MILLERTON LAKE

Draft Resource Management Plan / General Plan
Environmental Impact Statement / Environmental Impact Report

June 2008

United States Department of the Interior
Bureau of Reclamation
Mid-Pacific Region
South-Central California Office

RECLAMATION
Managing Water in the West

California Department of Parks & Recreation
Central Valley District

CALIFORNIA STATE PARKS
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To provide for the health, inspiration and education of the people of California by helping to preserve the state's extraordinary biological diversity, protecting its most valued natural and cultural resources, and creating opportunities for high-quality outdoor recreation.

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Prepared by

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Prepared by

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The Bureau of Reclamation (Reclamation), in cooperation with the California Department of Parks and Recreation (State Parks), is developing the Millerton Lake Resource Management Plan (RMP) and General Plan (GP) to establish management objectives, guidelines, and actions for the Millerton Lake State Recreation Area (Plan Area). Millerton Lake is located in the southern portion of California's Central Valley in Fresno and Madera Counties in the upper San Joaquin River Watershed. Millerton Lake and the majority of adjacent lands comprising the Plan Area are owned by Reclamation. State Parks (managing partner) manages the entire Plan Area through agreements with Reclamation and the California Department of Fish and Game. In a cooperative effort between Reclamation and State Parks, a joint RMP and GP is being developed in an effort to manage this area as a whole. The RMP under federal guidelines and GP under state guidelines are similar in that they are both long-term planning documents designed to guide future management actions. This joint plan has been developed and combined in this volume with an Environmental Impact Statement/Environmental Impact Report (EIS/EIR) to comply with the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA).

On November 1, 1957, Reclamation entered into a 50-year lease with the State of California through its State Park and Recreation Commission for the purpose of developing, administering, and maintaining the public lands around Millerton Lake as part of the California State Parks system. The agreement stipulated that the occupancy, control, and administration of the park were subject to use by Reclamation and other Central Valley Project (CVP) purposes pursuant to the federal reclamation laws. This agreement allows for recreation that is consistent with the primary purpose of the project for water supply.

The most recent GP for the Plan Area was completed by State Parks in 1983. This plan projected recreation trends and deficiencies through 1990. Since the adoption of this plan, several changes in the physical and regulatory environment have indicated the need for an updated plan. The new joint RMP/GP will have a planning horizon through the year 2035. The new plan will address the following needs:

- Enhancing natural resources and recreational opportunities without interruption of reservoir operations
- Providing recreational opportunities to meet the demands of a growing, diverse population
- Ensuring recreational diversity and quality
- Protecting natural, cultural, and recreational resources, and providing resource education opportunities and good stewardship
- Providing updated management considerations for establishing a new management agreement with the State of California.

Like the GP, the RMP is a long-term plan that will guide future actions in the Plan Area and is based on a comprehensive inventory of environmental resources and facilities and input from local, state, and federal agencies, and the general public. The primary emphasis of the RMP is to protect water quality, water supply, and natural resources, while enhancing recreational uses in the Plan Area. The development of the RMP is based upon authorities provided by Congress through the Reclamation Act, Federal Water Project Recreation Act, Reclamation Recreation Management Act, and applicable federal agency and United States Department of the Interior policies.

The purpose of the RMP/GP is to provide a program and set of policy guidelines necessary to encourage orderly use, development, and management of the surrounding lands. The RMP/GP will provide outdoor recreational opportunities, enhanced by Millerton Lake and its shoreline, compatible with the surrounding scenic, environmental, and cultural resources. In addition, the RMP/GP will propose uses that will be compatible with the obligation to operate the reservoir for delivery of high-quality water.

The planning process for RMP/GP involves the integration of issues, opportunities and constraints; management actions; and management zones. It follows the guidance of federal and state planning mandates and proposed actions that balance recreation opportunities with natural and cultural resource stewardship. The following are the basic elements of the planning process:

- Define the overall goals and objectives
- Describe the resource categories that group the issues
- Identify the issues, opportunities, and constraints
- Determine management actions to address the issues
- Define the management zones for Millerton Lake.

The environmental impacts of the RMP/GP are assessed in a programmatic EIS/EIR that is included as part of this document. The environmental review focuses on the potential for management actions to cause adverse or beneficial environmental impacts to natural and cultural resources such as water quality, endangered species, and historic resources.

The four planning alternatives described in Section 2 were formulated to address the issues, opportunities, and constraints in the Plan Area. The No Action Alternative and three action alternatives are as follows:

- No Action—This alternative manages land and activities with the continuation of current management practice.
- Recreation Expansion (Alternative 1)—This alternative emphasizes expanded recreation opportunities.
- Enhancement (Alternative 2)—This alternative balances natural resource protection and recreation opportunities.
- Resource Protection/Limited Enhancement (Alternative 3) – This alternative emphasizes conservation and protection of natural and cultural resources while providing visitor experiences consistent with the emphasis on resource stewardship.

Under the No Action Alternative, current resource and recreation management direction and practices at Millerton Lake would continue unchanged. However, the managing partner would implement the infrastructure improvements that are common to all the alternatives. It provides the benchmark for making comparisons in the EIR/EIS between possible future changes under Alternatives 1, 2, and 3.

Alternative 1 would expand recreational uses and public access by implementing new or modified land and recreation management practices. This alternative is included to demonstrate a scenario in which recreational uses are substantially expanded while meeting the RMP/GP goals

for protection of natural resources to the extent feasible. The concept of the Recreation Expansion Alternative would be:

- Expansion of recreation facilities to include the highest levels of camping facilities (group and individual), additional boat ramps, and a new, expanded, or improved marina.
- Manage for the highest boat densities and the least restrictions on boat type and speed.

The objective of Alternative 2 is to enhance current recreational uses and public access at Millerton Lake in order to attract more visitors and increase recreational opportunities, while protecting natural resources with new or modified land and recreation management practices. These activities propose upgrades and improvements for many of the Park's existing facilities and utilities. The concept of the Enhancement Alternative would be:

- Lower boat densities than Alternative 1 but higher than Alternative 3; more restriction of boat speeds than Alternative 1 and restrictions on use of personal watercraft.
- Development of new recreation opportunities and facilities, e.g.. trails, marina expansion, group and individual campsites, in a manner that is balanced with resource protection.

The management approach for Alternative 3 emphasizes conservation and protection of natural and cultural resources while providing visitor experiences with this high degree of emphasis on resource stewardship. The concept of the Resource Protection/Limited Enhancement Alternative would be:

- Emphasis on relocation of facilities away from sensitive resource areas, and upgrade of recreation facilities consistent with resource protection.
- Management of the areas upstream of the main lake body as semi-primitive.
- Manage for the lowest boat densities and most restrictions on boat speed and type.
- No expansion of the existing marina.
- No appreciable increases in group or individual campsites.

Section 3, Existing Conditions, describes features that could be affected by the alternatives. Other topics such as climate and air quality are addressed to provide context, but less detail is provided because impacts to these resources would be less noticeable.

Much of the data collected for the description of the existing environment are included in GIS format. Many figures show areas with sensitive resources, such as biology and land use, or areas characterized by hazard potential, such as erosion and geological hazards. These figures and the impact analyses provided in Section 4 would be the basis of constraint analysis that would guide any plans for future development within the planning horizon.

Section 4, Environmental Consequences, describes the impact of implementing each of the action alternatives as well as the No Action Alternative. Future actions that might result in site-specific impacts will be addressed in project-specific plans and environmental documentation as they arise. Where possible, avoidance, minimization, and mitigation measures are provided to reduce the severity of each impact.

Before presentation of the impacts, impact thresholds are identified and, where applicable, impact methodology is also discussed. Thresholds are expressed in the following categories:

- **Beneficial Impact:** This impact would occur when an activity could result in the elimination, reduction, or resolution of a conflict.
- **No Impact:** This impact would occur if an activity would result in no change compared to the existing condition.
- **Minor Adverse Impact:** This impact would occur if an activity would result in a detectable impact that would lead to deterioration or a conflict. It is equivalent to a less-than-significant impact under CEQA.
- **Major Adverse Impact:** This impact would occur if an activity would result in a dramatic deterioration or a severe conflict. A major adverse impact can be long-term and substantial. It is equivalent to a significant impact under CEQA.

Section 4 then discusses the impacts of actions common to all alternatives, impacts unique to each alternative, a summary of impacts, and mitigation measures, if applicable. Cumulative impacts are discussed at the end of each resource topic where applicable.

The impacts of each alternative are summarized in Table S-1. The Millerton Lake RMP/GP is a program document and, therefore, not site-specific. If and when site-specific projects are funded, site-specific supplemental environmental documents would be required before approval.

Table S-1
Impacts Summary

Impacts to Resources	No Action	Alternative 1		Alternative 2		Alternative 3	
	Impact Magnitude	Impact Magnitude	Impact After Mit.	Impact Magnitude	Impact After Mit.	Impact Magnitude	Impact After Mit.
WATER RESOURCES							
WQ-1: Pollutants due to motorized vehicle emissions	Major	Minor	No Impact	Minor	No Impact	Beneficial	Beneficial
WQ-2: Erosion and temporary turbidity due to construction, maintenance, and use of facilities, roads, and trails	Minor	Minor	Minor	Minor	Minor	Minor	Minor
WQ-3: Pollutants from new portable restrooms/vault toilets not pumped/cleaned properly	Minor	Minor	No Impact	Minor	No Impact	Minor	No Impact
AIR QUALITY							
AQ-1: Vehicle emissions from auto and boat traffic	Minor	Minor	No Mitigation	Minor	No Mitigation	Minor	No Mitigation

Table S-1
Impacts Summary

Impacts to Resources	No Action	Alternative 1		Alternative 2		Alternative 3	
	Impact Magnitude	Impact Magnitude	Impact After Mit.	Impact Magnitude	Impact After Mit.	Impact Magnitude	Impact After Mit.
AQ-2: Dust from vehicle traffic on unpaved areas and site maintenance and facilities construction with ground disturbing activities that generate dust	Minor	Minor	Minor	Minor	Minor	Minor	Minor
AQ-3: Combustion emissions from accidental or prescribed fires	Minor	Minor	Minor	Minor	Minor	Minor	Minor
SOILS AND GEOLOGY							
SG-1: Ground disturbing construction and maintenance activities	Minor	Minor	No Impact	Minor	No Impact	Minor	No Impact
SG-2: Erosion compaction and disturbance due to trail use and construction	Minor	Minor	Minor	Minor	Minor	Minor	Minor
SG-3: Compaction and erosion due to cattle grazing	Minor	Minor	Minor	Minor	Minor	Minor	Minor
BIOLOGY							
BI-1: Expansion of recreation and camping facilities impacting biological resources	No Impact	Minor	Minor	Minor	Minor	Minor	Minor
BI-2: Expansion of camping facilities at Temperance Flat and increased visitor access could impact vegetation and special status species	No Impact	Minor	Minor	Minor	Minor	No Impact	No Impact

Table S-1
Impacts Summary

Impacts to Resources	No Action	Alternative 1		Alternative 2		Alternative 3	
	Impact Magnitude	Impact Magnitude	Impact After Mit.	Impact Magnitude	Impact After Mit.	Impact Magnitude	Impact After Mit.
BI-3: Expansion of the trail system proposed by Alternatives 1 & 2 & 3 could adversely impact vegetation, wildlife, and special status species	No Impact	Minor	Minor	Minor	Minor	Minor	Minor
BI-4: Motorized vessel emissions may reach high concentrations in localized areas and result in major adverse impacts to fisheries and aquatic communities	Major	Major	Minor	Major	Minor	Minor	Minor
BI-5: Implementation of vegetation, fire, and fisheries plans	Minor	Beneficial	No Mitigation	Beneficial	No Mitigation	Beneficial	No Mitigation
CULTURAL RESOURCES							
CU-1: Construction of proposed facilities (i.e., ground disturbing activities) and increased visitor activity due to new trails and camp sites will expose archaeological sites	Major	Major to Minor	Minor	Major to Minor	Minor	Major to Minor	Minor
VISUAL RESOURCES							
VR-1: Smoke from prescribed burns impacting visual resources	Minor	Minor	No Mitigation	Minor	No Mitigation	Minor	No Mitigation
VR-2: Increase in boat densities in no action alternative and alternative 1 & 2	Minor	Minor	No Mitigation	Minor	No Mitigation	No Impact	No Impact

Table S-1
Impacts Summary

Impacts to Resources	No Action	Alternative 1		Alternative 2		Alternative 3	
	Impact Magnitude	Impact Magnitude	Impact After Mit.	Impact Magnitude	Impact After Mit.	Impact Magnitude	Impact After Mit.
VR-3: Lower boat densities in the upper lake under alternative 3	N/A	N/A	N/A	N/A	N/A	Beneficial	Beneficial
VR-4: New facilities	No Impact	Minor	No Mitigation	Minor	No Mitigation	Minor	No Mitigation
VR-5: Acquisition, easements, or mitigation measures on adjacent lands.	N/A	Beneficial	N/A	Beneficial	N/A	Beneficial	N/A
LAND USE							
LU-1: Prescribed burning	Minor	Minor	No Mitigation	Minor	No Mitigation	Minor	No Mitigation
LU-2: Expansion of hunting activities	No Impact	Minor	No Mitigation	Minor	No Mitigation	No Impact	No Mitigation
LU-3: Addition of primitive campsites	N/A	N/A	N/A	N/A	N/A	Beneficial	N/A
LU-4: Working with conservation groups outside of the plan area to establish land uses similar to within the plan area	N/A	N/A	N/A	N/A	N/A	Beneficial	N/A
RECREATION							
R-1: Temporary construction activities at camping and recreation facilities	N/A	Minor	Minor	Minor	Minor	Minor	Minor
R-2: Management of BAOT levels resulting in decreased recreational opportunities	Major	No Impact	No Mitigation	Minor	Minor	Major	Minor
R-3: Management of BAOT levels affecting the quality of recreational boating experience	Major	Major	Major	Beneficial	No Mitigation	Beneficial	No Mitigation

Table S-1
Impacts Summary

Impacts to Resources	No Action	Alternative 1		Alternative 2		Alternative 3	
	Impact Magnitude	Impact Magnitude	Impact After Mit.	Impact Magnitude	Impact After Mit.	Impact Magnitude	Impact After Mit.
R-4: Conflicts on trails	Major	Minor	Minor	Major	Minor	Major	Minor
R-5: Enforcement of boat speed	Minor	Minor	Minor	Minor	Minor	Minor	Minor
R-6: Discourage boat flotillas at Temperance Flat	Major	Beneficial	N/A	Beneficial	N/A	Beneficial	N/A
VISITOR ACCESS AND CIRCULATION							
TR-1: Visitor access or circulation related to parking and roadway improvements.	Major	No Impact	None	No Impact	None	No Impact	None
TR-2: Visitor access and circulation related to trail improvements.	Major	Beneficial	N/A	Beneficial	N/A	Beneficial	N/A
TR-3: Visitor access related to trail management plan.	Major	Minor	Minor	Minor	Minor	Minor	Minor
TR-4: Visitor circulation related to trail management plan.	Major	Beneficial	N/A	Beneficial	N/A	Beneficial	N/A

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Appendix

A	Public Participation Program

Acronyms

ADA	Americans With Disabilities Act
BAOT	boats at one time
BLM	Bureau of Land Management
CalEPPC	California Exotic Pest Plant Council
CalIPC	California Invasive Plant Council
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CDF	California Department of Forestry and Fire Protection
CDFG	California Department of Fish and Game
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
Council	Advisory Council on Historic Preservation
CNDDB	California Natural Diversity Data Base
CNPS	California Native Plant Society
CO	carbon monoxide
CRHR	California Register of Historic Resources
CVP	Central Valley Project
CVRWQCB	Central Valley Regional Water Quality Control Board
Delta	Sacramento-San Joaquin River Delta
DWR	California Department of Water Resources
EPA	U.S. Environmental Protection Agency
GP	General Plan
GPS	global positioning system
HUC	hydrologic unit code
LOS	Level of Service
MTBE	methyl tertiary butyl ether
MOA	Memorandum of Agreement
NAHC	Native American Heritage Commission
NEPA	National Environmental Policy Act
NO_2	nitrogen dioxide
NRDC	Natural Resources Defense Council

O_3	ozone
OHMV	Off-highway Motor vehicle
PG&E	Pacific Gas and Electric Company
PL	Public Law
PM_{10}	particulate matter 10 microns or less in diameter
$PM_{2.5}$	particulate matter 2.5 microns or less in diameter
Reclamation	U.S. Bureau of Reclamation
RMP	Resource Management Plan
RWQCB	Regional Water Quality Control Board
SFC	Sierra Foothill Conservancy
SJVAPCD	San Joaquin Valley Air Pollution Control District
SO_2	sulfur dioxide
SR	State Route
SRA	State Recreation Area
State Parks	California Department of Parks and Recreation
SWRCB	State Water Resources Control Board
USACE	U.S. Army Corps of Engineers
USC	U.S. Code
USFWS	U.S. Fish and Wildlife Service
USFS	U. S. Forest Service
USGS	U.S. Geological Survey
WROS	Water Recreation Opportunity Spectrum

1.1 BACKGROUND FOR THE JOINT RESOURCE MANAGEMENT PLAN AND GENERAL PLAN

Millerton Lake is located in the southern portion of California's Central Valley in Fresno and Madera Counties in the upper San Joaquin River Watershed (Figure 1.1-1). Millerton Lake and the majority of adjacent lands comprising the Millerton Lake State Recreation Area are owned by the U.S. Bureau of Reclamation (Reclamation). Some land within Millerton Lake State Recreation Area (Plan Area) is owned by the California Department of Parks and Recreation (State Parks) and the California Department of Fish and Game (CDFG). State Parks (managing partner) manages the entire Plan Area through agreements with Reclamation and CDFG. In a cooperative effort between Reclamation and State Parks, a joint Resource Management Plan (RMP) and General Plan (GP) is being developed in an effort to manage this area as a whole. Figure 1.1-2 shows the lands within the Plan Area. This joint plan is being developed and is combined in this volume with an Environmental Impact Statement/Environmental Impact Report to comply with the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA).

Millerton Lake is a reservoir formed by Friant Dam as part of the Central Valley Project (CVP), a federally funded project established in the 1930s that extends from Shasta Dam in Northern California to the Kern River in the south. Completed in 1942, Friant Dam was constructed and has been managed by Reclamation since its beginning. Friant Dam regulates the normal flow of the San Joaquin River and stores flood waters for irrigation diversion into the Friant-Kern and Madera Canals, and for releases to water users on the river below the dam (Reclamation 1958). Millerton Lake has a storage capacity of 520,500 acre-feet and a surface area of 4,900 acres.

On November 1, 1957, Reclamation entered into a 50-year lease with the State of California through its State Park Commission for the purpose of developing, administering, and maintaining the public lands around Millerton Lake as part of the State Park System. The agreement stipulated that the occupancy, control, and administration of the park were subject to use by Reclamation and other CVP purposes pursuant to the federal reclamation laws. This agreement allows for recreation that is consistent with the primary purpose of the project for water supply.

This joint RMP/GP includes alternative resource management guidelines for the reservoir and adjacent Reclamation and State Parks lands as appropriate for recreation and natural resource management opportunities and water quality. All recreational uses and improvements at the lake must be consistent with the original purpose of the Reclamation project and must not interfere with reservoir operations, which are focused on providing a reliable annual yield of high-quality water primarily for agricultural use.

1.2 NEED FOR ACTION

As required under NEPA, a proposed action such as the RMP requires a statement of the action's purpose and need. Under CEQA, the underlying purpose of, and vision for, the GP is also included.

The most recent General Plan for the Plan Area was completed by State Parks in 1983. This plan projected recreation trends and deficiencies through 1990. Since the adoption of this plan, several changes in the physical and regulatory environment have indicated the need for an

updated plan. The new joint RMP/GP will have a planning horizon through the year 2035. Needs that the new plan will address include:

- Enhancing natural resources and recreational opportunities without interruption of reservoir operations
- Providing recreational opportunities to meet the demands of a growing, diverse population
- Ensuring recreational diversity and quality
- Protecting natural, cultural, and recreational resources, and providing resource education opportunities and good stewardship
- Providing updated management considerations for establishing a new management agreement with the State of California.

The RMP has been developed within the authorities provided by Congress through the Reclamation Act of June 17, 1902 (32 Stat. 388, 43 United States Code [USC] 391), and acts amendatory thereof and supplementary thereto, including the Federal Water Project Recreation Act (Public Law [PL] 89-72, 79 Stat. 213, 15 USC 460); Reclamation Recreation Management Act of 1992 (PL 102-575, Title 28, 16 USC 460L); Fish and Wildlife Coordination Act (PL 93-205, 16 USC 661, 662); National Historic Preservation Act of 1966 (80 Stat. 915, 16 USC 470) as amended; National Environmental Policy Act of 1969 (PL 91-190) as amended; Title IV of the Recreational Development Act of 1984 (PL 93-493); and other applicable agency and U.S. Department of Interior policies.

For the State Parks' GP, California Public Resources Code Division 5, Chapter 1, Article 1, Section 5002.2 requires that a general plan be prepared prior to the development of permanent facilities. More specifically, it allows new facilities "so long as such construction does not result in the permanent commitment of a resource of the unit."

1.3 PURPOSE OF ACTION

The purpose of the RMP and the purpose and vision for the GP are described below. The purpose statements for both plans are compatible and can be attained using the management objectives as described in Section 1.4.

The purpose of the RMP/GP is to provide a program and set of policy guidelines necessary to encourage orderly use, development, and management of the reservoir and the surrounding lands. The plan promotes outdoor recreational opportunities, enhanced by the lake, the river, and their shorelines, compatible with the surrounding scenic, environmental, and cultural resources of the Plan Area. In addition, this plan will propose uses that will be compatible with Reclamation's obligation to operate the reservoir for water delivery.

1.4 MANAGEMENT OBJECTIVES

The following management objectives guide the joint document and fulfill the purpose of both the RMP and GP.

- Identify the current and most appropriate future uses of land and water resources within the Plan Area.

  - Develop and implement a comprehensive land use strategy considering uses of Plan Area and adjacent lands.
- Identify long-term resource programs and implementation guidelines to manage and develop recreation, natural, and cultural resources.
  - Determine the opportunities and need for new or enhanced recreation facilities based on demand and resource limits.
  - Manage for a balance between fish and wildlife resources and recreational opportunities.
  - Identify opportunities to develop partnerships, where appropriate, for managing recreational and natural resources.
- Develop strategies and approaches to protect and preserve the natural, recreational, aesthetic, and cultural resources.
  - Establish guidelines for providing appropriate public access to park resources.
  - Develop education and stewardship programs for the recreational opportunities and natural/cultural resources available in the park.
  - Provide adequate public safety and security measures for protection of visitors and resources.
  - Pursue opportunities to purchase inholdings or adjacent lands that could contribute to management objectives.

2.1 ORGANIZATION

This section first describes the planning process and planning influences that led to the formulation of alternatives. Then each of the three action alternatives and the No Action Alternative developed for this RMP/GP are identified and described.

The planning process for the Millerton Lake Plan Area RMP/GP involves the integration of many separate elements including goals and objectives; issues, opportunities and constraints; management actions; and management zones. As discussed in Section 1, the plan is intended to merge the guidance of both federal and state planning mandates and propose actions that balance recreation opportunities with natural and cultural resource stewardship. These planning process elements are discussed in Section 2.2.

A variety of planning influences should be considered in the planning process leading to alternative formulation. These include such items as systemwide planning, regional planning, demographics, and public concerns. These influences are addressed in Section 2.3.

2.2 PLANNING PROCESS ELEMENTS

The following are the basic elements of the planning process:

- Define the overall goals and objectives.
- Describe the resource categories that group the issues.
- Identify the issues, opportunities, and constraints.
- Determine management actions to address the issues.
- Define the management zones for Millerton Lake Plan Area.

Several planning influences guide the plan formulation, and the elements of the plan may not be sequential. For example, defining the management zones of the lake does not necessarily occur last in the planning process, but it can. Identifying the issues and pairing them to the goals and objectives is often a repetitive process.

2.2.1 Goals and Objectives

The purpose of the RMP/GP is to guide future land resources management to ensure lands and waters are maintained and protected for authorized purposes. It does so by establishing a set of consistent policy and management guidelines to encourage orderly use, development, and management of the reservoir and the surrounding lands. These management guidelines are best described in terms of goals and objectives. The RMP/GP provides an overall means of achieving a balance between the goals of providing recreational opportunities and adequate recreation facilities with protecting the environment and preserving natural and cultural resources. These broad, conceptual goals, and objectives (Table 2-1) focus on desired future conditions. From these goals and objectives flow the management actions proposed in this plan.

2.2.2 Categories for Issues, Opportunities, and Constraints

The five main resource categories that characterize issues for the Millerton Lake Plan Area are: Recreation and Project Facilities, Natural and Cultural Resource Management and Protection, Land Use Management, Health and Safety, and Park Administration/Public Involvement. Briefly, these resource categories include the following.

- **Recreation and Project Facilities** – Physical facilities, such as campsites, day use facilities, trails, boat ramps, marina, and utilities; and managerial actions, such as allowable boat speeds, boat types, densities of facilities, and services.
- **Natural and Cultural Resource Management and Protection** – Management and protection of habitat, threatened and endangered species, wetland and riparian areas, control of invasive species, hunting, fishing, water quality, cultural resources management and protection, air quality, and fire management.
- **Land Use Management** – Issues involving private developments around or near the lake, permits, claims, leases, roads, traffic, parking, and entrance stations.
- **Health and Safety** – Management of floods, fire, and hazardous materials.
- **Park Administration/Public Involvement** – Seasonal events, concessions, visitor services, maintenance, patrols, lifeguards, security, administrative needs, emergency services and coordination.

2.2.3 Issues, Opportunities and Constraints

Planning issues can be defined as unrealized opportunities, unresolved conflicts or problems, efforts to implement a new management program, or values being lost. Opportunities often exist that can provide solutions to issues raised by the public and agencies involved in the planning process. Opportunities exist to enhance, protect, and interpret the resources as well as to provide for a wide variety of recreation facilities and experiences. Constraints are imposed by legislative authorities, budgets, personnel, policies, and environmental considerations.

Limiting factors, such as slopes, soils, wetlands, and critical habitat are environmental constraints. Other constraints include impacts related to social, physical, environmental, and facilities that should be taken into consideration during resource and land use planning. Water and mineral rights associated with land may also carry constraints.

The issues associated with the Plan Area are summarized by resource category in Table 2-2. These issues have been identified in a series of agency and public scoping meetings (Appendix A). Many of the environmental issues associated with opportunities and constraints are illustrated on the GIS maps developed for these resources (i.e., critical habitat, floodplains, and erosion potential).

2.2.4 Management Actions

Management actions are activities or directions that are proposed to address the goals, objectives, and issues for each resource category. This plan is intended to be a programmatic document that provides a broad range of management activities that are feasible within the Plan Area. Future

project-specific actions, if and when implemented, would require a tiered level of environmental review that would reference this programmatic document.

2.2.5 Management Zones

In order to facilitate the planning process, management zones were identified within the Millerton Lake Plan Area. Management zones are geographic divisions that are identified by distinct physical, social, and management characteristics. The Water Recreation Opportunity Spectrum (WROS) management tool was used to identify the management zones and is discussed more fully in Section 3. While the WROS is specifically intended to address water-related recreation activities, the WROS management zones are also appropriate to describe other adjacent natural resources and management actions in the Plan Area. This dual use of the WROS is warranted because the activities surrounding Millerton Lake are closely associated with water, and steep terrain limits the viewshed adjacent to Millerton Lake. For example, if a person on or near the lake is in a Semi-Primitive zone, little or no development is visible in the immediate viewshed. A person on land in the same area would also experience surrounding natural resources without much human activity or resource modification. The WROS zones are used as tools to assist planners in developing management guidelines appropriate for different recreational activities associated with water.

Distinct management zones have been identified for various portions of the Millerton Lake Plan Area. Future WROS zones may vary, depending on the alternative selected and the management actions taken for those alternatives. These zones, and the actions associated with them, are not intended to provide all activities for all users. Rather, Millerton Lake, when viewed with other lakes and reservoirs in the vicinity, can provide and opportunity for unique management actions.

In the discussion of the alternatives, the management actions identified vary depending on the current WROS zone or on the intended future WROS zone. The four management zones that are used to describe existing conditions within the Millerton Lake Plan Area are Suburban, Rural Developed, Rural Natural, and Semi-Primitive (see Figure 2.2-1).

The main body of the lake is classified as Suburban. The Suburban environment provides a limited opportunity to see, hear, or smell the natural resources due to the prevalent development, human activity, and natural resource modification.

The following areas are referred to as “Up-River” in this document:

- The area from where the lake first narrows and turns north until just upstream of the confluence with Fine Gold Creek and the Fine Gold day use area is currently designated as Rural Developed. This area is less developed and more tranquil than an urban/suburban setting, and the opportunity to experience brief periods of solitude and change from everyday sights and sounds is available.
- From Fine Gold Creek upstream to Big Bend is classified as Rural Natural. This area provides frequent opportunities to see, hear, or smell the natural resources due to the occasional or periodic level of development, human activity, and natural resource modification. The area is noticeably more natural, less developed, and tranquil than an urban setting.

- From Big Bend upstream to the boundaries of the Plan Area is classified as Semi-Primitive. This area provides a higher level of opportunities to see, hear, or smell the natural resources due to the lower level of development, human activity, and natural resource modification. The opportunity to experience a natural ecosystem with little human imprint is available; a sense of challenge, adventure, risk, and self-reliance is available as well.

2.2.6 Interpretive Themes – What Visitors Should Know

Based on the management objectives and primary resources of the Millerton Lake Plan Area, the following primary interpretive themes about the Plan Area resources are so important that every visitor should have the opportunity to understand them. The following are not a comprehensive list of everything there is to interpret in the park, but these themes contribute to a visitor's understanding of the park's significance.

