal laws.

1. *Project Operations*. This category includes those lands required for the dam, spillway, offices, maintenance facilities, and other areas that are used solely for the operation of the project.

2. *High Density Recreation*. Lands developed for intensive recreational activities for the visiting public including day use areas and/or campgrounds. These could include areas for concessions (marinas, comprehensive resorts, etc.), and quasi-public development.

3. *Mitigation*. This classification will only be used for lands with an allocation of Mitigation and that were acquired specifically for the purposes of offsetting losses associated with development of the project.

4. *Environmentally Sensitive Areas*. These are areas where scientific, ecological, cultural or aesthetic features have been identified. Designation of these lands is not limited to just lands that are otherwise protected by laws such as the ESA, the National Historic Preservation Act or applicable state statues. These areas must be considered by management to ensure they are not adversely impacted. Typically, limited or no development of public use is allowed on these lands. No agricultural or grazing uses are permitted on these lands unless necessary for a specific resource management benefit, such as prairie restoration. These areas are typically distinct parcels located within another, and perhaps larger, land classification, area.

5. *Multiple Resource Management Lands*. This classification allows for the designation of a predominate use as described below, with the understanding that other compatible uses described below may also occur on these lands. (e.g. a trail through an area designated as wildlife management.) Land classification maps must reflect the predominant sub-classification, rather than just Multiple Resource Management.

(a) *Low Density Recreation*. These lands are designated for dispersed and/or low impact recreation use. Development of facilities on these lands is limited. Emphasis is on providing opportunities for non-motorized activities such as hiking, biking, fishing, sight-seeing, or nature study.

Some limited facilities are permitted, including trails, parking areas and vehicle controls, as well as primitive camping and picnic facilities.

(b) *Wildlife Management*. These lands are designated specifically for wildlife management, although all project lands are managed for fish and wildlife enhancement in conjunction with other land uses. Wildlife management lands are actively managed or enhanced to create valuable habitat suitable for game and/or non-game species. These activities are conducted as identified by the managing agency's forest and wildlife management plans.

Wildlife lands are available for dispersed uses such as sightseeing, wildlife viewing, and nature study, hiking, and biking. Consumptive uses of wildlife, such as fishing are encouraged when compatible with the wildlife objectives for a given area and with federal and state fish and wildlife management regulations.

(c) *Herbaceous Management:* Management activities in these areas focus on the protection and enhancement of forest resources and vegetative cover. The USACE conducts active vegetation management activities, protect water quality, improve aesthetics, and enhance wildlife habitat.

(d) *Proposed Recreation:* This sub-classification consists of lands for which recreation areas are either currently in the planning stages, are held in an interim status for future recreation possibilities, or lands that contain existing recreation areas that have been temporarily closed. The lands are managed for multiple purposes including wildlife and vegetation management and low density recreation until if and when they are developed as recreation areas.

6. *Water Surface*. If the project administers a surface water zoning program, then it should be included in the Master Plan.

(a) *Restricted*. Water areas restricted for project operations, safety, and security purposes.

(b*) Designated No-Wake*. To protect environmentally sensitive shoreline areas, recreational water access areas from disturbance, and for public safety. The Martis Creek Lake and

Dam Project does not allow motorized vessels on the lake therefore, this classification is not applicable.

(c*) Fish and Wildlife Sanctuary*. Annual or seasonal restrictions on areas to protect fish and wildlife species during periods of migration, resting, feeding, nesting, and/or spawning.

(d) *Open Recreation*. Those waters available for year round or seasonal water-based recreational use.

4.3 PROJECT EASEMENT LANDS

This Classification is for all lands for which the USACE holds an easement interest, but not a fee title. Planned use and management of easement lands will be in strict accordance with the terms and conditions of the easement estate acquired for the project. Easements are acquired for specific purposes and do not convey the same rights or ownership to the USACE as other lands.

(1) *Operations Easement*. The USACE retains rights to these lands necessary for project operations.

(2) *Flowage Easement*. The USACE retains the right to inundate these lands for project operations.

(3) *Conservation Easement*. The USACE retains rights to lands for aesthetic, recreation and environmental benefits.

While these lands are outlined in this Master Plan, specific locations and boundaries are defined by the USACE Real Estate documents.

Table 20. Master Plan Comparison

1977 Master Plan			2014 Draft Master Plan with Revised Land Allocations and Land Classifications*		
Location	**Land Allocation**	**Land Classification**	**Location / Management Unit Name**	**Land Allocation**	**Land Classification**
Campground	Operations: Recreation-Intensive Use	Operations: Recreation-Intensive Use	MU-4: Martis Creek Recreation Area	Recreation	High-Density Recreation
Picnic Areas	Operations: Recreation-Intensive Use	Operations: Recreation-Intensive Use	MU-5: Sierra View Day-Use Area	Recreation	Multiple Resource Management: * Low-Density Recreation
Day-Use	Operations: Wildlife Management	Operations: Wildlife Management	MU-6: Sage Brush Day-Use Area	Recreation	Multiple Resource Management: * Low-Density Recreation
	Operations: Recreation-Low Density Use	Operations: Recreation-Low Density Use	MU-7: Black Bear Day-Use Area	Recreation	Multiple Resource Management: * Low-Density Recreation
Wildlife Area	Operations: Wildlife Management	Operations: Wildlife Management	MU-9: Wel-Mel-Ti Wildlife Area	Fish and Wildlife	Multiple Resource Management: * Wildlife Management * Low-Density Recreation * Environmentally Sensitive
	Operations: Wildlife Management (USFS Withdrawn Lands)	Operations: Wildlife Management			
	Operations: Wildlife Management	Operations: Wildlife Management	MU-8: Transportation Corridor 1	Fish and Wildlife	Multiple Resource Management: * High-Density Recreation
Lake	Operations: Recreation-Low Density Use	Operations: Recreation-Low Density Use	MU-2: Lake	Operations	Water Surface
Operations	Project Operations	Project Operations	MU-1: Dam Operations, Management	Operations	Project Operations
Operations	Project Operations	Operations	MU-10: Transportation Corridor 2	Operations	Multiple Resources Management Project Operations Low-Density Recreation
Operations	Project Operations	Project Operations	MU-3: Park Operations (Within MU-4)	Operations	Project Operations
Flowage Easement	Project Operations	Flowage Easement	Flowage Easement	Operations	Project Operations

CHAPTER 5 – RESOURCE PLAN

5.1 RESOURCE PLAN

This chapter describes in broad terms how project lands and resources will be managed. For Martis Creek Lake, the PDT chose the Management by Area approach as set forth in EP 1130-2-550. The following sections describe how project lands and resources will be managed.

A wide variety of factors must be considered when developing the Martis Creek Lake and Dam Project lands and resources. These factors include physical characteristics, land and lake access, compatibility with adjacent land uses, existing and projected visitation levels and visitor-use pattern, the economics of operation and maintenance, and federal, state and local initiatives. It is vital that any future recreation development not destroy the features of the Martis Creek Lake and Dam Project that visitors come to enjoy. Therefore, the overall objective in development at the Martis Creek Lake and Dam Project is to maximize the recreation benefits while preserving the natural resources and scenic qualities.

The purpose of the plan is to provide a long-range view of project area development. As such, it is important to (1) examine the various segments of the project and their potential for development and (2) examine each management area within the various segments and determine how each area can be developed to fit with the overall goals of the Martis Creek Lake Project.

This chapter identifies the management units and resource objectives established for Martis Creek Lake. The locations of the areas are shown on Figures 6 through 14. The management area resource objectives reflect site-specific application of the lake-wide resource objectives established in the previous chapter. Implementation of these objectives will help to satisfy identified regional needs and desires of other agencies and the public within the limits and capabilities of the lake resource base.

The discussion of each USACE-owned management unit contains the following components:

Management Area Name and /or Unit (MU) number

This is a sequential number assigned to each management unit around Martis Creek Lake beginning with the Dam Area Project Operations Area as MU #1 continuing to MU #10.

Land Classification Justification

This provides a brief description of how the land classification was determined based on resources, required use, and constraints.

Management Agency

This is the agency directly responsible for the management of a particular area.

Location /Acreage

This provides a brief description of the location of the management unit, including access to the area.

Resource Objectives

This section provides a brief list of the objectives for each management unit. Each unit has more than one resource objective, and these objectives are not prioritized. In some areas, the resource objectives may not be implemented for some time.

Development Needs

This section provides a summary description of the techniques that can or should be undertaken to implement the area resource objectives. The concepts discussed under this component are not all-inclusive; rather, they convey an understanding of the range of development and management strategies that could be used to implement the resource objectives. The development needs will be further refined and detailed in subsequent planning and design documents, including Operational Management Plans (OMPs) and future Design Memorandums (DMs). The ultimate decisions regarding the methods that are actually implemented will result from coordination between the USACE, State, local agencies, non-governmental organizations, and the public where appropriate and as opportunities arise.

Special Conditions

This optional component is used when there are very specific issues that apply to the MU that may affect the overall management outcome of the unit.

MANAGEMENT UNITS

MANAGEMENT UNIT #1 - DAM OPERATIONS, MANAGEMENT

Land Allocation

Lands in this MU were purchased for the initial construction and subsequent operations of the Martis Creek Lake Dam and Spillway. These lands are occupied by or are adjacent to the dam.

Land Classification

Project Operations land includes those lands required for the dam, spillway, levees, offices, maintenance facilities, and other areas that are used solely for the operation of the project.

Land Classification Justification

The dam and areas adjacent to it, the spillway, and Martis Creek below the dam, are all used primarily for project operations. Uses that interfere with operational activities, compromise the structural integrity of the project or its facilities, or create a safety hazard for visitors or project personnel cannot be allowed.

Management Agency – USACE, Sacramento District

Location

The Dam Operations MU lies within Nevada County encompassing the northern portion of the project boundary. The dam is accessed by visitors from the dam gate at the end of Martis Dam Road and from the dirt road at the day use area.

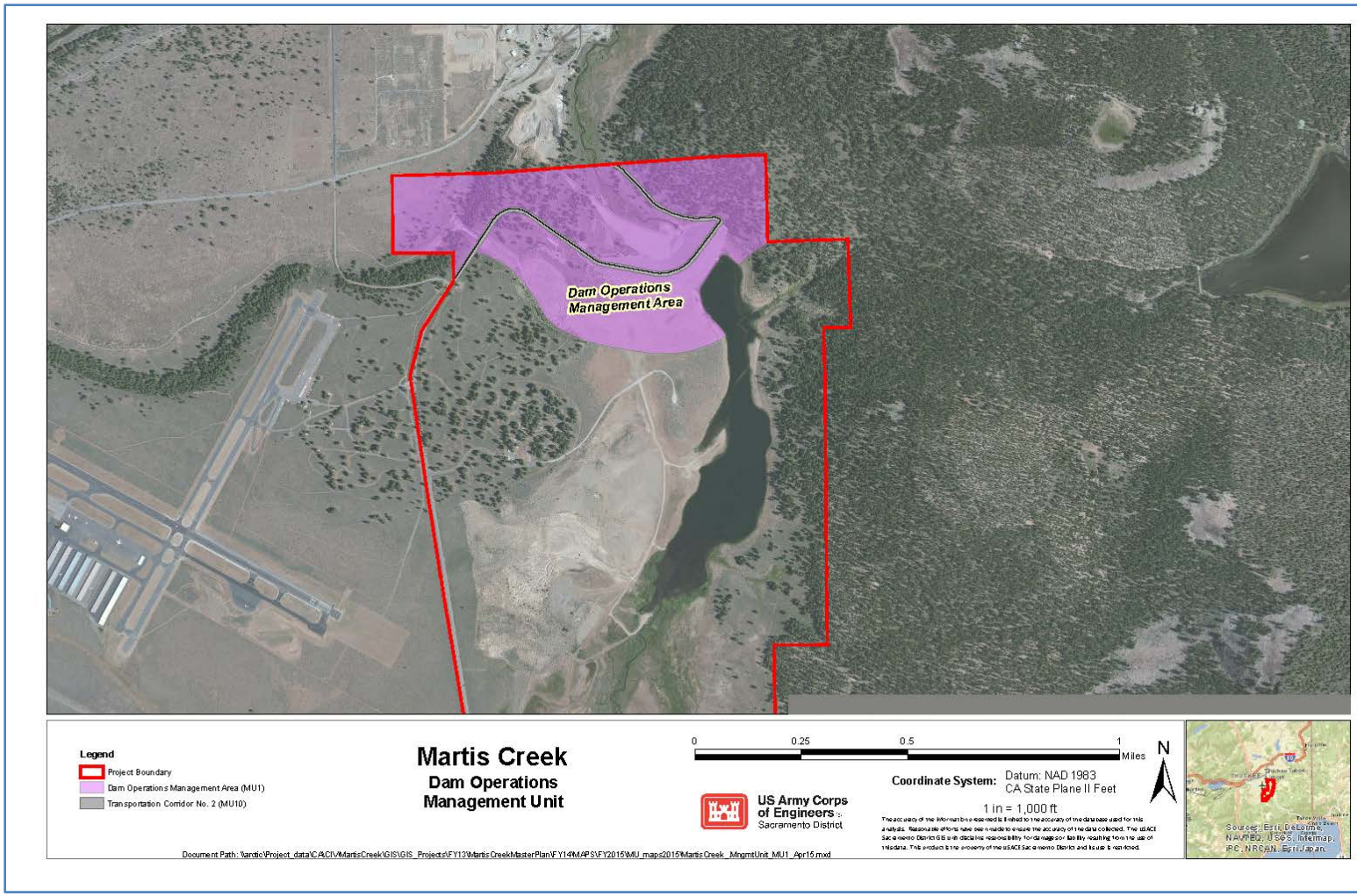

Figure 5. Dam Operations

Acreage

This MU has approximately 174 acres.

Description

This MU consists of the dam and associated facilities, including the spillway, as well as surrounding areas. The predominant vegetation in MU #1 is sagebrush, rabbit brush, and bitter brush. Vegetation types include barren or ruderal wet montane meadow, dry montane meadow, and ponderosa pine. Wetlands in the MU consist of wet meadow, open water, scrub/shrub wetland and seasonal wetland. A riparian corridor exists around the upper forks of Martis Creek.

Use

Heavy - Although this area is used for project operations and is subject to closure, this MU is a popular recreational site because it is adjacent to the trailhead to Waddle Ranch. The primary purpose of the Martis Dam road is for operations and maintenance of the dam. It is also used for walking and nature appreciation.

Resource objectives

Economic Impact, Natural Resource Management, Environmental Compliance, Cultural Resource Management.

Development Needs

- Include informational signage about the purpose of the dam
- Conserve wetland habitat (review dam design memorandum to ensure compliance)
- Develop Wetlands Management Plan
- Develop an Invasive Species Management Plan to control and prevent non-native invasive species, such as Eurasian Milfoil, Zebra and Quagga Mussels, and Musk Thistle
- Implement ecosystem management principles to actively manage and conserve fish and wildlife resources, with additional management of special status species
- Develop Fisheries Management Plan to improve fish habitat

Special Considerations

- The Bubonic plague is endemic to the Martis Valley area. Educate visitors to the risks that are associated with this issue

MANAGEMENT UNIT #2 - LAKE

Land Allocation

Lands in this MU were purchased for the creation of the Martis Creek Lake. These lands were acquired for project operation purposes and are allocated for use as developed public areas for intensive recreation activities.

Land Classification

Water Surface - Designated Non-motorized

Land Classification Justification

For safety and security reasons, this area is classified as a restricted water surface. Designated non-motorized surface waters have been established to protect environmentally sensitive species, and for public safety.

Management Agency – USACE, Sacramento District

Location

At minimum pool, the lake lies primarily within Nevada County (Figure 6). At gross pool, the Lake can extend into Placer County. The maximum pool water surface of the lake stretches from the dam south to the wildlife area. Gross pool elevation is 5,838 feet.

Acreage

This MU consists of 72 acres at minimum pool.

Description

Three forks of Martis Creek converge to create Martis Creek Lake. At gross pool, wetlands in this MU consist of scrub/shrub, seasonal wetlands, intermittent drainage, open water, and wet meadow.

Use

Martis Creek Lake was originally authorized for flood risk management and water supply as needed, and was later authorized for recreation. Martis Creek Lake is managed as a catch and release fishery by the California Department of Fish and Wildlife. The lake is

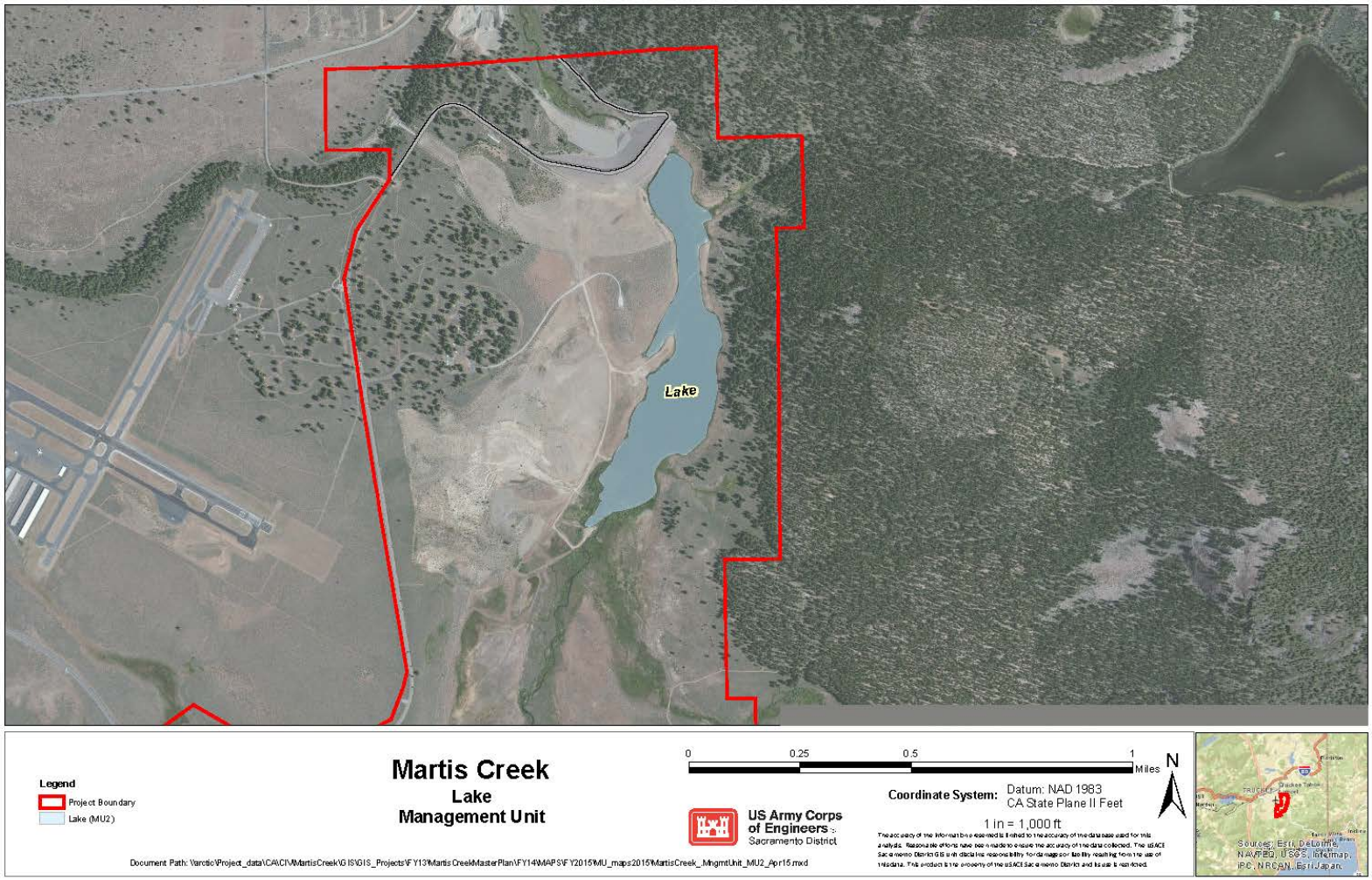

Figure 6. Lake Management Unit

used for low-density recreation. No motorized vessels are allowed on the lake. Fishing season is from the last Saturday in April until November 15 and is catch and release only. Hunting of waterfowl takes place during the appropriate hunting season as stipulated by California Department of Fish and Wildlife, after the closing of the gates to the project.

Resource Objectives

Recreation, Economic Impact, Natural Resource Management, Environmental Compliance, Cultural Resource Management, Visitor Information and Education.

Development Needs

- ADA compliant fishing pier
- Develop an Invasive Species Management Plan to control and prevent non-native invasive species, such as Eurasian Milfoil, Zebra and Quagga Mussels, and Milk Thistle
- Develop Fisheries Management Plan to improve fish habitat
    - Partner with resource and stakeholder agencies
- Continue catch and release policy

Special Considerations

- The Lake is currently kept under the 5,810 foot elevation due to Dam Safety concerns.

MANAGEMENT UNIT #3 - PARK OPERATIONS

Land Allocation

Lands in this MU were purchased for the operations of the Martis Creek Lake Project.

Land Classification

Project Operations - Land classification includes those lands required for the dam, spillway, levees, offices, maintenance facilities, and other areas that are used solely for the operation of the project.

Land Classification Justification

The operation and maintenance of the Martis Creek Lake and Dam Project is the primary purpose of this MU. Uses that interfere with operational activities, compromise the structural integrity of the project or its facilities, or create a safety hazard for visitors or project personnel cannot be allowed. Within these constraints, Project Operations lands provide important opportunities for visitor use, interpretation, and wildlife management.

Management Agency – USACE, Sacramento District

Location

This MU is in Nevada County north of Highway 267, along the entrance road to the Martis Creek Recreation Area and immediately adjacent to the Alpine Meadows Campground.

Acreage:

This MU contains approximately 0.5 acres

Description

This area consists of a maintenance compound, park office, maintenance shop, storage area, and parking area. No wetlands exists in the Park Operation MU.

Use

This area is used for the management and operations and use of the project.

Resource objectives

Economic Impact, Natural Resource Management, Environmental Compliance, Cultural Resource Management, and Visitor Information and Education.

Development Needs

- Storage building for large equipment
- Sewer connectivity
- Solar Power
- Increased Staffing
- Year-round water system
- New LEED certified project headquarters and maintenance facility

Special Considerations

- The Bubonic plague is endemic to the Martis Valley area. Educate visitors to the risks that are associated with this issue

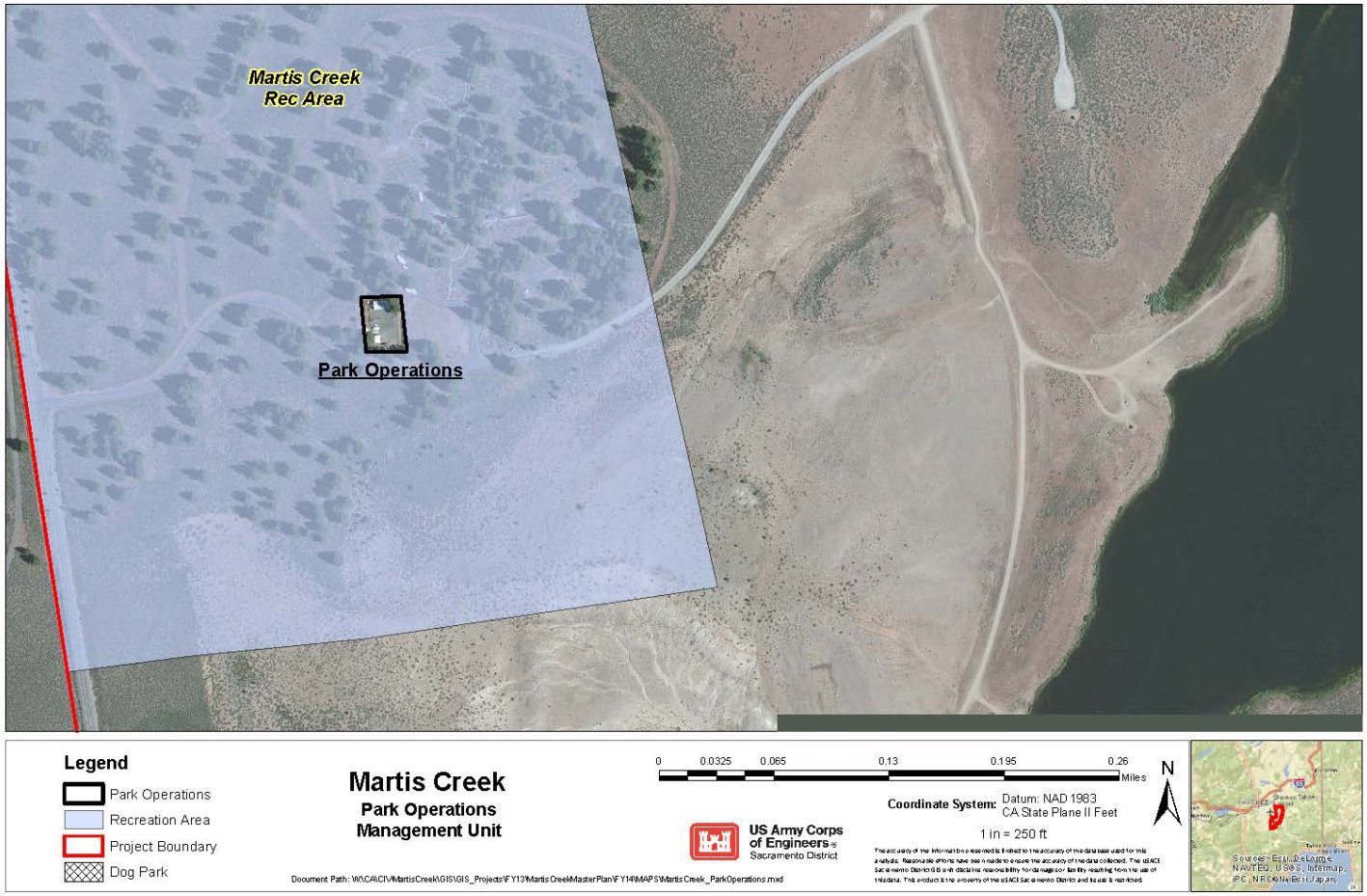

Figure 7: Park Operations

MANAGEMENT UNIT #4 - MARTIS CREEK RECREATION AREA

Land Allocation

Lands in this MU were acquired for project operation purposes and are allocated for use as developed public areas for intensive recreation activities.

Land Classification

High Density Recreation - This land classification is for those lands intended to be developed or are currently developed for intensive recreational activities for the visiting public including day use areas and/or campgrounds.

Land Classification Justification

The location and design of recreation areas and facilities takes into account the desired recreation experience. Criteria such as spacing, buffer zones, vegetative screening, and other considerations are used in the design of recreation facilities to ensure that visitors have adequate access to the lake and quality recreational experiences.

Management Agency – USACE, Sacramento District

Location

This management unit is located in Nevada County north of Highway 267, via Martis Dam Road, adjacent to Martis Lake Road, located north of Sage Brush and west of Sierra View Management units. It surrounds the Project Operations and continues north to the Dam MU.

Acreage

This MU has approximately 130 acres.

Description

The Martis Creek Recreation MU contains 25 developed campsites, picnic tables, tent pads, BBQ facilities, vault toilets and an amphitheater. The MU contains ponderosa pines, sagebrush scrub uplands, sugar pines, and ruderal plants. Understory vegetation consists of a moderate-to-dense stand of bitterbrush (purshia tridentate), sagebrush

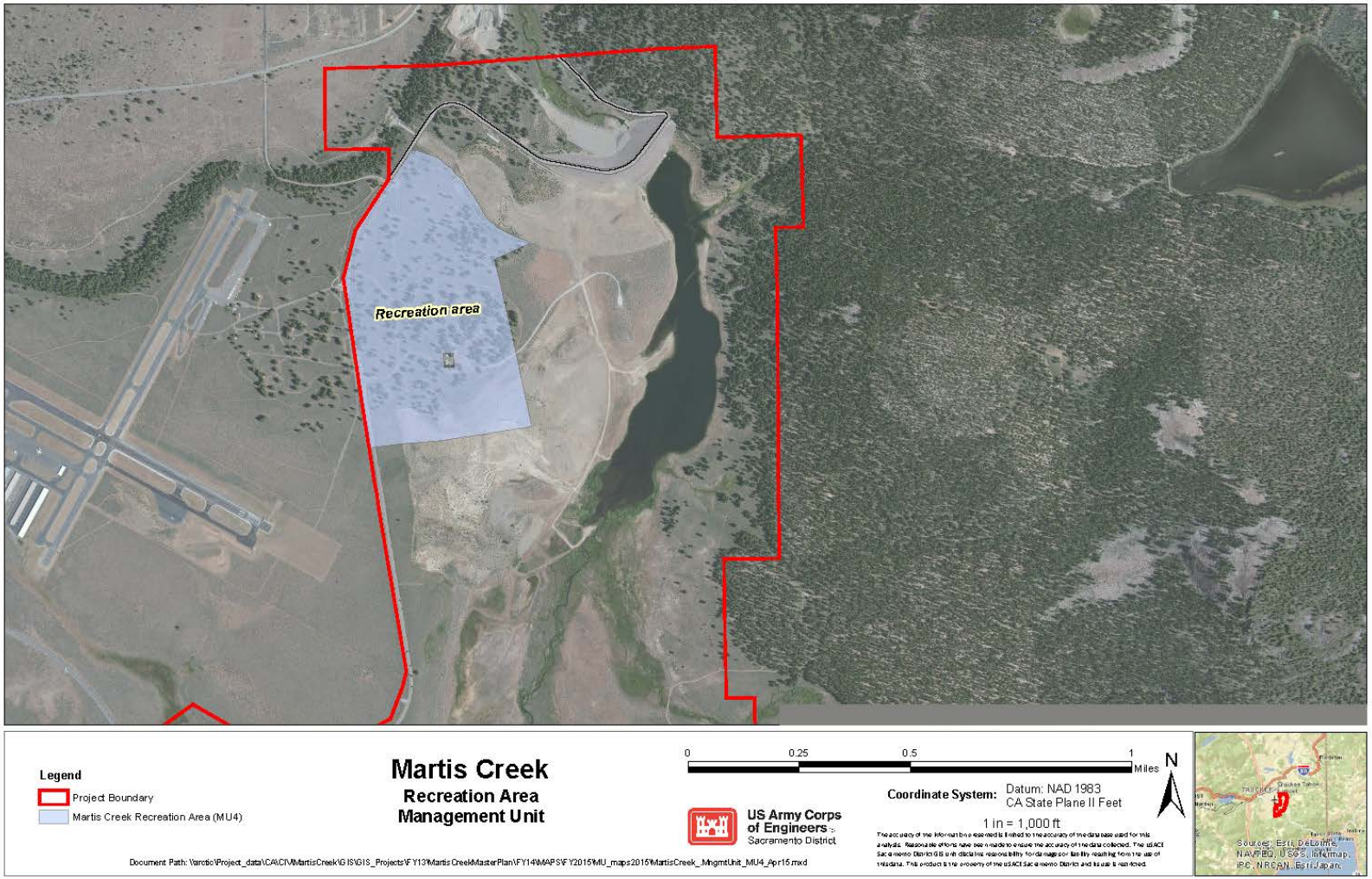

Figure 8. Martis Creek Recreation Area

(Artemesia tridentate), and Mules ear (Wyethia mollis). There are no wetlands in this MU. At gross pool the Martis Creek Recreation Area has open water.