- Millerton Reservoir is part of a larger interconnected system of water delivery in California. The history of growth, agricultural development and industrialization in California is directly tied to the ability to store and transport water throughout California. The manipulation of state water resources is essential to understanding the complex history of California.
- The Yokut Indians and earlier indigenous peoples historically and prehistorically occupied the lands that make up the Millerton Lake Plan Area. The traditional hunter-gatherer life way practiced by these people before the arrival of Euro-Americans is an important story to convey to visitors. The archaeological remains of the area's original occupants are still present throughout the region.
- The mosaic of natural communities in the Millerton Lake Plan Area, which includes oak and pine woodlands, grasslands, and wetlands, provides increasingly scarce habitat for wildlife, including numerous rare and endangered species.
- Millerton Lake Plan Area protects native oak woodlands, which are becoming increasingly rare in California. At least five species of oaks occur in the Plan Area, and oak trees can live to be hundreds of years old. Regeneration of oaks, especially blue oaks, is an important element for the future success of oak woodlands.
- Wetlands occur where aquatic and upland environments meet. Within the Millerton Plan Area, wetland types include vernal pools and riparian areas along streams. Such wetlands provide habitat for nesting birds and special-status species.

2.3 PLANNING INFLUENCES

Many planning influences originate outside of the Plan Area boundaries and are important in understanding the unit's land use, resources, and facilities in a larger context. These influences tend to fall into four broad categories: systemwide planning, regional planning, demographics, and public concerns.

Systemwide planning influences address issues that cross Plan Area and regional boundaries. These influences provide direction and guidance in the planning of the Plan Area through systemwide (i.e., the entire State Park system) policies, goals, objectives, rules, and regulations. These planning influences help to create cohesion in recreation planning, resource management, interpretation, and operations throughout the State Park system. Understanding and considering

regional planning influences allows for the anticipation and coordination, if necessary, of regional planning issues. Table 2-3 provides a list of applicable systemwide and regional planning influences.

Reclamation and State Parks have conducted a joint study that assesses WROS management zones and related activities on several other reservoirs and lakes throughout California. This effort assesses regional recreation supply of water recreation opportunities, including those provided by other agencies. For example, if one lake does not have any Rural Natural or open space areas, perhaps another lake within a reasonable traveling distance could provide that resource. Conversely, those that prefer personal watercraft and boating sports may be restricted to pursuing their activities in certain lakes. In this manner, a regionwide analysis allows for more flexibility in assessing future recreation opportunities at each individual lake.

Existing and projected demographics of the region play an important role in planning for the Plan Area. The Millerton Lake Plan Area gets heavy-year round use and is most popular during the spring and summer seasons. Total visitor use from July 1995 through June 2002 averaged just over 500,000 visitors per year. During that time, total annual visitor use increased 35 percent, from approximately 460,000 visitors to 620,000.

Fresno and Madera Counties are projected to have substantial growth in the next 20 years, thus the number of people participating in recreation activities can be expected to increase as well. Madera County's growth rate is projected to be 86 percent between 2000 and 2020, one of the highest percentages of growth in the state. Fresno County, similarly, is projected to grow substantially, but at lower rate of 42 percent.

The expressed interests and needs of the public and other agencies are important in the Plan Area planning process. Three public scoping and workshop meetings have been conducted. Summaries of these meetings are provided in Appendix A. Public involvement has continued throughout the NEPA/CEQA process of developing the RMP/GP. In the future, the public will continue to be involved and their interests and concerns will be addressed through the NEPA and/or CEQA process, for future specific projects within the Plan Area.

Incorporating and understanding planning influences that originate outside of the Plan Area recognizes the effects that other agencies and stakeholders have on planning in the Plan Area. However, future unpredictable actions by agencies and stakeholders may occur that could inhibit the full realization of the plans for the Plan Area. These types of actions would be outside of the control and influence of Reclamation or State Parks and would be addressed in planning for the Plan Area on an individual basis.

2.4 FORMULATION OF ALTERNATIVES

2.4.1 Introduction

This section describes RMP/GP alternatives for Millerton Lake Plan Area. Both the RMP and GP follow traditional steps in the preparation of resource plans. Typically, the planning process begins with the identification of issues, opportunities, and constraints pertaining to resources of an area. Next is the resource inventory to collect data on existing conditions. The resources are then analyzed within the framework of issues, opportunities, and constraints. This leads to the formulation and evaluation of alternatives.

The alternatives are designed to address the issues, opportunities, and constraints at Millerton Lake Plan Area. A broad range of management actions were developed to address alternatives that would represent the varied interests at the Millerton Lake Plan Area. The No Action Alternative and three action alternatives developed for the Millerton Lake Plan Area are summarized as follows.

- **No Action** – This alternative manages land and activities with the continuation of current management practice.
- **Recreation Expansion** – This alternative emphasizes expanded recreation opportunities and proposes additional campsites.
- **Enhancement** – This alternative balances natural and cultural resource protection and recreation opportunities.
- **Resource Protection/Limited Enhancement** – This alternative emphasizes resource protection and limits some recreation opportunities.

Section 2.4.2 describes the common management actions that would occur in all alternatives. Unique management actions for each of the alternatives are detailed in Section 2.4.3. Table 2-4 summarizes the common and unique management actions for the alternatives.

2.4.2 Common Management Actions for All Alternatives

Each of the alternatives has different components or management actions that would attain the direction of that alternative. However, there are several management actions common to the No Action and/or action alternatives. The subsections below describe the resource categories' common actions.

2.4.2.1 Recreation and Project Facilities

Under all alternatives, the campgrounds and associated facilities would be maintained to comply with laws and regulatory requirements, such as Americans with Disabilities Act (ADA), security measures, and law enforcement. The campgrounds and Group Camp/amphitheater would be maintained as they are currently. All campgrounds would get upgrades to the restrooms, shower facilities, and other physical features to comply with laws and regulatory requirements, including, but not limited to ADA.

Current boating speeds would be retained in the main body of the lake under all of the alternatives. All boating directional patterns would be enforced in the main body of the lake. All types of appropriately sized watercraft would be allowed in the main body of the lake, and signs and brochures would be available to educate visitors about boating safety and courtesy. Under all of the action alternatives, the formation of boat flotillas (party congregations) in the Temperance Flat area would be discouraged.

Under all of the action alternatives, the idea of acquiring additional lands on the north shore for additional campsites or buffer zones from planned residential development would be pursued. If new campsites are added, the accompanying utilities would be upgraded or expanded to meet the service needs. It would be anticipated that any new facilities would be designed in such a way as to not diminish any visual resources in the park. Some of the lands acquired could provide for resource mitigation lands.

Concession facilities would be available seasonally under all alternatives. Under the action alternatives, a permanent concession facility could be considered. All day use facilities would be maintained or upgraded as necessary, and new day use areas, such as picnic sites or loop trails, could be added.

2.4.2.2 Natural and Cultural Resource Management and Protection

Under all alternatives, visitors would be educated about the protection of natural and cultural resources and would be instructed to stay on trails and avoid sensitive areas. (Sensitive areas can be described as lands with natural and cultural resources that require special protection, such as threatened and endangered species, unique wildlife areas, and cultural or historic preserves.) All federal and state regulations would be followed for habitat protection. Special habitats, such as wintering bald eagle roosting areas, could be restricted from use during certain periods if required for species protection.

Under the No Action Alternative, the current levels of resource management would be maintained, and no new programs would establish native vegetation or remove invasive species. All of the action alternatives would incorporate methods (depending on funding) to use more native plants, particularly in less traveled areas and at Temperance Flat. Park visitors would be encouraged to visit the Visitor Center native plant and landscape display.

Under the three action alternatives a vegetation management plan would be developed. This plan would address issues including but not limited to invasive weeds, grazing, and fire management. The management of grazing leases, prescribed burning and noxious weed control would be coordinated. Reclamation and State Parks would work with groups as appropriate to develop a watershed-level noxious weed plan. Reclamation would collaborate with the managing partners to acquire funding (e.g., from grazing leases or Natural Resources Conservation Service funds) for invasive weed control. Grazing leases could continue under all four alternatives but would be more closely managed in a grazing management plan under the action alternatives. State Parks, in coordination with Reclamation, would continue to evaluate the feasibility of prescribed burn activities based on consideration for air quality and public safety. Burns would be conducted if possible. Reclamation would coordinate with as appropriate groups to integrate fire management with vegetation management regimes.

Access to the Kechaye Cultural Preserve would be restricted under all alternatives. In addition, access would be restricted to any known cultural or historical sites on the Table Mountains.

Under all alternatives, water quality would be monitored at various sites around the lake. All air quality regulations would be followed per the regional air quality district.

Under the three action alternatives, a fisheries management plan would be prepared with a goal of improving fishing and fish production. Improving fishing would provide for more recreational opportunities while protecting the fisheries resource. Special use permitted hunting in accordance with CDFG laws would be explored.

In early 2008, invasive quagga or zebra mussels were found in several lakes in Southern California. No safe and effective remedy is available for eliminating them from a waterbody once it is infested. Invasive mussels can multiply quickly and clog waterways and pipelines, affect lake ecosystems, and create costly maintenance issues. To prevent the spread of invasive mussels, boating restrictions have been imposed at several Southern California recreation areas. As of April 2008, no invasive mussels have been found at Millerton Lake. However, in the fisheries management plan proposed for the action alternatives, the managing partner will evaluate potential control measures and may impose boating restrictions if needed to protect lake infrastructure and ecosystems.

2.4.2.3 Health and Safety

Under all alternatives, activities and building management in flood-prone areas would be restricted according to FEMA guidelines or other federal regulations. The Plan Area Fire Plan would be updated and revised. Fire management activities would be coordinated with other appropriate agencies. Reclamation would coordinate with appropriate groups such as the Millerton Area Watershed Coalition to integrate fire management with vegetation management regimes. As a part of the Fire Plan, State Parks, in coordination with Reclamation, would continue to evaluate the feasibility of prescribed burn activities based on consideration for air quality and public safety. Burns would be conducted if possible. Campers would be educated about fire dangers under all alternatives. All employees would follow current federal and state regulations regarding the handling, transporting, and storing of hazardous materials.

Since the events of September 11, 2001, general visitor use to the Friant Dam has been restricted. The Visitor Center, located next to the dam, has a large parking lot with access directly off Millerton Road and through the park entrance. Due to difficulties in patrolling this parking lot and to the occurrence of illegal activities, the road directly off Millerton Road is now closed to the public. Exceptions may be granted to State Parks by Reclamation.

2.4.2.4 Land Use Management

Under all alternatives, Reclamation and State Parks would coordinate with Fresno and Madera Counties to develop appropriate land use designations and zoning on private lands adjacent to the park. As the counties grow in population, State Parks and Reclamation would work with the appropriate agencies to analyze traffic patterns, entrance issues, and other growth-related concerns. Traffic improvements would be required with future development in the local area, and input on County transportation and circulation plans would be considered under the action alternatives.

Reclamation and State Parks would work with Fresno County to require developers to participate in improving future traffic congestion on Millerton Road at the South Shore entrance by extending the existing left turn on Millerton Road. The entrance kiosk at the South Shore entrance would be moved back to accommodate more traffic entering this area. A request for funds would be made for modernization of the kiosk. Under the action alternatives, the road at the North Shore entrance station would be widened, and stretches of road prone to flooding would be raised.

Under all alternatives, the 600-foot elevation level would be strictly enforced to reduce and/or eliminate trespass issues. Private docks and private access to the lake would continue to be prohibited, and increased trespass enforcement by State Parks and Reclamation would be provided.

Permits would continue to be required for certain uses such as communication towers, transmission lines, grazing leases, and special events, under all alternatives. The mineral rights leases would be withdrawn and mining discontinued under the action alternatives.

2.4.2.5 Park Administration/Public Involvement

Under all of the action alternatives, a seasonal lifeguard service could be considered on the North Shore if funding allows. Patrols could be increased throughout the lake during the summer, and security patrols at the dam and visitor center could be provided as fiscal resources permit. In addition, under all action alternatives, communication towers would be pursued to allow for radio-cell transmission from the up-river areas.

Under all alternatives, maps and/or brochures describing recreation activities and resources available in various locations around the Plan Area would be available to park visitors. Depending on future funding, the Visitor Center, resource protection programs, and interpretive programs would be maintained, and public education would be expanded to emphasize water quality and other components of the natural resource environment. Current regulations and emergency response services would be maintained, and emergency services would continue to be coordinated with other agencies. Adequate maintenance staffing would be sought under all alternatives, and additional staff and equipment would be requested as appropriate under the action alternatives. In addition, administrative staffing would be maintained, and interpretive staff would be added if possible. All use agreements (i.e., partnerships, concessionaire agreements, and other management contracts) on federal property shall be consistent with Reclamation and federal exclusive use policies.

2.4.3 Management Approach and Unique Management Actions for Alternatives

Three action alternatives and one No Action Alternative are proposed for the Millerton Lake Plan Area. The overall concept, or management approach, of each alternative is described first. Next, by alternative, is a discussion of each of the five main resource categories: Recreation and Project Facilities, Natural and Cultural Resource Management and Protection, Land Use Management, Health and Safety, and Park Administration and Public Involvement. The specific management actions that would accomplish the concept of that alternative are discussed. Table 2-4 summarizes the management actions for each alternative.

2.4.3.1 No Action Alternative

This management approach describes what would happen to Reclamation lands (including lands operated by the managing partner) under continuation of current management practices. The concept of the No Action Alternative is:

- Continuation of the State Parks' and Reclamation's current practices for natural and cultural resource protection, preservation, and restoration.
- Management of recreation activities as currently structured.
- Provision of visitor orientation primarily through interpretive facilities, such as brochures and kiosks.
- Visitation to increase as facilities and personnel allow with regional population and recreation demand.

This alternative would continue management actions at Millerton Lake as they exist currently. Within the planning horizon for this RMP, 80 percent of the water surface area is projected as Urban (3,931 acres) and 20 percent as Rural Developed (969 acres). The main body of the lake would be Urban with a Rural Developed classification in the area referred to as Up-River. Figure 2.4-1 shows the boundaries of the WROS-designated zones for Millerton Lake Plan Area under the No Action Alternative.

Recreation and Project Facilities

Under the No Action Alternative, the campgrounds and Group Camp/Amphitheater would be maintained as they are currently. No new campsites would be added. There would be no need to add utilities or other related facilities because no new camping areas would be proposed.

The Temperance Flat boat-in campground is currently located on the north side of the river. However, according to park managers, the campground could be moved to the south side of the river before this RMP/GP takes effect, if adequate funding is secured. Therefore, the relocation of the Temperance Flat campground is considered part of the No Action Alternative. Under this alternative, there would not be additional restrictions on the number of boats and people allowed in the Temperance Flat area.

Under the No Action Alternative, a new contract with the concessionaire that runs the Winchell Cove Marina is in place. Improvements that are considered part of the No Action Alternative include dock repair, a new fuel delivery system, power to the Marina, and store renovation. Concessions management will be consistent with Reclamation and managing partner guidelines.

As mentioned above, it is projected that within the planning horizon for this RMP/GP the lake would develop into the WROS categories of approximately 80 percent Urban and 20 percent Rural Developed. Correspondingly, the main body of the lake would then support boats at a density of 5.5 acres/boat, and from Fine Gold Creek upstream, the lake would support boats at a density of 35 acres/boat. Under the No Action Alternative, current boat speed regulation of 5 miles per hour (mph) in the upper river area near Temperance Flat would be enforced.

Under the No Action Alternative, the day use areas and boat ramps would be maintained as they are currently. Use of the facilities would be restrained by current parking spaces. No attempt to add additional day use sites or parking would occur. Under the No Action Alternative, the current trail system would be maintained and small improvements may be made where appropriate. A portion of the existing McKenzie Point Trail is to be widened to become ADA accessible. No new sections of trails would be added, and no easements or rights-of-way would be pursued over private lands to build the rest of the San Joaquin River Trail.

It is likely under the No Action Alternative that visitation to Millerton Lake Plan Area would expand due to the predicted increasing population in the surrounding counties. Under the No Action Alternative, the current level of maintenance and patrol would continue. However, without any additional facilities or plans for park enhancement, demand for quality recreation would likely not be met under the No Action Alternative.

Under the No Action Alternative, visual resources would be maintained as they are currently. Each year the reservoir is drawn down in the fall and fills in late spring so the lake edge would continue to lack a permanent vegetated cover.

Natural and Cultural Resource Management and Protection

Under the No Action Alternative, protection of natural resources would be maintained as it is currently. All federal and state regulations regarding threatened and endangered species and critical habitat would be adhered to. Visitors would be restricted from certain areas (i.e., bald eagle roosts in winter, cliffs in the upstream area where there are bats and raptors) as necessary to protect species or habitat. The public would be educated about the importance of protecting the natural and cultural resources. Access to the Kechaye Cultural Preserve would continue to

remain restricted. Hunting would continue as it is with a limited archery hunt for turkeys. Fishing would also be available as it is currently. No new facilities would be built for fish cleaning or weighing. No further hunting or fishing programs would be evaluated under the No Action Alternative.

Health and Safety

Actions regarding health and safety under the No Action Alternative would be the same as under the common management actions (Section 2.4.2.3).

Land Use Management

Trespass and permitting issues for the No Action Alternative are discussed under the common management actions (Section 2.4.2.4).

Access and internal circulation would be maintained at current levels under the No Action Alternative. Funds that had been earmarked for improving access to both the North and South Shore entrance stations have not been approved. Therefore, under the No Action Alternative, it is likely that transportation issues would worsen. As the population is expected to grow in the neighboring counties, traffic issues would likely become more evident under this alternative.

Park Administration/Public Involvement

Under the No Action Alternative, current levels of patrol would continue during the summer, and the upper river areas would continue to be patrolled periodically as well. The park operates with state funding that is dependent on each year's budget. It is anticipated that under the No Action Alternative, the need for additional seasonal or permanent employees could not be met in any given year. Visitors would continue to have maps and/or brochures available to them describing recreation activities and resources within the Plan Area.

2.4.3.2 Alternative 1 – Recreation Expansion Management Approach

This management approach emphasizes a wide spectrum of visitor experiences and recreational opportunities while meeting overarching obligations to protect the park's natural and cultural resources and values. The concept of the Recreation Expansion Alternative would be:

- Expansion of recreation facilities to include more camping facilities, possibly additional boat ramps, and possibly a new, expanded, or improved marina.
- Provision of interpretation, orientation, and visitor facilities at many locations throughout the park to facilitate hands-on experiences.

Management Zones

This management approach would emphasize visitor experiences and provide additional recreational opportunities. Over the planning horizon for this RMP/GP, projections for WROS zones are approximately 80 percent Urban (3,931 acres), 10 percent Rural Developed (513 acres), and 9 percent Rural Natural (456 acres). Figure 2.4-2 shows the projected boundaries of the WROS-designated zones for Millerton Lake Plan Area Alternative 1.

Recreation and Project Facilities

Under Alternative 1, a group camping area at Temperance Flat on the south side of the river with room for up to 50 people and 25 alternative camping sites (e.g., tents, yurts, tent cabins, etc.) for individual camping would be provided by special use permit. The camp would have improved campsites and access from Wellbarn Road.

Under this alternative, hookups and utilities would be added at the Group Camp, a multipurpose facility would be built, the size and capacity of the amphitheater would be increased, and off-season use would be encouraged at the Group Camp. In addition, more ADA compliant trails would be added on the North Shore.

Alternative 1 would add more paved parking and a fish cleaning facility at the Meadows campsite and Boat Ramp 6. For all of the campgrounds, restroom and bath facilities would be upgraded and more sites would be added if possible. More corrals and shade ramadas would be added at the Horse Camp. Under Alternative 1, a stationary or mobile concession facility would be added at Boat Ramp 6 for rental of personal watercraft, kayaks, and other gear. A food service facility (stationary or mobile) for beach and picnic areas would also be added.

A stationary or mobile food service facility for the South Shore beach and picnic areas would be provided.

Under Alternative 1, the existing marina at Winchell Cove would be expanded from the number of current slips by up to 200 slips or moorings and upgraded to provide improved docks, dry dock storage and related infrastructure. Parking would need to be expanded up to a total of 250 parking spaces. Leveling grading areas of the upper parking lot now used for storage would create additional parking. If feasible, a launch facility would be installed in the vicinity of existing dirt roads for access to the lake at lower elevations.

As mentioned above, it is projected that within the planning horizon for this RMP/GP the lake would be managed with WROS categories of approximately 80 percent Urban, 10 percent Rural Developed, and 9 percent Rural Natural. Correspondingly, the main body of the lake would then support boats at a maximum density of 5.5 acres/boat, from Fine Gold Creek to Smith Basin, the lake would support boats at a density of 20 acres/boat, and from Smith Basin upstream the lake would support boats at a density of 80 acres/boat.

A boating management plan should be developed to manage boat densities that are compatible with the experiences associated with the WROS zone system. The total number of boats allowed on a daily basis could be managed by limiting the maximum number of daily entries at park entrance points, a reservation system, monitoring, or other methods. Management personnel would have the flexibility to allow boat numbers to exceed maximum densities on high-use weekends if safety requirements are met.

The boating management plan should also address how to control boat densities in the up-river areas. This could be managed by a permit system or other methods as discussed above. Management personnel would have flexibility to determine which days or time periods to apply the permit or other system. During high use periods they may allow density to exceed WROS zones by a reasonable amount.

Boat speeds would be reduced from Fine Gold Creek upstream to Smith Basin as included in the boat management plan to be developed. A no-wake zone would be maintained in the narrows

near Temperance Flat. Boat size would be restricted to 35 feet. No waterskiing would be permitted upstream of Fine Gold Creek. All nonconformant two-stroke engines, including two-stroke personal watercraft, would be banned within 3 years of finalizing the RMP.

Under this alternative, a multiuse trail system would be planned with potential separate trail segments for mountain biking and other trail segments for joint hiking and horseback riding if land acquisition is possible. A trail management plan would be developed to manage trail usage and determine if and where separate trail segments would be useful. The existing San Joaquin River Trail would be maintained, including bridge installation over Big Sandy Creek. In addition, coordination with appropriate landowners and agencies would be accomplished to assess the feasibility of linking the San Joaquin River Parkway with the San Joaquin River Trail.

A trail around the entire lake would be sought under this alternative. If a crossing of Fine Gold Creek proves infeasible, new trails and a trailhead would be pursued on the east side of Fine Gold Creek. Some maintenance roads may be opened up to bikes under this alternative.

Under Alternative 1, the addition of facilities would attempt to meet the needs of the anticipated increase in visitor use. This alternative would allow the growing populations of neighboring counties to have a local recreation and natural resource facility available.

Natural and Cultural Resource Management and Protection

With Alternative 1, top priority would be given to either expand existing camping and day use facilities and/or acquire land adjacent to the Millerton Lake Plan Area with the intent of building new facilities. As discussed above in the Recreation and Project Facilities section, several actions could have an effect on natural resources, such as threatened and endangered species, critical habitat, water quality, and air quality.

Depending on the location of the proposed expansion of camping or day use facilities, it is possible that some sensitive habitat could be affected. In those site-specific cases, it may be necessary to provide mitigation in the form of replacement acreage or other mitigation measures (see Section 4). An increase in visitation could cause disturbance to threatened and endangered species so it may be necessary to add protective measures for the species and increase public awareness about the need for species protection.

Water quality could be affected with the addition of more camping facilities and boat use. Additional utilities associated with new recreation facilities would be designed to ensure that acceptable water quality is maintained.

Under the Recreation Expansion Alternative, hunting could be expanded by adding special use permitted hunting in accordance with California Fish and Game laws. It would be necessary to educate the hunters about any possible sensitive habitat they could encounter and develop Visitor Management Plans to avoid impacts to threatened or endangered species.

Health and Safety

Actions regarding health and safety under Alternative 1 would be the same as under the common management actions (Section 2.4.2.3).

Land Use Management

Trespass and permitting issues for Alternative 1 are discussed under common management actions (Section 2.4.2.4).

With an increase in recreation use and the expected population growth in neighboring counties, transportation would also be affected under Alternative 1. At a minimum, the road at the North Shore entrance station would be widened to accommodate visitors that have already registered and are returning to their campsites. In addition, access to Temperance Flat would be allowed, with a special use permit for camping, via the gated road.

Park Administration/Public Involvement

Under Alternative 1, funding for seasonal and permanent employees would need to increase to handle the additional recreational use. Additional staff may become necessary. More patrols would be needed at the upper ends of the reservoir and at Temperance Flat to ensure visitor safety. Depending on state funding, it is anticipated that under Alternative 1 optimal staffing levels might not be met in any given year.

2.4.3.3 Alternative 2 – Enhancement Management Approach

This management approach places an emphasis on balancing protection of the natural and cultural resources and values with a variety of opportunities for visitors to experience these resources. The concept of the Enhancement Alternative would be:

- Assistance for visitors to easily access both facility-based and resource-based interpretations and opportunities.
- Development of new recreation opportunities and facilities in a manner that is balanced with resource protection.

Management Zones

For the RMP/GP planning horizon, WROS designated zones are approximately 80 percent Suburban (3,931 acres), 10 percent Rural Natural (513 acres), and 9 percent Semi-Primitive (456 acres). Figure 2.4-3 shows the boundaries of the WROS-designated zones for Millerton Lake Plan Area Alternative 2.

Recreation and Project Facilities

Under Alternative 2, a group camping area at Temperance Flat on the south side of the river would be provided, with room for up to 25 people by special use permit and 25 alternative camping sites. The primitive campgrounds would have some improvements. Access would be by trail, boat or controlled gate access from Wellbarn Road. This alternative would maintain a semi-primitive feeling upstream of Temperance Flat.

Under this alternative, hookups and utilities would be desirable at the Group Camp, a multipurpose facility would be built, the size and capacity of the amphitheater would be increased, and off-season use would be encouraged at the Group Camp.

Alternative 2 would add more paved parking and a fish cleaning facility at the Meadows campsite and Boat Ramp 6. For all of the campgrounds, restroom and shower facilities would be upgraded and more sites would be added if possible. Additional corrals and shade ramadas would be added at the Horse Camp. For all of the campgrounds, where feasible, restroom and shower facilities would be upgraded and more sites added if possible.

As mentioned above, it is projected that within the planning horizon for this RMP/GP the lake would develop into the WROS zones of approximately 80 percent Suburban, 10 percent Rural Natural, and 9 percent Semi-Primitive. A boating capacity coefficient of 10 acres/boat is identified for the main body of the lake. This represents the highest boat density shown in Table 2-4 for a Suburban WROS zone and thus would accommodate more demand than Alternative 3 but less than Alternative 1. From Fine Gold Creek to Smith Basin, the lake would support 80 acres/boat, and, from Smith Basin upstream, 295 acres/boat.

As discussed for Alternative 1, boat carrying capacity would be developed to control the total number of boats allowed on a daily basis as well as boat densities in the up-river area.

Boat speeds would be reduced from Fine Gold Creek upstream in to Smith Basin. Boat speeds would be further reduced above Smith Basin. By special use permit, kayaks would be allowed access at Temperance Flat via car at Wellbarn Road to float down to South Fine Gold Picnic Area.

Boat size would be restricted to 35 feet. No waterskiing or personal watercraft would be permitted upstream of Fine Gold Creek. All nonconformant two-stroke engines, including those powering personal watercraft, would be banned after 3 years of finalizing the RMP/GP. Kayaks, canoes, etc. could be barged up to Temperance Flat by special use permit to paddle downstream to South Fine Gold picnic area.

Under Alternative 2, a mobile food service facility for South Shore beach and picnic areas could be added. Facilities at the Marina would be upgraded, including adding area gates, security, and up to 200 slips or moorings could be added, to allow for up to a total of 700 boats. Upgrades and expansion design would depend on lake depth engineering and parking availability. Related infrastructure, parking, dry dock storage, and launching ramp could also be added as discussed for Alternative 1.

The existing trail system would remain for joint use by hikers, horseback riders, and mountain bikers. Land acquisition or easements to provide for trail system expansion would be evaluated. The addition of more ADA compliant trails would also be explored. A trail management plan would be developed to reduce potential conflicts between user groups. Depending on the trail locations, use might be limited by the time of year to prevent erosion and degradation of resources. This would allow for a balance of moderate recreation expansion with resource protection. The existing San Joaquin River Trail would be maintained, including installation of the bridge over Big Sandy Creek. Reclamation and State Parks would coordinate with appropriate groups for the entire San Joaquin River Trail system. A trail around the entire lake would be sought under this alternative. If a crossing of Fine Gold Creek proves to be infeasible, new trails and a trailhead would be provided on the east side of Fine Gold Creek. Some maintenance roads may be considered for mountain bike use under this alternative.

Natural and Cultural Resource Management and Protection

With Alternative 2, top priority would be given to balancing the expansion of existing camping and day use facilities with the protection of natural and cultural resources. As discussed above in the Recreation and Project Facilities section, several actions could have an effect on natural resources such as threatened and endangered species, critical habitat, water quality, and air quality.

Depending on the location of the proposed expansion of camping or day use facilities, the design and location would be such that sensitive habitat would be avoided. Under Alternative 2, these new facilities would be balanced with resource protection, in that some of the lands acquired could provide resource mitigation lands or a buffer to surrounding developments.

Water quality could be affected with the addition of more camping facilities and boat use. Additional utilities associated with new recreation facilities would be designed to ensure that acceptable water quality is maintained.

Health and Safety

Actions regarding health and safety under Alternative 2 would be the same as under the common management actions (Section 2.4.2.3).

Land Use Management

Trespass and permitting issues for Alternative 2 are discussed under common management actions (Section 2.4.2.4).

Required land use management actions for Alternative 2 would be somewhat less than for Alternative 1. Recreation use would increase, and there would likely be a need for additional enforcement actions to deal with trespass issues. Reclamation and State Parks would need to work with the appropriate agencies to analyze traffic patterns, entrance issues, and other growth-related transportation issues. In addition, access to Temperance Flat could be allowed for camping, with a special use permit, via the gated road.

Park Administration/Public Involvement

Park administration and public involvement activities for Alternative 2 would be somewhat less than for Alternative 1. Depending on state funding, optimal staffing levels may not be met in any given year. Periodic seasonal patrols would be maintained in the upper river and Temperance Flat area under this alternative.

2.4.3.4 Alternative 3 – Resource Protection/Limited Enhancement Management Approach

This management approach emphasizes conservation and protection of natural and cultural resources while providing visitor experiences consistent with this high degree of emphasis on resource stewardship. The concept of the Resource Protection/Limited Enhancement Alternative would be:

- Emphasis on relocation of facilities away from sensitive resource areas, and upgrade of recreation facilities consistent with resource protection.
- No new impacts allowed in areas with sensitive resources.
- Education of the public so that they support the protection of these resources.
- Limitation of new visitor services and facilities in areas of the Plan Area to those that protect the public and resources.

Management Zones

This management action would emphasize protection and restoration of natural and cultural resources while providing visitor experiences consistent with this high degree of emphasis on the resource stewardship. For the RMP/GP planning horizon, WROS designated zones are approximately 80 percent Suburban (3,931 acres), 5 percent rural natural (231 acres), and 15 percent semi-primitive (738 acres). Figure 2.4-4 shows the boundaries of the WROS-designated zones for Millerton Lake Plan Area Alternative 3.

Recreation and Project Facilities

Alternative 3 emphasizes protection and restoration of a more natural environment. The area above Fine Gold Creek would be managed as Semi-Primitive. In order to achieve that objective, camping at Temperance Flat would be restricted to boat-in camping within 15 alternative camping sites to provide for a natural environment. The existing vault toilet at Temperance Flat would be maintained. Under this alternative, access for visitors to Temperance Flat via car off of Wellbarn Road would only be allowed by special permit.

Under Alternative 3, a mobile food service facility for beach and picnic areas could be added on the South Shore. Facilities at the marina would be upgraded, including adding gates, security, cameras, utilities, and services.

As mentioned above, it is projected that within the planning horizon for this RMP/GP the lake would develop into the WROS zones of approximately 80 percent Suburban, 5 percent Rural Developed, and 15 percent Semi-Primitive. A boating capacity coefficient of 15 acre/boat is identified for the main body of the lake. This represents the midpoint of boat densities for a Suburban WROS zone (Table 2-4) and thus would accommodate less demand than Alternative 2. A lower boat density for Alternative 3 is compatible with the management approach emphasizing resource stewardship. From Fine Gold to Big Bend, the lake would support 80 acres/boat; from Big Bend upstream, 295 acres/boat.

As discussed for Alternatives 1 and 2, a boating management plan would be developed to control total number of boats allowed on a daily basis and boat densities in the up-river area.

Boat speeds would be reduced from Fine Gold to Big Bend and further reduced from Big Bend upstream. Only electric motors or nonmotorized craft would be allowed above Big Bend.

No personal watercraft or waterskiing would be allowed above the confluence with Fine Gold Creek. All nonconformant two-stroke engines would be phased out after 1 year of finalizing the RMP/GP. Kayaks, canoes, etc. would be permitted to float from Temperance Flat to South Fine

Gold picnic area, but access to Temperance Flat would be via barge up Millerton Lake rather than by car.

Under Alternative 3, the existing trail system would be maintained for joint use by hikers, horseback riders, and mountain bikers. A trail management plan would be developed to reduce conflicts between user groups. The existing San Joaquin River Trail would be maintained, including installing the bridge over Big Sandy Creek. Reclamation and State Parks would coordinate with appropriate organizations for the entire San Joaquin River Trail system. Primitive campsites could be added along the San Joaquin River Trail under this alternative. Special use permits could be required to bike on the San Joaquin River Trail to Temperance Flat. Visitors would be educated to appreciate the unique natural environment available at Millerton Lake.

Under Alternative 3, recreation facilities would be less likely to accommodate the anticipated increase in visitor use than Alternatives 1 and 2. However, viewing Millerton Lake with other lakes and reservoirs in the vicinity, this alternative would provide a unique recreation and natural resource experience in the Semi-Primitive areas of the lake.

Natural and Cultural Resource Management and Protection

With Alternative 3, top priority would be given the protection of natural and cultural resources, with less emphasis placed on recreation enhancement. As discussed above in the Recreation and Project Facilities section, several management actions could have an effect on natural resources such as threatened and endangered species, sensitive habitat, water quality, and air quality. However, in contrast to Alternative 1, management actions specific to Alternative 3 have been designed in order to have positive effects on natural and cultural resources.

The concept of this alternative would be to enhance the Semi-Primitive environment in the upper reaches of Millerton Lake. This area is unique in that access to the Temperance Flat area is very limited, and this area could provide a natural setting unavailable at other lakes and reservoirs in the lower foothill region.

A limited amount of new facilities is proposed under Alternative 3, both in the North Shore camping areas and South Shore day use areas. Some resource mitigation may be necessary, however, if new lands are acquired and new facilities built. The design and location of any new camping or day use facilities would be such that sensitive habitat would be avoided. Resource and watershed protection would be emphasized if lands were purchased as a buffer to surrounding developments. Wildlife areas would be maintained and improved under Alternative 3. The direction of this alternative would be to increase the native vegetation and reduce the amount of invasive species and noxious weeds. In addition, information from other study areas adjacent to Millerton Lake Plan Area would be used to better manage the Plan Area's lands.

Trail use under Alternative 3 could affect sensitive habitat or threatened and endangered species, but hikers would be informed of the need to protect these resources.

Water and air quality could be improved with the restrictions in boat use. Additional utilities associated with new recreation facilities would be designed to ensure that acceptable water quality is maintained. Boats may be required to undergo inspections before launching to check for their engine type.

Under Alternative 3, hunting would remain the same as under the No Action Alternative, with a turkey bow hunt allowed in the fall.

Health and Safety

Actions regarding health and safety under Alternative 3 would be the same as under the common management actions (Section 2.4.2.3).

Land Use Management

Trespass and permitting issues for Alternative 3 are discussed under common management actions (Section 2.4.2.4).

Under Alternative 3, recreation use could increase, but this would be due to increased demand rather than by the expansion of recreation facilities. The quality of recreational use could decline in areas with developed facilities. Under this alternative, there may be a need for some additional enforcement actions but not as many as with the other two action alternatives.

As with Alternatives 1 and 2, under Alternative 3, housing and other developments outside the park would occur. Reclamation could acquire additional land under this alternative, either for resource protection or for providing a buffer to the development lands. Under this alternative, Reclamation and State Parks would work with conservation groups on adjacent lands to preserve these open spaces.

With an increase in the expected population growth in neighboring counties, transportation would also be affected under Alternative 3. Under this alternative, public motor vehicle access to Temperance Flat would be restricted, thus eliminating transportation issues for the upper reaches of Millerton Lake Plan Area.

Park Administration/Public Involvement

Under Alternative 3, a patrol may be needed at the upper ends of the reservoir and at Temperance Flat to enforce boat restrictions. Depending on state funding, optimal staffing may not be available in any given year.

2.5 IMPLEMENTATION PROCEDURES (MONITORING, PLAN AMENDMENTS, AND STANDARDS/GUIDES)

General guidelines for RMP implementation procedures are described below. Detailed procedures will be included in a long-term management agreement between Reclamation and State Parks. Implementation of the RMP by Reclamation and State Parks will be guided by existing and future laws, Executive Orders, regulations, and policies and guidelines, and is designed to supplement existing direction provided by these sources. Monitoring and standards and guides will either be incorporated into an implementation schedule in the long-term agreement and/or a collaborative working group will be formed to determine time frames for implementing certain management actions. Other items that could also be included into the implementation schedule are the identified management action (specifically what is to be accomplished), the target year or years for implementing the management action(s)/direction(s), priority level, funding source, and the responsible entity or entities, including appropriate

contacts. Factors that may influence the timing (priority) of when a management action is to be initiated would be based on whether the action:

- Is procedural or technical (e.g., preparing agreements [former] or developing specific plans [latter])
- Needs to address public health and safety concerns
- Brings Reclamation into compliance with existing laws, regulations, and Executive Orders
- Is required to prevent resource damage or protect wildlife species or habitats
- Requires large capital investments, such as facility or trail development
- Requires the assistance or support of entities

2.5.1 Monitoring

Monitoring efforts taken to track the success of implementing the management action (s)/direction(s) should be included in the implementation schedule (i.e., how to evaluate, observe, enforce, comply, achieve, document, or report concerning the action, or determine that the management action was achieved). These monitoring efforts would occur periodically over the planning life of the RMP.

A good monitoring program:

- Measures the effectiveness of implementation strategies
- Flags inadequacies
- Ensures movement toward the RMP goals and objectives
- Ensures a good working relationship with cooperating entities and the public
- Identifies the need for amendments or revisions

2.5.2 Plan Revision or Amendment

The RMP will be amended or revised, as necessary, based on the scope and significance of the needed adjustment. An amendment would generally involve only one or two planning issues but is necessary when a proposed action does not conform with the RMP. Reclamation will formally document an amendment and provide written notification to concerned federal, state, Tribal, and local agencies and other involved entities and individuals. Reclamation also has the discretion to determine if a needed change is an amendment or simply routine maintenance (and official documentation and notification is not necessary). Routine maintenance will be defined in the long-term management agreement.

A list of factors that could trigger an amendment or a revision in an RMP may include:

- Availability of new data
- Readjustments that become necessary because of changes in social, physical, environmental, or economic conditions

- Realignments needed to accommodate changes that occur during implementation and/or monitoring of the RMP
- Unforeseen uses requiring authorization of permits, contracts, and cooperative agreements that are not consistent with or addressed in the RMP

As identified in Table 2-4, various plans (e.g. boating plan, vegetation management plan, etc.) will be formulated during the RMP implementation. If changes to these plans can be made within the broad parameters of the RMP, these plans will be revised without an amended RMP and no formal environmental documentation

2.5.3 Standards/Guides

Each of the management action(s) identified in the RMP should be accompanied by standards or guides that state the laws, CFRs, agreements, best management practices, or other directives to follow in meeting the management action(s). In many instances, the standards or guides may be the Reclamations manual for a specific program.

The level of detail presented in this section for description of the affected environment is commensurate with the programmatic/planning nature of this document. Therefore, resources are described at a regional and management zone level of detail. More detailed location descriptions would be necessary in subsequent environmental documents for any projects that may be developed under the various alternatives.

The emphasis in this section is on a description of features that could be impacted by the alternatives. Other topics such as climate and air quality are addressed to provide context, but less detail is provided because impacts to these resources would be less noticeable.

For some resources, such as water resources, information has been collected in lands outside of the Plan Area because of the possibility that conditions in an adjacent watershed could influence the Plan Area. This somewhat larger area is called the Study Area and is shown in several of the figures produced for the resource inventory.

Much of the data collected for the description of the existing environment has been included in a Geographic Information System (GIS) format. These maps are provided in this report and as electronic files at the Reclamation office in Fresno. Many of these maps include information showing areas with sensitive resources (e.g., biology, cultural, land use) as well as other areas characterized by hazard potential (e.g., erosion, geological hazards). These maps and impact analyses provided in Section 4 would be the basis of constraint analysis that would guide any plans for future development within the planning horizon.

Biology, Cultural Resources, Land Use, and Recreation technical reports have been prepared to support inventory information presented in this section and are incorporated by reference (URS 2007a–d, respectively).

3.1 WATER RESOURCES

3.1.1 Regional Setting

3.1.1.1 Regulatory Background

Water resources and water quality in the State of California are regulated by various agencies including the California Department of Water Resources (DWR), State Water Resources Control Board (SWRCB), Regional Water Quality Control Boards (RWQCBs), County Environmental Health Departments, and the State Department of Health Services.

The DWR is responsible for statewide water planning, including managing water supply and demand. The DWR performs this responsibility by preparing and updating the California Water Plan. The DWR also plans, designs, constructs, operates, and maintains the State Water Project; regulates dams, provides flood protection, and assists in emergency management; and provides technical assistance to help meet local water needs.

The RWQCB that regulates water quality in the Millerton Lake area is the Central Valley Regional Water Quality Control Board (CVRWQCB) (Region 5). The basin plans prepared and adopted by RWQCBs consist of a designation or establishment for the waters within a specified beneficial use area to be protected, water quality objectives to protect those uses, and a program of implementation needed for achieving the objectives. Beneficial uses, together with their corresponding water quality objectives, can be defined according to federal regulations as water quality standards.

Beneficial Uses

The San Joaquin Valley is under the regulatory authority of the CVRWQCB. The applicable Basin Plan for the Millerton Lake study area and the Plan Area is the *Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, Fourth Edition* (Basin Plan) (CVRWQCB 1998). The Basin Plan lists existing and potential beneficial uses for surface waters and groundwaters. The beneficial uses of any specifically identified surface water body generally apply to its tributary streams. The existing beneficial uses of the San Joaquin River upstream of Millerton Lake that are identified in the Basin Plan include Municipal and Domestic Supply, Agriculture (Irrigation, Stock Watering), Industry (Power), Recreation (Contact, Canoeing and Rafting, and Other Non-contact), Freshwater Habitat (Warm and Cold), and Wildlife Habitat. The beneficial uses of Millerton Lake identified in the Basin Plan include: Agriculture (Irrigation, Stock Watering), Recreation (Contact, and Other Non-contact), Freshwater Habitat (Warm), and Wildlife Habitat. Potential beneficial uses for Millerton Lake include Municipal and Domestic Supply and Freshwater Habitat (Cold).

Water Quality Objectives

The Basin Plan specifies water quality objectives for surface waters and groundwaters of the San Joaquin River Basin. Surface water quality objectives applicable to Millerton Lake address the following parameters: bacteria, biostimulatory substances, chemical constituents, dissolved oxygen, floating material, oil and grease, pH, sediment, settleable material, suspended material,

tastes and odors, toxicity, and turbidity. Groundwater objectives are specified in the Basin Plan even though the federal Clean Water Act does not require them.

3.1.1.2 Surface Water

Watershed Delineation

The SWRCB and RWQCBs have taken a watershed management approach for water resources protection. Each RWQCB has identified the watersheds within its region and has developed Watershed Management Initiatives. Each Regional Board considers point and nonpoint source discharges, ground and surface water interactions, and water quality/water quantity in protecting water resources within a watershed context (CVRWQCB 2001). Millerton Lake is located within the San Joaquin River hydrologic region (see Figure 3.1-1).

The United States Geologic Survey (USGS) and the DWR both provide publicly available California watershed delineation maps. The majority of the Millerton Lake study area is located in the Upper San Joaquin subbasin. The DWR coordinates an interagency watershed mapping committee that produces a digital dataset called CalWater. CalWater Version 2.2 is the most current and detailed map for the Millerton Lake study area. For purposes of this report, CalWater Version 2.2 designations have been used. The hierarchy of watershed designations consists of six levels of increasing specificity: Hydrologic Region, Hydrologic Unit, Hydrologic Area, Hydrologic Sub-Area, Super Planning Watershed, and Planning Watershed.

Millerton Lake is located within the Millerton Lake Planning Watershed (see Figure 3.1-2).

San Joaquin River Watershed Surface Water Resources

The San Joaquin River flows northward and drains the portion of the Central Valley south of the Sacramento-San Joaquin River Delta (the Delta) and north of the Tulare Lake Basin. Figure 3.1-3 shows the principal streams that drain the Sierra Nevada Mountains to the San Joaquin Valley.

The lower Basin (below Millerton Lake) has had a highly managed hydrology since implementation of the CVP in 1951. The majority of the San Joaquin River flow downstream of Millerton Lake is diverted into the Friant-Kern Canal, leaving the river channel upstream of the Mendota Pool dry except during periods of wet weather flow and major snowmelt.

Above Friant Dam, the San Joaquin River drains an area of approximately 1,676 square miles and has an annual average unimpaired runoff of 1.7 million acre-feet. Several storage reservoirs located upstream of Friant Dam and Millerton Lake are owned and operated by the Southern California Edison Company and Pacific Gas and Electric Company (PG&E). These facilities are operated for the production of electrical energy and affect the flow of water into Millerton Reservoir and subsequently the quantity and timing of water available downstream of Friant Dam. Table 3.1-1 lists all of the major reservoirs in the upper portion of the San Joaquin River, their capacities and the entity responsible for operating the reservoir.

San Joaquin River Watershed Surface Water Quality

The majority of the San Joaquin River Basin's surface water quality concerns are downstream of Millerton Lake in the San Joaquin valley. The year-round effect of surface and subsurface drainage from agricultural sources is a major water quality concern (Gronberg et al. 1998). Surface water quality can be affected by historic or ongoing point- and nonpoint-source discharges. A point-source discharge usually refers to waste that emanates from a single, identifiable place. A nonpoint-source discharge usually refers to waste that emanates from diffused locations. Figure 3.1-4 illustrates point-source dischargers surrounding the Millerton Lake Plan Area.

3.1.1.3 Groundwater

Millerton Lake is located in the east-central portion of the Central Valley aquifer system. The aquifer system is made up of Post-Eocene continental rocks and deposits, which contain most of the fresh water in the valley. Before the development of the Central Valley, groundwater flow generally followed the gradient of the land surface from high elevations (recharge areas) to low elevations. However, with development came pumping of groundwater, increased recharge from surface water irrigation, changes in direction of lateral groundwater flow, and land subsidence from overpumping of groundwater (Gronberg et al. 1998).

The Central Valley aquifer system is divided into several groundwater basins. Millerton Lake is located in the San Joaquin District on the eastern edge of the Madera groundwater basin (see Figure 3.1-5). The surface area of the Madera groundwater subbasin is 394,000 acres. The Madera subbasin consists of lands that overlie the alluvium in Madera County. On average, the subbasin water level has declined nearly 40 feet from 1970 through 2000. Water level declines have been more severe in the eastern portion of the subbasin from 1980 to the present, but the western subbasin showed the strongest declines before this time period. Groundwater storage capacity was estimated in 1995 to be 18.5 million acre-feet to a depth of 300 feet and 40.9 million acre-feet to the base of fresh groundwater. The storage in the basin was estimated as 12.6 million acre-feet to a depth of 300 feet. Water quality within the Madera subbasin is generally good; however, there are localized areas of high hardness, iron, nitrate and chloride.

3.1.2 Plan Area Existing Conditions

3.1.2.1 Water Resources

Surface Water

The San Joaquin River, Big Sandy Creek, Fine Gold Creek, Dumna Creek, Winchell Creek, and other small, unnamed tributaries feed Millerton Lake.

Friant Dam contains the water within Millerton Lake. Millerton Lake has a total storage capacity of 520,500 af. Millerton Reservoir supplies water for irrigation, provides some potable water, and serves as a flood control structure. Lake storage fluctuates greatly from summer to winter months. During summer months, the water level can drop approximately 1 foot per day. In the winter and spring, snow melting in the Sierra can cause the water to rise 10 to 15 feet per day. All of the water behind Friant Dam is allocated by Reclamation.

Figure 3.1-6 illustrates the floodplains within the Plan Area. Millerton Lake and the San Joaquin River upstream of Millerton Lake are considered to be within the 100-year floodplain. Downstream of Friant Dam, some areas along the San Joaquin River are within the 500-year floodplain.

Groundwater

Groundwater supplies (potable waterwells) are limited within the Plan Area region. Figure 3.1-7 illustrates locations of potable water wells within the Millerton Plan Area. Almost all potable wells within Fresno and Madera Counties meet Title 22 water quality requirements. Brighton Crest's well was contaminated by surface water, and now the development uses water directly from Millerton Lake with a surface water treatment plant.

3.1.2.2 Water Quality

Surface Water Quality

Little water quality data are available for the Plan Area. Reclamation collects water samples at the Winchell Cove Marina and analyzes the samples for methyl tertiary butyl ether (MTBE). This is the only sample location within Millerton Lake. Table 3.1-2 summarizes the sampling results. Reclamation also collects water samples at two locations downstream of Friant Dam, in the San Joaquin River at Lost Lake Park and in the Friant-Kern Canal at Calloway Avenue.

Millerton Lake State Recreation Area staff noted that during summer months the lake often turns green, but no water quality measurements have been made to determine the cause of the color change. State Parks staff recommended contacting California State University Fresno professors, who have measured water quality in Millerton Lake.

Dr. Bert Tribbey, a former Fresno aquatic ecology professor, made regular trips to Millerton Lake with his class in the Spring semester (generally in February and occasionally a second trip in April). On those trips he and students made most of the standard limnological measurements (oxygen, pH, basic water chemistry, light penetration both with Secchi Disk and underwater photometer, etc.). They also took net and nanoplankton samples.

The lake was found to be low in productivity; there was never any evidence of stratification or of an oxygen-depth gradient. There was essentially no plankton during the cooler months. Water clarity was always high, although the water did have a greenish color. Nanoplankton was negligible, so the greenish color was not due to algal populations. All water chemistry was quite normal for a reservoir fed by San Joaquin snowmelt. There was never any indication of a turbidity problem.

Boat Fuel Discharges

According to some studies, as much as 30 percent of the fuel used by carbureted two-stroke engines is discharged unburned into the water (California EPA 1999). As a result, the use of personal watercraft and other conventional carbureted two-stroke engines has resulted in measurable water quality degradation in some of the nation's lakes and reservoirs. Also known as two-stroke engines, these motors intake a mixture of air, gasoline, and oil into the combustion

chamber while exhaust gases are being expelled from the combustion chamber. Since the intake and exhaust processes are occurring at the same time, some of the unburned fuel mixture escapes with the exhaust. This expulsion of unburned fuel is the reason for the elevated levels of hydrocarbon emissions from carbureted two-stroke engines. Although no direct measurements of discharge components are available for Millerton Lake, fuel components discharged to receiving waters typically include benzene, toluene ethyl benzene, and xylene.

Personal watercraft manufacturers have recently introduced direct-injection and four-stroke engines. The first direct-injection personal watercraft was introduced late in the 1998 model year. Presently, most manufacturers in the U.S. market offer a full range of direct-injection and four-stroke outboard and personal watercraft engines. It is expected that under the new federal regulations, a typical marine engine would be 90 percent cleaner by 2008 (California Air Resources Board [CARB] 2008). These new engines (conformant) also have concurrent intake and exhaust processes; however, unlike the carbureted two-stroke engines, the intake charge is air only (no fuel is mixed into the intake charge). The fuel is injected directly into the combustion chamber only after the exhaust process has finished, which means no unburned fuel escapes with the exhaust. This design change results in a four-fold decrease in smog-forming pollution in a typical 90-horsepower engine when compared to a nonconformant carbureted two-stroke engine.

Groundwater Quality

There are no known water quality problems in the area. Septic leach fields are a potential problem in the higher foothills during the spring. Snow can cause the soils to become tight and saturated, potentially causing septic leach fields to fail.

3.2 AIR QUALITY

3.2.1 Introduction

This section describes the area's regional and local climate, the applicable air quality regulations, and the monitored air data from area monitoring stations.

3.2.2 Regulatory Setting

The Plan Area is subject to major air quality planning programs required by the federal Clean Air Act of 1970, its amendments of 1990, and the California Clean Air Act of 1988. Both the federal and state statutes provide for ambient air quality standards to protect public health, timetables for progressing toward achieving and maintaining ambient standards, and the development of plans to guide the air quality improvement efforts of state and local agencies.

3.2.3 Federal Requirements

The EPA oversees state and local implementation of federal Clean Air Act requirements. In addition, the EPA sets emission standards for many mobile sources, such as new on-road motor vehicles, including transport trucks that are sold outside of California. The EPA also sets emission standards for various classes of new off-road mobile sources, including locomotives that are sold throughout the country.

3.2.4 State and Local Requirements

Under California law, the responsibility to carry out air pollution control programs is split between the California Air Resources Board (CARB) and local or regional air pollution control agencies. The CARB shares the regulation of mobile sources with the EPA.

The Plan Area is located in the San Joaquin Valley Air Basin, which includes the San Joaquin Valley Air Pollution Control District (SJVAPCD). The SJVAPCD can require permits for stationary sources, impose emission standards, set fuel or material specifications, and establish operational limits to reduce air emissions.

3.2.5 National and State Ambient Air Quality Standards

National and state ambient air quality standards have been established for six ambient air pollutants, commonly referred to as "criteria pollutants." The state standards were established in 1969. The EPA established the federal standards after the passage of the Clean Air Act of 1970. These pollutants include carbon monoxide (CO), ozone (O_3), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), lead, and particulate matter 10 microns or less in diameter (PM_{10}), and particulate matter 2.5 microns or less in diameter ($PM_{2.5}$). The ambient air quality standards are developed to protect the public health and welfare, especially those most susceptible to respiratory distress such as asthmatics, the very young, the elderly, people weak from other illness or diseases, or persons who engage in heavy work or exercise. These standards specify the concentration of pollutants the public can be exposed to without experiencing adverse health effects. National and state standards are reviewed and updated periodically based on new health studies. California

ambient standards tend to be at least as protective as national ambient standards and are often more stringent.

Based on these standards, regional areas such as the San Joaquin Valley Basin are given an air quality status "label" by the federal and state regulatory agencies for planning purposes. Areas with monitored pollutant concentrations that are lower than ambient air quality standards are designated as "attainment areas" on a pollutant-by-pollutant basis. When monitored concentrations exceed ambient standards, areas are designated as "nonattainment areas." An area that recently exceeded ambient standards but is now in attainment is designated as a "maintenance area." An area is designated "unclassified" if air quality data are inadequate to assign it an attainment or nonattainment designation. Nonattainment areas are further classified based on the severity and persistence of the air quality problem as "moderate," "severe," or "serious."

The Plan Area attains the federal and state standards (or is unclassified) for lead, CO, SO_2, and NO_2. The Plan Area is a nonattainment area for the federal and state standards of O_3 (1-hour) and PM_{10}. The air basin currently has no designation under the new 8-hour O_3 or $PM_{2.5}$ standards. National and state ambient air quality standards, as well as the attainment status for Fresno and Madera Counties, are listed in Table 3.2-1. The criteria pollutants and associated adverse health effects are summarized in Table 3.2-2.

3.2.6 Regional Meteorology and Climatology

Hot, dry summers and mild winters with relatively small amounts of precipitation characterize the region. The semi-permanent Pacific High over the eastern Pacific Ocean dominates the weather during the summer months, blocking low-pressure systems from passing through the area. The summers are usually hot, with average daily maximum temperatures during July of over 98° F. High temperatures range from 54° F in January to 99° F in July, and low temperatures range from 37° F in January to 50° F in July. The annual total rainfall in the region is 11 inches, most of which occurs between the months of November and April.

3.2.7 Local Setting—Ambient Air Quality

The SJVAPCD operates a regional air quality monitoring network for criteria pollutants including O_3, CO, NO_2, SO_2, $PM_{2.5}$ and PM_{10}. Table 3.2-3 summarizes monitored ambient pollutant data at stations in Shaver Lake and Madera. These stations are the closest to the project area. However, only O_3 and nitrogen oxides are monitored. Data for other pollutants monitored in Fresno and Clovis would not be representative of the Plan Area and are not presented.

3.3 SOILS AND GEOLOGY

3.3.1 Regional Setting

Millerton Lake is located in the foothills on the western side of the Sierra Nevada Mountains, within the transitional zone between the Great Valley and Sierra Nevada geomorphic provinces. The San Joaquin River flows southwest diagonally across the study area. The topography varies from relatively flat grasslands to steep-sided basalt "tables" and andesite-capped peaks. Portions of the study area include the gently rolling terrain below Millerton Reservoir that has been considered a portion of the eastern San Joaquin Valley, with elevations ranging from approximately 300 to 500 feet (National Geodetic Vertical Datum). Elevations abruptly increase to the north and east of the Millerton Reservoir, where the San Joaquin River has cut through granite bedrock and the distinctive basaltic flow that meanders from the north to southwest. The basaltic tables rise nearly 1,500 feet above the bed of the San Joaquin River in a span of 1 to 2 miles. A relatively flat area, Temperance Flat, occurs upstream of the reservoir.

3.3.2 Plan Area Existing Conditions

3.3.2.1 Geology

The geology within the Plan Area varies (Figure 3.3-1). Chiefly Mesozoic plutonic rocks and remnants of metamorphosed Paleozoic sedimentary and volcanic rocks that are intruded by the plutonic rocks underlie the area. Tertiary and Quaternary sedimentary formations of the Central Valley overlap these rocks west of Millerton Lake. The two oldest rock units, Paleozoic slates, schists, and meta-volcanics and Cretaceous plutonic or igneous intrusive rocks of varied kinds constitute the bulk of the geologic formations in the unit.

Dominating the eastern horizon as viewed from the main body of the lake are Quaternary basalt and andesite flows that directly overlie slightly older Quaternary stream gravel. These flows originated about 10 million years ago from a volcano located east of the Millerton Lake Plan Area and flowed into and along an ancestral channel of the San Joaquin River. Uplift and westward tilting caused the river to entrench to its present depth. Since these volcanic rocks are the most resistant in the area, they dominate the landscape in the form of "tables." Three flattop mesas or tables, including Kennedy Table, McKenzie Table, and Big Table Mountain, are located within the study area. The only younger geologic units are recent alluvium (stream sand and gravel) and landslide deposits.

Seismicity

The Five County Seismic Safety Element was prepared in 1974 for the Fresno, Kings, Madera, Mariposa, and Tulare County general plans. As identified in the Five County Seismic Safety Element, an active fault that poses a potential hazard to the Plan Area is the Owens Valley fault, about 69 miles east of Millerton Lake headquarters. No large, damaging earthquakes have occurred in the vicinity of the study area in historic time (Toppozada et al. 2000).

The northwest-striking Clovis fault is believed to be located approximately 5 miles east of the city of Clovis, extending from an area just south of the San Joaquin River to a few miles south of

Fancher Creek. The most recent movement on Clovis fault is pre-Quaternary. The State of California considers this fault inactive.

In 1992, Reclamation completed a dam safety investigation and report for Friant Dam to determine the safety of the dam for different types of adverse conditions, including dam instability due to existing faults and the Maximum Credible Earthquake. The report concluded that the classification for Friant Dam is "satisfactory."

Geohazards

Geohazards may affect structures in the Plan Area through landslides, subsidence, and earthquake-related effects such as surface fault rupture, ground shaking, and liquefaction. Existing and potential geologic hazards in the area include erosion, landslides, and rock fall. The granitic rocks and the basalt and andesite flow yield boulders that can roll downslope if pushed, triggered by an earthquake, or triggered by normal slope-degrading processes.