The elevation here ranges between 5,820 and 5,880 feet. Slopes vary between 2% and 20%. The aspect is east.

Use

This area contains a first come/first served campground, along with areas for hiking, bird watching, and other day use activities. The campground is heavily used and is full on weekends. The primary types of camping occurring in this MU is RV and tent camping.

Access to the Waddle Ranch Preserve is located at the junction of Glider Port Road and Martis Dam Road. The access trail follows Martis Dam Road, crossing the Dam. An informational sign and a viewing bench are located within this area.

Resource Objectives

Recreation, Economic Impact, Natural Resource Management, Environmental Compliance, Cultural Resource Management, and Visitor Information and Education

Development Needs

- Connect MU to septic sewer system
- Develop a group campground and group picnic area with restrooms and shower facilities (solar heating or propane)
- Repair and update campground
- Install new restroom facilities with showers, flush toilets, dish washing stations and electrical
- Install playground
- Provide ADA-accessible campsites and restrooms
- Provide limited electrical hookups
- Plant additional native trees and shrubs
- Implement Forestry Management Plan for fuels reduction and ecosystem health
- Trail connection_to the main gate from the group campground – Provide ADA accessibility
- Map all trails within this MU
- Install a dump station
- Develop designated dog off-leash area with parking spaces

    - Develop well water source, benches, picnic tables, trash can with dog waste bags, water features, and other enhancements.
    - Develop trail from campground to dog area off-leash
- Develop road to the dog off-leash area
- Provide for more signage to inform visitors where dogs are required to be on leash and why
- Promote more public outreach to all visitors regarding rules about dogs, bikes, and trail etiquette
- Continue rodent control program in the campgrounds to minimize the possibility for plague in accordance to the guidance of the California Department of Public Health.
- Develop trail to the playground.
- Repave road from main road junction through campground
- Expand current campground sites
    - Build one more campground loop as proposed in the previous Master Plan

Special Considerations

- The Bubonic plague is endemic to the Martis Valley area. Visitors should be made aware of the risks that are associated with this issue
- Seek opportunities with partners to create recreational enhancements

MANAGEMENT UNIT #5 - SIERRA VIEW DAY-USE AREA

Land Allocation

Lands in this MU were acquired for project operation purposes and are allocated for low density recreation activities. These lands are required for extensive recreation uses (as opposed to intensive recreation uses at the developed sites), for maintenance of resources for public enjoyment of the lake area, and as open space.

Land Classification

Multi Resource Management. – Low Density Recreation

Land Classification Justification

These lands are designated for dispersed and/or low-impact recreation use. Development of facilities on these lands is limited. Emphasis is on providing opportunities for non-motorized, low-density, dispersed recreation uses such as walking, fishing, hunting, or nature study. Site-specific, low-density activities such as picnicking may be allowed. Some limited facilities are permitted, including trails, parking areas and vehicle controls, picnic tables, and a portable toilet.

Management Agency – USACE, Sacramento District

Location

This MU is located north of Highway 267, via Martis Dam Road to Martis Lake Road, located north of Sage Brush and east of Martis Creek Management units. This MU is immediately west of and bordering the Lake.

Acreage

This MU is approximately 142 acres.

Description

This MU lies within Nevada County. Sierra View MU is used for dispersed and low-impact/low-density recreation use and picnicking. There are two picnic tables with shade shelters, a portable toilet, parking areas and rock barriers for shoreline protection. Currently there are no established trails through this MU.

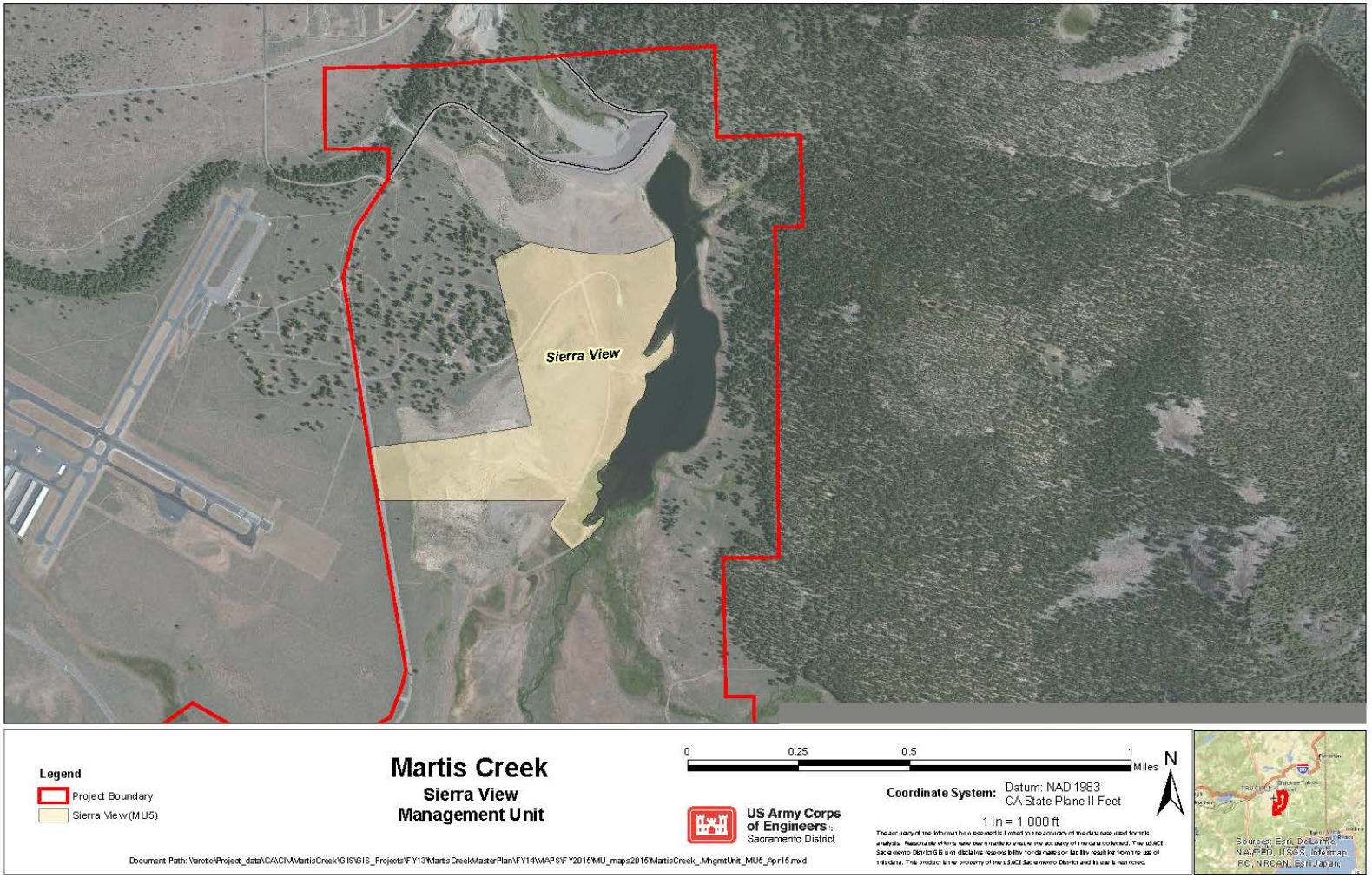

Figure 9. Sierra View

Vegetation in this MU is classified as barren/ ruderal, sagebrush scrub/upland, and ponderosa pine. Wetlands in this MU consist of: scrub/shrub, seasonal wetlands, intermittent drainage, open water (at gross pool) and wet meadow.

Use

This MU has moderate, but steady day use. Popular activities in this area include: dog walking, shoreline fishing, wildlife viewing, picnicking, hiking and biking. This MU is open for hunting from November 16th through April 15th, in accordance with the California Department of Fish and Wildlife hunting and fishing regulations.

Resource Objectives

Environmental Stewardship, Cultural Resources Management, Recreation, Natural Resource Management, Environmental Compliance, and Visitor Information and Education

- Protect and maintain habitat by increasing/improving forage – identify and remove invasive species
- Study, design and implement erosion control measures to restore Dam borrow area
- Protect and preserve cultural resources
- Study, design, and implement erosion control measures to restore the Dam borrow area

Development Needs

- Install additional picnic shelters with improvements
- Develop a trail segment to larger planned trail around the lake
- Map all trails within this MU
- Improve and maintain roads throughout the MU– decommission volunteer roads
- Design and install interpretive signs regarding biological and cultural resources
- Radio control airplanes area – need to consult with airport
- Install disabled access area for fishing
- Provide for more signage to inform visitors where dogs are required to be on leash and why
- Promote more public outreach to all visitors regarding rules about dogs, bikes, and trail etiquette

Special Considerations

- Martis Creek Lake is open for hunting season (November 16th through April 15th) after the main gate closes at the end of fishing season, in accordance with the California Department of Fish and Wildlife hunting and fishing regulations. Hunting is prohibited for the rest of the year due to public safety concerns.

MANAGEMENT UNIT #6 - SAGE BRUSH DAY-USE AREA

Land Allocation

These lands were acquired for project operation purposes and are allocated for low density recreation activities. These lands are required for extensive recreation uses (as opposed to intensive recreation uses at the developed sites), for maintenance of resources for public enjoyment of the lake area, and as open space.

Land Classification

Multiple resource management – Low Density

Land Classification Justification

These lands are designated for dispersed and/or low-impact recreation use. Development of facilities on these lands is limited. Emphasis is on providing opportunities for non-motorized activities such as walking, fishing, hunting, or nature study. Site-specific, low-density activities such as picnicking may be allowed. Some limited facilities are permitted, including trails, parking areas and vehicle controls, picnic tables, and a portable toilet.

This MU is used for a wide variety of low-density, dispersed recreation uses, such as hunting, hiking, and other low-impact and dispersed recreational activities. This MU also contains a diversity of habitat types and wildlife species, including upland game birds.

Management Agency – USACE, Sacramento District

Location

The Sagebrush Day-Use Area is located in Placer County, adjacent to Martis Dam Road, north of Highway 267, and abutting Martis Creek to the east.

Acreage

This MU has approximately 297.5 acres.

Description

The topographical relief of this MU is rolling and generally sloping to the east towards Martis Creek. This MU has been greatly impacted throughout time due to the fact it was

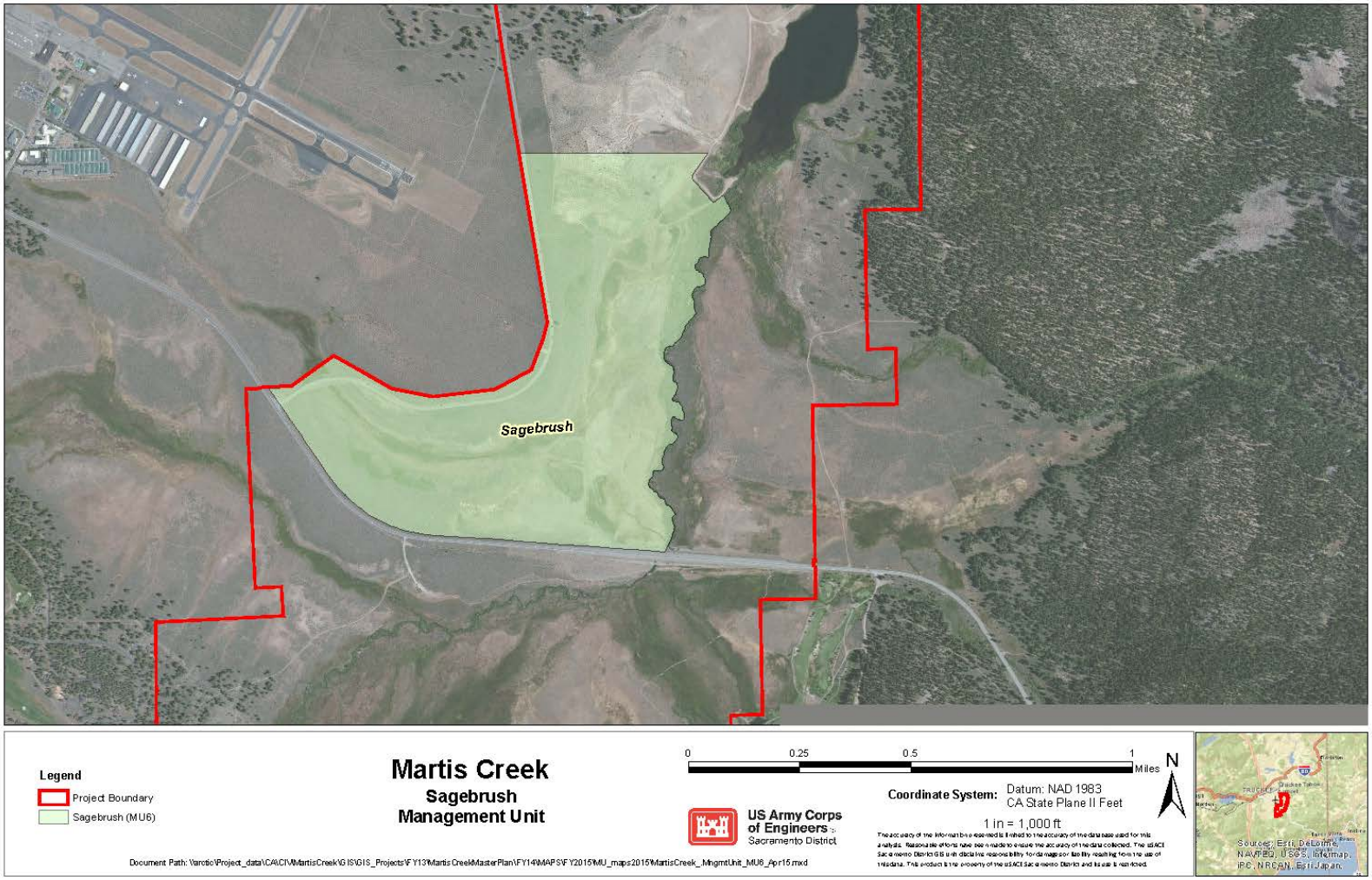

Figure 10. Sage Brush Management Unit

used as the primary borrow for construction of the Martis Creek Dam. The vegetation in this MU consists of barren/ ruderal and sagebrush scrub. Wetlands include: Open Water, shrub/scrub, wet meadow, seasonal wetland, and intermittent drainage. A historic railroad bed is still apparent in the southern portion of this MU.