Earthquakes/Ground Shaking. California contains many active faults capable of generating damaging earthquakes. The major effects of earthquakes are ground shaking, surface rupture, and other forms of ground failure including liquefaction and subsidence.

The U.S. Geological Survey National Earthquake Hazards maps (Frankel et al. 2002) indicate that the potential earthquake ground motions at Millerton Lake would be comparatively low (0.1–0.2 g for a 474-year return period) compared to the rest of California. The distance from large active faults indicates that potential earthquake damage would be slight.

Liquefaction. Liquefaction is a phenomenon in which the strength and stiffness of a soil is reduced by earthquake shaking. Liquefaction takes place when a granular material is transformed from a solid state into a liquefied state as a result of increased pore pressure and decreased effective stress. Liquefaction occurs in saturated soils. When liquefaction occurs, the strength of the soil decreases, and the ability of a soil deposit to support foundations for buildings or other structures is reduced. Liquefied soil also exerts higher pressure on retaining walls, which can cause them to tilt or slide. This movement can cause settlement of the retained soil and destruction of structures on the ground surface.

Liquefaction potential depends on having susceptible soils, shallow groundwater to create saturated conditions, and sufficiently strong ground shaking. The potential for liquefaction is considered low for the Plan Area due to lack of a shallow groundwater table.

Surface Fault Rupture. Surface fault rupture is defined as a slip on a fault plane that has propagated upward to, and offset or disturbed, the earth's surface. Areas subject to fault rupture hazard are zoned by state law under the Alquist-Priolo Earthquake Fault Zoning Act (Hart 1994). Maps of areas of potential surface faulting are prepared by and available from California Geological Survey. These maps depict the most recently active traces of faults and a zone around these traces within which future surface faulting might occur. No faults zoned under the Alquist-Priolo Act exist within the study area. The potential for surface fault rupture is negligible.

Mass Wasting. Mass wasting is downward movement of soils and rock under gravity. This includes landslides, rock falls, and debris flows. Mass wasting requires source materials, a slope, and a triggering mechanism. Source materials include fractured and weathered bedrock and loose soils. Triggering mechanisms include earthquake shaking, heavy rainfall, and erosion.

Regulatory Setting

Several federal and state regulations govern geology, seismicity, and soils in California. The federal regulations include the Earthquake Hazard Reduction Act of 1977, Executive Order 12699 on Seismic Safety of Federal Buildings, and the Uniform Building Code (superseded in California by the 2001 California Building Code). State regulations include the Alquist-Priolo Act, the Field Act, the 2001 California Building Code, the Seismic Hazards Mapping Act, and the Historic Structures Act (California Public Resources Code Section 5028). Some state agencies, including the California Department of Transportation (Caltrans) and the DWR Division of Safety of Dams, have their own regulations covering seismic and geologic hazards. In addition, municipalities and counties can have general or specific plans that may include regulatory requirements.

3.3.2.2 Soils

Formation of a soil profile is profoundly influenced by five primary factors: climate, topography, soil parent material, biotic influence, and time. Because a wide variation may exist between these factors, even within a relatively small area, any regionwide or statewide summary must be somewhat general. The Plan Area and the immediate vicinity have 28 different soil series. Each series has its own characteristics and will respond to similar actions in different ways. Figure 3.3-2 provides a comprehensive list of soils within the Plan Area.

Most soils of the Plan Area, particularly in the foothills north and east of Millerton Reservoir, have formed in place from granite or basaltic bedrock (USDA 1971). These soils are often shallow and consist of coarse decomposed granite relatively devoid of organic matter. Exposed rock outcrops are relatively common. Colluvial soils (loose deposits of rock debris accumulated through the action of gravity at the base of a cliff or slope) are found at the higher elevations within the study area at the base of steep slopes. Typical examples of such soils include Ahwahnee, Coarsegold, and Vista soils.

Some soils have formed from material transported from the Sierra Nevada Mountains and deposited at the base of its foothills by running water. These alluvial deposits are found at the lower elevations of the study area on the rolling hills and downstream of Friant Dam. Such areas consist of sandy loams to clay soils that have a wide range of quality and depth. Typical examples include soils of the Centerville, Raynor, Rocklin, San Joaquin, and Sesame series. Not uncommonly, these soils have developed a hummock and swale topography underlain by a strongly cemented silica hardpan layer 12 to 36 inches below the surface. The hardpan layer impedes drainage through these soils during the rainy winter months, resulting in a “perched” water table and the formation of seasonal pools in depression swales. Since the Pleistocene era, the pools have developed a unique flora and fauna.

A naturally occurring hardpan created by an underlying igneous layer also occurs on the Table Mountains. This hardpan promotes the formation of vernal pools during the wet winter months as water pools in the irregular depressions. For example, soils of Big Table Mountain are generally thin, with areas of thicker soils and mima mounds interspersed. Soils here are primarily composed of Trimmer-Trabuco association. This soil type is a well drained to excessively drained sandy loam over basic igneous rock.

Erosion

Erosion is a problem in the Plan Area and poses threats to the natural and cultural values in the study area. Erosion is the gradual wearing away of land by water, wind, and general weather conditions. Erosion is a natural geological process, but accelerated soil erosion results from poor land-use practices, leading to the loss of fertile topsoil and to the silting of water bodies such as Millerton Lake.

In the study area, there are trails, firebreaks, underground utility line trenches, roads, and vehicle tracks along the exposed lake bottom at low pool levels, as well as wave-cut terraces caused by wind and boating activities, that are designed or permitted without due consideration of erosion preventative measures. Volunteer trails near the campgrounds and day use areas also increase erosion within the Plan Area.

Shallow soils on steep slopes tend to easily erode, and any activity that alters natural soil conditions can cause significant erosion problems. Figure 3.3-3 shows areas of slight, moderate, and high erosion hazard (actual or potential erosion) taken from soil surveys for Madera County (USDA 1990) and Fresno County (USDA 1971). Approximately one-third of the soils in the Plan Area is shallow and occurs on slopes greater than 30 percent. This indicates a moderate to high erosion hazard in these areas, which is an important consideration in land management options such as grazing and trail building.

Constraints Due to Soils

In many instances, the soils and slope of the terrain interact to produce a physical constraint to construction. Based on these two considerations, the constraints for septic systems, ponds and reservoirs, local roads and streets, dwellings without basements, campgrounds and picnic areas, and trails and paths were mapped within the Plan Area (USDA 1971; USDA 1990). Most development constraints based on soils in the Plan Area are due to slope, porosity, rockiness, or depth to bedrock. In addition to these specific constraints, overall erosion hazard potentials should be considered. These constraints are based solely on soil type and slope. They do not necessarily preclude development, though they may limit development options in some instances. The constraints mean, however, that special design considerations and increased installation/maintenance costs may be involved in development of facilities.

Regulatory Setting

Several federal and state laws regulate actions involving soils, such as the federal Farmland Protection Policy Act. The purpose of the act is to minimize the extent to which federal programs contribute to the unnecessary and irreversible conversion of farmland to nonagricultural uses. The California Department of Conservation has developed the Important Farmland Inventory classification system, which uses soil and land use information to prepare and update important farmland maps and to monitor the conversion of agricultural land. The program classifies five categories of farmlands: Prime Farmlands, Farmlands of Statewide Importance, Unique Farmlands, Farmlands of Local Importance, and Grazing Lands. The Natural Resources Conservation Service is the agency primarily responsible for implementation of the Farmland Protection Policy Act.

The Office of Land Conservation, under the California Department of Conservation, maintains four programs that monitor and protect California's farmland and soil resources. Each of these programs must be considered in reviewing impacts to farmland soils and include the California Land Conservation Act of 1965 (Williamson Act), the Agricultural Land Stewardship Program, the Soil Resource Protection Program, and the Farmland Mapping and Monitoring Program.

The relevant county/city general plan or the California Department of Conservation Farmland Maps should be reviewed prior to making changes in land management.

3.4 BIOLOGY

3.4.1 Regional Setting

The Plan Area is located in Fresno and Madera Counties in the eastern foothills of the Sierra Nevada range, approximately 19 miles northeast of Fresno, California. According to the *Jepson Manual*, the Plan Area is located in the Central Sierra Nevada Foothills region, which is defined more by foothill vegetation communities such as gray pine/oak woodland than by geographic boundaries (Hickman 1993). It is adjacent to the *Jepson Manual's* San Joaquin Valley, a subregion of the Great Central Valley (Hickman 1993). The Plan Area is so close to the eastern boundary of the San Joaquin Valley that some documents refer to it as being located in the San Joaquin Valley rather than in the Sierra Nevada foothills.

The Plan Area is in the Friant, Millerton Lake West, and Millerton Lake East USGS 7.5-minute quadrangles. This area is within the Auberry Hydrological Area subsection of the San Joaquin River Watershed. The Plan Area encompasses Millerton Lake, Friant Dam, reaches of the San Joaquin River above and below Friant Dam, and mostly undeveloped land around Millerton Lake and the San Joaquin River that is primarily gray pine/blue oak woodland typical of the Sierra Nevada foothills (Figure 3.4-1). The Plan Area also includes basaltic vernal pool/grassland complexes at Big Table Mountain and McKenzie Table that are unique to this area and provide habitat for an array of special-status plants and wildlife.

3.4.2 Plan Area Existing Conditions

Data gathered to describe existing conditions consisted of existing reports, and articles and interviews with knowledgeable agency employees and professionals in the area. Primary sources of informational interviews and existing reports for the area were from Reclamation, State Parks, and the Sierra Foothill Conservancy (SFC). A list of special-status species was compiled from queries of the U.S. Fish and Wildlife (USFWS) online database, the California Department of Fish and Game (CDFG) California Natural Diversity Data Base (CNDDB), and the California Native Plant Society (CNPS) online database (USFWS 2007a; CNDDB 2007; CNPS 2007). All of the resulting species are presented in Tables 3.4-1 and 3.4-2; however, six of the species included no longer have formal listing status because the USFWS recently eliminated its "sensitive species" category designation.

Prior to the ground vegetation mapping in the Plan Area, vegetation maps from the California Gap Analysis Project (GAP) were reviewed that mapped the California Wildlife Habitat Relationship types and GAP types in the Plan Area (Davis et al. 1998). These vegetation maps were compared with color aerial photographs of the Plan Area and study area. Aerial Photomapping Services flew aerial photographs on July 8, 2002. The ortho pixel size is 2 feet and the flight scale is 1 inch to 1,800 feet. Based on the signatures in the aerial photograph, certain parts of the Plan Area were identified for ground-truthing in the field, including areas representative of a vegetation community, sensitive areas such as the vernal pool complexes, anomalous areas, and potential wetlands.

The minimum mapping unit of a vegetation community polygon was 5 acres, except for mapping some of the nonnative exotic species, which was done at a smaller scale. The vegetation

classification system and the nomenclature used for these vegetation communities are based on the CNDDB classification system (CNDDB 2002).

If an invasive species provided at least 20 percent cover in at least one vegetation layer and if the area was at least 1 acre, this area was mapped as a separate polygon. Otherwise, the location of an aggressive exotic plant was hand mapped or in some cases recorded with a global positioning system (GPS) device. State Parks has GPS data on a small population of Medusa head (*Taeniatherum caput medusae*) and giant reed (*Arundo donax*) in the Plan Area.

During the fieldwork, a list of plants and the dominant species observed in the tree layer, shrub layer, vine layer, and herbaceous layer were recorded for each vegetation community. Dominant plants are the species that comprise ≥50 percent of the total cover in a particular layer.

Aggressive exotic plants on California Exotic Pest Plant Council's (CalEPPC) A1, A2, B, and Red Alert lists were mapped during fieldwork and are shown in Figure 3.4-2. Table 3.4-1 lists the species identified during the fieldwork and includes both the CalEPPC's old status rating codes and the California Invasive Plant Council's (Cal-IPC) new status rating system for invasive plants in California (CalEPPC 1999; CalIPC 2007). Mapping only included natural areas and did not include developed/disturbed areas, such as campgrounds, or areas immediately adjacent to developed/disturbed areas. However, the presence of invasive plants in developed/disturbed areas was noted to provide information on invasive species that could potentially invade natural areas in the Plan Area.

Fieldwork conducted by URS biologists included reconnaissance for suitable habitat for special-status plants and wildlife. In addition, the locations of any direct observations of special-status species were recorded on the aerial photographs.

3.4.3 Vegetation

This section describes the vegetation communities and associated species that were mapped in the Plan Area. A list of plants observed in these communities is incorporated by reference (URS 2007a). Table 3.4-3 summarizes the acreage of these vegetation communities in the Plan Area. Some small vegetation types in the Plan Area that were not mapped include cliff talus, small ponds, small isolated seasonal wetlands, and ephemeral drainages that are unvegetated or vegetated with upland species. Large rocks, outcrops, and many supporting lichens and bryophytes are common throughout the Plan Area but were not mapped. Some areas adjacent to the developed/disturbed type and along roads contain ruderal vegetation but are narrow areas that were grouped with other vegetation communities.

Gray pine – oak woodland *(Pinus sabiniana – Quercus douglasii)* is the most common vegetation community in the Plan Area. The second most common vegetation community in the Plan Area is nonnative annual grassland. The most sensitive habitats are the vernal pool and northern basalt flow vernal pool/nonnative grassland complexes, which support many special-status species.

The vegetation communities present in the Plan Area are determined by a combination of various environmental factors, including slope aspect, elevation, topography, and soil type. In general, blue oaks and blue oak woodland are more common than gray pines and gray pine – oak woodland at lower elevations, topographically flatter areas, and drier areas, such as south-facing slopes. On the slopes immediately around Millerton Lake, gray pine – oak woodland is more

prevalent on the north-facing and west-facing slopes, and blue oak woodland is more prevalent on the south-facing slopes and at lower-elevation, flatter areas. Live oak woodland is less common than blue oak woodland or gray pine – oak woodland and tends to occur at higher elevations and in moist areas, such as north-facing or east-facing slopes and adjacent to creeks and drainages.

3.4.3.1 Vegetation Communities

Gray pine - oak woodland is the most common vegetation community in the Plan Area. This community is the same as Holland's digger pine - oak woodland. The dominant trees in this community in the Plan Area are gray pine or foothill pine (*Pinus sabiniana*) and blue oak (*Quercus douglasii*). The overall tree canopy cover ranges from approximately 10 to 70 percent. This habitat consists of a mix of these two species, with the dominance of one species over the other varying from area to area. California buckeye (*Aesculus californica)* occurs sporadically in this habitat and tends to be more abundant in moister areas such as north-facing and east-facing slopes, along drainages, at the edges of large rock outcrops, and along the edge of the tables at Big Table Mountain and McKenzie Table. Interior live oak (*Quercus wizleznii*) also occurs sporadically in this community, and it tends to prefer moister areas. Blue elderberry (*Sambucus mexicana*) can also occasionally be found in this vegetation type. The overall shrub cover is predominantly buck brush (*Ceanothus cuneatus* var. *cuneatus*), and the canopy cover ranges from approximately 10 to 20 percent. The understory cover is approximately 90 percent to 100 percent and consists of vegetation that is very similar to the nonnative grassland habitat described below. Native goldback fern (*Pentagramma triangularis* ssp. *triangularis*) is also a relatively common, but not dominant, herb in the understory of this community.

Blue oak woodland is one of the most common habitat types in the Plan Area. This community is the same as the Holland type. The dominant tree in this habitat is blue oak, with gray pine occurring sporadically. The overall tree canopy cover ranges from approximately 5 to 40 percent and overall shrub cover ranges from approximately 5 to 15 percent. The dominant shrub in blue oak woodland is buck brush. Other less common shrubs in this habitat are deerweed (*Lotus scoparius*), bush lupine (*Lupinus albifrons var. albifrons*), holly-leaf redberry (*Rhamnus ilicifolia*), and hoary coffeeberry (*Rhamnus tomentella* ssp. *tomentella*). The understory cover is approximately 90 to 100 percent and consists of the species that are very similar to the nonnative grassland, which is described below. Research on the understory of blue oaks has shown that in general the vegetation is more diverse, healthier, more nutritional for cattle, and greener longer in the season than in surrounding grasslands (Johnston 1994; Voelz 1984).

The nonnative grassland community is the same as Holland's nonnative grassland (Holland 1986). It has a cover of approximately 90 to 100 percent that is dominated by nonnative annual grasses and includes nonnative and native herbs. Dominant plants observed in this community in the Plan Area during fall and winter fieldwork were common nonnative grasses: ripgut brome (*Bromus diandrus*), soft chess (*Bromus hordeaceus*), and zorro grass (*Vulpia myuros*). Some common associated native herbs were broad-leaf filaree (*Erodium botrys*) and fiddleneck (*Amsinckia* sp.). Heermann tarweed (*Holocarpha heermannii*) and vinegar weed (*Trichostema lanceolatum*), two fall-flowering native herbs, were also prevalent during field surveys. Occasionally a tree such as blue oak or gray pine or shrubs such as buck brush occur in this community.

Patches of native grasses are also likely to occur throughout the Plan Area in the nonnative grassland community and in other communities. Native grasses known to occur in the grasslands and oak woodlands in the Table Mountain area in Fresno County, including Big Table Mountain, McKenzie Table, and Perkins West include nodding needlegrass (*Nassella cernua*), three-awn (*Aristida* sp.), annual hairgrass (*Deschampsia danthonioides*), California melic (*Melica californica*), oniongrass (*Melica imperfecta*), one-sided bluegrass (*Poa secunda* ssp. *secunda*), Scribner grass (*Scribneria bolanderi*), four native subspecies of fescue (*Vulpia microstachys* var. *microstachys*, *V. m.* var. *ciliata*, *V. m.* var. *confusa*, *V. m.* var. *pauciflora*), and six-week's fescue (*Vulpia octoflora).*

Interior live oak woodland/forest (*Quercus wislizenii* var. *wislizenii*) tends to occur at higher elevations and in moist areas, such as north-facing or east-facing slopes and adjacent to creeks and drainages. It occurs immediately adjacent to the Winchell Creek mixed riparian woodland/forest, but is too narrow to map separately. The interior live oak community is a combination of two Holland types, interior live oak woodland and interior live oak forest (Holland 1986). These two types were mapped by Gap in the Plan Area, but they were combined here because there is not much difference between these types except overall tree canopy cover. Although this community in the Plan Area has a dense canopy cover that ranges from approximately 65 to 90 percent, it also supports a consistent cover of nonnative grassland species in the understory that is approximately 80 to 95 percent in cover. Interior live oak is the dominant tree in this community and Western redbud (*Cercis occidentalis*) is a subdominant small tree associated with this community. Other less common trees are blue oak, gray pine, buckeye, and near drainages or creeks, Fremont cottonwood (*Populus fremontii* ssp. *fremontii*). Holly-leaf redberry is predominant in the shrub layer, with a total shrub cover of approximately 30 percent to 45 percent. Poison oak (*Toxicodendron diversilobum*) was observed more frequently in this community than other communities. Other shrubs in this community are similar to gray pine – oak woodland: manzanita, deerweed, bush lupine, and hoary coffee berry. The native California wild grape vine (*Vitus californica*) can also be found in this habitat, especially in moister areas.

Northern basalt flow vernal pools/nonnative grassland in the Plan Area is the same as two Holland types: northern basalt flow vernal pools and nonnative grassland (CNDDB 2002). The northern basalt flow vernal pools/nonnative grassland community occurs in the Plan Area at three basaltic grassland tables (mesas) with complexes of vernal pools: Big Table Mountain, McKenzie Table and Perkins West (Figures 3.4-1 and 3.4-3). The portion of Perkins West located in the Plan Area has one very small vernal pool, and the rest is nonnative grassland. Big Table Mountain contains a series of various size vernal pools, some of which are relatively large (Figure 3.4-3). McKenzie Table also contains a series of vernal pools, but not as many as at Big Table Mountain. These northern basalt flow vernal pools are unique habitats that support an array of special-status species and that are listed by the CNDDB as a rare plant community. Big Table Mountain and McKenzie vernal pools support five special-status plants and approximately 50 special-status wildlife species. During the fall and winter field surveys, the plants in the pools were not present in the fall, and the pools were still inundated in the winter. The nonnative grassland at these tables, at least during the fall and winter, is similar to the nonnative grassland in other parts of the Plan Area. Dominant grasses observed at the nonnative grassland at these tables were soft chess, ripgut brome, zorro grass, and wild oats (*Avena* sp.). Because these tables have a different soil type than other parts of the Plan Area, it is likely that these grasslands have some species that are different from other nonnative grasslands in the Plan Area. In addition,

these tables have unique cliff talus habitats near the edge of the tables that could provide habitat for unique species.

Only portions of these three tabletop vernal pool grassland complexes are located in the Plan Area, and these tables are owned by a variety of entities that are working toward developing cooperative management plans (Figure 3.4-4). Most of Big Table Mountain is located in the Plan Area, and most of it is owned by CDFG and managed by State Parks for protection of endangered species and interpretative opportunities. A relatively small part of Big Table Mountain in the northwest area is owned by Reclamation (Figure 3.4-4). The eastern part of Big Table Mountain that is outside the Plan Area is private land. The northern half of McKenzie Table, which is owned by the Bureau of Land Management (BLM), is located in the Plan Area. The southern half of McKenzie Table, the McKenzie Table Mountain Preserve, was acquired in trust from TNC in 1998 by the SFC In 1998 the SFC acquired in trust from TNC the southern half of McKenzie Table, the McKenzie Table Mountain Preserve (SFC 2000). TNC acquired the property in trust from Ruth Bea McKenzie, who requested that it be preserved for open space and ranching after her death (SFC 2000). Only a small, privately owned western part of Perkins West is located in the Plan Area, and the rest of it is private property outside the Plan Area.

The SFC and other agencies, to protect the vernal pools and rare species, manage most of Big Table Mountain and all of McKenzie Table. In 2000, a Memorandum of Understanding was drafted between CDFG, State Parks, BLM, SFC, and Reclamation for the cooperative management of Big Table Mountain and adjacent properties owned by these entities, but this memorandum was never signed (CDFG 2003). One of CDFG's goals at Big Table Mountain is to improve vernal pool and grassland habitats and native plant abundance and diversity by implementing grazing, and possibly prescribed burning, to reduce thatch and nonnative annual grasses (CDFG 2003). Special-status plants on Big Table Mountain are expected to benefit from fall and winter grazing that will result in thatch removal and less competition from nonnative grasses. CDFG conducted a grazing study on Big Table Mountain to compare the effects of grazing on vegetation.

The SFC, established in 1996, is a nonprofit land trust that acquires and manages land in the Sierra Nevada foothills and protects lands through conservation easements and mitigation banks. The SFC advocates grazing on the tables for the same reasons as CDFG. The SFC recommends grazing the tables in the fall and winter and removing cattle before March 15 (Peck, pers. comm., 2003). The BLM's current Land Use Plan has not authorized grazing on McKenzie Table since at least 1982, but prior to 1992 when a gap fence was installed, some unauthorized grazing occurred there (Kuritsubo, pers. comm., 2003). To authorize grazing, BLM would need to amend its Land Use Plan and conduct endangered species consultation with USFWS (Kuritsubo, pers. comm., 2003). At one point in the past, a BLM biologist proposed to designate public land at McKenzie Table as a Resource Natural Area – Area of Critical Environmental Concern, but this proposal was not ever officially approved (Kuritsubo, pers. comm., 2003). Big Table Mountain and McKenzie Table are part of the critical habitat units for listed vernal pool crustaceans and vernal pool plants that were proposed by USFWS in September 2002.

A single vernal pool that is not part of the northern basalt flow vernal pools at the tables is located adjacent to Welbarn Road, near the gate on State Parks property. The SCS (USDA 1971) maps this area as Auberry soil series but does not describe any hardpans or claypans associated with this soil type. A population of San Joaquin Valley Orcutt grass, a federally threatened and

state endangered plant, occurs in this pool (Epperson, pers. comm., 2002a). The dominant plants observed on the edges of this pool during Fall 2002 were swamp timothy grass (*Cyrpsis schoenoides*) and rabbitfoot grass (*Polypogon monspeliensis*). Other species observed there included spikerush (*Eleocharis* sp.), Mediterranean barley (*Hordeum marinum* ssp. *gussonianum*), water clover (*Marsilea vestita*), popcorn flower (*Plagiobothrys* sp.), and purslane speedwell (*Veronica peregrina* ssp. *xalapensis*).

Silver bush lupine *(Lupinus albifrons)*/nonnative grassland typically occurs in the Plan Area on dry, steep slopes at higher elevations (Figure 3.4-1). No equivalent Holland type exists for silver bush lupine, but the nonnative grassland corresponds to the Holland nonnative grassland (Holland 1986). Bush lupine is the dominant shrub, comprising a total shrub cover of approximately 20 to 25 percent. Many rock outcrops and occasionally deerweed shrubs are found here. A few buckeyes were seen near the edge of rock outcrops and along a seasonal drainage. The herbaceous ground layer is nonnative grassland with approximately 20 percent bare ground. Dominant plants observed in this layer were long-beaked filaree (*Erodium botrys*) and ripgut brome (*Bromus diandrus*).

Mixed riparian woodland and forest in the Plan Area is similar to Holland's great valley mixed riparian forest (Holland 1986). To refer to the Plan Area as a Central Valley community and a forested community is not appropriate. The mixed riparian woodlands in the Plan Area have relatively lower overall tree cover than in a forest community and are located in narrow bands along creeks that drain into Millerton Lake and along the San Joaquin River (Figure 3.4-1). Overall tree cover in most areas is approximately 30 to 50 percent, except for Winchell Creek, which has an overall canopy cover of approximately 80 to 85 percent. The riparian zones of this community are so narrow that in some areas they intergrade with the adjacent interior live oak woodland or gray pine – oak woodland. Winchell Creek is the most well developed riparian area, and the adjacent interior live oak woodland/forest is not mapped as a separate community because it is too narrow. Interior live oaks are a dominant tree in many of the mixed riparian woodland/forest sections in the Plan Area. The species dominance varies from area to area, but some of the dominant trees include red willow (*Salix laevigata*), Fremont cottonwood, California buckeye, and edible fig (*Ficus carica*). Oregon ash (*Fraxinus latifolia*) was infrequently observed. Some riparian areas also included clumps of tree of heaven (*Ailanthus altissima*), an invasive nonnative tree. In some mixed riparian woodland/forest, California grape was prevalent in the vine layer and button bush (*Cephalanthus occidentalis* var. *californicus*) and Himalayan blackberry (*Rubus discolor*) were dominant shrubs. Some of the riparian areas were dry during the fall field surveys and some, such as Winchell Creek, had some water in them. The understory vegetation along the banks of the channel is generally absent because of the large boulders along the banks. Vegetation near the banks intergrades into the nonnative grassland of the adjacent vegetation community. Some hydrophytic vegetation was observed in the creek channels. At Winchell Creek, just upstream of the mouth, the channel was dominated by sedge (*Carex* sp.). Nonnative spearmint (*Mentha spicata* var. *spicata*) also occurs occasionally in this area in the channel. One riparian area had small pools of water with aquatic plants or hydrophytic plants. Aquatic plants observed in some of the pools were mosquito fern (*Azolla filiculoides*), common duckweed (*Lemma minor*), and dotted duckmeat (*Spirodela punctata).* Other hydrophytic vegetation, which was not dominant in most of the channels, included punctuate smartweed (*Polygonum punctatum*), tall flat sedge (*Cyperus eragrostis*), and broad-leaf cattail (*Typha latifolia*).

Developed/disturbed communities consist of built-up areas including campgrounds, picnic areas, the area around the Friant Dam, and marinas. The vegetation is either absent or consists of landscaped ornamental trees and shrubs or ruderal vegetation. In the southern part of the Plan Area, several concrete canals are included in the developed/disturbed area. The two main canals, the Madera Canal and the Friant-Kern Canal, transport irrigation water directly from the Friant Dam.

A shoreline seasonal wetland community is located in a very narrow band along the shoreline of Millerton Lake just below the ordinary high water elevation of 578 feet mean sea level (msl). No corresponding Holland type exists for this community. It is too narrow to be mapped with other communities and is inundated with water during high water levels. The vegetation is primarily hydrophytic and develops in the summer and fall when the water level is drawn down prior to the rainy season. During the fall fieldwork, many of these areas consisted of bare ground, ranging from approximately 10 to 60 percent. The vegetation is common, herbaceous seasonal wetland species, except for Goodding's black willow (*Salix gooddingii*), a tree that occurs sporadically in some areas. The dominant species at the higher edges closer to the ordinary high water level were Bermuda grass (*Cynodon dactylon*) and cocklebur (*Xanthium strumarium*), which are somewhat weedy species. Other dominant plants observed were junglerice (*Echinochloa colona*) and sprangletop (*Leptochloa fascicularis*). Some areas had a mix of various small, hydrophytic plants, without any one species being the most dominant (Biology Technical Report, Table 4 [URS 2007a]).

3.4.3.2 Invasive Exotic Plants

None of the invasive species in the Plan Area that are listed by CalEPPC as A-1, A-2, B, Red Alert, and Need More Information were at least 1 acre in size and at least 20 percent of the total vegetation cover, which was the minimum size and cover established for mapping it as a separate vegetation polygon. The Sierra Resource Conservation District, a member of the Weed Alliance group for Fresno, Madera, and Mariposa Counties, lists giant reed, Himalayan blackberry (*Rubus discolor*), and Italian thistle (*Carduus pycnocephalus*) as three of the top ten most noxious weeds in these three counties (Sierra RCD 2003).