Use

This MU is currently underutilized and is not easily accessible. Potential uses include hunting, snowshoeing, cross-country skiing, and wildlife viewing.

This MU is open for hunting season (November 16th through April 15th) after the main gate closes at the end of fishing season, in accordance with the California Department of Fish and Wildlife hunting and fishing regulations. Hunting is prohibited for the rest of the year due to public safety concerns.

Resource objectives

Recreation, Natural Resource Management, Environmental Compliance, Cultural Resource Management, Visitor Information and Education

Development Needs

- Construction of a bridge across creek to connect trail around lake
- Constructions of a trail from main parking lot to Waddle Ranch
- Construction of a trail in partnership with the Truckee-Donner Land Trust along the east side of lake to connect with Glenshire and Waddle Ranch
- Map all trails within this MU
- Expand the Parking Lot along Martis Dam Road and install vault toilet
- Install picnic areas and shade structures
- Develop a trail segment to larger planned Lake Trail around the lake
- Design and install interpretive signs biological and cultural resources
- Protect and maintain habitat by increasing/improving forage – identify and remove invasive species
- Study, design and implement erosion control measures to restore Dam borrow area
- Protect and preserve cultural resources
- Provide for more signage to inform visitors where dogs are required to be on leash and why

- Promote more public outreach to all visitors regarding rules about dogs, bikes, and trail etiquette
- Rehabilitate the snowmelt drainage system from Martis Dam Road near the junction of MDR and Highway 267

Special Considerations

- Look for partners to collaborate with for habitat restoration.
- The Bubonic plague is endemic to the Martis Valley area. Educate visitors to the risks that are associated with this issue.

MANAGEMENT UNIT #7 - BLACK BEAR

Land Allocation

Lands in this MU were acquired for project operation purposes and are allocated for low density recreation activities. These lands are required for extensive recreation uses (as opposed to intensive recreation uses at the developed sites), for maintenance of resources for public enjoyment of the lake area, and as open space.

Land Classification

Multi-Resource Management/Low Density/ Vegetative Management

Land Classification Justification

The accessibility to this MU limits it to a Low Density Use.

Management Agency – USACE, Sacramento District

Location

Black Bear MU is located both Nevada and Placer Counties. The MU abuts the eastern portion of the lake at both minimum pool and gross pool and is adjacent to the Waddle Ranch Preserve which is managed by The Donner Land Trust. The topographic relief in the Nevada county portion of the MU slopes westerly towards the lake, while the Placer County portion of the MU is predominantly flat.

Acreage

This MU has approximately 322 acres.

Description

Jeffrey Pine and Ponderosa Pine are the dominant species in the forest stands in this MU, forming an almost pure pine stand. There also a small amount of Lodgepole Pine in the stand, and even less White Fir. This forest stand is an even-aged stand that is approximately 130 years old.

Understory vegetation consists of a moderate-to-dense stand of bitterbrush (*Purshia tridentate*), moderate amounts of sagebrush (*Artemesia tridentate*) and Mules ear

(*Wyethia mollis*), and also includes lesser amounts of Lupine (*Lupinus sp.)*, and currant (*Ribes sp.*).

Wetlands include open water (at restricted pool), shrub/scrub, wet meadow, seasonal wetland, and intermittent drainages.

Visitor Use

Due to the limited access to this MU the visitor use is low. Common recreational activities include hiking, bird and wildlife viewing, and unauthorized mountain biking.

This MU is open for hunting season (November 16th through April 15th) after the main gate closes at the end of fishing season, in accordance with the California Department of Fish and Wildlife hunting and fishing regulations. Hunting is prohibited for the rest of the year due to public safety concerns.

Resource Objectives

Recreation, Natural Resource Management, Environmental Compliance, and Cultural Resource Management.

- Preserve, monitor, and protect cultural resources
- Preserve and protect wildlife habitat
- Implement the Forest Management Plan for habitat, forest health, and fuels reduction

Development Needs

- Construction of a bridge across Martis Creek to connect trail around lake
- Create a trail in partnership with the Truckee-Donner Land Trust along the east side of lake to connect with Glenshire and Waddle Ranch
- Map all trails within this MU
- Develop interpretive panels describing native species (both flora and fauna) and their habitat needs (black bear, beavers, plumas ivasia (sp), etc
- Protect cultural and natural resources at Ratchet Cave
- Conduct trail surveys of unauthorized trails. Incorporate unauthorized trails into official trail system or decommission trail if determined necessary
- Restore decommissioned trails with native vegetation and deter future unauthorized use through outreach/education and enforcement of Title 36.

- Restore meadow and strew habitat along Middle Martis Creek, East Martis Creek, and surrounding Meadows
- Erect signage informing the public of seasonal closures for mountain bike trails
- Design and construct an archery range
- Provide for more signage to inform visitors where dogs are required to be on leash and why
- Promote more public outreach to all visitors regarding rules about dogs, bikes, and trail etiquette

Special Considerations

- Formalize existing partnerships for restoration and trail projects.
- Seek partnerships for habitat restoration and development of official trail system and other recreational opportunities within the MU
- Partner with adjacent land owners regarding forest management/fuels reduction
- The Bubonic plague is endemic to the Martis Valley area. Educate visitors to the risks that are associated with this issue

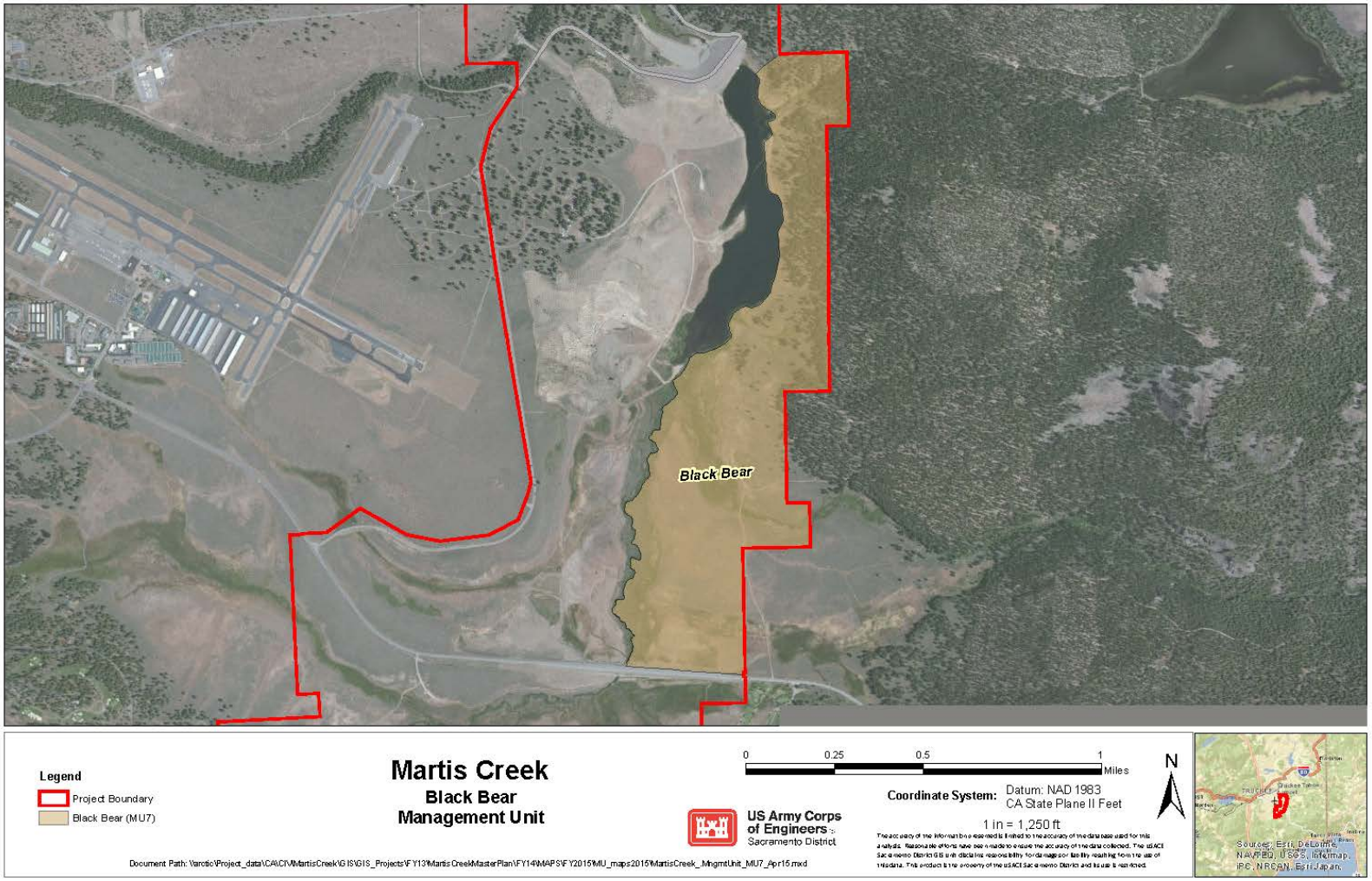

Figure 11. Black Bear Management Unit

MANAGEMENT UNIT #8 - TRANSPORTATION CORRIDOR -1

Land Allocation

Lands in this MU were purchased for reservoir storage to facilitate flood risk reduction. This MU currently contains a California Department of Transportation (CalTrans) easement and right of way for Highway 267.

Land Classification

Intensive Use

Land Classification Justification

This MU contains an established CalTrans right of way and easement for Hwy 267

Management Agency – USACE, Sacramento District. A right-of-way has been issued to Caltrans for Highway 267.

Location

This MU is located parallel to Highway 267.

Acreage

This MU has approximately 40 acres (1.4 miles).

Description

This MU encompasses Highway 267 and the abutting Caltrans road easement. Additionally included in this MU is a multiuse recreation pedestrian trail that parallels but does not abut Highway 267, south of the Caltrans road easement.

Use

Uses in this MU include highway and utility easements and the northern reaches of the Tomkins Memorial Trail.

Resource Objectives

Recreation, Natural Resource Management, Environmental Compliance, Cultural Resource Management, Visitor Information and Education.

Development Needs/Wish List

- A paved multiuse trail is proposed for this MU
- An overflow parking lot for additional visitors
- A new parking lot along the Highway 267 corridor to provide additional access - location to be determined
- Erosion Management Plan for any erosion issues that a new trail may cause
- Interpretive Displays for Ecological, Historical, and Cultural Resources
- Partnership agreement for any entity that chooses to develop a multiuse trail which would include operations and maintenance
- Provide signage to inform visitors where dogs are required to be on leash and why
- Promote more public outreach to all visitors regarding rules about dogs, bikes, and trail etiquette

Special Considerations

This is a very busy corridor. Cars exiting from the Wildlife Viewing Area parking lot cross the Transportation Corridor and can have egress hindered by the slope to the parking lot and lack of clear view of oncoming traffic.

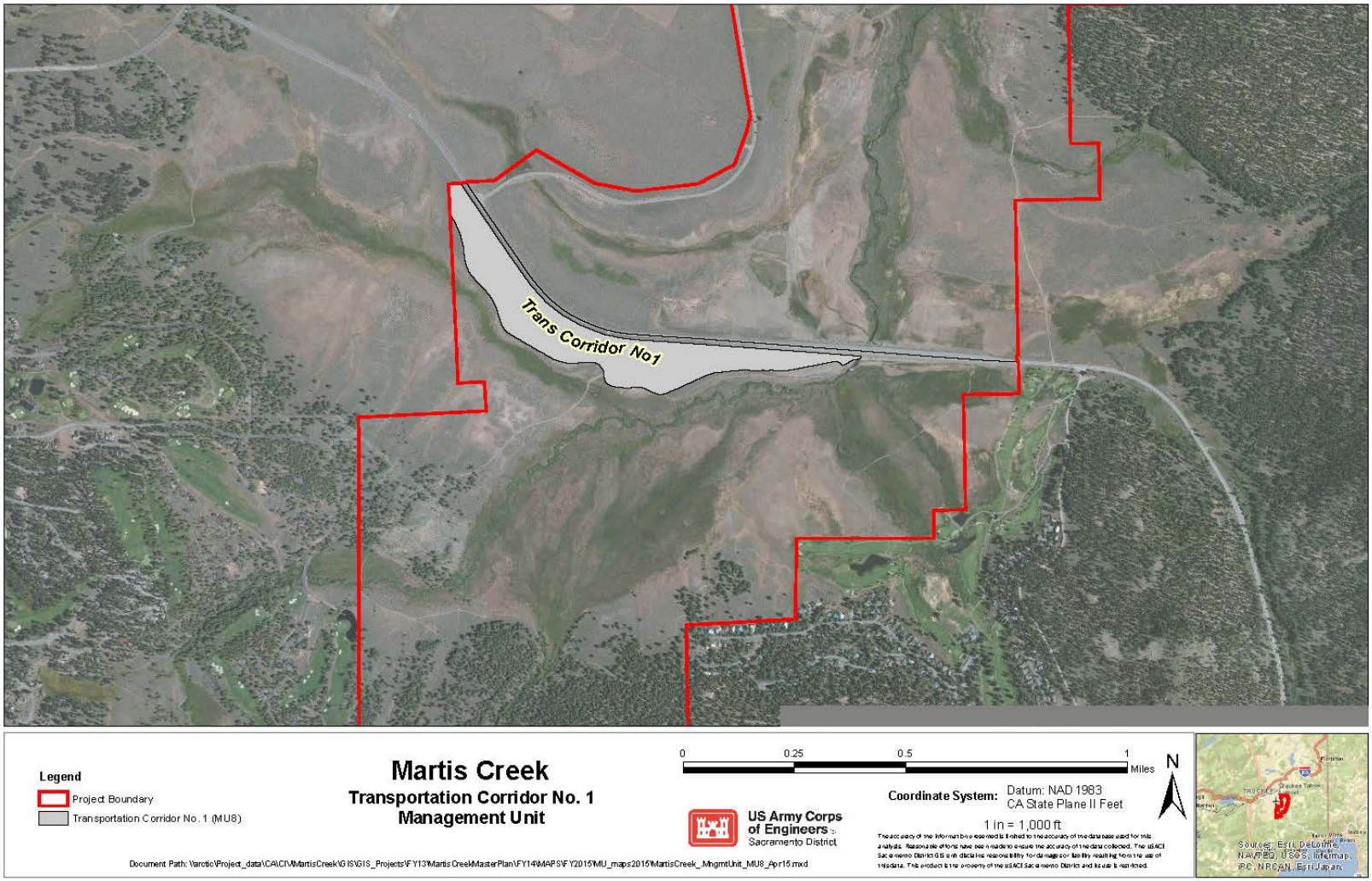

Figure 12. Transportation Corridor 1

MANAGEMENT UNIT #9 - WEL MEL TI WILDLIFE AREA

Land Allocation

Lands in this MU were acquired for project operations and allocated as habitat for wildlife. These lands are continuously available for low density recreation activities.