Five of the eight invasive species observed in the Plan Area (URS 2007a) are on CalEPPC's A list (A-1 and A-2), which are defined as the most invasive wildland pest plants. They are documented as aggressive invaders that displace natives and disrupt natural habitats (CalEPPC 1999; URS 2007a). Species on CalEPPC's A-1 list are considered more widespread, occurring throughout California more than the species on the A-2 list. A-1 species occur in more than three of the *Jepson Manual* regions and A-2 species occur in three or less of these regions (Hickman 1993). Four of the five A species occur in the Great Valley mixed riparian forest communities or in drainages: giant reed, tree of heaven (*Ailanthus altissima*), Himalayan blackberry, and edible fig (*Ficus carica*) (Figure 3.4-2). In particular, Winchell Creek, which is one of the most well developed riparian areas in the Plan Area, has been invaded by several of these A-listed exotic plants (Figure 3.4-2). In general, the Great Valley mixed riparian forest communities in the Plan Area have been more invaded by more aggressive exotic plants than other vegetation communities in the Plan Area (Figure 3.4-2).

Two A-1 species, giant reed and Medusa head, were only observed at one location in the Plan Area. Because these populations are limited to one location and are less than a half-acre in size,

this is an opportune time to control their spread to other parts of the Plan Area. Giant reed is located in Dumna Creek where it intersects with Highway 145 (Figure 3.4-2). The Medusa head population in the Plan Area was recently found by URS near a trail in the Winchell Creek area (Figure 3.4-2). Mike Smith, a biologist with State Parks, has recorded the location of giant reed and Medusa head in the Plan Area with a GPS (Smith, pers. comm., 2002).

3.4.4 Wildlife

The Millerton area is situated in the lower foothill region of the central Sierra Nevada. Many of the habitats and wildlife species typical of this region are represented in the Plan Area. Nonnative grassland habitat occurs on xeric sites west of Friant Dam. In contrast, the more mesic sites of the higher elevations at the northeast portion of the study area support interior live oak forest. The natural vegetated habitats within the Plan Area and associated wildlife species are described below by strata level and in descending order of dominance. Figure 3.4-1 shows the vegetation/wildlife habitats within the Plan Area.

3.4.4.1 Wildlife Habitats

Woodland dominated by gray pine and blue oak is the dominant wildlife habitat type in the Plan Area. This habitat type dominates the slopes from near Friant Dam along both shores of the lake to the Plan Area boundary at Temperance Flat. The vegetation in this area provides quality foraging, nesting, and migration habitat for the majority of species associated with the Sierra Nevada foothills. Oak acorns provide an important food source for animals that use this habitat. Mature gray pine/oak woodland provides suitable breeding habitat for 29 amphibian species, 79 bird species, and 22 mammal species (CDFG 1988).

Blue oak woodland is not as abundant as gray pine/oak woodland but is fairly common on the flatter portions of the Plan Area and is a typical component of the lower foothills of the Sierra Nevada. This is a transitional habitat between annual grasslands at lower elevations and the more mesic gray pine/oak woodland at higher elevations. The habitat provides suitable breeding habitat for 29 amphibian species, 57 bird species, and 10 mammal species (CDFG 1988). Less wildlife usage of blue oak woodland than gray pine/oak woodland is possible due to a lack of tree diversity and understory shrubs (CDFG 1988).

Interior live oak woodland is limited in extent and distribution within the Plan Area. Live oak woodland is generally limited to north- or northwest-facing steep slopes associated with the Table Mountains and rocky areas in the northeastern and southwestern portions of the study area. This habitat offers a diverse forested environment that provides forage (acorns) and cover for numerous wildlife species. The dense canopy cover often limits the development of shrubs and forbs in the lower herbaceous layer; however, California buckeye is often present and provides suitable shrub habitat for several wildlife species.

Mixed riparian woodland and forest habitat in the Plan Area is largely limited to a portion of the San Joaquin River below Friant Dam, Winchell Creek, and Fine Gold Creek. Several smaller, unnamed tributaries to Millerton Lake in the vicinity of the Table Mountains and Temperance Flat offer limited riparian habitat as well. Over 50 species of mammals, approximately 150 species of birds, and at least 50 species of amphibians and reptiles are known to occupy this habitat type. Many are year-round residents, and others are transitory visitors (CDFG 1988).

Silver bush lupine/nonnative grassland is found locally throughout the Plan Area but dominates the landscape in the far southwestern portion of the Plan Area near Friant Dam. Nonnative grassland provides suitable foraging habitat for numerous animals but is limited in breeding potential due to the lack of cover. However, some invertebrates, amphibians, reptiles, birds, and mammals use the habitat for breeding.

Northern basalt flow vernal pool/nonnative grassland habitat within the Plan Area is limited to the grasslands atop several of the table mountains on the east side of Millerton Lake, as well as an individual pool located in the easternmost corner of the site. Within the study area, there are fairly intact vernal pool/grassland complexes in the vicinity of Friant Dam and on Kennedy Table to the north of the lake. For purposes of this report, only vernal pools associated with Big Table Mountain and McKenzie Table will be addressed.

A wide variety of invertebrates, including copepods (Copepoda), seed shrimp (Ostracoda), water fleas (Cladocera), and aquatic snails (Gastropoda) are generally found in vernal pools. In addition, vernal pools provide habitat for several special-status wildlife species known to occur in the Plan Area. Two federally listed branchiopods, vernal pool fairy shrimp (*Branchinecta lynchi*) and vernal pool tadpole shrimp (*Lepidurus packardi*), are known to occur within the Plan Area (CNDDB 2007). Other wildlife species associated with vernal pools include western spadefoot toad (*Scaphiopus hammondii*), California tiger salamander (*Ambystoma californiense*), and numerous migratory and nonmigratory avian species.

3.4.4.2 Important Wildlife Habitats and Corridors

The dominant feature within the Plan Area is the aquatic habitat associated with Millerton Lake. The lake provides a large expanse open water habitat for native and introduced fish species, numerous birds, and foraging habitat for bats and several raptor species. Utilization by wildlife species varies seasonally as a function of natural migration of species into and out of the region, as well as variations in lake elevation and human disturbance.

Certain wildlife species such as waterfowl and bald eagles are likely to be present during the winter, when lake levels are higher and there are fewer disturbances from watercraft. Bald eagles winter in relatively large numbers at Millerton Lake with communal roost sites distributed in up-river areas near Big Bend, Fine Gold Creek, and Upper Goldmine and no known communal roosts on the main body of the lake. Most bald eagles roost at night and forage during the day, often on ground squirrels in the surrounding foothills or common coots on the lake. Most boating/camping activities occur in summer months and, therefore, do not interfere with wintering eagles. Prairie falcons are uncommon nesters in California but are known to nest along the cliffs associated with Big Table Mountain.

The table mountains known as Big Table Mountain and McKenzie Table are located in the eastern portion of the Plan Area and are characterized by sensitive habitats that support several special-status species. Flat plateaus define the crest of the table mountains and support habitats such as vernal pool/grassland complexes and small clusters of blue oak woodland. Steep, rocky cliffs and ledges often define the limits of the tops of the mountains.

The vernal pool/grassland habitat provides level annual grassland with a complex of northern basaltic vernal pools in an area otherwise known for steep topography and forested slopes. The Table mountains offer habitat more typical of the Central Valley and the associated species

found there. The federally endangered vernal pool tadpole shrimp (*Lepidurus packardi*), federally threatened vernal pool fairy shrimp (*Branchinecta lynchi*), and California linderiella (*Linderiella occidentalis*, a federal species of concern) are known from several of the intact vernal pools on the tables (CNDDB 2007). In addition, the cliffs associated with the Table mountains support breeding prairie falcons (*Falco mexicanus*) and several species of bats including the California mastiff bat (*Eumops perotis californicus*). The Table Mountain harvestman (*Calicina mesaensis*) is also known to occur under basalt rocks in the oak grassland habitat and is presumed to be endemic to the Table Mountains in the eastern portion of the Plan Area (CNDDB 2007).

Fine Gold and Winchell Creeks are the most significant creeks feeding into Millerton Lake in the Plan Area and offer the largest extent of riparian habitat. These creeks often function as efficient wildlife corridors. Both creeks have riparian vegetation associated with the streambeds and offer dense vegetative cover in an otherwise dry area. Fremont cottonwood, Himalayan blackberry, interior live oak, and various willows form thickly vegetated corridors in areas dominated by the drier gray pine/oak woodland. Several smaller drainages in the Plan Area offer limited riverine and riparian habitat as well but are restricted in size and length.

3.4.5 Fisheries

Millerton Lake is devoid of any aquatic vegetation, consisting only of open water-lacustrine habitat. The lake lacks aquatic and semiaquatic floating and rooted plants because it lacks a permanent littoral zone where these plants develop. Millerton Lake, like other reservoirs and waters with artificially controlled hydrology, experiences constant and dramatic changes in the water levels, preventing the establishment of a permanent littoral zone for aquatic vegetation and the establishment of adjacent emergent wetland vegetation. Cover and food for aquatic organisms and wildlife is poor. Water accumulates in the lake during the winter and spring rainy season and is then drawn down with releases from Friant Dam between June through August or September. This dramatic and artificially controlled hydrology only supports a few scattered Goodding's black willow and sparse shoreline seasonal wetland vegetation that establishes before the lake reaches its storage capacity in moist areas in a narrow band along the shoreline just below the ordinary high water elevation. Just above the ordinary high water elevation is often an abrupt transition from steep slopes with bare ground or a sparse cover of seasonal wetland plants to upland habitats.

Millerton Lake is a popular recreational fishing lake, supporting striped bass and black bass fishing for anglers from all types of boats and along the lakeshore. The original fish community found in the San Joaquin River at the Plan Area has been significantly altered by the construction of Friant Dam and other upstream barriers and by the introduction of nonnative fish species. Fish species adapted to the water flow and temperature regimes naturally found in western Sierra Nevada rivers do not compete well in impounded waters against warm water–adapted species such as largemouth bass (*Micropterus salmoides*) and green sunfish (*Lepomis cyanellus*). Species such as striped bass (*Morone saxatilis*), American shad (*Alosa sapidissima*) and black basses (such as largemouth bass and smallmouth bass [*Micropterus dolomieu*]) have been planted in Millerton Reservoir and appear to be suited to conditions present in the reservoir, the upper San Joaquin River, and its tributaries. The Plan Area includes several small intermittent creeks such as Fine Gold Creek, Cottonwood Creek, and Big Sandy Creek. Species present in these creeks may include foothill-adapted species such as the native hardhead minnow (*Mylopharodon*

conocephalus), Sacramento pikeminnow (*Ptychocheilus grandis*), Sacramento sucker (*Catostomus occidentalis*), and three-spine stickleback (*Gasterosteus aculaeatus*).

3.4.5.1 Historic Conditions of Fisheries in the Plan Area

Before the construction of Friant Dam in the early 1940s, the San Joaquin River was used by native fish species adapted to California's hydrologic conditions. The San Joaquin River, between the 500- to 1,000-foot elevations, transitions from a pikeminnow-hardhead-sucker assemblage to a California roach fish assemblage (Moyle 2002). Cold waters in the winter, spring, and early summer would be suitable for mountain fishes such as resident rainbow trout (*Oncorhynchus mykiss*), riffle sculpin (*Cottus gulosus*), chinook salmon (*Oncorhynchus tshawytscha*), white sturgeon (*Acipenser transmontanus*), steelhead, Sacramento pikeminnow, hardhead minnow, and Sacramento sucker. During the mid-summer to fall, warmer temperatures would exclude resident rainbow trout (Southern California Edison 2000).

Construction of Kerckhoff Dam (1920s) and Friant Dam significantly altered the natural resources and fish communities present in the Plan Area (Table 3.4-4). Immediate changes to fish communities resulted from blockage of their upstream and downstream movements along the river. Following the construction of Friant Dam, water releases below Millerton Reservoir were insufficient to support anadromous fish spawning and holding on the San Joaquin River upstream of its confluence with the Merced River and downstream of Friant Dam.

3.4.5.2 Fish Species in the Plan Area

The fish assemblages within Millerton Reservoir have changed significantly from the original native community composition to an introduced warm-water lake community. Changes occurred as a result of water flow and temperature changes from the creation of a reservoir and from the stocking of the reservoir with nonendemic and nonnative fishes.

Since the early 1950s, CDFG began a stocking program in Millerton Reservoir to provide game-fishing opportunities for anglers. In addition, illegal plants by individuals and release of baitfish into the reservoir have introduced other fish species. Fish species not naturally occurring in the area that were introduced into the reservoir (past or present) include hatchery-raised rainbow trout, brown trout (*Salmo trutta*), kokanne salmon, striped bass, American shad, largemouth bass, smallmouth bass, spotted bass (*Micropterus punctulatus*), green sunfish (*Lepomis cyanellus*), bluegill (*Lepomis macrochirus*), redear sunfish (*Lepomis microlophus*), crappie (*Pomoxis*), golden shiner (*Notemigonus crysoleucas*), white sturgeon (*Acipenser transmontanus*), brown bullhead (*Ictalurus nebulosus*), white catfish (*Ameiurus catus*), channel catfish (*Ictalurus punctatus*), common carp, mosquitofish (*Gamusia affinis*), and inland silverside (*Menidia beryllina*) (Houk, pers. comm. 2003; Ecological Analysts 1980; Moyle 2002; Shaffer 2002; see Table 3.4-4).

Several species of desirable sport fish have been found to be more adapted to the reservoir. Millerton Reservoir is one of the few inland lakes with a self-sustaining American shad population and relatively successful striped bass population (Ecological Analysts 1980; Shaffer 2002). Stocking of striped bass began in 1955 and is ongoing. However, unstable population trends of striped bass and centrarchids indicate that the reservoir is not able to support a self-sustaining striped bass population. Millerton Reservoir does not provide suitable spawning and egg laying habitat for many fish species, especially striped bass, largemouth and smallmouth

bass, trout, and centrarchids. The lack of a littoral zone in the reservoir precludes most egg laying in that area.

Threadfin shad and American shad were stocked a single time in 1959 (Houk, pers. comm., 2003). A relatively new threat to shad populations is the invasive freshwater Asian clam. As a vital prey base for striped bass, shad are an important resource to the Millerton Reservoir fish community. Asian clam populations such as zebra mussels have been found to drastically reduce the plankton and zooplankton biomass within water bodies. As plankton and zooplankton are the major food source for shad, a reduction in biomass could possible reduce shad reproduction and growth rates, and ultimately, striped bass success rates.

Native California species such as Sacramento sucker, Sacramento pikeminnow, and hardhead minnow are hardy generalists that still occur in the Plan Area. Other native species such as California roach (*Lavinia symmetricus*), hitch (*Lavinia exilicauda*), and sculpin might occur in areas that are inhospitable to most nonnative fishes, such as upstream sections of the intermittent Fine Gold, Big Sandy, and Cottonwood Creeks. Sound management of these areas could also encourage future recolonization of tributary creeks by native species.

3.4.6 Special-Status Species

Special-status plants and wildlife species are known to occur or have the potential to occur in the Plan Area. Figures 3.4-5 and 3.4-6 show the special-status species occurrences in the Plan Area and study area as mapped by CNDDB (2007). Table 3.4-1 lists the special-status plant species known to occur or with potential to occur in the Plan Area, and Table 3.4-2 lists the special-status wildlife species known to occur or with potential to occur in the Plan Area. The potential for a species to occur in the Plan Area was assessed according to the presence of suitable habitat for that species, the species' known geographical range, and historic and current occurrences in the CNDDB, CNPS database, and biological reports.

Three federally or state-listed plants and three other special-status plants are known to occur in the Plan Area (URS 2007a; CNDDB 2007). In addition, three federally and/or state-listed plants occur in the Study Area but not the Plan Area. Seventeen other special-status plants have the potential to occur in the Plan Area.

Five federally or state-listed wildlife species and 15 other special-status species are known to occur in the Plan Area. Fifteen additional special-status wildlife species have high to moderate potential of occurring in the Plan Area. Five special-status species are known to occur in the Study Area but not the Plan Area, and eight other special-status species have high to moderate potential of occurring in the Study Area (CNDDB 2007). One federal and two state fish species of concern are documented in the Plan Area. Examples of special-status species and supporting habitat include:

- Vernal pool fairy shrimp, vernal pool tadpole shrimp, and California linderiela in vernal pool habitat atop Big Table Mountain and McKenzie Table.
- California tiger salamander known from grassland and vernal pool habitat southwest of Millerton Lake.
- California (western) mastiff bat known to occur in the cliffs associated with Big Table Mountain.

3.5 CULTURAL RESOURCES

The information provided below is summarized from a confidential technical report (URS 2007b). Because archaeological site locations are considered confidential, this technical report is available only on a restricted basis.

3.5.1 Regional Setting

The lands encompassed by the Plan Area and surrounding region contain a diverse prehistoric and historic cultural resource base. Located along the western flanks of the Sierra Nevada mountains at a confluence of major environmental zones—montane, riverine and valley—the region is ecologically complex, containing an abundance of natural resources that were of potential importance to both its prehistoric and historic inhabitants.

The project region has been subject to a number of cultural resource investigations, which provide insights into prehistoric and historic human interaction in the region. The south-central Sierra has been the focus of numerous archaeological investigations over the last 50 years. Many of these have been conducted for projects related to water and power development, federal and state park inventories, and transportation corridors. Kipps and Moratto (1985) noted that over 650 archaeological surveys and over 200 excavations had been conducted in the south-central Sierra between 1960 and 1985. With the increasing role of cultural resource management as a component of the regulatory compliance process, the number of such undertakings has increased greatly since then.

3.5.1.1 Prehistory

The earliest periods of known human habitation in this region of California are not well represented in the Millerton Lake area. Farther afield the earliest human presence in the region has been documented as early as 9,000 years ago at Clark's Flat along the Stanislaus River drainage about 80 miles to the north (Peak and Crew 1990; Moratto, Shoup, and Tordoff 1988). Stemmed projectile points, large scrapers and milling tools, dominated the archaeological assemblage recovered at Clark's Flat. McGuire and Wohlgemuth (1992) note that similar assemblages have also been recovered from shoreline settings along Buena Vista and Tulare Lakes located approximately 120 and 60 miles, respectively, to the south. Current research may prove that human presence in the San Joaquin Valley may date back to at least 11,000 years ago based on fluted projectile points found on the southern shore of Tulare Lake (Dixon 1999). While sites dating to this period have not been identified in the lower reaches of the San Joaquin River drainage, the bracketing of the project area by earlier sites suggests it is quite possible such sites may be present in the Plan Area.

The regional presence of sites dating to the mid-Holocene period (6,000 to 3,000 years ago) is also well documented in the region. For example, in 1976, Wren reported finding 12 Pinto series projectile points (a type of dart point dating to this period) from a site in the upper Kings River drainage. Other sites in Fresno County have also yielded Pinto series points. McGuire and Wohlgemuth (1992) note that the archaeological assemblages from this period appear to be associated with shaped milling slabs and handstones, but relative concentrations of flakestone

tools leads them to conclude that hunting had greater emphasis during this period than in later periods.

Beginning about 3,000 years ago, the cultural chronology for the project area is tied to two locations of particular relevance owing to their proximity to the Plan Area and similarity in cultural, historical and environmental contexts: the Buchanan and Hidden Reservoir investigations. Surveys prior to the construction of Buchanan Reservoir (Eastman Lake) on the Chowchilla River (located approximately 8.5 miles east of Merced and 24 miles northwest of Millerton Lake) yielded more than 60 prehistoric habitation sites and more than 3,000 bedrock mortars – a concentration of sites that seems to indicate intensive or long use of the area. King and Moratto excavated or tested at least 27 of these sites between 1967 and 1970. Altogether, some 20,000 artifacts, 140 burials, and 92 structural features were documented. From the data obtained, Moratto established a comprehensive three-phase chronological sequence for the prehistory of the central Sierra foothills (Moratto 1984).

The earliest sites examined at Buchanan Reservoir date from approximately 2,800 to 1,400 years ago. Known as the Chowchilla Phase, this apparently was a time of cultural robustness as the assemblages yielded an array of tools such as fish spears, bone artifacts, shell ornaments and beads. Trade also assumed greater importance at this time, as shells from the Pacific coast and obsidian obtained to the east appear at these sites.

The next phase, called the Raymond Phase, dates from approximately 1,650 to 450 years ago. Moratto (1988) indicates the archaeological evidence points to this phase as a period of instability. Tools are dominated by small and medium projectile points, millingstones, bedrock mortars and more informal tool types derived from stone flakes. Moratto, Shoup, and Tordoff (1988) assess the relative scarcity of shell ornaments as reflective of a possible breakdown in trade networks. Interestingly the displays of wealth found in the grave goods from sites dating to the Chowchilla phase also become less pronounced during the Raymond phase. There also appears to be a cycle of village occupation and abandonment, further emphasizing a time of instability. Moratto (1984) suggests that ancestral Yokuts groups may have congregated along more reliable waterways at higher elevations, possibly in response to environmental change causing “rapid desiccation” in lowland areas.

The last period of prehistoric occupation is the Madera phase, dating from 450 to 150 years ago. McGuire and Wohlgemuth (1992) indicate that this is a time of fluorescence of the ancestral Miwoks and quite likely of the foothill Yokuts as well. They note that key assemblage characteristics of sites dating from this period include steatite (a soft carvable stone) discs and bowls, *Olivella* shell beads (derived from the Pacific coast), small arrow points, bedrock mortars, and cobble pestles. Most noteworthy during this period is an apparent shift in settlement patterns with appearance of complex ceremonial and domestic structures and the appearance of major village sites along major water courses with ancillary settlements located along the larger tributaries.

Several other investigations have contributed to an understanding of the region. An investigation at Hidden Reservoir on the Fresno River, which is almost equidistant between Buchanan Reservoir to the north and Millerton Lake to the south, was initially studied by William Wallace in 1967 and 1968. Eighteen sites were documented during these investigations. From 1969 to 1975 Franklin Fenenga recorded 13 additional sites and excavated several large sites, yielding

cultural remains that suggested a cultural chronology similar to the prehistoric sequence established at Buchanan Reservoir.

Two prehistoric archaeological sites located approximately 10 miles east of the Plan Area were subject to excavations in the 1980s. Site CA-FRE-1671 is noteworthy because it has a 2,700-year span of occupation dating from the Chowchilla phase into the Madera phase. In fact, McGuire and Wohlgemuth (1992) characterize it as the "linchpin" of the local prehistoric record. Consistent with findings elsewhere, the Chowchilla phase occupation indicates extensive development of midden soils, suggesting intensive use of the site during this period, along with an abundance of stone artifacts and faunal remains. This is followed by a period of limited occupation and use of the site during the Raymond phase. Intense occupation resumes during the Madera phase as evidenced by the bedrock mortars, housepits, a cemetery and a wide array of artifactual remains. The second site is CA-FRE-64, because it yielded a local steatite industry with adjacent steatite quarries. The site spans the latter part of the Raymond phase into the early Madera phase (from A.D. 900 to 1600). The intensity of occupation at this site was fairly pronounced based on the amount of accumulated midden, the presence of bedrock mortars, acorn leaching pits, a hearth, a burial and the frequency of artifactual and dietary remains.

The Plan Area has been subject to a number of archaeological surveys since 1939. Most of these have been reconnaissance level surveys, although some more systematic surveys have been conducted along the perimeter of the reservoir impoundment in more recent years. The findings of these surveys suggest continuity with the general findings established at Buchanan and Hidden Reservoirs.

One of the more important archaeological excavations within the Plan Area took place at CA-MAD-98. A 1987 excavation by Philip Hines of MAD-98 (first recorded by Theodoratus and Crain in 1962 with two housepits and 11 mortars) revealed four housepits, 29 mortar holes, 18 cupules, 21 grinding slicks and two rock alignments. The artifact assemblage from this site included finished projectile points; primary and secondary flakes of obsidian, quartz, rhyolite, basalt, and andesite (collectively indicating tool manufacture on site); vegetable processing implements; butchering tools; steatite bowl fragments; an abrading stone (schist); and three ornaments (a segment of steatite ring, a *Haliotis* pendant and a steatite bead) (Hines 1988).

Hines concluded from this test excavation that the site was inhabited during the Raymond and/or Madera Phases. MAD-98 is situated next to a small intermittent stream with gentle rolling hills between the site and the nearby (inundated) San Joaquin River (1.2 miles away). This settlement pattern is typical of the Raymond and Madera Phases. During the Madera Phase, smaller settlements "proliferated in the hinterlands" (Moratto 1984).

3.5.1.2 Ethnography

Before historic contact, most of the San Joaquin Valley and the Sierra foothills were occupied by Yokutsan-speakers. The Yokuts occupied a large geographic area in the San Joaquin Valley, from the mouth of the San Joaquin River to the Tehachapis and the Sierra foothills from the Fresno River to the Kern River. An ethnography devoted to this region was written by Betty Rivers in 1995 and appears in an appendix to an archaeological reconnaissance report of Millerton Lake (Steidl et al. 1995). The following discussion is largely summarized from that report. The Plan Area was occupied by two subgroups of the Yokuts, the Dumna and the

Kechayi, both part of the Foothill linguistic division. The Yokuts were divided into tribal entities each controlling stretches of major drainages.

As reported in Hines (1988), the Dumna were mainly found on the north bank of the San Joaquin River, in what is now Millerton Lake. On the south bank, one of their major villages was leveled to make Fort Miller. They may have also included some of the area west of Table Mountain in their lands. The Kechayi lived above Millerton on the south bank of the San Joaquin River, opposite the Dumna.

During the period of ethnographic occupation, the region was located near extensive wetland, grassland, riparian, and oak park land environmental zones. These zones would have provided a rich resource base. Acorn was the staple food of the Dumna and Kechayi. Bedrock mortars and milling sticks, pestles, handstones, and metates were used in the preparation of acorns. Other plant foods such as berries, fruit, bulbs, and seeds were also consumed. Animals such as antelope, deer, elk, and small game such as squirrels, rabbits, foxes and birds were hunted for food. Salmon were a major food source, speared in the San Joaquin River and either eaten fresh or dried for later use.

The Dumna and Kechayi built a variety of structures including dwellings, granaries and storehouses, and sweathouses. The Yokuts performed a number of rituals and ceremonies. Native lifeways were greatly altered with the effects of Euroamerican contact.

3.5.1.3 Contemporary Native Americans

The California Native American Heritage Commission (NAHC) was contacted to request a review of its Sacred Lands files and to obtain a list of local Native American groups and/or individuals with direct or indirect knowledge of cultural resources within or near the project area. The NAHC search of its Sacred Lands File failed to indicate the presence of Native American cultural resources in the immediate project area. Six federally recognized tribes and eight other entities were identified by the NAHC as Native American contacts for the Millerton Lake area. All of these groups were contacted regarding concerns or knowledge of cultural resources within the Plan Area. The specifics of these communications are detailed in the confidential Cultural Resources Technical Report (URS 2007b).

One individual expressed a general concern about the ancestral lands of her people, the Dumna tribe. She also noted that she was unaware of cultural resources on the site. Another respondent expressed concern about access to the Kechaye Cultural Preserve. She stated that in the past people have found it difficult to use the preserve area for ceremonies due to its poorly maintained access roads. She also wanted to be able to use the preserve without getting permission from State Parks or Reclamation and without purchasing insurance to enter the property. She would like to use the area as a gathering spot and a place to teach the younger generation techniques such as basket making and acorn pounding. Another respondent called to say he had no knowledge of cultural resources at Millerton Lake State Recreation Area. He had no comments regarding the proposed Millerton Lake Resource Management Plan/General Plan. No other responses have been received to date.

3.5.1.4 History

The area that now encompasses northeastern Fresno County and southeastern Madera County where Friant Dam and Millerton Lake are located was briefly explored but not settled during the Spanish or Mexican periods. The discovery of gold in California in 1848 was the catalyst that forever altered the landscape and history of the area now referred to as Millerton Lake. As the rush for gold intensified, the San Joaquin River was tapped for its gold deposits and the beginnings of Rootville sprang up to accommodate the miners. To address conflict between the newcomers and resident Native Americans a military post, Camp Barbour, was established on the east bank of the San Joaquin River in April 1851. The peace treaty for the Mariposa Indian War was signed in Millerton on April 29, 1851. The name of Camp Barbour was quickly changed to Fort Miller in honor of Major Miller, a commanding officer at Camp Benicia, the military headquarters for all of California.

The town of Rootville was established at the same time as the fort. Located adjacent to Fort Miller, on the south bank of the San Joaquin River where the Los Angeles-Stockton Road crossed the river, Rootville sprang up quickly in 1851. Around 1854 the town of Rootville changed its name to Millerton in recognition of the fort located nearby. Fort Miller and Millerton were separate and distinct communities. By 1855, a stagecoach connected Millerton to Snelling, Stockton, Merced and other destinations. Although the Central Pacific railroad initially bypassed Millerton and instead went to Fresno station, a few years later the railroad was connected to a station called Pollasky (later renamed Friant).

Mining continued in the area and two districts, the Hildreth and Temperance Flat Districts, were formed. The Temperance Flat District was used for placer mining as well as lode mining. Lode mining in the Sullivan mine in the Temperance Flat District began in 1853 and the mine was worked intermittently up until the 1930s. As early as 1873, sulfur springs near Millerton created a boon as people exploited the springs as a resort property. Although the resort concept faltered in the 1880s, by the early 1900s, a resurgence occurred and buildings associated with the resorts were evident at the springs.

Fort Miller was evacuated in 1856 as tensions between settlers and Native Americans had abated. In 1863, Fort Millerton was re-garrisoned by Union troops to keep the territory in Union possession. The fort was once again abandoned in 1864. In 1866 the government auctioned off the buildings and the military post came under the ownership of Charles A. Hart. Hart and his partners gained control of more than 11,000 acres of land in the area, establishing headquarters at the former site of Fort Miller. Although mining continued on the property, livestock grazing was the dominant use (State Parks 1979).

Although Fort Miller was in decline in the 1850s, the town of Millerton continued to grow. By the late 1850s, Millerton has approximately 50 buildings. In recognition of its burgeoning status, Millerton was named county seat when Fresno County was created in 1856. A courthouse and jail were completed in the spring of 1867. Devastating floods caused Millerton to be nearly deserted by 1871. In 1874 Fresno became the new county seat, confirming the decline of the town of Millerton.

Friant Dam was completed in the early 1940s as part of the CVP. The dam impounded the waters of the San Joaquin River and Millerton was inundated. Before inundation a local contractor

moved the Courthouse piece by piece, and the building was reassembled in the 1970s about 2 miles from its original site.

3.5.2 Regulatory Setting

The legal frameworks for addressing cultural resources at the federal and state level are generally equivalent. At the federal level, the four criteria for evaluation of cultural resources established by the National Register of Historic (NRHP) Places, listed below, are identified in 36 Code of Federal Regulations (CFR) 60.4 and are in accordance with the regulations outlined in 36 CFR 800 established by the Advisory Council on Historic Preservation (Council).

The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and

- Criterion A: resources that are associated with events that have made a significant contribution to the broad patterns of our history; or
- Criterion B: resources that are associated with the lives of persons significant in our past; or
- Criterion C: resources that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction, or
- Criterion D: resources that have yielded, or may be likely to yield, information important in prehistory or history (36 CFR 60.4).

These evaluating criteria are used to help determine what properties should be considered for protection from destruction or impairment (36 CFR 60.2). As specific actions are identified that would have the potential to disturb cultural resources, Reclamation as the lead federal agency will comply with Section 106 of the National Historic Preservation Act to assess the effects of any undertaking that has the potential to affect significant cultural resources (historic properties).

The Section 106 compliance process involves five steps:

- Step 1: Identify and evaluate historic properties. The federal agency responsible for an undertaking begins by identifying the historic properties that the undertaking may affect.
- Step 2: Assess effects. If historic properties are found, the agency then assesses how the properties will be affected by the undertaking. This can result in one of three determinations:
  - No effect: The undertaking will not affect historic properties.
  - No adverse effect: The undertaking will affect one or more historic properties, but the effect will not be harmful.
  - Adverse effect: The undertaking will harm one or more historic properties.
- Step 3: Consultation. If an adverse effect will occur, the agency consults with the State Historic Preservation Officer and others to find ways to make the undertaking less harmful. Others who are consulted, under various circumstances, may include local governments, Indian tribes (federally recognized Indian tribes may enter into government-to-government

consultation with Reclamation), property owners, other members of the public, and the Council. Consultation is designed to result in a Memorandum of Agreement (MOA), which outlines measures that the agency will take to reduce, avoid, or mitigate the adverse effect.

- Step 4: Council Comment. The Council may comment during Step 3 of the process by participating in consultation and signing the resulting MOA. Otherwise, the agency obtains Council comment by submitting the MOA to the Council for review and acceptance. The Council can accept the MOA, request changes, or opt to issue written comments. If consultation was terminated, the Council issues its written comments directly to the agency head, if requested.
- Step 5: Proceed. If an MOA is executed, the agency proceeds with its undertaking under the terms of the MOA. In the absence of an MOA, the agency head must take into account the Council's written comments in deciding whether and how to proceed.

Reclamation has developed a manual that discusses the application of cultural resource regulations as they apply to Reclamation properties. These include the National Historic Preservation Act, the Archeological and Historic Preservation Act, the Archaeological Resources Protection Act, the Native American Graves Protection and Repatriation Act, 36 CFR Part 800 (Protection of Historic Properties), 36 CFR 60 (National Register of Historic Places), 36 CFR Part 79 (Curation of Federally Owned and Administered Archeological Collections), Archeology and Historic Preservation: Secretary of the Interior's Guidelines, and the Secretary of the Interior's Standards for Rehabilitation and the Guidelines for Rehabilitating Historic Buildings.

At the state level, the California Environmental Quality Act (CEQA) and Public Resources Code Section 5024.5 provide guidance for the addressing cultural resources. A property qualifies as a historic resource if it meets one or more of the criteria for listing on the California Register of Historic Resources. These criteria are set forth in CEQA Section 15064.5, as follows:

A significant cultural resource, or "historic resource," as termed under CEQA, is defined as any resource that:

- Criterion 1: is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
- Criterion 2: is associated with lives of persons important in our past;
- Criterion 3: embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
- Criterion 4: has yielded, or may be likely to yield, information important in prehistory or history.

Section 15064.5 of CEQA also assigns special importance to human remains and specifies procedures to be used when Native American remains are discovered. These procedures are detailed under California Public Resources Code Section 5097.98.

"Unique archaeological resources" and "unique paleontological resources" are also accorded significance under CEQA, as described under California Public Resources Code Section 21083.2. A unique archaeological resource implies an archaeological artifact, object, or site

about which it can be clearly demonstrated that—without merely adding to the current body of knowledge—there is a high probability that it meets one of the following criteria:

(a) The archaeological artifact, object, or site contains information needed to answer important scientific questions, and there is a demonstrable public interest in that information; or

(b) The archaeological artifact, object, or site has a special and particular quality, such as being the oldest of its type or the best available example of its type; or

(c) The archaeological artifact, object, or site is directly associated with a scientifically recognized important prehistoric or historic event or person.

A non-unique archaeological resource is an archaeological artifact, object, or site that does not meet the above criteria. Impacts to non-unique archaeological resources and resources that do not quality for listing on the California Register of Historic Resources receive no further consideration under CEQA.

Both Fresno and Madera Counties also provide guidance for the protection and treatment of cultural resources. The *Fresno County General Plan* (2000a) contains policies that seek to preserve the historical, archeological, paleontological, geological, and cultural resources of the county through development review, acquisition, encouragement of easements, coordination with other agencies and groups, and other methods.

The *Madera County General Plan Final EIR* (October 1995) notes policy from the General Plan Policy Response document in regard to cultural resources. This policy document includes several policies and programs that are intended to protect Madera County's cultural resources by mitigating the potential impacts of new development in areas containing important archaeological, historic, or paleontological resources. These policies and programs promote the identification and preservation of cultural resources, including requiring new development projects to identify and to be designed to protect important cultural resources.

The Kechaye Cultural Preserve was created in 1981 by State Parks. Cultural preserves in State Parks are described under the Departmental Directives on Resource Management for the California State Park System. The Departmental Directives state, "in units of the State Park system having significant cultural values, the Department shall consider establishment of cultural preserves embracing the principal cultural resources in the units, within which complete historical or archaeological integrity and authenticity shall be sought. No administrative or public service structures or facilities shall be erected in these zones. When such structures or facilities are required, they will be placed outside the cultural preserves, in locations and in ways that will not detract from the quality and integrity of the cultural resources." These regulations should be taken into consideration when planning for development or alterations to the area known as Kechaye Cultural Preserve.

The Kechaye Cultural Preserve is located along both sides of Winchell Creek at the eastern end of Winchell Cove. The preserve was set aside to protect five Native American sites as well as Native American burials that were relocated before the inundation of Millerton Lake in the 1940s (Epperson, pers. comm., 2002b). Originally, these burials were not contained within a formal cemetery but instead were moved from locations across the valley. Reclamation contacted as many people as possible to determine the identification of the buried family member, but in many cases it was difficult to ascertain any identification. Also located in the Cultural Preserve is

the Pioneer Cemetery. This is where most of the Euroamerican settlers' remains were relocated before inundation of Millerton Lake. Many had tombstones that were associated with the burials, but most of them have been destroyed over the years (Epperson, pers. comm., 2002b).

3.5.3 Cultural Resources in the Plan Area

Cultural resource site and survey data collected by Reclamation were augmented by reviews of State Parks data as well as the files of the Southern San Joaquin Valley Information Center at California State University at Bakersfield. The site data are presented in Table 3.5-1. In some instances, site records that indicate a site that appears to be more complex or potentially significant have been described in more detail in the text. The locations of archeological sites are considered confidential and are available in GIS-based formation a need-to-know basis only. The locations of prior surveys are shown in Figure 3.5-1.

In addition to the archival data described above, selected built environment features were recorded and evaluated for potential to be listed in the NRHP and California Register of Historic Resources (CRHR) (Table 3.5-2). All of the buildings and structures within the built environment study area were recorded and evaluated using the standards outlined by the Office of Historic Preservation in *Instructions for Recording Historical Resources* (March 1995) and by the California Department of Transportation in *Draft Guidance for Consultants: Procedures for the Protection of Historic Properties—The Section 106 Process* (June 2001). The structures inventoried were Friant Dam, including outlets for Madera Canal and Friant Canal; a 1950s-era State Parks visitors center; and 1940s restroom, maintenance buildings, and water tanks. Of these resources, only Friant Dam appears to be significant. The relocated courthouse was not recorded. However, the now-inundated location of Fort Miller is commemorated by California Historical Landmark plaque No. 584 and is located at the courthouse.

A general description of the distribution of prehistoric and historic resources within the Plan Area is provided from the pre- and post inundation cultural resource surveys. The Plan Area encompasses 12,520 acres (including areas now inundated by Millerton Lake). Cumulatively 5,894 acres of the Plan Area have been subject to cultural resource surveys. However, many of these surveys were not conducted in a systematic fashion. Clearly a number of potentially significant resources are now under water. These include the remains of Kuyu Illik (CA-MAD-8), the Dumna "head" village, the Kechaye/"Dumna" village of Sanwo Kianu (CA-Fre-71), and the remains of Fort Miller, Millerton and Collins Sulphur Springs. Other sites such as MAD-98, a large prehistoric site with housepits, mortars, grinding sticks and rock alignments, are characterized as within the pool but could be exposed during low-water episodes (the site was excavated in 1987). Finally, numerous sites are located above the high-water mark. A concentration of prehistoric sites is located within the Kechaye Cultural Preserve. Other upland sites include bedrock milling locations, many of which are located along the western flanks of the Plan Area and north of the Big Bend area. A number of historic sites related to the mining period can also be found in this area.

No formal evaluation and determination of significance/importance of the recorded archaeological sites has been made in the Plan Area except for one, which has been determined eligible for the National Register of Historic Places. This site, CA-FRE-635, was found significant in 1976 and consists of obsidian lithic scatter, fire-affected rock, charred bones and mussels.

3.6 HAZARDOUS MATERIALS

3.6.1 Regional Setting

Land uses within the region include Millerton Lake and Friant Dam, boat launches, picnic areas, camping areas, a commercial marina, residential areas, pasture lands, and open space. Beyond the marina, no significant commercial areas are present in the study area or immediately hydrogeologically upgradient.

3.6.2 Plan Area Existing Conditions

An evaluation of potential recognized environmental conditions within the Plan Area and study area was conducted. The evaluation was conducted using readily available public information. The term "recognized environmental conditions," as defined by American Society for Testing and Materials Designation E 1527-00, means:

> [T]he presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, groundwater, or surface water of the property. The term includes hazardous substances or petroleum products even under conditions in compliance with laws. The term is not intended to include *de minimus* conditions that generally do not present a material risk of harm to public health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies. Conditions determined to be *de minimis* are not recognized environmental conditions. [ASTM 2000.]

The evaluation of hazardous materials in the study area was conducted by:

- Searching databases containing environmental information for the study area
- Conducting a visual reconnaissance of the Plan and study areas
- Reviewing applicable state and local regulatory agency files
- Interviewing knowledgeable persons in the area
- Developing a file report of the above activities

3.6.2.1 Database Search

URS contracted EDR, Inc., to review 22 federal environmental databases, 17 state or local environmental databases and one proprietary database for sites that contained potential recognized environmental conditions (EDR 2003). The search revealed no recognized environmental conditions that would affect the Plan Area or study area.

3.6.2.2 Site Reconnaissance

A general reconnaissance of the study area was conducted. This visual observation and site reconnaissance was conducted by automobile and by foot from points of public access (closest

possible vantage points) and focused on the identification of potential recognized environmental conditions within the study area, and also in surrounding areas considered hydrogeologically upgradient from the Plan Area. No recognized environmental conditions were observed during the site reconnaissance. Detailed observations of building interiors and other structures were not made, therefore, potential environmental hazards in those areas such as stained soils, pesticides, or hazardous materials stored in those areas were not observed. Asbestos-containing materials (ACM) and lead-based paints are not detectable visually and are not included in the scope of this report. Fuel tanks without secondary containment were observed at the Marina.

3.6.2.3 File Review

A review of files associated with the tanks noted above was conducted at the Fresno County Certified Unified Program Agency (the lead agency in charge of environmental health in Fresno County). The reviewed files did not indicate that any recognized environmental conditions are associated with these tanks.

3.6.2.4 Interviews

Mr. Dan Griggs, maintenance chief for the Millerton Lake State Recreation Area, was interviewed. To Mr. Griggs's knowledge, no recognized environmental conditions exist within the Plan Area.

3.6.3 Recognized Environmental Conditions

Based on the results of the database search, site reconnaissance, file review, and interviews, no recognized environmental conditions were observed or discovered in the study area.

3.7 VISUAL AND SCENIC RESOURCES

3.7.1 Regional Setting

Millerton Lake State Recreational Area is located in the foothills on the west side of the Sierra Nevada range. The landscape of the region varies from relatively flat grasslands and rolling hills to steep-walled basalt and andesite-capped peaks. The grassland and oak savanna areas are mostly near or below Friant Dam and include relatively flat to gently rolling foothills. Upstream from the dam, the terrain is steeper, and the vegetation changes to a foothill woodland complex. Above Fine Gold Creek, the lake is situated in the river canyon and is surrounded by relatively steep hills, denser vegetation, and basalt and andesite-capped peaks.

Much of the scenic value of the area depends on views across the lake onto the currently undeveloped and partially developed land. Though the majority of the land immediately adjacent to the lake is owned by Reclamation, some of the adjacent land within the Millerton Lake viewshed is privately owned. The aesthetic quality within the Millerton Lake Plan Area is strongly influenced by land use and development of the privately owned lands surrounding the lake, especially to the north where rolling grassy hills are exposed with little tree cover to hide development. Management and future development of this privately owned land is regulated according to policies of Madera and Fresno Counties, bordering Millerton Lake Plan Area to the north and south, respectively. Additional relevant policies are those for areas within the counties. In Madera County, the areas adjacent to Millerton Lake include the Rio Mesa Area to the northwest and the O'Neals Area to the northeast. In Fresno County, the area adjacent to Millerton Lake is the Sierra-North region.

The *Madera County General Plan* includes policies 1.H.1 through 1.H.4 and the *Fresno County General Plan* includes policies OS-K.1 through OS-K.4 and LU-B.11 to protect the visual and scenic resources of the Counties (Madera County 1995a; Fresno County 2000a). Visual and scenic resource policies in both counties specify that new development in scenic and rural areas shall be planned to avoid locating structures along ridgelines, on steep slopes, and in other highly visible locations. New development on hillsides shall be designed to maintain the character and visual quality of the hillside including existing landforms and native vegetation. The *Rio Mesa Area Plan* highlights the importance of preserving the river bluffs as significant visual features (Keith Companies 1995). The *Rio Mesa Area Plan* and *Sierra-North Regional Plan* (Fresno County 1982, amended 1997) include policies to preserve major open space and rangeland areas and encourage clustering of development to minimize infrastructure in hillside areas and intrusion into sensitive habitat areas. These policies will affect development on lands within the Millerton Lake viewshed.

No officially designated scenic highways or byways or wild and scenic rivers exist in the vicinity of the Plan Area. Madera and Fresno Counties both have policies in their General Plans to encourage development of scenic roads and protect the scenic quality of the landscape visible from these scenic roads.

3.7.2 Plan Area Existing Conditions

Scenic values are an important feature in the Plan Area. The dominant visual attractions are the San Joaquin River and Millerton Lake. The scenic character of the Plan Area changes seasonally as the water level in the river and lake rises and falls and the shoreline areas are exposed or covered with water. Other seasonal visual attractions are wildflowers, which are present in the spring, and southern bald eagles, which inhabit the area around Millerton Lake in the winter. Wildflower walks and bald eagle tours are provided at the Plan Area in March through April and December through February, respectively.

Much of the scenic value of the area depends on views across the lake onto the currently undeveloped and partially developed private or federal lands. For the purposes of this planning effort, Millerton Lake has been divided into different regions based on the current and projected future uses of the lake and surrounding lands as well as the views from the different areas. The areas include the main body of the lake, Winchell Bay (to the south of the main body), the portion of the river from the mouth at the main body to Fine Gold Creek, and upper river (upstream of Fine Gold Creek).

The primary visual features of the main body of the lake and Winchell Bay include Millerton Lake itself and the surrounding gently rolling foothills. The foothills to the northwest of the lake are open hillsides covered mainly with grass, while scattered trees with undergrowth consisting of grasses and scattered low shrubs cover most of the foothills to the northeast and south. Rock exposures are visible along the hillsides in some areas, and rock outcroppings along the lake are considered a significant visual feature of this area. The land surrounding the main body of Millerton Lake and Winchell Cove is the most developed land within and adjacent to the Plan Area. Campsites, day use areas, and boat ramps are visible on parkland on the north and south shores of the lake, and the marina in Winchell Cove hosts hundreds of boats. Homes and other buildings are scattered along the privately owned hillsides adjacent to the south shore. Evidence of historic Native American sites surrounding Millerton Lake, such as depressions in the bedrock called milling surfaces that were probably used to grind hard seeds, are historic visual resources. Millerton Courthouse, a large stone and brick structure that was disassembled and reconstructed as a historic landmark, and Friant Dam are significant visual features along the southwest portion of the lake. Friant Dam and Millerton Courthouse, as well as Crow’s Nest, McKenzie Point, the north shore entrance, and Buzzard’s Roost are scenic viewpoints around the main body of the lake. Figures 3.7-1 through 3.7-8 show the visual and scenic resources surrounding the main body of the lake.

Upstream from the main body of the lake where the water body narrows, the landscape is characterized by the river and the surrounding foothills with scattered trees in some areas and a denser canopy of trees in other areas. Undergrowth consisting of grasses and scattered low shrubs occurs throughout the foothill area. In the lower portions of the canyon, exposed rock formations are visible. Only one day-use area (South Fine Gold) exists in this portion of the Plan Area, making the area more rural than the main lake body. However, some of the land adjacent to the lake is privately owned, and scattered homes are visible on the hillsides along the eastern river boundary south of South Fine Gold and in the North Fine Gold area. These homes detract from the natural landscape and make this region of the Plan Area distinct from the less developed land farther upstream. Figures 3.7-9 through 3.7-12 show views of this area of the Plan Area.

Scenic quality is highest in the upper river portion of the Plan Area to the east of South Fine Gold, where the most natural visual features remain. The predominant visual features in this area are the San Joaquin River and the surrounding foothills and bluffs. The lower portions of the river canyon are composed of exposed granite bedrock where the river has cut down through the volcanic rock. Above the exposed rock formations, foothills covered by characteristic oak and foothill woodland vegetation surround the river. Visible above the foothills are tablelands, flat exposed rock surfaces of basalt. Big Table Mountain, Little Table Mountain, and McKenzie Table are panoramic viewpoints for the upper river portion of the Plan Area. In addition to the landscape features of the upper river, remains of previous gold mining operations in the upper river area provide historic visual features. Numerous overlapping extraction and ore processing areas, including mine tunnels and arrastre (small ore grinders built from local rock and wood) are visible from the river, though they are not obvious if attention is not drawn to them. Views of the upper river area taken from the river are included in Figures 3.7-13 through 3.7-15.

Overall, the existing visual quality of Millerton Lake is high. The open expanses and relative lack of residential development creates a feeling of being in the country, away from the problems and stresses associated with cities and urban life.

3.8 LAND USE

3.8.1 Regional Setting

3.8.1.1 Regulatory Setting

All applicable Fresno and Madera County land use policies incorporated by reference (URS 2007c).

3.8.1.2 Agricultural/Rangeland and Open Space

Fresno and Madera Counties have designated most of the lands in the study area for agricultural/rangeland and open space land uses. These land use designations allow for non-intensive land uses such as preservation for wildlife habitat, non-intensive recreation activities, agricultural uses, golf courses, and grazing (which is discussed in more detail below). Parcel sizes must be at least 36 acres, though it depends on the actual land use designation and county and there are some exceptions. Dwellings are generally limited to a few per parcel. One area to note is located in the Table Mountain formations east of Millerton Lake. This area is designated by Fresno County as Table Mountain Resource Conservation Area. This area is protected by Fresno County as a Resource Conservation Zone, which, among other things, requires parcel sizes to be no smaller than 160 acres (Fresno County 2000; Fresno County 1997; Madera County 1995a and b).

The actual land uses in areas designated by the counties for agriculture and open space generally follow these designations. These areas are undeveloped, with an occasional building or two (home or agricultural related) scattered throughout. The primary current land uses within the study area comply with the land use designations for agricultural or open space. Though large portions of the land are designated for more intensive development, they are currently used at development intensities consistent with the land use designations for agriculture or open space. Figure 3.8-1 illustrates the existing agricultural and open space land uses.

3.8.1.3 Cattle Grazing

Grazing is a traditional land use among public and private lands in the Millerton Lake area. Grazing directly and indirectly affects plant communities, soils, and the nitrogen cycle in diverse ways. Cattle break down vegetation by trampling and feeding and have been used experimentally to determine if grazing can be used to maintain native grassland, enhance the survival of special-status plants, and reduce fuel loads. However, cattle can negatively impact the ecological system by disturbing and compacting soils, increasing sedimentation in watersheds, degrading riparian areas, and overgrazing plant communities with various consequences. Grazing is a complex process where timing, frequency, duration, season of use, and grazing intensity are important. Recommended grazing practices include (1) developing a comprehensive adaptive management plan that incorporates vegetation studies that will assist with cattle stocking rates from year to year, and (2) protecting riparian areas by constructing exclosures that are designed to allow small mammals but not cattle to enter the riparian area. (Live Oak Associates 2003).

3.8.1.4 Fire Management

Wildland fire hazards exist in varying degrees throughout much of Madera and Fresno Counties, including the Millerton Lake area. The wildfire season lasts from late spring through late fall. Historically, seasonal fires ignited throughout this dry period during lightening storms at unknown intervals. Dense, fire-prone vegetation can be prevalent in the foothills, where increased development and subsequent fire control measures have the effect of altering the natural cycle of the ecosystem. Suppression of natural fires allows the understory to become dense, and creates the potential for larger and more intense wildland fires, whereas natural fires periodically cleared the understory brush. Particularly fire-prone vegetation can be found in foothill chaparral areas where much of the vegetation is dormant in summer and therefore dry during the fire season. Steeper slopes in the foothills (greater than 30 percent slope) create physical conditions that cause fires to burn more intensely, and emergency response times can be slower due to terrain, increasing the wildfire risk in foothill areas (Fresno County 2000a, Madera County 1995a).

The California Department of Forestry and Fire Protection (CDF) Millerton Lake Station provides fire management and protection services for the study area. A fire protection plan is in place for the Millerton Lake State Recreation Area that includes protection measures, visitor evacuation and safety, fire access maintenance, and proper fire fighting procedures and equipment (State Parks 1979). Several steps can be taken to reduce the potential of catastrophic wildfire and include implementation of fire safety measures such as proper road construction and adequate water systems; proper land use planning and zoning; measures to reduce fuel loading such as prescribed burning; removal of vegetation around structures; enforcement of building codes; and the use of green belts.

3.8.1.5 More Intensive Land Uses

Several areas within the study area have more intensive land uses than agricultural/rangeland and open space. These are mostly residential areas that are in small pockets surrounded by agricultural/rangeland or open space areas. These areas generally fall into a zoning category of Rural Residential, which usually has a 5-acre minimum lot size restriction. The denser residential and otherwise developed areas near Millerton Lake are the town of Friant, Hidden Lakes Estates (near Fine Gold Creek in Madera County), Brighton Crest and Table Mountain Rancheria. The unincorporated community of Friant has commercial and residential land uses. Some currently undeveloped areas in Friant are zoned for residential development. All of these land uses are centered and concentrated along Friant Road. Hidden Lakes Estates is a residential development with a density limitation of one home per acre. The zoned area for development is larger than the area that is currently developed, and this undeveloped area has been heavily subdivided. Table Mountain Rancheria is less than 1.5 miles from the Winchell Cove area of Millerton Lake, on Millerton Road. This location includes a commercial casino.

Several other areas in the study area are currently zoned for development but have not yet been developed. Several areas in both counties are zoned for Rural Residential but have not yet been subdivided to sizes appropriate for this zoning. The area identified as the Millerton Specific Area Reserve in the *Fresno County General Plan* is currently zoned, but not subdivided, for many of the appropriate land uses (residential and commercial) specified in the *Millerton Specific Plan* (Fresno County 1984). Adjacent to the north shore area of Millerton Lake is an area zoned for

residential development. Applications for development of this area are expected before this RMP/GP is final.

Refer to Figure 3.8-1 to see the existing intensive land uses within the study area.

3.8.2 Plan Area Existing Conditions

3.8.2.1 Rangeland and Open Space

Aside from Millerton Lake, park facilities, marinas, and campgrounds, the rest of the Plan Area is currently undeveloped rangeland and open space. Of the lands above the water level, rangeland and open space are the primary land use within the Plan Area.

3.8.2.2 Cattle Grazing

Grazing occurs in a few locations within the Plan Area on public lands and within the larger study area on public and private lands. A brief summary of the grazed areas follows:

- Approximately 4,000 acres are currently grazed at Kennedy Table through the winters.
- Reclamation owns several grazing parcels, two of which are currently leased, and the rest, although not currently leased, remain available for future grazing. One of the currently leased grazed parcels is on rugged terrain on the north side of the San Joaquin River. The other parcel includes the 4,380-acre San Joaquin Experimental Range station, currently leased to California State University Fresno, where grazing research has been conducted since the 1930s. A 210-cow beef herd is maintained at the station by the university. Grazing has occurred in recent years in Smith Basin, east of Millerton Lake, although it is not currently being leased. Reclamation's grazing plan (BOR Grazing Plan 2002) outlines grazing goals, species of use, a grazing system, season of use, stocking rate, and supplemental feeding information
- Because the BLM land use plan does not authorize grazing, BLM property on McKenzie Table has not been grazed since 1982.
- Grazing at Big Table Mountain, managed by the CDFG, has occurred for decades up until 1992. Cattle were removed from Big Table Mountain between 1992 to 2000 due to overgrazing concerns, but grazing was reestablished on the experimental portion of the Table as part of an ongoing grazing study.

Issues regarding the influence of grazing on vegetation including maintenance of native grassland, impacts to special-status plants, and impacts to other species are addressed in Section 3.4. The use of grazing as a land management tool continues to vary among different landowners, depending on their specific land management objectives.

3.8.2.3 Fire Management

Over 20 documented fires have occurred within the study area since 1900. Sizes and causes are variable, with 19 of those fires being over 200 acres in size, ranging up to a maximum size of 35,300 acres (CDF 2000). Relatively few fires have historically occurred in the southern section of the Plan Area compared to the Study Area. Three fires of undetermined cause occurred on the

boundaries of the Plan Area, but these fires generally burned larger areas within the study area than inside the Plan Area. The northern section of the Plan Area, upstream of the lake, was almost entirely burned by a 35,000-acre fire in 1939. The only other significant fire in the north section of the Plan Area was a prescribed burn in 2000 at Temperance Flat for vegetation management. All other significant fires in the area in the last 100 years have occurred outside of the Plan Area, generally on or near the borders of the Study Area. Several fires on the north side of Millerton Lake have been prescribed for range or vegetation management during the 1950s and 1960s. Most fires on the south side of the lake have been due to unidentified causes (CDF 2000). A report prepared for the Millerton Lake Watershed Coalition (Live Oak Associates 2003) states: "According to Keith Swope, a Fire Apparatus Engineer at the Ahwahnee CDF station, the most common cause of fire in the Millerton Area is now visitors to Millerton Lake Plan Area disposing used charcoal briquettes by dumping them onto grass. The average size of these fires is approximately 50–60 acres and seldom results in permanent damage."

CDF developed a fire/fuel ranking model by assigning ranks based on expected fire behavior for unique combinations of topography and vegetative fuels under a given severe weather condition (CDF 2001). In general, the southwest portions of the Study and Plan Areas have the lowest fuel ranking (predominantly "moderate" fuel ranking) and the northeast portion has the highest fuel ranking (predominantly "very high" fuel ranking) (Figure 3.8-2). The middle portion of the study area contains predominantly "high" fuel rank areas, with the McKenzie Table and Table Mountain areas ranked "very high" (CDF 2001).

A prescribed fire was ignited at Temperance Flat by CDF in the fall of 2000. Prescribed fire as a management tool focuses on the objectives of reintroducing fire to an ecosystem dependent on fire and restoring a natural fire regime; reducing fuel loads to help contain future wildfires; providing protection to nearby properties; and improving wildlife habitat. Prescribed burns aim to create low-intensity fires that would better protect soil conditions than a potential future wildfire event (State Parks 2000). Air quality regulations often restrict the opportunities to conduct controlled burns, so prescribed burning occurs more often in spring than in fall.

3.8.2.4 Built Up Areas

Land uses within the Plan Area consist of uses primarily related to recreation. The Millerton Lake Plan Area offers fishing, boating, swimming, water skiing, jet skiing, hiking, mountain biking, picnicking, camping, and horseback riding. In addition, wildlife viewing is also popular, particularly in the winter when bald eagles roost around the lake.

The built areas within the Plan Area consist of park and park-related facilities. Via the main entrance station, the park-related facilities on the south shore are the administrative buildings and maintenance facilities. The Plan Area facilities include the Visitor's Center, Millerton Courthouse, Crow's Nest parking area and boat ramp, La Playa picnic and swimming area, Grange Grove group picnic area and boat ramps, Blue Oak and South Bay picnic areas, and McKenzie Point day use and swimming area. In addition, the Winchell Cove Marina and the South Fine Gold day use area are also on the south shore but are located outside the main entrance station.

Two trails exist on the south shore. The Blue Oak Trail begins at the Blue Oak picnic area and ends at Winchell Cove. Horses are allowed on this trail and there is a hitching area near the Blue Oak picnic site. The trailhead for the San Joaquin River Trail is located at the South Fine Gold

day use area. This trail is approximately 14 miles long and ends at the San Joaquin River Gorge Management Area (BLM).

On the north shore are primarily camping facilities, accessible via Road 145. An entrance station and 148 individual camping sites are located at Rocky Point, Mono, Fort Miller, Dumna Strand, Valley Oak, and Meadows campgrounds. Group camping is available for a total of 120 people at either the Large Group or Small Group campgrounds. The Meadows camping area has some sites with full hookups for recreation vehicles. Near the Meadows camping area there is a large parking area with four corrals for those camping with horses. Several small picnic sites lie along the road, and the Sunset Point day use area is located at the Meadows camping area. The sixth boat ramp is here as well.