Land Classification

Multi-Res/Low-density- Environmentally Sensitive Area

Land Classification Justification

These lands are required for extensive recreation uses (as opposed to intensive recreation uses at the developed sites), for maintenance of resources for public enjoyment of the lake area, and as open space.

Portions of this MU have been designated for Low-Density recreation. Areas in this category have been designated as low density to protect natural and cultural resources.

This MU has been designated as an environmentally sensitive area. Areas in this category preserve and protect their natural resource values, scenic values, historic values, fish and wildlife habitat, and/or other special qualities. Although these areas are available for public use, many possess natural features that are managed for research and education purposes with minimal human intervention and impacts. Preservation, restoration, and interpretation are the primary management goals in these areas.

Management Agency – USACE, Sacramento District.

Location

Located in Placer County, south of State Highway 267, three miles south of Truckee. The parking for this area is located ¼ mile east of the main entrance to the Martis Creek Lake.

Acreage

This MU has approximately 711 acres.

Description

The Wel Mel Ti MU has the greatest diversity of habitats of all the MUs at the Martis Creek Lake and Dam Project. This MU consists of mixed coniferous forest, Great Basin sage scrub, red fir forest, montane chaparral, montane meadow, wet meadow, dry meadow, and riparian scrub. Mixed coniferous forest is the dominant habitat type in southern portion of the MU. Martis Creek and its associated wetlands are located in the northern portion of the MU. All of these vegetation communities provide cover, foraging, and breeding habitat for a variety of fish and wildlife species, including several special status species.

Located in this MU is the Tompkins Memorial Trail, which is maintained by the Northstar Community Services District through an unofficial partnership. The trail provides 14.6 miles of unpaved trails through the Northstar community and the Martis Creek Lake and Dam Project. The trail segments located on the USACE property is open to the public for bicycle and pedestrian use. The 0.8-mile trail segment along Martis Creek is limited to pedestrian use. The trails through the Wel Mel Ti Wildlife Viewing Area are some of the most popular trails in the Truckee area. The heavy use of the trail along Martis Creek has led to water quality impacts as erosion of the trail and streambanks lead to sedimentation of the creek, and impacts to wildlife from the presence of humans and dogs in the area (Truckee River Watershed Council 2009).

Facilities in this area include the Wildlife Viewing Area parking area, an interpretative exhibit, and a portable toilet. A gate to the Wildlife Viewing Area parking area is closed during the off-season from mid-November through the end of April. There are numerous benches located throughout the MU along official trails.

Authorized use of this MU includes dog walking (on-leash dog walking along the creek during the bird nesting season), running, hiking, mountain biking, horseback riding along established trails (no riding of a bike or horse is allowed in the creek) and wildlife viewing. Dogs must be on-leash with the parking lot area and within 150 feet of any trail head.

The majority of users of this MU are local from North Lake Tahoe and Truckee. There is foot access from the neighboring communities of Northstar and Lahontan.

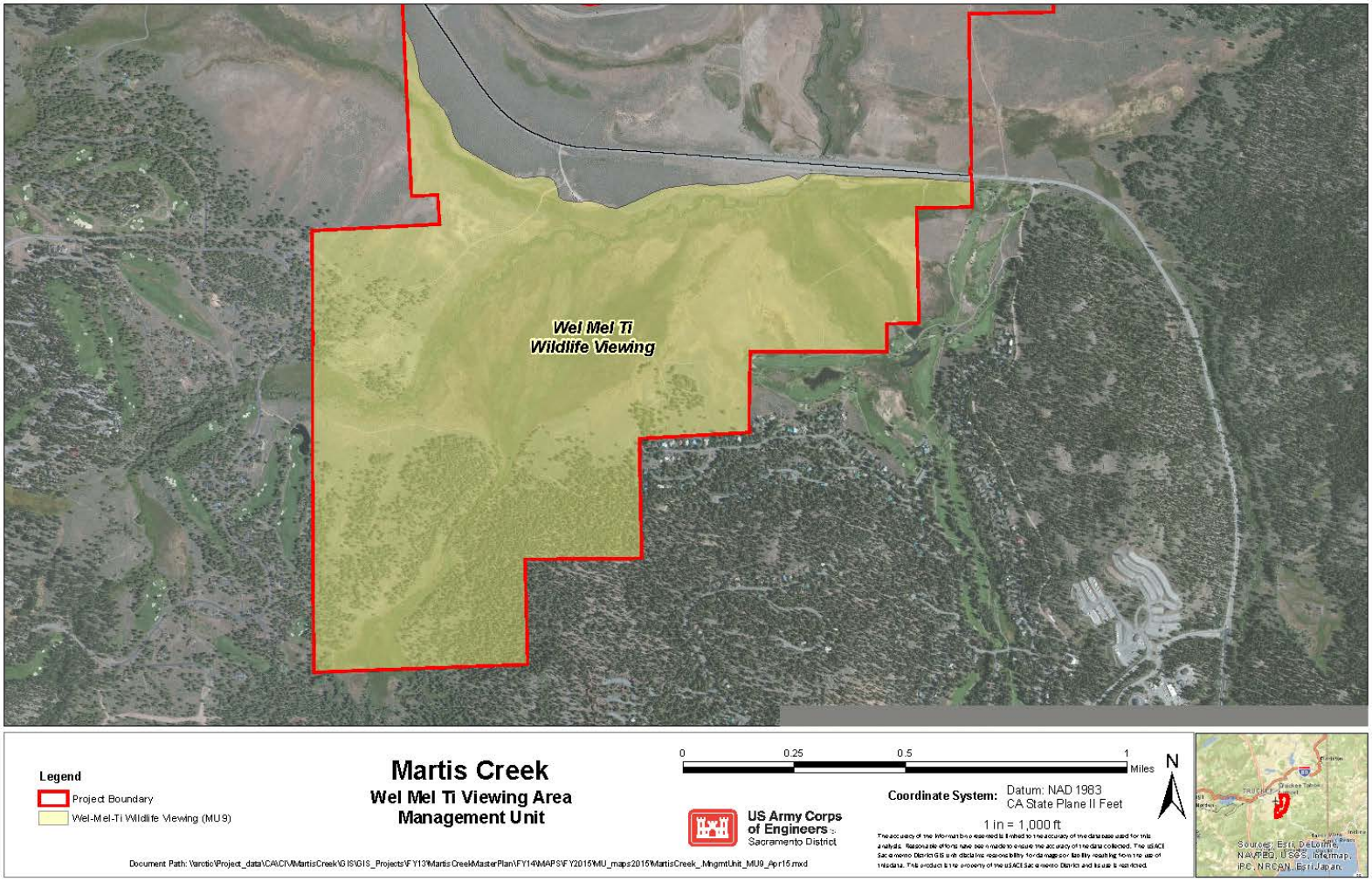

Figure 13. Wel Mel Ti Wildlife Viewing Area

Resource Objectives

Recreation, Natural Resource Management, Environmental Compliance, Cultural Resource Management, Visitor Information and Education.

Resource objectives for Environmentally Sensitive areas include the following:

- Protect and preserve scientific, ecological, cultural, or aesthetic resource sites while meeting other project resource objectives
- Ensure that dog walkers/owners keep dogs out of any area closed by fence or sign for restoration, habitat protection, or safety concerns –Designated areas will be closed seasonally for bird nesting.
- Ensure that no degradation or net loss of wetland areas occur
- Preserve and/or restore wildlife habitat
- Provide a resource-oriented recreation opportunity in as natural an environment as possible
- Rehabilitate and restore the borrow pits used for the construction of the dam
- Continue creek restoration projects in accordance with 404 (b) (1) guidelines and in coordination with the Truckee River Watershed Council.
- Implement the Forest Management Plan for forest health and fuels reduction
- Preserve and protect cultural resources

Resource objectives for Low-Density areas include the following:

- Maintain low density recreation
- Develop and Implement the Trails Management Plan - erosion management,
- Establish agreement with Northstar outlining trail management details (MOA)
- Establish agreement with Lahontan and Northstar communities for their access to the Project (MOA, easement)
- Officially mark the trails with signs and document in a Master Plan supplement
- Create GPS Database of all trails, decommission/rehabilitate unauthorized trails
- Decommission volunteer trails
- Decommission unauthorized entry points onto project lands from adjacent properties
- Ensure authorized trails do not impact wetlands or cause degradation to sensitive habitats
- Require dogs on leash in parking lots and within 150 feet of the parking lot at all times to be compliant with Placer County Ordinances and Title 36, Section 327.11.

- Ensure that dog walkers/owners pick up their dogs' feces immediately and dispose of them in a garbage container
- Develop habitat improvement projects such as raptor perches, invasive species management plan
- Develop and implement a non-native invasive species plan.
- Develop and implement a Cultural Resources Management Plan

Development Needs/Wish list

- Restore borrow site areas and vegetate with native species.
- Perform trail use survey to determine if and where additional picnic shelters are needed or any additional improvements
- Map all trails within this MU
- Signage for official trail access points
- Decommission unauthorized or volunteer trails and access points to minimize impacts to habitat and species. Discourage continued use and/or creation of these trails through public outreach and education
- Professionally survey legal boundaries and verify border fencing, work to resolve boundary encroachment issues
- Remove barbed wire from all fencing and replace with smooth wire for safety purposes, evaluate for eligibility, remove the fencing if not serving a function,
- Install a vault restroom in the new parking lot
- If visitor use demands; provide year-round staff in the area
- Interpretive displays and public outreach for ecological, historic and cultural resources
- Provide for more garbage receptacles and signage regarding picking up dog feces.
- Provide for more signage to inform visitors where dogs are required to be on leash and why
- Promote more public outreach to all visitors regarding rules about dogs, bikes, and trail etiquette

Special Considerations

- Wel Mel Ti Wildlife Area Management Unit (sensitive habitat and archeology site) - multi-resource low density, dry sagebrush area, wetlands to the east, part of Wildlife Area; provide interpretive signage area of past historic sites.
- Coordinate with Northstar and Lahontan regarding the implementation of forest management and/or fuels reduction
- Coordinate with CalFire, local fire districts, and the USFS for wildland fire response efforts

- Meet with the public to consider new access points to trails and trail connections
- Seek partnerships for restoration efforts
- Formalize existing partnerships for restoration and trail projects
- No hunting or fishing is allowed in this MU
- The Bubonic plague is endemic to the Martis Valley area. Educate visitors to the risks that are associated with this issue

MANAGEMENT UNIT #10 - TRANSPORTATION CORRIDOR - 2

Land Allocation

Lands in this MU were purchased for the initial construction and subsequent operations of the Martis Creek Lake Dam and Spillway. These lands are occupied by, or are immediately adjacent to, the dam. The road that crosses the dam can be used for walkers, bikers, and hikers unless there is an imminent health and safety threat. If threats or concerns are imminent then these lands are restricted from public use to insure safe and efficient operation of the project.

Land Classification

Operations/ Low Density Recreation

Land Classification Justification

The dam and areas adjacent to it, the spillway, and Martis Creek below the dam, are all used primarily for project operations. Uses that interfere with operational activities, compromise the structural integrity of the project or its facilities, or create a safety hazard for visitors or project personnel, cannot be allowed.

Management Agency – USACE, Sacramento District

Location

The Transportation Corridor – 2 MU (Figure 14) lies within Nevada County encompassing the northern portion of the project boundary. The dam is accessed by visitors from the dam gate at the end of Martis Dam Road and from the dirt road at the day use area.

Acreage

This MU has approximately 1.5 acres.

Description

This MU consists of the road that crosses the dam. The predominant vegetation in MU 10 which is off the road is sagebrush, rabbit brush, and bitter brush. Vegetation types include barren or ruderal wet montane meadow, dry montane meadow, and ponderosa pine.

Use

Heavy pedestrian usage - Although this area is used for project operations and is subject to closure, this MU is a popular recreational site because the trailhead to Waddle Ranch conservation easement can be accessed from this MU. The primary purpose of Martis Dam road is for operations and maintenance of the dam; it is also used for walking and nature appreciation.

Resource objectives

Economic Impact, Natural Resource Management, Environmental Compliance, and Cultural Resource Management.

Development Needs

- Multiuse Trail
- Include informational signage about the purpose of the dam
- Develop an Invasive Species Management Plan to control and prevent non-native invasive species, such as musk thistle
- Develop Erosion Management Plan for any new trail considerations
- Establish partnership to develop and maintain any new trail construction or connection to existing trails
- Interpretive Displays for Ecological, Historical, and Cultural Resources
- Provide for more signage to inform visitors where dogs are required to be on leash and why
- Promote more public outreach to all visitors regarding rules about dogs, bikes, and trail etiquette

Special Considerations

- The Bubonic plague is endemic to the Martis Valley area. Educate visitors to the risks that are associated with this issue.
- Meet with the public to consider new access points to trails and trail connections.

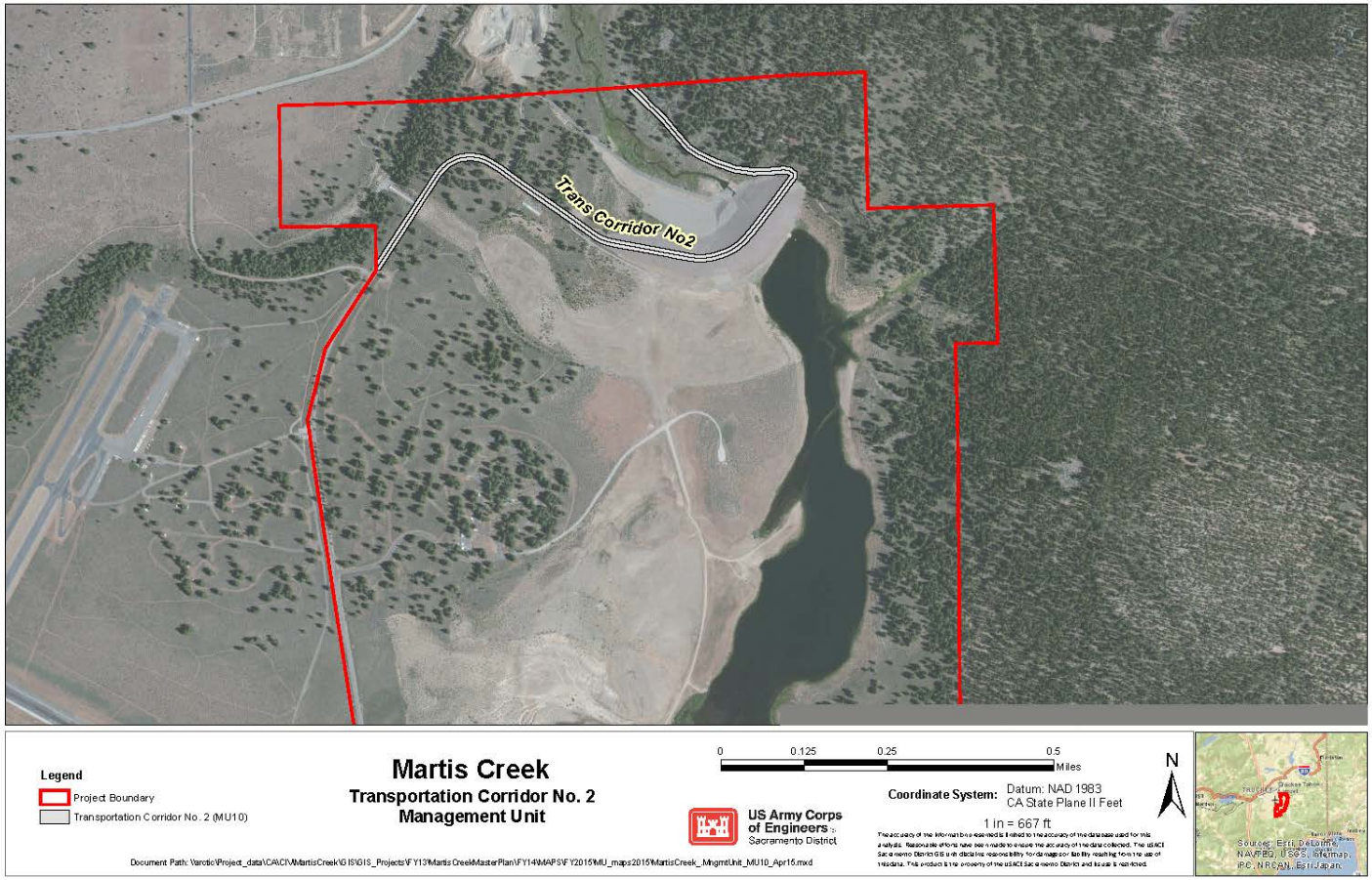

Figure 14. Transportation Corridor 2

CHAPTER 6 – SPECIAL TOPICS/ISSUES/CONSIDERATIONS

This chapter discusses the special topics, issues, and considerations the PDT identified as critical to the future management of Martis Creek Lake. Special topics, issues, and considerations are defined in this context as any problems, concerns, and/or needs that could affect or are affecting the stewardship and management potential of the lands and waters under the jurisdiction of the Sacramento District, Martis Creek Lake and Dam Project Office Area of Responsibility (AOR). For simplicity, the topics are discussed below under generalized headings.

Public Safety

- Emergency response efforts in remote areas of the project. The problem is that the USACE does not have access through Lahonton, thereby prohibiting right of entry to remote areas of the Martis Creek Lake and Dam.

- In the event the Martis Creek Lake and Dam is filled to gross pool, how does the USACE close off areas due to reservoir inundation?

- Plane crashes occur at the Martis Creek Lake and Dam due to close proximity of the Tahoe-Truckee Airport. How does this affect campground/project safety? The USACE needs to coordinate with the Tahoe-Truckee airport to develop an emergency plan for dealing with the occasional crashes on the USACE property

Partnership

- The USACE would like to seek out and develop a cooperative association to support efforts at Martis Creek Lake and Dam that the federal budget does not fund.

- Seek partners for facility enhancements and restoration efforts that the federal budget does not fund.

Public Outreach

- Educate the public on invasive species, unauthorized trails, animal control, etc. Discuss the effects that these issues have on ecosystem health and public safety.

- Educate the public regarding cultural and historic landscapes.

- Coordination with dog walkers to ensure that there is an understanding that dogs must be on leash within the Wel Mel Ti Wildlife Viewing Area parking lot and within 150 feet of any trail head.

- During bird nesting season, dogs are not allowed off-leash along the creek.

Tribal Coordination

- Coordinate with the Washoe Tribe to discuss the potential designation of the Martis Creek Lake Project as a Washoe Tribe Cultural Landscape.

Vegetative Management

- Establish or adopt existing plans for restoration with revegetation of plants, trees, and shrubs.

- Establish or adopt existing plans to eradicate invasive and nuisance species.

Encroachments

- A legal boundary survey of Martis Creek Lake and Dam Project has not been conducted. There is the potential for unauthorized access points onto the USACE lands from adjacent properties. A legal survey should be conducted and the boundary of the Project should be conspicuously marked.

Population Increase

- The USACE needs to consider and develop a plan to address the potential for intensive development adjacent to The Martis Creek Lake and Dam Project.

CHAPTER 7 – AGENCY AND PUBLIC COORDINATION

In 2012, the USACE began the process of updating the Martis Creek Lake and Dam Project Master Plan, which was last approved in 1977. In addition to project site visits by key members of the study team, preliminary meetings were held with those state and local government officials that have direct involvement in management of the resources of the Martis Creek Project. These meetings were held in the summer of 2013.

Scoping

"Scoping" is the process of determining the scope, focus, and content of a NEPA document. Scoping workshops are a useful tool to obtain information from the public and governmental agencies. For a planning process such as the master plan update, the scoping process was also used as an opportunity to receive input from other agencies and the public.

A series of scoping meetings were held in the summer of 2013 in Truckee, California. The purpose of those meetings was to seek public input regarding (1) the long-range goals for the Martis Creek Lake and Dam Master Plan Update and (2) the management and development of project lands and water.

Draft Master Plan/Draft Environmental Assessment (EA)

The Draft Master Plan and EA was released at the end of November 2014 with a public meeting held December 2014. Public Comments were accepted through January 2, 2015.

CHAPTER 8 – SUMMARY AND RECOMMENDATIONS

8.1 SUMMARY OVERVIEW

The proposals made in previous chapters of this Master Plan are for the courses of action necessary to manage Martis Creek Lake. Actions set forth in this plan can promote the future health and sustainability of Martis Creek Lake's natural resources while still allowing for continued use and development. The factors considered cover a broad spectrum of issues including, but not limited to, public use, the environment, socioeconomic considerations, and staffing levels. Information on each topic was thoroughly researched and discussed before any proposals were made.

This Master Plan Update is considered to be a living document that establishes the basic direction for development and management of the Martis Creek Lake and Dam Project consistent with the capacity of the resources present and public needs. The plan is also flexible in that Master Plan Supplements may be achieved through a formal process to address unforeseen needs. The Master Plan will be periodically reviewed to facilitate the evaluation and utilization of new information as it becomes available, subject to funding.

The overall Master Plan provides guidelines for land use activities, improvement of environmental quality, and protection of cultural resources. Additionally, the Master Plan provides management with critical information necessary to determine funding levels for operations, maintenance, and staffing needs.

8.2 LAND CLASSIFICATIONS

As described in detail in Chapter 5, the project development team strived to achieve a 'balanced' approach in making the land classification decisions. The team took environmental constraints, regulations, ordinances, opportunities, and public concerns into consideration when determining land classification for the Martis Creek Lake and Dam Master Plan Update, which included but was not limited to:

- How lands were previously classified in 1976
- Land Allocations
- Environmental and Cultural Considerations
- Existing federal, state, and local laws and regulations
- Development or non-development taking place adjacent to the USACE property
- Activities taking place adjacent to the USACE Property.

- Recreational Trends and Emerging Needs
- Public and Agency Input
- Funding and Staffing Constraints

8.3 RECOMMENDATION

This Master Plan Update shall be followed in managing the resources at Martis Creek Lake and Dam. The policies and objectives within this Master Plan are consistent with authorized project purposes, land allocations, resource capabilities, and accommodate federal, state, and local needs. They represent sound stewardship of resources and will result in increased opportunities for public enjoyment of outdoor recreation activities.

8.4 USING THE MASTER PLAN

This Master Plan serves two primary purposes that are equal in importance. First, it is the primary management document for the project and provides direction for many of the other plans that guide the management of Martis Creek Lake and Dam. This Master Plan sets the stage for the update of many of the USACE resource management plans. The Resource Objectives contained in this Master Plan can serve as a basis for developing plans to manage resources within the project boundary. The Resource Objectives approved in this plan can serve as a basis for developing more specific management plans at the project. Regular Supplements or Updates to the Master Plan, will allow the project to maintain updated resource management plans, as well.

The document also serves as a land use tool, since this Master Plan provides the USACE, other management partners, and the public with the Land Allocations and the current Land Classifications, Recommended Future Use, and Resource Objectives applied to project lands. The current classification of project lands allows the USACE, other management partners, and the public to visually evaluate the distribution of uses for project lands. Supplementing and/or updating the Master Plan will allow the USACE to respond effectively to development plans made internally or by outside parties.

8.5 UPDATING THE MASTER PLAN

This policy-based Master Plan, along with the accompanying draft EA, provides the USACE, other management partners, and the public with a "living" management document. This living document sets goals and objectives but does not establish detailed development plans. Stand-alone NEPA documents will be developed when projects that have been presented in this Master Plan are determined required, funded, and feasible to develop or execute.

Maintaining an up-to-date Master Plan is best accomplished through the following steps:

- Regular review of project needs and priorities

- Regular review of updates to the reports used to inform this plan

- Regular consultation and coordination with local, State, and Federal agencies, as well as groups with regulatory purview or interest in the management of Martis Creek Lake

- Review of annual visitation statistics. Sites with spikes in visitation or regular high levels of use would likely hold high priority in actions taken to achieve important Resource Objectives and,

- Review objectives yearly to ensure that they are still appropriate.

A review of the Master Plan should include the following:

- Identify resource conditions that have changed and require documentation in Section 2.0

- Review the issues described in Section 3.0 and note changes in the manner in which these issues are addressed or other issues that have arisen over the last year

- Review the Resource Objectives and Development Needs to identify priorities or changes in management strategy.

The annual reviews will help prepare for a general revision or significant update to the Master Plan. Any revision or update will be accompanied by the appropriate NEPA documentation, if applicable. The five-year revision may be as simple as updating the Resource Objectives; however, it may be as complex as changing Land Classifications presented in this Master Plan. The process through which the plan is updated should follow standard USACE approval protocols.

The information obtained during regular revisions of this Master Plan also serve to benefit other activities at the project. Data may be applied to updating a specific resource management plan, improving educational programs, or informing project staff about relevant issues.

8.6 INCLUDING OTHERS IN THE MASTER PLANNING PROCESS

This Master Plan emphasizes the need for consultation and coordination with regulatory agencies prior to implementing elements of the Master Plan. Coordination also may occur in updating the Master Plan and obtaining additional data sources to inform the plan.

In some cases, coordination with other government agencies is required by regulation. In all cases, coordination with the appropriate groups and agencies prior to implementing an

action will ensure a well-informed plan that avoids unnecessary impacts to project resources. Such an approach also streamlines the review and approval process with regulatory agencies. The accompanying EA and Finding of No Significant Impact (FONSI) (Appendix A) to this Master Plan lists the federal and state agencies that would be included in the consultation process for a proposed project at Martis Creek Lake and Dam. The table also lists the resources included in each agency's purview. It should be noted that similar agencies and groups exist at the local level and should be included in the planning process. Further agency consultation and coordination is critical to the success of this policy-based, programmatic document and associated EA.

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APPENDIX A

Finding of No Significant Impact

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, SACRAMENTO DISTRICT
1325 J STREET
SACRAMENTO CA 95814-2922

Executive Office

FINDING OF NO SIGNIFICANT IMPACT
Martis Creek Lake and Dam Project Master Plan Update, Truckee River and Tributaries, California and Nevada

I have reviewed and evaluated the information presented in the Environmental Assessment (EA) prepared for the Martis Creek Master Lake and Dam Project Master Plan Update (Project MPU), located in Truckee, California. The Project MPU proposes to adopt a Master Plan as the strategic land use planning document to guide comprehensive management and development of all Project operations. The MPU would meet the requirements of updated Corps policies related to master plans (2013 update of Engineering Pamphlet 1130-2-550), as well as consider changes in regional needs, resource capabilities and suitability, and expressed public interests consistent with authorized project purposes. The MPU would be used as the basis for design and implementation of specific improvements and other actions at the Project in the future. It will allow for projects described in the MPU to be implemented as funding becomes available.

The purpose of this action is to adopt the updated strategic land use planning document to meet the Corps' 2013 policy. The MPU directs efficient and cost effective management, development, and use of Corps' managed lands. It is vital for the responsible stewardship and sustainability of Project resources in response to public interests and consistent with authorized Project purposes. The Project MPU provides for balanced resource management under special programs such as environmentally sensitive areas cultural resources protection and protection of endangered species. The MPU recognizes particular qualities, characteristics, and potentials of the Project and provides consistency and compatibility with national objectives and other state and regional goals and programs.

The EA examined two alternatives: 1) No Action where the current Master Plan would remain as the primary guidance document and 2) the Preferred Alternative of adopting the proposed MPU. Alternative 2 would provide added detail regarding the comprehensive management for balanced cultural, natural, and recreation resources and ensure responsible stewardship and operation of Project lands. Alternative 1 was rejected as the preferred alternative as it failed to meet the purpose and need.

The probable consequences (impacts and effects) of Alternative 2 on recreation, environmental resources were evaluated. However, the Project MPU is a conceptual planning document that does not direct specific actions but provides guidance for planning future work based on meeting resources objectives of project resources. Therefore specific impacts are not qualified.

The approval and adoptions of the Project MPU will assure that the requirements of Corps' policies are met, along with stewardship and sustainability; comments from the public, local,

state, and federal agencies and tribes are addressed; and financial support for natural resources and facilities are confirmed.

Based on my review of the Final EA and my knowledge of the project area, I find the document provides sufficient discussions on the purpose and need for the proposed action, alternatives, the environmental impacts of the proposed action and alternative, a listing of agencies and persons consulted. I have taken into consideration the technical aspects of the project, best scientific information available, and public comments received. I believe this document to be sufficient evidence and analysis to meet the Corps' requirements pursuant to the National Environmental Policy Act and for the Corps to make a finding of no significant impact the quality of the human environment. I find the implementation of the preferred alternative would not result in significant impacts on the quality of the human environment. Therefore, an environmental impact statement is not required.

David G. Ray, P.E.
Colonel, US Army
District Commander

APPENDIX B

Pertinent Public Law

PERTINENT PUBLIC LAWS

Development and management of federal reservoirs are regulated by a number of statutes and guided by USACE documents. The following sections provide a summary of the relevant policies and federal statutes.