One main trail exists on the north shore. The North Shore Trail begins in the vicinity of the Mono and Fort Miller Campgrounds and ends at Valley Oak Campground. The Buzzard's Roost Trail breaks off the North Shore Trail near Dumna Creek and heads up to the Buzzard's Roost area overlooking the lake. There is also a short interpretive trail at the Fort Miller Campground.

3.8.3 Regulatory Background

Fresno County and Madera County policies, which pertain to plans for future land uses, i.e. policies for the Rio Mesa Area, are discussed in the Land Use Planning and Demographics Technical Report (URS 2007c).

3.8.4 Land Use Planning Outside of the Plan Area

Systemwide planning for Reclamation lands and State Parks would follow the processes designated by federal and state regulations, policies, and resource management directive guides. Fresno and Madera Counties have conducted localized planning near Millerton Lake. Fresno and Madera Counties intend for lands near the main water body of Millerton Lake to be much more intensively developed than they are currently. Upstream lands will remain primarily undeveloped.

Madera County's Rio Mesa area, which is located to the west and southwest of the Plan Area, will include residential, commercial, and industrial land uses. The North Fork Village project is the only currently active project within the Rio Mesa Plan Area. The proposed North Fork Village project would be composed of approximately 2,200 acres and is projected to add approximately 4,000 residential units adjacent to the Millerton Lake Plan Area. The overall potential population increase in the Rio Mesa Plan Area is not available as it relies heavily on the types of projects that would be proposed and at what densities they would be built.

In Fresno County, the 1,420-acre Millerton Specific Plan Area will not abut the RMP Plan Area but will introduce intensive development very close to the lake. This Millerton Specific Plan Area lies roughly 2 miles east of the community of Friant, south of Millerton Lake, and encompasses both sides of Millerton Road. The *Millerton Specific Plan* (Fresno County 1984, amended 1988) projects an addition of up to 10,000 residents and 3,500 housing units, and will include commercial space, public facilities, and open space. This area is mostly undeveloped, and development of all 1,420 acres would represent a substantial change to the study area. The *Fresno County General Plan* (2000a) recommends the creation of a Friant-Millerton Regional Plan. The Fresno County plan describes the potential for the Friant-Millerton Regional Plan as

follows: “In the near to mid term, planning and development in the area should focus on expanding and enhancing the area’s recreational activities and resources. In the long term, the area may be suitable for urban development as the unincorporated county’s largest remaining area without productive agricultural soils near the Fresno-Clovis Metropolitan Area and recreational and scenic resources.” A detailed land use map of Fresno and Madera Counties is shown in Figure 3.8-3.

3.8.5 Demographics

Fresno and Madera Counties have lower population densities and median age than the California average. Both counties have lower income levels, higher poverty levels, and lower education levels than state averages. Population increases in Fresno and Madera Counties are expected to be much higher than the state average over the next 20 years. Both counties are projected to have higher growth rates than the state average, with Madera County predicted to grow at a rate of 86.2 percent between 2000 and 2020.

3.9 RECREATION

Lakes and rivers have always been a primary focus for outdoor recreation activities in California. Recreational opportunities in the Central Valley have been shaped by the construction of large reservoirs and the alteration of major rivers in addition to the opportunities provided at natural water bodies, streams, and rivers. Many outdoor recreation activities are water dependent or water enhanced. Such activities include boating, fishing, swimming, camping, picnicking, hunting, and wildlife observation. Recreation facilities such as beaches, boat ramps, trails, restrooms, access roads, picnic areas, and camping facilities add to the quality of the recreation experience.

3.9.1 Regional Setting

3.9.1.1 Brief History

On November 1, 1957, Reclamation entered into a 50-year lease with the State of California through its State Park Commission for the purpose of developing, administering, and maintaining the public lands around Millerton Lake as part of the State Park System. The agreement stipulated that the occupancy, control, and administration of Millerton Lake Plan Area were subject to use by Reclamation and other CVP purposes pursuant to the federal reclamation laws. This agreement allows for recreation that is consistent with the primary purpose of the project for irrigation and flood control.

Millerton Lake is a multipurpose facility, supplying agricultural irrigation water, flood control, and recreation facilities. There are approximately 51 miles of lake and river shoreline within Millerton Lake Plan Area. Operation of the reservoir requires evacuation of a large portion of the storage capacity prior to the winter rainy season. Water levels could be reduced to annual minimum pool levels (465 feet mean sea level [msl], surface area of 2,100 acres, and 127,700 acre-feet in storage). Thus, there is little opportunity to carry over water from one season to another.

3.9.1.2 Data Collection

Recreation data gathering consisted of obtaining existing data from many sources. Initial recreation resource inventory data came from Internet information located at http://fap.reserveamerica.com/usa/ca/mill and was reviewed by staff at Millerton Lake Plan Area. An on-site inventory was completed in spring of 2002 by Reclamation and URS staff and again was reviewed by Millerton Lake Plan Area staff. Informal interviews were conducted with Plan Area staff to best ensure the accuracy of the inventory. These data are summarized in Section 3.9.2, and detailed recreation inventory information is incorporated by reference (URS 2007d).

The visitation data came both from Millerton Lake Plan Area for the 2000–2006 daily use and in a summarized form from State Parks for 1996 through 2006. The daily data include day use, overnight use, and boating use information. These data are summarized in Section 3.9.3.

Recreation supply and demand data were collected from several existing literature sources. Demographic data for Fresno and Madera Counties were reviewed, and projected trends for

recreation use were described. The demand and supply data along with projected trends in recreation use are described in Section 3.9.4.

The Water Recreation Opportunity Spectrum (WROS) system was used to inventory the existing conditions of Millerton Lake and the surrounding lake-related areas. This inventory was also used to assist in describing management alternatives for Millerton Lake Plan Area based on projected future use. Description of this tool and Millerton Lake Plan Area WROS inventory results are presented in Section 3.9.5.

3.9.2 Plan Area Existing Conditions

Recreation activities within the Plan Area include fishing, boating, swimming, water skiing, jet skiing, hiking, mountain biking, picnicking, camping, and horseback riding. In addition, wildlife viewing is also popular, particularly in the winter when bald eagles roost around the lake. These activities are dependent on the type and amount of recreation resources available within the Plan Area. The following sections describe the existing camping facilities, day use areas, boat ramps, the marina, and the trails at Millerton Lake Plan Area.

3.9.2.1 Camping

Camping at Millerton Lake occurs in the north shore area of the lake. There are six camping areas with a total of 148 sites accessible by car off Road 145. These sites are Rocky Point, Mono, Fort Miller, Dumna Strand, Valley Oak, and Meadows. There are two group campsites in the north shore area that can accommodate a total of 120 people. There is a horse camping area near the Meadows campsite with four corrals. In addition, boaters can use the 25 campsites at the Temperance Flat Campground, an upstream camping area that cannot be accessed by car. Fifteen boats can anchor and stay overnight at the North Fine Gold Campground, but the boats must be fully contained.

The following inventory information is current as of Spring 2003, and it is understood that there could be additional improvements made to these camping sites. All of the family camping sites in the north shore area have parking for a maximum of three cars per site with a maximum of eight campers per site. All sites have a picnic table, a round fire ring with a small grill area, and access to a water faucet and trashcan. Campers with smaller boats often moor them along the shoreline below their campsite, and larger boats can be launched at Boat Ramp 6 at the Meadows camping area.

The camping sites at the north shore area are described below.

- **Rocky Point** has 21 sites, four in compliance with the American with Disabilities Act (ADA). There are two restroom facilities, one ADA compliant. Some sites have food lockers and shade ramadas.
- **Mono** has 16 sites, one in compliance with ADA. The one restroom is ADA compliant. The North Shore Trail begins across the road from the Mono campsite.
- **Fort Miller** has 36 sites, one in compliance with ADA. There are two restroom facilities, one ADA compliant. Some sites have food lockers and shade ramadas. Boat trailer parking is available, and there is a nature trail in the campsite.

- **Dumna Strand** has 10 sites, one in compliance with ADA. The camping sites are located off the road at three separate entrances. There are three chemical toilet facilities, one ADA compliant.
- **Valley Oak** has six sites, none of which are in compliance with ADA. There is a chemical toilet located near the entrance. The end of the North Shore Trail is located at this campground.
- **Meadows** has 59 sites, four in compliance with ADA. Twenty-eight sites have hookups for recreational vehicles. Most sites have a food locker and many have shade ramadas. There are two restroom facilities, both with showers and in compliance with ADA. Boat Ramp 6 and the Sunset Point day use area are located here.
- Two **Group Camping** areas are located on the north side of the road across from the Fort Miller camping loop. The Small Group Camp has room for 45 campers, and the Large Group Camp can accommodate 75 campers. There is one restroom with showers that is in compliance with ADA near the entrance of the Large Group area and additional vault toilets. A seasonal, personal watercraft rental concession is also available in the Small and Large Group camping areas. A recreational vehicle sanitation pumping station is located here as well. There is a small ADA-compliant amphitheater between the two group sites with seating available for 60 to 80 people. The group camping area also includes a campfire center as well as picnic tables and trash cans. The inventory for the campfire center is separated from the group sites listed in Table 3.9-1.

In addition to the family camping sites, near the Meadows camping area is a gravel parking lot and four corrals for those camping with horses. Water is available for the horses, and there is a hitching rack, picnic table, and shade ramada located here. A trail head for the North Shore Trail is located across the road at the entrance to the Valley Oak camping area.

The following two areas offer boat camping:

- **Temperance Flat** has 25 first-come, first-served camping sites that are accessible by boat only on the north shore of the reservoir. Currently this site is located on the north side of the river but may be moved to the south shore where it can be reached by road. There currently is a vault toilet on the south shore at Temperance Flat.
- **Fine Gold Creek** has room for 15 boats to camp on-board near the mouth of the creek. The boats must be fully self-contained, and there is a floating restroom facility located nearby. Visitors must register in advance at the south shore entrance for the boat camping sites.

Figure 3.9-1 shows the location of the campsites located on the north shore of Millerton Lake. Table 3.9-1 summarizes the north shore camping inventory information at Millerton Lake. In addition to the campsites, inventory at the North Shore Maintenance Shop includes 13 wooden tables, 2 fire rings, 3 barbecues, and 23 trashcans, and at the two residential pads there are 2 wooden tables, 1 fire ring, 1 barbecue, and 4 trashcans.

3.9.2.2 Day Use Areas, Boat Ramps, and Marinas

The day use areas at Millerton Lake Plan Area are located primarily on the south side of the lake with a few scattered picnic sites located among the camping areas of the north shore area and at the Sunset Point day use area near Boat Ramp 6 at Meadows campground.

The south shore day use areas include:

- **Millerton Courthouse** is located on Courthouse Road. There is a restroom facility that is in compliance with ADA in the parking area as well as restrooms located within the Courthouse. The original courthouse was built in the town of Millerton and was disassembled and removed prior to construction of Friant Dam. The Courthouse was reassembled in its present condition in 1966. The courthouse currently functions as a cultural and natural history museum.
- **Visitor Center** is located at the west end of Courthouse Road adjacent to Friant Dam. There is a large parking lot, a small meeting room for group gatherings, and restroom facilities that are in compliance with ADA. In addition, surrounding the Visitor Center are 2 acres of gardens that display water-saving irrigation systems and more than 90 species of drought-resistant native plants. However, due to security reasons, direct access to the visitor's center is restricted, and visitors must park at the Millerton Courthouse. Currently the Visitor Center meeting room is open to the public by appointment only.
- **Crows Nest** has a parking lot and Boat Ramp 1. This area has several tables, a couple of barbeque grills, and a restroom facility that is in compliance with ADA. State Parks has its boat dock at Crows Nest with eight boat slips.
- **La Playa** picnic area is the main swimming and picnicking site in late spring and early summer. Picnic tables, barbeque grills, and trashcans are spread throughout the facility. There are two restrooms both in compliance with ADA, one dating back to the dam construction days of the early 1940s. Lifeguards are located here at the beginning of the recreation season.
- **Grange Grove** is the large group picnic area located near the south shore park entrance. One restroom is located here and is in compliance with ADA. There currently is one covered pavilion with tables, grilling areas, water and electricity, and another pavilion is under construction. Additional tables, barbeque grills, and trashcans are scattered throughout the approximately 7-acre facility. Boat Ramps 2 and 3 are located here. A seasonal, personal watercraft rental concession is also available here.
- **Blue Oak** picnic area is located on McKenzie Road after Grange Grove and has a few picnic tables and a chemical toilet. The Blue Oak Trail begins here and follows close to McKenzie Road to McKenzie Point. There is a gravel parking area and a hitching area for horses.
- **South Bay** day use area is located further east along McKenzie Road. It has several tables, barbeque grills, and trashcans. Recycling bins are also available here. There is one restroom that is in compliance with ADA. Boat Ramp 4 is located near this day use area.
- **McKenzie Point** is located at the end of McKenzie Road. As the water surface levels recede in mid to late summer, McKenzie Point becomes the main swimming beach. When the parking lot and roadside parking are full, the road is closed. The parking area has one vault toilet that is ADA compliant. Boat Ramp 5 is located at this day use area.
- **South Fine Gold** day use area is located at the end of Sky Harbor Road off Millerton Road. This area is open seasonally and has several picnic tables, barbeque grills, trashcans, and an ADA compliant restroom. The San Joaquin River Trail begins here and continues east over Pincushion Mountain and along the shores of Millerton Lake up to the San Joaquin River

Gorge Management Area. A short distance from the parking lot is a covered group area with some picnic tables, barbeque grill and trash can.

In addition to the day use areas, there is a marina in the south shore area. The Winchell Cove Marina is located at the end of Winchell Cove Road off Millerton Road. Approximately 500 boat slips are currently available at this facility. The marina includes a fueling facility, bait and tackle shop, and fishing boat rentals.

There are six boat ramps at Millerton Lake, five located on the south side of the lake and one on the north. The south shore boat ramps are located near the Millerton Courthouse, near the La Playa picnic area, just beyond the Millerton Lake Plan Area entrance gate near the Blue Oak picnic area, near the South Bay picnic area, and the last is at the end of the park road at McKenzie Point. The one boat launch ramp on the north shore is located near the Meadows Campground. Because Millerton Lake surface elevations fluctuate up to 110 feet each year, the boat ramps were designed to accommodate these fluctuations.

Figure 3.9-2 shows the day use areas on the south shore of Millerton Lake. Tables 3.9-2 and 3.9-3 summarize the day use area information for the south shore and north shore day use areas, respectively. In addition to the inventory items listed at the south shore day use areas, there are 2 wooden tables, 1 barbecue, and 2 trash cans at the District Office; 2 wooden tables and 3 trash cans at the Ranger Office; 3 wooden tables, 3 concrete tables, and 10 trash cans at the South Shore Maintenance Shop, and 3 trash cans at the South Shore Entrance Kiosk. There are 980 parking spaces associated with the boat ramps at the south shore area and an additional 256 developed parking spots for day use areas. There are 768 undeveloped parking spaces at the south shore for a total of 2,004 parking spaces. On the north shore there are 150 parking spaces associated with Boat Ramp 6 at the Meadows camping area, 634 spaces at the camping sites, and 55 day use parking spots. There are an additional 1,947 undeveloped sites on the north shore for a total of 2,786 parking spaces.

3.9.2.3 Trails

Most of the trails within the Plan Area are multipurpose trails that can accommodate hikers, mountain bikers, and equestrians. Signs are located at the trail heads and at points of interest or intersections with the main road. Descriptions are provided below.

North Shore Trail

The North Shore Trail (Rocky Point Trail) is on the north shore of Millerton Lake. The trailhead is located on the north side of Road 145 across from the entrance to the Mono campsite. The trail follows the park property boundary around the group camps then parallels Road 145 all the way to the end at the Valley Oak campsite. The North Shore Trail is steep for short distances.

Buzzard's Roost Trail

At the mouth of Dumna Creek along the North Shore Trail, the Buzzard's Roost Trail breaks off of the North Shore Trail and continues up to Buzzard's Roost. No horses or mountain bikes are allowed on this trail. The Buzzard's Roost Trail is approximately 0.5 mile long and climbs about 400 feet in elevation.

Blue Oak Trail

The Blue Oak Trail is on the south shore of Millerton Lake, starts at the Blue Oak day use area, and ends at Winchell Cove. The trail is fairly level the entire route. At the trail head is a gravel parking area and a hitching area for horses. This trail follows McKenzie Road and passes the South Bay day use area. The South Bay day use area has a restroom, trashcan, and two benches. The Blue Oak Trail continues on to McKenzie Point, then to the Winchell Cove area. At McKenzie Point there is a parking lot, restroom, and a bench overlooking Millerton Lake.

San Joaquin River Trail

The San Joaquin River Trail begins at the South Fine Gold day use area at the end of Sky Harbor Road. This trail is approximately 14 miles long and continues east over Pincushion Mountain and along the shores of Millerton Lake up to the Squaw Leap Management Area. The terrain is varied and can be steep in some areas.

3.9.3 Visitation

3.9.3.1 Visitor Capacity

Visitor capacity is defined as the supply of appropriate visitor opportunities that can be accommodated in an area. A visitor capacity is a concept and tool with widespread application and purpose. The overarching function of a visitor capacity is to serve as one tool to help sustain natural and cultural resources as well as the recreation opportunities and other benefits these resources afford the public.

Examples of visitor capacities that are relevant to the Plan Area include the number of visitor use-days per season, the number of boats at one time on the lake, the number of campsites, and the number of boat slips.

3.9.3.2 Visitor Use

Total visitor use from fiscal years 1995–1996 to 2005–2006 (shown in Table 3.9-4; excluding fiscal year 1997–1998 data) averaged 486,046 visitors. Comparing the last two complete years (July 2004 through June 2006) with the previous years (excluding fiscal year 1997–1998), total visitor use declined from an average of approximately 514,000 to 373,000. This corresponds with the increase in fees in 2002 and 2004. Visitor use figures by month for fiscal years 2000–2001 to 2005–2006 are shown in Table 3.9-5.

Visitor use varies due to many factors, including time of day, day of the week, season, and holiday or vacation times. Typically, fishing activities occur early in the morning or later in the afternoon. Swimming and day use activities occur during the middle part of the day, and camping involves overnight use.

Millerton Lake is most popular during the spring and summer seasons, and daytime and overnight use begins to increase as the weather warms. Seasonal visitor data from fiscal years 2000–2001 to 2005–2006 are shown in Table 3.9-6. Daytime and overnight use is higher in the spring and summer and lower in fall and winter. The percentage of daytime use on weekends (versus weekdays) increases in all seasons.

Table 3.9-7 shows the number of campsites that were occupied in fiscal years 2000–2001 to 2005–2006. Overnight use is much greater in spring and summer, particularly on the weekends. In spring and summer an overall average occupancy rate of 40 percent is compared to the overall average of approximately 4 percent in fall and winter. While the figures in Table 3.9-7 show the average seasonal percent occupancy of campsites from July 2001 through March 2003 (a spring and summer weekend use of approximately 60 percent), it is important to note that there were several individual days in spring and summer where the campsite occupancy rate was greater than 90 percent.

3.9.3.3 Boating Use

Boating use is commonly measured by the number of boats on the water surface at one time. Limits are based on safety and specify the amount of space needed for safe boat operation, expressed in acres of surface area per boat (also called boats at one time, or BAOT). Boating capacity may also be based on shoreline accessibility and social factors.

Reclamation and the Federal Lakes Demonstration Project recently developed the Water Recreation Opportunity Spectrum to assist in the inventory, planning, and management of water resources. WROS is described in Section 3.9.5 and the Recreation Technical Report (URS 2007d) and is used as a tool to provide guidance on boating capacity coefficients. The classifications used in the WROS inventory include urban, suburban, rural developed, rural natural, semi-primitive, and primitive. The WROS proposes a range of boats per water surface area based on these classifications. Table 3.9-8 summarizes these ranges.

According to an informal survey of Millerton Lake staff, the current boating capacity range indicator is in the mid to higher range for individual WROS categories. Millerton Lake typically has the busiest boating season in spring and summer when the water surface acreage is the greatest. Table 3.9-9 summarizes estimated current boating capacity based on current WROS classifications and ranges shown in Table 3.9-7.

Table 3.9-10 summarizes boating use on Millerton Lake for fiscal years 2000–2001 to 2005–2006. Based on percent use, the most popular time for boating on Millerton Lake is May through August. This may vary somewhat depending on air temperatures and lake water surface elevations of each year.

Daily data from July 2000 through June 2006 show individual days where many more boats were launched than the BAOT numbers indicate. However, these launch figures represent the total for the day, and some boats may launch early and actually depart before other boats reach the lake. Typically, when the concentration of boats is heaviest, the number of boats at the lake at one time would be about 60 percent of the total launched throughout the day (State Parks 1979).

One current boating use that is of management concern is the occasional congregation of large numbers of party boaters in the Temperance Flat area. These congregations of boats often tie up together forming flotillas and engage in loud and unpleasant behavior. This causes adverse impacts to other users as well as safety and management problems for enforcement personnel.

3.9.4 Recreation Situation

Demand and supply analyses are important tools for recreation forecasting decision making. Because people and circumstances change (e.g., personal tastes, fads, new technology, energy

costs, and disposal income), using demand and supply analyses provide a variety of pieces of information for decision making (Haas 2002).

3.9.4.1 Recreation Demand

The measure of recreation demand should consider four types of data:

- Regional and state-level recreation activity participation rates
- Unmet or latent demand expressed by local or state residents
- Recreation participation trend projections at the local, state, or federal level
- Historic visitor use data for the area in question

Data for the Millerton Lake Plan Area is primarily available at the state level. Table 3.9-11 shows the percentage of Californians participating in outdoor recreation activities in 1997, ranked from greatest to least percent participation. Additional columns in Table 3.9-11 show these same activities with corresponding rankings based on the percentage of Californians supporting the expenditure of public funds to provide, the average amount of dollars that Californians were willing to pay for a day of participation in these recreation activities, and the percentage of Californians that would participate in these activities if opportunities were available (latent or unmet demand).

3.9.4.2 Recreation Supply

Recreation supply is the measurement of the type and number of opportunities that are available for the recreating public. Supply can be measured in a variety of ways, such as by the number of parking stalls, miles of trails, number of developed campsites, number of boat slips, boat launches per time period, or the acres of closure due to security or resource concerns. Agencies can manipulate recreation opportunity supply by changing facilities, services, programs, or regulations (Haas 2002).

A comparison of recreation demand and supply identifies disconnects to help respond to public preference and desire. In other words, is the agency providing recreation opportunities (supply) compatible and responsive with public desires (demand).

Of over 1,400 reservoirs in California, 11 are larger than 1,000,000 acre-feet. An additional three have storage greater than 500,000 acre-feet. In addition, a few more are paired as parts of local systems and combine to store more than 500,000 acre-feet in one locality (DWR 2001). Table 3.9-12 provides a regional comparison of recreation facilities at California's largest reservoirs, and Table 3.9-13 summarizes special recreation facilities or services at these reservoirs. In addition, Table 3.9-14 shows a regional comparison of the recreation user fees at these reservoirs.

3.9.4.3 Demographics

According to the Census 2000 data, the population in Fresno County in 2000 is 799,407. The 2000 population of Madera County is 123,109. Total population in California is 33,871,648. Population density per square mile of land area is 134.1 in Fresno County, 57.6 in Madera

County, and 217.2 for the entire state. The median age in Fresno County is 29.9, 32.7 in Madera County, and 33.3 for California (Census 2000 Internet site).

Table 3.9-15 summarizes the 1994–1995 nationwide percentages of the population participating in outdoor recreation in the ranges that are applicable to the demographics of Fresno and Madera Counties.

3.9.4.4 Recreation Projections

Recreation demand and supply analyses depict the current situation. When these analyses are coupled with trends in the demographics of a recreation area, projected recreation use can be assessed. Both Fresno and Madera Counties are projected to have growth rates higher than the state average. Madera is projected to have a growth rate of 86.2 percent between 2000 and 2020, one of the highest percentages growth in the state. Table 3.9-16 summarizes the projected population changes that would occur statewide as well as in Fresno and Madera Counties.

Because both Fresno and Madera Counties are projected to have substantial growth in the next 20 years, the number of people participating in recreational activities can be expected to increase. Table 3.9-17 shows recreation use projections for the years 2010 and 2020 for the Pacific region of the United States.

3.9.5 Water Recreation Opportunity Spectrum Planning Tool

Reclamation and the Federal Lakes Demonstration Project recently developed the WROS to assist in the inventory, planning, and management of water resources. Modeled after the Recreation Opportunity Spectrum (ROS) used by the BLM and U.S. Forest Service, the WROS provides more detailed guidance for the management of lakes, reservoirs, wetlands, estuaries, bays, rivers, tidal basins, coastal zone areas, and other water and land-related areas.

The primary purpose of the WROS is to help recreation and resource professionals make better decisions about the recreation use and management of lakes, reservoirs, and other water bodies. The WROS is a tool to inventory, plan, and manage water recreation resources. The WROS is an adaptive and dynamic system that can accommodate changes in public recreation demand and values, best available science, social and economic values and circumstances, and professional experience and knowledge gained from applying this system over time.

There is diversity among recreationists, water resource settings, and the agencies that manage these resources. Each specific water resource has a niche and contributes to a larger system of diverse recreation opportunities. The overarching goal of WROS is to provide planners and managers with a framework and procedure for making better decisions for conserving a spectrum of high-quality and diverse water recreation opportunities (Aukerman and Haas 2002).

The WROS spectrum is composed of six classifications of water recreation opportunities. The six classifications are urban, suburban, rural developed, rural natural, semi-primitive, and primitive. These classifications are briefly described below.

Urban

There is a very limited opportunity to see, hear, or smell the natural resources due to the extensive level of development, human activity, and natural resource modification. Large group

activities and watching and meeting of other visitors is expected and desired. The area is often attractive to short-time visitors, large affinity groups, tours, and school groups. The area may serve as a transportation corridor for transient visitors or as a staging area for others traveling to non-urban setting.

Suburban

There is a limited opportunity to see, hear, or smell the natural resources due to the widespread and very prevalent level of development, human activity, and natural resource modification. The watching and meeting of other visitors is expected and desired and socializing with family and friends is important. Learning about the natural or cultural history, ecology, and reservoir and river operations are important to some.

Rural Developed

The area provides occasional or periodic opportunities to see, hear, or smell the natural resources due to the common and frequent level of development, human activity, and natural resource modification. The area is less developed and more tranquil than an urban/suburban setting, and the opportunity to experience brief periods of solitude and change from everyday sights and sounds is important. The area is likely attractive for day-use and weekend visitors from local metropolitan areas or nearby communities, young families, large groups, and mass and adventure tourists within a day's drive or less.

Rural Natural

The area provides prevalent frequent opportunities to see, hear, or smell the natural resources due to the occasional or periodic level of development, human activity, and natural resource modification. The area is noticeably more natural, less developed, and tranquil than an urban setting. The opportunity to relieve stress and to get away from a built environment is important. Moments of solitude, tranquility, and nature appreciation are important. The area attracts extended weekend and longer-term visitors desiring to experience the outdoors and be away from large number of other people.

Semi-Primitive

The area provides widespread and very prevalent opportunities to see, hear, or smell the natural resources due to the seldom or minor level of development, human activity, and natural resource modification. The opportunity to experience a natural ecosystem with little human imprint is important; a sense of challenge, adventure, risk, and self-reliance is important as well. Solitude and lack of contact with other visitors, managers, and management is important on the water and at destination sites. Overnight visits are typical and extended stays may be accommodated. Adventure recreationists and ecotourists are attracted to this setting, and inexperienced recreationists or visitors new to the area may be uncomfortable with the remoteness and need to be self-reliant.

Primitive

The area provides extensive opportunities to see, hear, or smell the natural resources due to the rare and very minor level of development, human activity, and natural resource modification. The opportunity to experience natural ecosystems with very little and no apparent human imprint is paramount, and natural views, sounds, and smells dominate. A sense of solitude, peacefulness, tranquility, challenge, adventure, risk, testing skills, orienteering, and self-reliance is important. Visitation often requires considerable trip planning and preparation, travel distance, physical exertion, and duration. Adventure travelers and ecotourists from distant locations are often attracted to the undisturbed wildland setting.

Recreation activities are commonly understood leisure pursuits such as water skiing, jet boating, motor boating, fishing, kayaking, rafting, swimming, diving, picnicking, camping, hiking, wildlife viewing, and hunting. This list is not static and grows with new technology and public interest. Not all activities can be provided in the same location, and the WROS helps managers decide the appropriateness of the recreation activities in each WROS class.

3.9.5.1 WROS Recreation Inventory

In the Millerton Lake WROS inventory, several representative sites were chosen, and a quantitative scale was assigned to the physical, social, and managerial attributes of each site. Physical attributes are features that are relatively permanent or fixed within the landscape and are not likely to change. Social attributes are those features associated with visitor's activities, behaviors, and perceptions of the area. Management attributes are those features that are provided for, managed, and can be changed by the managing agency. Table 3.9-18 shows how the qualitative scale can be used to measure the attributes of a site. In addition, a quantitative scale of 1 to 11 is used to describe settings from urban (1) to primitive (11) to allow for gradations within a WROS zone.

3.9.5.2 WROS Recreation Inventory Results

Millerton Lake currently has a WROS ranging from suburban to semi-primitive (Figure 3.9-3). This spectrum allows for diversity of recreation experiences. However, because recreation activities that are more urban in nature occur in areas suited for semi-primitive activities, the diversity of recreation opportunities is compromised and reduced. Management is also adversely affected. In other words, activities such as high-speed motor use and socialization are dominating and negatively impacting areas on the lake that are best suited for providing opportunities for recreationists seeking more quiet, peaceful, and nature-oriented activities.