USACE Authority

Rules and regulations governing public use of water resources development projects administered by the USACE are contained in Title 36, Part 327 of the Code of Federal Regulations. As stated in Title 36, Section 327.0 Applicability *"…All other federal, state and local laws and regulations are in full force and effect where applicable to water resources development projects"*. Section 327.1 (a) Policy states, *"It is the Policy of the Secretary of the Army, acting through the Chief of Engineers, to manage the natural, cultural, and developed resources of each project in the public interest, providing the public with safe and healthful recreational opportunities while protecting and enhancing these resources."* Section 327.1 (c) Policy also states, *"The term "project" or "water resources development project" refers to the water areas of any water resources development project administered by the Chief of Engineers, without regard to ownership of underlying land, to all lands owned in fee by the Federal Government and to all facilities therein or thereon of any such water resources development project"*.

Persons designated by the District Commander have the authority to issue citations for violations of rules and regulations governing public use of the USACE water resources development projects. If a citation is issued, the person charged with the violation may be required to appear before a U.S. Magistrate.

Civil Authority

Except as otherwise provided in Title 36 or by federal law or regulation, state and local laws and ordinances shall apply on project lands and waters. Enforcement of state and local laws, and ordinances will be handled by the appropriate state and local law enforcement agencies. These include, but are not limited to, the following:

- Operation and use of motor vehicles, vessels, and aircraft;
- Hunting, fishing, and trapping;
- Display or use of firearms or other weapons;
- Camping, starting or tending fires, and use of fireworks;
- Civil disobedience and criminal acts;
- Littering, sanitation, and pollution
- Control of animals

Federal Authority

The following federal public laws, Executive Orders, and cooperative agreements pertain to authorization of the project, present and future development, and operation of project lands and waters.

Public Law 534, 78th Congress (58 Stat. 887), 22 December 1944. Flood Control Act of 1944, as amended. This act authorizes the construction of certain public works on rivers and harbors for flood control and other purposes. Section 4 authorizes providing facilities at reservoir areas for public use, including recreation and fish and wildlife conservation. As amended in 1962 by Section 297 of Public Law 87-874, the act authorizes the USACE to develop and maintain park and recreation facilities at all water resources projects controlled by the Secretary of the Army.

Public Law 1928, 84th Congress (70A Stat. 150), 10 August 1956. United States Code, Title 10 and Title 32. Section 2667 of this law authorizes the Secretary of a military department to lease non-excess land when it is advantageous to the United States. Grazing leases are also authorized under this provision. Sections 2668 and 2669 authorize the granting of easements and rights-of-way for many purposes, including transmission lines and gas, water, and sewer pipelines.

Public Law 90-483 (82 Stat. 731), 13 August 1968, River and Harbor Act of 1968, as amended. This Act authorizes the construction, repair, and preservation of certain public works on rivers and harbors for navigation, flood control, and other purposes. Section 210 restricts the collection of entrance fees at the USACE lakes and reservoirs after 31 March 1970 to users of highly developed facilities requiring the continuous presence of personnel. Because the USACE will be conducting any projects under the updated master plan, no authorization is required as the law specifically exempts the USACE from regulation under Section 10. However, activities by non-USACE entities in waters of the U.S. at Martis Creek Lake are regulated under Section 10. Work such as a boat dock installation or water intake line requires a Section 10 permit application; for work that includes placing fill, a joint Section 404/10 permit application can be made.

Executive Order 11644, 8 February 1972, Use of Off-Road Vehicles on Public Lands. This Executive order establishes a uniform federal policy regarding the use of vehicles such as trail bikes, snowmobiles, dune buggies, and other ORV on public lands. Section 3 provides guidance for establishing zones of use for such vehicles. This order was amended by Executive Order 11989. Currently the USACE restricts ORV use on project lands.

Public Law 99-662 (100 Stat. 4082), 17 November 1986, Water Resources Development Act of 1986. This legislation sets forth non-federal cost-sharing requirements for all water resources projects. Section 906 of this act supplements the responsibility and

authority of the Secretary of the Army pursuant to the Fish and Wildlife Coordination Act. This section requires any mitigation for fish and wildlife losses to be undertaken or acquired before any construction of the project commences, or shall be undertaken or acquired concurrently with lands and interests in lands for project purposes. The USACE will coordinate with the USFWS when constructing any projects under the master plan and will address any fish and wildlife mitigation that is required before the construction of any project commences.

40 Stat. 755, 13 July 1918, Migratory Bird Treaty Act (MBTA), as amended. The MBTA of 1918 is the domestic law that affirms, or implements, the United States' commitment to four international conventions with Canada, Japan, Mexico and Russia for the protection of shared migratory bird resources. The MBTA governs the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts and nests. All migratory birds are governed by the MBTA's regulation of taking migratory birds for educational, scientific, and recreational purposes and requiring harvest to be limited to levels that prevent overutilization. Executive Order 13186 (2001) directs executive agencies to take certain actions to implement the act. When development proposed in the master plan is scheduled to occur, compliance with the MBTA will be considered along with environmental compliance for the specific activities.

54 Stat. 250, 8 June 1940, Bald Eagle Protection Act of 1940, as amended. This act prohibits anyone, without a permit issued by the Secretary of the Interior, from taking bald eagles, including their parts, nests, or eggs. The act provides criminal penalties for persons who take, possess, sell, purchase, barter, offer to sell, transport, export or import, at any time or any manner, any bald eagle ... [or any golden eagle], alive or dead, or any part, nest, or egg thereof. The act defines take as pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb. Individual projects proposed as a result of the master plan will adhere to the management guidelines developed by the USFWS to avoid disturbing bald eagles.

Public Law 83-566 (68 Stat. 666), 5 August 1954, Watershed Protection and Flood Prevention Act. This act authorizes the Secretary of Agriculture to cooperate with states and other public agencies in works for flood prevention and soil conservation, as well as the conservation, development, utilization, and disposal of water. This act imposes no requirements on the USACE Civil Works projects.

Public Law 85-624 (72 Stat. 563), 12 August 1958, Fish and Wildlife Coordination Act. This law amends and renames the Fish and Wildlife Coordination Act of 10 March 1934. The 1958 act requires that: (1) fish and wildlife conservation receive equal consideration

with other features of water resources development programs; (2) proposals for work affecting any body of water be coordinated with the USFWS and state wildlife agency; (3) recommendations of the USFWS and state wildlife agency be given full consideration; and (4) justifiable means and measures for wildlife purposes, including mitigation measures, be adopted. It also required that adequate provisions be made for the use of project lands and waters for the conservation, maintenance, and management of wildlife resources, including their development and improvement. The act provides that the use of project lands primarily for wildlife management by others be in accordance with a General Plan approved jointly by the Department of the Army, Department of the Interior, and state wildlife agencies. When site-specific proposals are made under the master plan, the USACE will coordinate with the USFWS and CDFW.

Public Law 86-717 (74 Stat. 817), 6 September 1960, Conservation of Forest Lands in Reservoir Areas. This law provides for the development and maintenance of forest resources on the USACE managed lands and the establishment and management of vegetative cover so as to encourage future resources of readily available timber and to increase the value of such areas for conservation.

Public Law 87-88 (75 Stat. 204), 20 July 1961, Federal Water Pollution Control Act Amendments of 1961, as amended. Section 2 (b) (1) of this act gives the USACE responsibility for water quality management of the USACE reservoirs. This law was amended by the Federal Water Pollution Control Act Amendment of 1972, Public Law 92-500.

Public Law 89-80 (79 Stat. 244), 20 July 1965, Water Resources Planning Act. This act is a congressional statement of policy to meet rapidly expanding demands for water throughout the Nation. The purpose is to encourage the conservation, development, and use of water-related land resources on a comprehensive and coordinated basis by the federal, state, and local governments; individuals; corporations; business enterprises; and others concerned.

Public Law 90-542 (82 Stat. 906), 2 October 1968, Wild and Scenic Rivers Act, as amended. This act establishes that certain rivers of the Nation, with their immediate environments, possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values. They shall be preserved in free-flowing condition, and they and their immediate environments shall be protected for the benefit and enjoyment of present and future generations. The reach of the Placer and Nevada Counties River where Martis Creek Lake is located is not designated as a wild or scenic river, nor is it on the National Inventory of Rivers potentially eligible for inclusion.

Public Law 90-583 (82 Stat. 1146), 17 October 1968, Noxious Plant Control. This law provides for a control of noxious weeds on land under the control of the Federal Government. Resource objectives and development needs for management units include the control of noxious weeds.

Public Law 91-190 (83 Stat. 852), 1 January 1970, National Environmental Policy Act of 1969. Section 101 of this act establishes a national environmental policy. Section 102 requires that all federal agencies shall, to the fullest extent possible, (1) use a systematic, interdisciplinary approach that integrates natural and social sciences and environmental design arts in planning and decision making; (2) study, develop, and describe appropriate alternatives to recommend courses of action in any proposal that involves unresolved conflicts concerning alternative uses of available resources; and (3) include an Environmental Impact Statement (EIS) in every recommendation or report on proposals for major federal actions significantly affecting the quality of the human environment.

Public Law 91-224 (84 Stat. 114), 3 April 1970, Environmental Quality Improvement Act of 1970. This act assures that each federal department or agency conducting or supporting public works activities that affect the environment shall implement the policies established under existing law. The USACE ensures that activities at Martis Creek Lake are in compliance with existing laws.

Public Law 91-604 (84 Stat. 1676), 31 December 1970, Clean Air Act, as amended. The purpose of this act is to protect public health and welfare by the control of air pollution at its source, and to set forth primary and secondary National Ambient Air Quality Standards (NAAQS) to establish criteria for states to attain, or maintain. Some temporary emission releases may occur during construction activities that are recommended under the master plan; however, air quality is not expected to be impacted to any measurable degree.

Public Law 92-500 (86 Stat. 816), 18 October 1972, The Federal Water Pollution Control Act Amendments of 1972, as amended. This law amends the Federal Water Pollution Control Act and establishes a national goal of eliminating pollutant discharges into waters of the United States. Section 404 authorizes a permit program for the disposal of dredged or fill material in the Nation's waters that is to be administered by the Secretary of the Army acting through the Chief of Engineers. This law was later amended by the CWA of 1977, Public Law 95-217, to provide additional authorization to restore the Nation's water. The project is in compliance with this law. If any construction activities involve the temporary or permanent placement of dredged or fill material into any water body or wetland area at Martis Creek Lake, a permit pursuant to Section 404 is required.

Public Law 92-574 (86 Stat. 1234), 27 October 1972, Noise Control Act, as amended. This act establishes a national policy to promote an environment for all Americans free from noise that jeopardizes their health and welfare. Federal agencies are required to limit noise emissions to within compliance levels. Noise emission levels at sites where development was proposed in the updated Martis Creek Master Plan would increase above current levels temporarily during periods of construction; however, appropriate measures will be taken to keep the noise level within the compliance levels.

Public Law 93-205 (87 Stat. 884), 28 December 1973, Conservation, Protection, and Propagation of Endangered Species Act of 1973, as amended. This law repeals the Endangered Species Conservation Act of 1969. It also directs all federal departments/agencies to carry out programs to conserve endangered and threatened species of fish, wildlife, and plants and to preserve the habitat of these species in consultation with the Secretary of the Interior. This act establishes a procedure for coordination, assessment, and consultation. This act was amended by Public Law 96-159. The USACE management and construction activities proposed by the master plan would have no effects on federal or state listed or candidate threatened and endangered species known to exist in Martis Creek Lake areas for which the USACE is responsible.

Public Law 93-523 (88 Stat. 1660), 16 December 1974, Safe Drinking Water Act, as amended. This act amends the Public Health Service Water Act to assure that the public is provided with safe drinking water. This law states that all potable water at civil works projects will meet or exceed the minimum standards required by law. This act was amended by the Safe Drinking Water Act Amendments of 1986, Public Law 99-339 of 1986, and Public Law 104-182.

Public Law 93-629, (88 Stat. 2148), 3 January 1975, Federal Noxious Weed Act of 1974, as amended. Section 15, added to the act in 1990, requires noxious weed control management on federal lands and sets forth the process by which it is to be accomplished. Resource objectives and development needs for management units in the master plan include the control of noxious weeds.

Executive Order 11988, 24 May 1977, Floodplain Management. This Order outlines the responsibilities of federal agencies in the role of floodplain management. Each agency shall evaluate the potential effects of actions on floodplains and should not undertake actions that directly or indirectly induce growth in the floodplain, unless there is no practical alternative. Agency regulations and operating procedures for licenses and permits should include provisions for evaluation and consideration of flood hazards. Construction of structures and facilities on floodplains must incorporate flood proofing and other accepted flood protection measures. Agencies shall attach appropriate use

restrictions to property proposed for lease, easement, right-of-way, or disposal to non-federal public or private parties.

Any development proposed in the master plan must be in compliance with South Pacific Division (SPD) Regulation 1110-2-5, Land Development Guidance at USACE Reservoir Projects, dated April 30, 2004. This regulation establishes SPD guidance for evaluating land development proposals within the USACE reservoir projects with authorized flood storage allocations. The USACE has responsibility to assure that the authorized project purposes are not compromised, that the public is not endangered, and that natural and cultural resources associated with project lands are not harmed, in accordance with applicable federal and state regulations. The criteria and procedures for evaluation of development proposals in this regulation are to assist in meeting these responsibilities and complying with applicable laws and directives. Existing structures are exempted from this policy. However, significant modifications and/or replacement of existing structures are subject to this policy.

Executive Order 11989, 24 May 1977, Off-Road Vehicles on Public Lands. This Executive Order excludes any fire, military, emergency or law enforcement vehicle when used for emergency purposes, and any combat or combat support vehicle when used for national defense purposes, from the definition of ORV. This order also directs agencies to immediately close ORV trails that are causing soil, vegetation, wildlife, wildlife habitat, or cultural or historic resources of particular areas or trails on public lands, to the type of ORV causing the adverse effects, until the effects have been eliminated and measures have been implemented to prevent future recurrence. Currently the USACE restricts ORV use on project lands.

Executive Order 11990, 24 May 1977, Protection of Wetlands. This Order directs federal agencies to provide leadership in minimizing the destruction, loss, or degradation of wetlands. Section 2 states that agencies shall avoid undertaking or assisting in new construction located in wetlands unless there is no practical alternative. Prior to construction of any facilities proposed in Martis Creek Dam/Martis Creek Lake Master Plan, a site-specific NEPA analysis, including an assessment of potential impacts to wetlands, would be coordinated with federal and state agencies and Tribes. If a Section 404 permit is required, coordination regarding compliance with E.O. 11990 would be accomplished prior to permit issuance.

Public Law 95-217 (91 Stat. 1566), 27 December 1977, Clean Water Act of 1977, as amended. This act amends the Federal Water Pollution Control Act of 1970 and extends the appropriations authorization. The Clean Water Act is a comprehensive federal water pollution control program that has as its primary goal the reduction and control of the

discharge of pollutants into the Nation's navigable waters. The Clean Water Act of 1977 has been amended by the Water Quality Act of 1987, Public Law 100-4. Any action involving placement of fill in waters of the U.S. at Martis Creek Lake by the USACE, a non-USACE entity, or any individual, with the exception of certain minor activities as discussed in 33 CFR Part 323.4, would require a Section 404 authorization and Section 401 water quality certification.

Executive Order 12088, 13 October 1978, Federal Compliance with Pollution Control Standards. The purpose of this Order is to ensure federal compliance with applicable pollution control standards. Section 1-4, Pollution Control Plan, in which each agency was required to submit an annual plan for the control of environmental pollution to the Office of Management and Budget, was revoked by Executive Order 13148, which was revoked by Executive Order 13423.

Public Law 95-632 (92 Stat. 3751), 10 November 1978, Endangered Species Act Amendments of 1978. This law amends the Endangered Species Act Amendments of 1973. Section 7 directs agencies to conduct a biological assessment to identify threatened or endangered species that may be present in the area of any proposed project. This assessment is conducted as part of a federal agency's compliance with the requirements of Section 102 of the National Environmental Policy Act (NEPA) of 1969. The USACE would conduct biological assessments on proposed projects when necessary.

Public Law 96-159 (93 Stat. 3751), 28 December 1979, Endangered Species Act of 1973, as amended. This amendment expanded the act to protect endangered plants. This amendment requires the publishing of a summary and map when proposing land as critical habitat and requires federal agencies to ensure projects "are not likely" to jeopardize an endangered species. In addition, it authorizes all those seeking exemptions from the act to get permanent exemptions for a project unless a biological study indicates the project would result in the extinction of a species. The USACE would ensure that any development or management activities proposed in the master plan are not likely to jeopardize an endangered species.

CEQ Memorandum, 10 August 1980, Interagency Consultation to Avoid or Mitigate Adverse.

Effects on Rivers in the Nationwide Inventory. This memorandum states that each Federal agency shall take care to avoid or mitigate adverse effects on rivers identified in the Nationwide Inventory (45 FR 59189). No portion of Martis Creek Lake is listed on the Nationwide Rivers Inventory.

Public Law 96-366 (94 Stat. 1322), 29 September 1980, Fish and Wildlife Conservation Act of 1980. This law enables states to obtain funds to conduct inventories and conservation plans for nongame wildlife. It also encourages federal departments and agencies to use their statutory and administrative authority to conserve and promote conservation in accordance with this act. The Master Plan promotes conservation at Martis Creek Lake by including resource objectives and development needs that protect and enhanced wildlife habitat and reduce erosion.

Public Law 96-510 (94 Stat. 2797), 11 December 1980, Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Typically CERCLA is triggered by (1) the release or substantial threat of a release of a hazardous substance into the environment; or (2) the release or substantial threat of a release of any pollutant or contaminant into the environment that presents an imminent threat to the public health and welfare. To the extent such knowledge is available, 40 CFR Part 373 requires notification of CERCLA hazardous substances in a land transfer. Compliance with this act is required on a case-by-case basis for real estate activities such as easements, grants, etc.

Public Law 97-98 (95 Stat. 1341), 22 December 1981, Farmland Protection Policy Act. This act instructs the Department of Agriculture, in cooperation with other departments, agencies, independent commissions and other units of the Federal Government, to develop criteria for identifying the effects of federal programs on the conversion of farmland to nonagricultural uses. The Master Plan does not propose any changes to agricultural land.

Public Law 99-339 (100 Stat. 642), 19 June 1986, Safe Drinking Water Act Amendments of 1986. These amendments provide further regulation regarding national primary drinking water, enforcement of these regulations, and variances and exemptions to the act. These amendments also provide for the protection of underground sources of drinking water and provide grants to Tribes in addition to contract assistance to carry out the function of these amendments.

Public Law 100-4 (101 Stat. 7), 4 February 1987, Water Quality Act of 1987. This Act amends the Federal Water Pollution Control Act to not only provide for renewal of the quality of the Nation's waters but also provide construction grant amendments, standards, enforcement, permits, and licenses. This act includes more provisions for monitoring non-point source pollution (contaminants that come from many different sources). The USACE has developed water quality management objectives for Martis Creek Lake that include intensive water quality surveys, water quality modeling, and preparation of reports that reflect current water quality conditions.

Public Law 101-233 (103 Stat. 1968), 13 December 1989, North American Wetlands Conservation Act. This act establishes the North American Wetlands Conservation Council (NAWCC, 16 U.S.C. 4403) to recommend wetlands conservation projects to the Migratory Bird Conservation Commission (MBCC). Section 9 of the act addresses the restoration, management, and protection of wetlands and habitat for migratory birds on federal lands. Federal agencies acquiring, managing, or disposing of federal lands and waters are to cooperate with the USFWS to restore, protect, and enhance wetland ecosystems and other habitats for migratory birds, fish and wildlife on their lands, to the extent consistent with their missions and statutory authorities. The Master Plan proposes establishment/restoration of wetlands at a few management units. Prior to construction of any facilities proposed in the Master Plan, a site-specific NEPA analysis, including an assessment of potential impacts to wetlands, would be coordinated with federal and state agencies and tribes.

Executive Order 12692, 7 June 1995, Recreational Fisheries. This Executive Order mandates that Federal agencies, to the extent permitted by law and where practicable, improve the quality, function, and sustainable productivity and distribution of U.S. aquatic resources for increased recreational fishing opportunities. The USACE will continue to cooperate with USFWS and CDFW to manage fisheries Martis Creek Lake.

Public Law 104-182 (110 Stat. 1613), 6 August 1996, Safe Drinking Water Act Amendments of 1996. These amendments strengthen protections on tap water, improve public access to tap water contaminant information, strengthen standards to protect public health from the most significant threats to safe drinking water, and provide money that communities need to upgrade drinking water systems.

Executive Order 13112, 3 February 1999, Invasive Species. This Executive Order directs federal agencies to act to prevent the introduction of, or to monitor and control, invasive (non-native) species; to provide for restoration of native species; to conduct research; to promote educational activities; and to exercise care in taking actions that could promote the introduction or spread of invasive species. Resource objectives and development needs for management units include the control of noxious weeds.

Executive Order 13148, 26 April 2000, Greening the Government through Leadership in Environmental Management. This Executive Order requires federal agencies to develop and implement an Environmental Management System (EMS), which is a series of management processes and procedures that allow an organization to identify, mitigate, control, and reduce any environmental impacts from the organization's day-to-day business activities. Specifically, this order requires each agency to develop an environmental policy statement; develop a plan for system implementation; complete a

list of environmental aspects and impacts; establish objectives, targets, and programs; conduct EMS awareness training; complete a management review of the EMS; and implement the EMS before 31 December 2005. This order was revoked by Executive Order 13423.

Executive Order 13195, 18 January 2001, Trails for America in the 21st Century. This Executive Order requires federal agencies to protect, connect, promote, and assists trails of all types throughout the United States. Several trails are proposed as part of the Master Plan.

Executive Order 13352, 26 August 2004, Facilitation of Cooperative Conservation. This Executive Order requires that the Secretaries of the Interior, Agriculture, Commerce, and Defense and the Administrator of the EPA shall carry out the programs, projects, and activities of the agency that they respectively head that implement laws relating to the environment and natural resources in a manner that: a) facilitates cooperative conservation; b) takes appropriate account of and respects the interests of persons with ownership or other legally recognized interests in land and other natural resources; c) properly accommodates local participation in federal decision making; and d) provides that the programs, projects, and activities are consistent with protecting public health and safety.

Executive Order 13423, 24 January 2007, Strengthening Federal Environmental, Energy, and Transportation Management. This Executive Order requires federal agencies to conduct their environmental, transportation, and energy-related activities under the law in support of their respective missions in an environmentally, economically and fiscally sound, integrated, continuously improving, efficient, and sustainable manner. The Order sets goals in the areas of energy efficiency, acquisition, renewable energy, toxic chemical reduction, recycling, sustainable buildings, electronics stewardship, fleets, and water conservation. In addition, the order requires more widespread use of Environmental Management Systems (EMS) as the framework in which to manage and continually improve these sustainable practices. It is supplemented by implementing instructions, issued 29 March 2007, by the CEQ.

Executive Order 13443, 17 Aug 2007, Facilitation of Hunting Heritage and Wildlife Conservation. The purpose of this Order is to direct federal agencies that have programs and activities that have a measurable effect on public land management, outdoor recreation, and wildlife management, including the Department of the Interior and the Department of Agriculture, to facilitate the expansion and enhancement of hunting opportunities and the management of game species and their habitat. Resource objectives

and development needs for many management units at Martis Creek include providing and maintaining lake access for hunting and providing opportunities for hunting.

Public Law 59-209, 59th Congress (34 Stat. 225), 8 June 1906, The Antiquities Act. This act makes it a federal offense to appropriate, excavate, injure, or destroy any antiquity, historic ruin, monument, or object of scientific interest located on lands owned or controlled by the United States without having permission from the Secretary of the department having jurisdiction thereof. Paleontological resources are regulated under this act.

Public Law 86-523 (74 Stat. 220), 27 June 1960, Reservoir Salvage Act, as amended. This act provides for (1) the preservation of historical and archaeological data that might otherwise be lost or destroyed as the result of flooding or any alteration of the terrain caused as a result of any federal reservoir construction projects; (2) coordination with the Secretary of the Interior whenever activities may cause loss of scientific, prehistorical, or archaeological data; and (3) expenditure of funds for recovery, protection, and data preservation. This act was amended by Public Law 93-291. Any construction proposed at the Martis Creek Lake and Dam Project connected to operation and maintenance of the facility is reviewed in advance by the USACE Sacramento District cultural resources staff. In all cases, avoidance of historic properties is the preferred alternative. When such disturbance is unavoidable, suitable protection or data recovery will be implemented as required by the act.

Public Law 89-665 (80 Stat. 915), 15 October 1966, Historic Preservation Act, as amended. This act states a policy of preserving, restoring, and maintaining cultural resources and requires that federal agencies (1) take into account the effect of any undertaking on any site on or eligible for the NRHP; (2) afford the Advisory Council on Historic Preservation the opportunity to comment on such undertaking; (3) nominate eligible properties to the NRHP; (4) exercise caution in the disposal and care of federal property that might qualify for the NRHP; and (5) provide for the maintenance of federally owned sites on the NRHP. All ground-disturbing activities proposed on Martis Creek Lake and Dam Project lands are coordinated in advance with the State Historic Preservation Officer (SHPO), ACHP, THPO, and any other interested parties under Section 106 of the act.

Executive Order 11593, 13 May 1971, Protection and Enhancement of the Cultural Environment. Section 2 of the Order outlines the responsibilities of federal agencies in accordance with the National Environmental Policy Act of 1969, the National Historic Preservation Act of 1966, the Historic Sites Act of 1935, and the Antiquities Act of 1906. Section 3 outlines specific responsibilities of the Secretary of the Interior including

review and comment upon federal agency procedures submitted under this Order. The Martis Creek Cultural Resources Management Plan describes the USACE procedures for inventorying, managing, and protecting cultural resources at the Martis Creek project.

Public Law 93-291 (88 Stat. 174), 24 May 1974 Preservation of Historical and Archeological Data. This act amends the Reservoir Salvage Act, Public Law 86-523, to provide for the preservation of historical and archaeological data (including relics and specimens), which might otherwise be lost as the result of the construction of a dam. Section 3(a) requires any federal agency to notify the Secretary of the Interior in writing when the agency finds, or is notified in writing by an appropriate historical or archaeological authority, that its activities in connection with any federal construction project or federally licensed project, activity, or program may cause irreparable loss or destruction of significant scientific, prehistorical or archeological data. Section 7(a) requires any federal agency responsible for a construction project to assist/transfer to the Secretary of the Interior such funds as may be agreed upon, but not more than 1 percent of the total appropriated project costs. The costs of survey, recovery, analysis, and publication shall be considered non-reimbursable project costs. The USACE will notify the Secretary of the Interior in writing if a USACE activity may destroy significant scientific, prehistoric, or archeological data.

Public Law 95-341 (92 Stat. 469), 11 August 1978, American Indian Religious Freedom Act (AIRFA) of 1978. AIRFA protects the rights of Native Americans to exercise their traditional religions by ensuring access to sites, use and possession of sacred objects, and the freedom to worship through ceremonials and traditional rites. No proposals in the updated Master Plan would adversely affect the protections offered by this act. Access to sacred sites by tribal members would be provided.

Public Law 96-95 (93 Stat. 721), 31 October 1979, Archaeological Resources Protection Act (ARPA) of 1979. This act protects archaeological resources and sites that are on public and Tribal lands, and fosters increased cooperation and exchange of information between governmental authorities, the professional archaeological community, and private individuals. It also establishes requirements for issuance of permits by the federal land managers to excavate or remove any archaeological resource located on public or Native American lands. All persons proposing to engage in archeological excavation on Martis Creek Lake and Dam Project lands are required to coordinate with the USACE.

Public Law 101-601 (104 Stat. 3042), 16 November 1990, Native American Graves Protection and Repatriation Act (NAGPRA). This act provides for the protection of Native American and Native Hawaiian cultural items. It establishes a process for the authorized removal of human remains, funerary, sacred, and other objects of cultural

patrimony from sites located on land owned or controlled by the Federal Government. NAGPRA requires federal agencies and federally assisted museums to return specified Native American cultural items to the federally recognized tribes or Native Hawaiian groups with which they are associated. Notification of all inadvertent discoveries of such items covered by the act is reported to the appropriate affiliated descendant or Tribe in order of precedence as set by the act. Any claims to such items are reviewed and the procedures to repatriate within the act are followed.

Executive Order 12898, 11 February 1994, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations. Federal agencies shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations in the United States. Development and management activities proposed in the master plan are not anticipated to disproportionately impact minority or low-income populations.

Executive Order 13006, 21 May 1996, Locating Federal Facilities on Historic Properties. This Executive Order requires federal facilities, wherever operationally appropriate and economically prudent, to be located in historic properties and districts, especially those located in our central business areas. No activities under the Master Plan involve the development of federal facilities located in historic properties.

Executive Order 13007, 24 May 1996, Indian Sacred Sites. This Executive Order requires that agencies avoid damage to sacred sites on federal land, and avoid blocking access to such sites for traditional religious practitioners. The Federal Government gives Tribes notice when an impact to a sacred site occurs.

Executive Order 13175, 6 November 2000, Consultation and Coordination with Indian Tribal Governments. This Executive Order requires regular and meaningful consultation and collaboration with tribal officials in the development of Federal policies that have tribal implications, to strengthen the United States government-to-government relationships with tribes, and to reduce the imposition of unfunded mandates upon tribes. Section 3 establishes policymaking criteria when formulating and implementing policies that have tribal implications. Section 5(a) says each agency shall have an accountable process to ensure meaningful and timely input by tribal officials in the development of regulatory policies that have tribal implications.

Executive Order 13287, 3 March 2003, Preserve America. This Executive Order encourages federal agencies to recognize and manage the historic properties in their ownership as assets that can support department and agency missions while contributing

to the vitality and economic well-being of the Nation's communities. This Executive Order also encourages federal agencies to seek partnerships with state, tribal, and local governments, and the private sector in order to make more efficient and informed use of historic, prehistoric, and other cultural resources for economic development and recognized public benefits.