The specific area where inconsistencies occur include the upper reaches of the reservoir from the area closed to personal water craft at the first RN7 (downstream) to the area classified SP9 above Temperance Flat where loud, high-speed motorized boating occurs. An RN7 area also lies in the middle of SP8-SP9 areas. This is an obvious inconsistency. This situation does not allow for greater diversity of recreation activities and experiences. It continues to allow two urban activities (socialization and loud, high-speed motorized boating) that displace people who desire semi-primitive experiences. This also creates problems for management by requiring a disproportionate amount of patrol and rescue in more remote areas of the lake. The distance and time required to perform urban-related management in this remote area takes away from

management needed on other parts of the lake and requires more time and money than management currently has.

Table 3.9-19 shows a regional comparison of lakes in the vicinity of Millerton Lake with percentages of water surface acres by WROS zone.

3.9.6 Regulatory Environment

Several federal, state, and local policies guide recreation planning within the Millerton Lake Plan Area. These regulations are incorporated by reference (URS 2007d).

3.10 VISITOR ACCESS AND CIRCULATION

3.10.1 Regional Setting

California is served by a complex system of roads, highways, freeways, rail lines and airports. All facets of this complex system serve the general region in which the Plan Area is located. The Plan Area and the transportation systems that provide access to the Plan Area include a system of roads, bike trails, pedestrian trails, and limited train and plane service.

The planning agencies of the local governments are responsible for design, construction, and maintenance of the county and local roads. Public transportation is managed by private, public, and quasi-governmental agencies at the local level. Several area plans have addressed issues that are associated with the transportation within the study area. The plans that address the study area transportation system include the Madera County Plan, the Fresno County Plan (and supporting documents), the Rio Mesa Area Plan, Squaw Leap Management Area, Friant Community Plan, Sierra-North Regional Plan (Fresno County), and the Millerton Specific Plan (URS 2007c).

The Plan Area is accessed from the nearby towns/cities of Fresno and Madera by several state roads. Primary access to the Plan Area is from SR 41 from Fresno, which runs north-south from Fresno along the western side of the Plan Area. Several roads branch off from SR 41 into the Plan Area. SR 145 intersects with SR 41 northwest of the Plan Area and runs along its northern side. Several of the roads also include bike lanes and hiking trails alongside them. Figure 3.10-1 shows the main roadways. The inner-park roadways provide access to most parts of Millerton Lake Plan Area including the areas that are submerged during the summertime.

The regional area is served by an Amtrak route—the San Joaquin Route, which runs approximately north-south through Fresno—and Fresno Yosemite International Airport, which is the main public air transit in the immediate area.

3.10.2 Plan Area Existing Conditions

Park usage and the level of visitor access and circulation are seasonal. The traffic counts have shown a steady increase at a rate of approximately 3 percent per year. These rate increases are expected to continue. The number of residents in the nearby towns and of other visitors is expected to increase.

Monthly vehicle counts from July 2000 through May 2006 are provided in Table 3.10-1. As Table 3.10-1 indicates, the number of paying vehicles per year has decreased from 2000 to 2006. The total number of vehicles was 130,567 in fiscal year 2000–2001 and 107,235 in fiscal year 2004–2005, a decrease of 17.9 percent. The number of visitors decreased by 31.5 percent during the same period. This difference could be explained by an increase in the numbers of visitors per vehicle; however, no data are available to support this finding.

The level of service (LOS) of roads within the area has steadily declined. The specific LOS ratings for Millerton Lake Plan Area roadways and roadways in the study area are discussed below. The expected 2025 LOS ratings for primary Plan Area roadways are listed in Table 3.10-2.

Several projects are pending and/or under way for improvement of circulation in the study area. Details regarding these projects are provided in Table 3.10-3.

3.10.2.1 Roadways

SR 41 runs through Madera County northwest of Millerton Lake Plan Area toward Yosemite Lakes Park. SR 145 intersects with SR 41 and heads toward the park. SR 41 is currently a two-lane road in the study area with a left-turn lane at intersections.

Millerton Road, the main route along the southwest edge of the Plan Area, runs from Friant and intersects with Auberry Road in Fresno County. It is currently a two-lane road with a left-turn lane at intersections. Although the intersections on Millerton Road have dedicated left-turn lanes, the Winchell Cove Road does not. During periods of high use, the short left-turn lane at the Plan Area entrance creates an excessive buildup of traffic waiting to turn left into the Plan Area.

The LOS on Millerton Road varies at different intersections. Table 3.10-2 shows the expected LOS on various routes including in the study area for the year 2025 as determined by Fresno County.

In a separate study, traffic counts were taken at various area intersections over the period beginning in 1991 through 2000 (Fresno County 2000). While the seasons that the data were collected were not indicated, even with the variations in seasons, the increase is significant. For example, the traffic level at the Plan Area entrance in 1991 was 1,269 over a 24-hour period. In 1999, the traffic level at the same intersection was 6,999 over a 24-hour period, which represents an increase of 551 percent. However, as previously mentioned, these data cannot be used confidently because the seasons of collection were not indicated in the study.

Friant Road connects the City of Fresno with Millerton Road. It is currently a two-lane road with a left-turn lane at intersections. Friant Road has seen dramatic increases in traffic in recent years due to many factors including population growth in Fresno County, recreational attractions at Millerton Lake, and development in the study area including Table Mountain Rancheria Casino. As travel has increased, the two-lane Friant Road is clearly unable to accommodate the traffic levels and, at times, is dangerous.

Auberry Road routes from Clovis, intersects with Millerton Road, and continues along south/southeast of the Plan Area. It is currently a two-lane road.

The main road within the Plan Area and the road leading to the main parking area, Mckenzie Point, La Playa, Crows Nest and the Launch Ramps 2, 4, and 5 are paved. The roads leading to the informal parking areas are not paved. The range of condition of the roads, paved and unpaved, varies significantly. The unpaved roads are clearly frequently used; however, some of them might be difficult to maneuver for some vehicles.

3.10.2.2 Pedestrian/Bicycle Connections

A bikeway from Friant to Prather along Millerton and Auberry Roads is located within the study area. The Highway 168 route to Shaver Lake is designated as a regional bikeway corridor route.

The San Joaquin River Trail provides a safe pedestrian route from Millerton Lake to the Sierra National Forest.

3.10.2.3 Parking

During peak visitation, parking on paved areas is limited to a first come-first served basis. When the paved parking areas are full, vehicles park in unpaved areas. During the low lake level seasons, paved parking lots that are submerged during high lake level seasons are revealed and used. During this time, the parking appears to be sufficient.

3.11 UTILITIES

3.11.1 Regional Setting

3.11.1.1 Water

A primary purpose of Millerton Lake is water supply. Out of Millerton Lake, water is distributed to contracting irrigation and water districts and local cities by way of the Friant-Kern Canal, which runs to the south, and the Madera Canal, which runs to the north. The majority of the water rights to the San Joaquin River allowing for the diversion of water at Friant Dam are held by Reclamation (Fresno County 2000a).

Both surface water from Millerton Lake and groundwater are used for the residential and commercial water supply near Millerton Lake in Fresno and Madera Counties (Fresno County 1982; Madera County 1995a). Many of the water systems are private and use private groundwater wells, although some are community-wide systems. County Waterworks District No. 18, which receives water from Millerton Lake under contract with Reclamation, provides water for the Friant community, located to the southwest of the State Recreation Area (Fresno County 1964; M&I Contract). Policies of the Madera and Fresno County General Plans provide that new development is conditioned upon adequate water supply capacity or the ability to provide additional capacity (Madera County 1995b; Fresno County 2000b).

3.11.1.2 Sewer System

Most of the area surrounding Millerton Lake is currently served by private septic systems rather than community wastewater treatment facilities (Fresno County 1982; Fresno County 1964; Madera County 1995a). Any new development in Madera and Fresno Counties that proposes to add individual or community sewage systems must demonstrate to the County that the system will not adversely affect environmental conditions of the area. The *Rio Mesa Area Plan* states that sewage treatment facilities will be built to serve development in the Rio Mesa Plan Area (Keith Companies 1995). A sewage treatment facility is also proposed to serve the planned community of Millerton, which will be located immediately south of Millerton Lake (Fresno County 1984). Currently, however, there is no sewer system near Millerton to connect to, and the park must handle all wastewater and sewage on-site (with the exception of the South Fine Gold area, which connects to a small community sewer system).

3.11.1.3 Fire Protection

The primary focus of federal and state fire agencies is the control of wildland fires on a seasonal basis (Fresno County 1982). The California Department of Forestry and Fire Protection (CDF) is a state resource agency vested with fire protection responsibilities on wildlands that have been designated as State Responsibility Areas. The CDF also provides fire protection services to most of Madera County and the Sierra-North region in Fresno County under contract (Madera County 1995a; Fresno County 1982). Fire protection in the Millerton Lake area is hindered by widely scattered homesites, inadequate road access, inadequate water supply and storage systems, and the difficulty in developing fuel break and fire road systems.

3.11.1.4 Electrical and Telephone

PG&E provides electrical service to all developed areas of Madera County and the lower foothills and mountains surrounding Millerton Lake in the Sierra-North region in Fresno County (Madera County 1995a; Fresno County 1982). Ponderosa Telephone serves the areas surrounding Millerton Lake (Madera County 1995a; Fresno County 2000a).

3.11.2 Plan Area Existing Conditions

Current utilities at the Millerton Lake Plan Area consist of potable, irrigation, and fire protection water lines with water supplied from the lake; septic tank-leach field, chemical, and pump-out sewage systems; electrical lines; and telephone lines. Other utilities include solid waste disposal and radio and telecommunication systems.

3.11.2.1 Potable Water

In the north shore, all of the campgrounds and day use areas are served by two water treatment plants, which are located at the Rocky Point and Meadows areas. Under an agreement with Reclamation, water is pumped directly from the lake to these water treatment plants. After treatment, the water is pumped to two 55,000-gallon concrete storage tanks located at Mono (which stores water from Rocky Point treatment plant) and Meadows (which stores water from Meadows treatment plant) and distributed to the campsites and day use areas. The quality of the water in the storage tanks is tested weekly (Fernandez 2002). Table 3.11-1 indicates which campgrounds are served by which water treatment system and Figures 3.11-1 and 3.11-2 shows locations of the water treatment plants and distribution lines. The Rocky Point water treatment and distribution system was installed in 1995, and the Meadows water treatment and distribution system was upgraded in 1990/1991. The treatment plants have not been used to full capacity. These relatively new systems are in good condition and provide adequate capacity for future expansion (Fernandez 2002).

The potable water supply in the south shore area is purchased from County Waterworks District No. 18, which serves the Friant community and draws its water from Millerton Lake (Griggs 2002). The treated potable water from the Water District is pumped to water storage tanks located on the hill near the Ranger Station in Millerton Lake Plan Area. The Plan Area then distributes the water to the south shore area, though some of the day use areas do not have potable water service. The water quality in the storage tanks is tested weekly (Griggs 2002). Table 3.11-1 indicates which day use areas and facilities in the south shore area are serviced by the water supply and Figures 3.11-1 and 3.11-2 show the location of the storage tanks and water distribution system. Potable water at South Fine Gold is purchased and delivered from Fresno County Waterworks District No. 38, though the water is piped directly to the area rather than being stored in an intermediate tank. The south shore potable water distribution system is in good condition but could be expanded to include the areas that are not currently serviced (Griggs 2002). The water supply for the north and south shore areas is regulated under contracts with Reclamation and Fresno County Waterworks Districts Nos. 18 and 38. The agreement with Reclamation limits water withdrawal from the lake for Plan Area use to 21 acre-feet per year (Fernandez 2002). This includes water used on the north shore and water purchased from the County Waterworks District 18 on the south shore, since this water is also pumped from the lake. This cap on water use does not currently limit Plan Area activities or use levels.

Winchell Cove marina receives potable water from a privately owned groundwater well in the area. Plans are being developed to install a water treatment plant to service the marina or find an alternative water supply.

3.11.2.2 Sewer System

No centralized wastewater treatment system serves the Plan Area, except for the South Fine Gold Day Use Area, which is served by a community wastewater system by county wastewater District #38. Instead, there are three types of sewage systems at the Plan Area: septic systems, vault toilets, and chemical toilets. Septic systems include a restroom with a nearby septic tank. Vault toilets are nonportable buildings with tanks underneath that are emptied periodically. Chemical toilets are portable toilets that must be emptied periodically.

Most of the campgrounds in the north shore area have restrooms with septic tank system service. Chemical and vault toilets are also used in the north shore. In the south shore area, most of the day use areas and buildings are equipped with restrooms, though vault and chemical toilets are used in some areas. Several of the south shore septic systems are connected to a main lift station located near the Plan Area entrance, which pumps sewage to an evaporative pond on the south side of Millerton Road. This evaporative pond is permitted through the RWQCB (Fernandez 2002). Other septic systems in the south shore have separate leach fields. Table 3.11-1 indicates the type of sewage facilities that are provided in each area of the Plan Area including the number and type of toilets and the location of the lift stations and leach fields if applicable. Figures 3.11-1 through 3.11-4 show the septic tank, lift station, and leach field locations. In addition to these sewer systems, three floating restrooms, which must be emptied periodically, are provided on the lake in the main body and as far upstream as Fine Gold Creek.

The condition and capacity of the existing infrastructure is adequate for current use. However, due to limiting soil and slope conditions, the expansion or addition of leach fields for septic systems to accommodate future expansion may not be possible. The U.S. Soil Conservation Service notes that all of the soils of Millerton Lake Plan Area have severe constraints for normal septic systems, except one with moderate constraints (State Parks 1979). Most development constraints based on soils in Millerton Lake Plan Area are due to slope, porosity, rockiness of the area, or depth of bedrock. The constraints do not necessarily preclude development, although they may limit development options. Special design considerations and increased installation/maintenance costs may be involved in development of new facilities due to the leach field constraints.

3.11.2.3 Irrigation

Two irrigation systems are in place in the north shore area: a drip irrigation system near the group campgrounds for landscaping and a sprinkler and drip irrigation system at the Sunset Point Day Use area for the lawn and trees. Both of these systems use treated potable water from the water treatment plants on the north shore.

Two areas of the south shore are also irrigated: approximately 3 acres at La Playa picnic area and 7 acres at Grange Grove. These irrigation systems use surface water pumped directly from Millerton Lake. The condition and capacity of the systems is adequate for current uses.

3.11.2.4 Fire Protection

Wildfire is a hazard at the Millerton Lake Plan Area, especially at the higher-elevation, steeper portions of the area due to a combination of flammable natural vegetation, limited accessibility to steeper terrain, and climatic conditions. The fire protection policy at the Plan Area requires that a fire protection plan be maintained that includes protection measures, visitor evacuation and safety measures, maintenance of fire access, and acceptable firefighting procedures and equipment (State Parks 1979). The Millerton Lake Plan Area fire protection policy specifies that a cooperative agreement shall be reached with the CDF on firefighting procedures. The CDF has a station near the park on Millerton Road in Friant.

Fire hydrants, which are connected to the Plan Area's potable water system, are located throughout the North and south shore areas. The locations of the fire hydrants are identified in Table 3.11-1. Only one fire hydrant, at Grange Grove, uses surface water directly from the lake rather than potable water.

3.11.2.5 Electrical and Telephone Service

Electrical service to the Plan Area is provided by PG&E. Electrical lines from the grid to electrical pedestals in the Plan Area are all aboveground. The lines from the electrical pedestals to the individual powered units are underground. Electricity is provided to all of the campsites and most of the day use areas in the Plan Area. Table 3.11-1 indicates which areas of the Plan Area have electrical service, and Figures 3.11-1 through 3.11-4 show the locations of the electrical lines and pedestals. The condition and capacity of the current electrical service is adequate for current use. If future expansion is desired, PG&E can increase the capacity as needed by adding to the size of the transformers. Thus, electrical service will not limit growth.

Ponderosa Telephone Company provides telephone service. All telephone lines are below ground, and pay phones are provided for visitors at various locations on the North and south shores. Table 3.11-1 indicates which areas of the Plan Area are provided with telephone service. The condition of the telephone lines is adequate for current use. However, new lines would need to be placed to accommodate additional phones at the Plan Area.

3.11.2.6 Other Utilities

Other utilities include solid waste disposal, radio service, and telecommunication systems. The Plan Area pays for a solid waste removal service, which is adequate for current park needs. Solid waste disposal would not limit Plan Area growth, as additional waste disposal fees could be paid to increase the service.

The rangers and maintenance staff in Millerton Lake Plan Area rely on two-way radios to communicate across the park. One additional form of communication within the Plan Area is an Internet connection, provided by Pacific Bell, at the District Office that is located near the south shore entrance. Cellular phones do not have reception in most of the Plan Area, and there are no satellite communication systems in place.

The Environmental Consequences section describes the impacts of implementing each of the action alternatives as well as the No Action Alternative. The section is organized by resource topics with each of the alternatives as subtopics. Two resource topics (Hazardous Materials and Utilities) addressed under Existing Conditions are not addressed in this section because no impacts would occur and/or site-specific impacts that may occur because of future actions cannot be identified at a programmatic level.

Before presentation of the impacts, impact thresholds are identified and, where applicable, impact methodology is also discussed. Thresholds are expressed as beneficial impact, no impact, minor adverse impact, or major adverse impact. Major adverse impact is equivalent to the CEQA threshold of significant impact. Then, the impacts of actions common to all alternatives are discussed followed by impacts unique to each alternative. This is followed by an impact summary and mitigation measures if applicable. Cumulative impacts are discussed at the end of each resource topic where applicable.

Impacts of the action alternatives and the No Action Alternative are also summarized in Table 4-1.

4.1 WATER RESOURCES

4.1.1 Introduction

Water resources include surface water and groundwater. Four factors have the potential to impact water resources:

- Motorized vessel emissions
- Construction activities
- Human use and waste disposal
- Erosion from trail and road use

4.1.2 Impact Thresholds

- **Beneficial Impact:** Impacts that are detectable and positively alter historical or desired water quality conditions. These impacts would contribute to the enhancement of park water resources, the public's enjoyment of water resources, or would advance park goals for water quality.
- **No Impact:** Water quality impacts that cannot be detected.
- **Minor Adverse Impact:** Impacts are detectable and are within or below regulatory standards or thresholds for water quality, and do not interfere with park goals.
- **Major Adverse Impact:** Water quality impacts that are detectable and significantly and negatively alter historical baseline or desired water quality conditions. These impacts would contribute to the deterioration of water quality in the Study Area, the public's enjoyment of park resources, or would interfere with park goals for water quality. Major is equivalent to the CEQA impact category of significant impacts.

4.1.3 Impacts Common to All Alternatives

Motorized Vessel Emissions

A primary water quality concern of the Millerton Lake RMP is the type of boats allowed under the four management alternatives. Many personal watercraft and fishing boats with small outboard motors have older nonconformant two-stroke engines, which release more pollutants than the newer types of marine engines, such as four-stroke or fuel-injected two-stroke engines. Two-stroke engines use a mix of gasoline and oil, which enters the combustion chamber at the same time that exhaust is leaving the chamber. As a result, raw fuel is released from the engine directly into the water.

Currently, approximately 30 percent of BAOT at Millerton Lake have older nonconformant two-stroke engines. Based on the EPA rule "Final Rule for New Gasoline Spark-Ignition Marine Engines" (EPA 1996), it is likely that 19.9 percent of the remaining nonconformant two-stroke engines in use in 2004 will have been replaced by 2008, that 38.5 percent will have been

replaced by 2010, that 52.9 percent will have been replaced by 2012, and 95.25 percent would have been replaced by 2020.

The magnitudes of impacts of motorized vessel emissions on water quality are discussed separately for each alternative in Sections 4.1.4 through 4.1.7.

Construction Activities

All four alternatives include some degree of site maintenance and facilities construction, which may include ground disturbing activities. Maintenance and construction activities could potentially result in minor adverse impacts to surface waters due to erosion and the resulting temporary increase in turbidity at localized areas.

When specific construction and maintenance activities are developed, a site-specific environmental analysis would be conducted and a more focused assessment of the activity's impacts to water quality would occur. If significant impacts to water quality were to be identified, the proposed project would be modified or mitigation measures would be implemented to reduce these impacts to minor impact levels (see Section 4.1.8, Mitigation Measure WQ-2).

Human Waste Disposal

Human waste and its disposal is an issue necessitated by recreational use in the Plan Area. Possible sources of human waste pollution include developed campsites, primitive campsites, portable restrooms, and privately owned portable toilets. If portable restrooms and vault toilets are not pumped and cleaned properly, they could have minor to major adverse impacts on water quality. Proper waste disposal would mitigate these impacts to no-impact levels (see Section 4.1.8, Mitigation Measure WQ-3).

Erosion From Trail and Road Use

All four alternatives include either maintenance of existing roads and trails, or construction of new roads and trails. Road and trail maintenance and construction could potentially result in minor adverse impacts to surface waters due to erosion and the resulting temporary increase in turbidity at localized areas. For example, the Millerton Plan Area includes several dirt roads that are covered by water during the winter but are in use during the summer. These and other dirt roads are typically re-graded annually. Impacts of trail and road use and construction are similar to impacts of construction activities discussed above.

To mitigate for impacts to water quality that result from road and trail construction, Mitigation Measure WQ-2 (see Section 4.1.8) shall be implemented. Mitigation would reduce these impacts to no-impact levels.

4.1.4 Impacts Specific to No Action Alternative

Motorized Vessel Emissions

Under the No Action Alternative, motorized vessel emissions would continue to have minor adverse impacts on water quality in the Plan Area, with the potential for major adverse impacts in localized areas.

Because the No Action Alternative would not mandate a time frame for phase out of nonconformant two-stroke engines, the duration of nonconformant two-stroke motor use is longer than under the other alternatives. The number of nonconformant two-stroke vessels on the lake at any one time would slowly decline until approximately 95 percent are replaced by 2020. The decrease in nonconformant two-stroke use is limited to replacement of old vessels with new vessels as manufacturers phase out the production of two-stroke engines. The longer-term release of pollutants under the No Action Alternative would have minor adverse impacts on water quality in the Plan Area.

In some cases, large numbers of nonconformant two stroke engines may converge in small areas (e.g., in coves, near the Marina) resulting in increased concentrations of pollutant compounds in localized areas. Depending on lake mixing, temperature, background pollutant levels, and volume of water in the lake, the No Action Alternative may result in the potential for major adverse impacts in local areas.

Construction Activities

The impacts of construction activities on water quality are discussed in Section 4.1.3. Construction activities would have minor adverse impacts on water quality. Because the No Action Alternative would implement fewer new construction projects than the other alternatives, these impacts would be less than the three action alternatives.

Erosion From Trail and Road Use

The impacts of road and trail use on water quality are discussed in Section 4.1.3. Road and trail use would have minor adverse impacts on water quality. Because the No Action Alternative would not implement the construction of new roads and trails, these impacts would be limited to road grading and maintenance practices. Impacts would be less than the three action alternatives.

4.1.5 Impacts Specific to Alternative 1

Motorized Vessel Emissions

Under Alternative 1, motorized vessel emissions would have minor adverse impacts on water quality in the Plan Area, with a potential for major adverse impacts in localized areas during the phase-out period.

Alternative 1, which would phase out nonconformant two-stroke engines within 3 years of RMP approval, would have less impact than the No Action Alternative. The release of pollutants under Alternative 1 would have minor adverse impacts on water quality in the Plan Area through the 3

year phase-out, followed by beneficial impacts after the phase-out. In some cases, large numbers of nonconformant two stroke engines may converge in small areas (e.g., in coves, near the Marina) resulting in increased concentrations of pollutant compounds in localized areas. Depending on lake mixing, temperature, background pollutant levels, and volume of water in the lake, Alternative 1 may result in the potential for major adverse impacts in local areas.

Construction Activities

The impacts of construction activities on water quality are discussed in Section 4.1.3. Construction activities would have minor adverse impacts on water quality. Because Alternative 1 would implement more construction projects than the other alternatives (i.e., more campsites, new slips in the marina), these impacts would be greater than the other alternatives. By implementing mitigation measures, these effects could be reduced but would remain minor impacts (see Section 4.1.8, Mitigation Measure WQ-2).

Erosion From Trail and Road Use

The impacts of road and trail use on water quality are discussed in Section 4.1.3. Road and trail use would have minor adverse impacts on water quality. Because Alternative 1 would implement more new trails than the other alternatives, these impacts would be the greatest for Alternative 1. By implementing mitigation measures, including best management practices, these effects could be reduced but would remain minor impacts (see Section 4.1.8, Mitigation Measure WQ-2).

4.1.6 Impacts Specific to Alternative 2

Motorized Vessel Emissions

Alternative 2 would phase out nonconformant two-stroke engines within 3 years, and the impacts would be the same as for Alternative 1.

Construction Activities

The impacts of construction activities on water quality are discussed in Section 4.1.3. Construction activities would have minor adverse impacts on water quality. Because Alternative 2 would implement a moderate amount of construction projects when compared to the other alternatives, these impacts would be less than Alternative 1, but greater than Alternative 3 and the No Action Alternative. By implementing mitigation measures, these impacts could be reduced to no-impact levels (see Section 4.1.8, Mitigation Measure WQ-2).

Erosion From Trail and Road Use

The impacts of road and trail use on water quality are discussed in Section 4.1.3. Road and trail use would have minor adverse impacts on water quality. Because Alternative 2 would implement a moderate amount of new trails when compared to the other alternatives, these impacts would be greater than Alternative 3 or the No Action Alternative, but fewer than Alternative 1. By implementing mitigation measures, these impacts could be reduced to no-impact levels (see Section 4.1.8, Mitigation Measure WQ-2). Alternative 2 includes the development of a Trail

Management Plan, which shall assess impacts of trail use on water quality and implement mitigation to reduce these impacts to no-impact levels.

4.1.7 Impacts Specific to Alternative 3

Motorized Vessel Emissions

Under Alternative 3, the reduction of motorized vessel emissions would be beneficial to water quality in the Plan Area.

Alternative 3 would phase out nonconformant two-stroke engines within one year of RMP approval, resulting in less impact to water quality than the other alternatives. When compared with the existing conditions, the results of Alternative 3 on the Plan Area would be beneficial.

Construction Activities

The impacts of road and trail use on water quality are discussed in Section 4.1.3. Road and trail use would have minor adverse impacts on water quality. Because Alternative 3 would implement fewer new trails than Alternative 1 or 2, but more trails than the No Action Alternative, these impacts would be less than Alternative 1 or 2, but greater than the No Action Alternative. By implementing mitigation measures, these impacts could be reduced to no-impact levels (see Section 4.1.8, Mitigation Measure WQ-2). Alternative 3 includes the development of a Trail Management Plan, which shall assess impacts of trail use on water quality and implement mitigation to reduce these impacts to no-impact levels.

4.1.8 Impacts Summary

The four alternatives would have minor adverse impacts on water quality due to the impacts of construction, human waste disposal, and erosion from roads and trails. The impacts of motorized vessel emissions would have short-term minor to major adverse impacts under Alternatives 1 and 2. The No Action Alternative includes the potential for long-term adverse impacts from motorized vessel emissions. Alternative 3 phases out nonconformant two-stroke engines in 2008, thereby reducing emissions over existing conditions and providing beneficial impacts.

Impact WQ-1

Under No Action, motorized vessels emissions may reach concentrations in localized areas that could result in major adverse impacts to water quality. With Alternatives 1 and 2, impacts would be primarily minor and short-term. Reduction of emissions under Alternative 3 would be beneficial.

Mitigation WQ-1

No mitigation is proposed since the impacts will be primarily minor and short-term because of the phase-out.

Impact WQ-2

Construction and maintenance activities associated with facilities, roads and trails could have a minor adverse impact on water quality due to erosion and temporary increases in turbidity at localized areas.

Mitigation WQ-2

The implementation of the following measures during construction would prevent erosion and therefore provide mitigation for water quality impacts. Residual impacts would still be minor. Measures would vary among projects, but may include the following:

- Scheduling construction during periods of low water, thereby increasing the distance to the shoreline.
- Scheduling construction during the dry season.
- Use of silt fencing, water bars, or straw bales and wattles to prevent erosion runoff.
- Development and implementation of Storm Water Pollution Prevention Plans (SWPPPs) for individual construction projects.

Impact WQ-3

If portable restrooms, floating restrooms and vault toilets are not pumped and cleaned properly, they could have minor adverse impacts on water quality.

Mitigation WQ-3

Proper waste disposal would mitigate these impacts to a level of no impact. Park personnel and contract restroom suppliers shall be trained in proper cleaning and disposal. Waste disposal stations shall provide educational materials to the public on proper disposal.

Cumulative Impacts

- Current plans for development such as North Fork Village–1 (Madera County 2007), if not regulated and zoned properly, could reduce groundwater reserves and cause land subsidence within the Plan Area.
- Septic fields from increased development may reduce groundwater quality.
- Use of pesticides or herbicides to maintain residential yards or poisons to control rodents could affect water quality in the lake.
- Proposed residential development in surrounding areas could have an effect on existing water supply.
- A future change in water deliveries (timing or amount) could impact water supply.

4.2 AIR QUALITY

4.2.1 Introduction

Three factors have the potential to impact air quality:

- Emissions from motorized vehicles and vessels
- Dust emissions due to motorized vehicles, construction, or recreation
- Short-term combustion emissions due to prescribed burning or wildfires

4.2.2 Impact Thresholds

- **Beneficial Impact**: Impacts that are detectable and positively alter historical or desired air quality conditions. These impacts would contribute to the enhancement of park air quality, the public's enjoyment of park resources, or would advance park goals for air quality.
- **No Impact**: Air quality impacts that cannot be detected.
- **Minor Adverse Impact:** Impacts are detectable and are within or below regulatory standards or thresholds for air quality, and do not interfere with park goals.
- **Major Adverse Impact:** Air quality impacts that are detectable and significantly and negatively alter historical baseline or desired air quality conditions. These impacts would contribute to the deterioration of air quality in the Study Area, the public's enjoyment of park resources, or would interfere with park goals for air quality. Major adverse impact is equivalent to the CEQA impact category of Significant Impacts.

4.2.3 Impacts Common to All Alternatives

Motorized Vessel and Vehicle Emissions

Vehicle emissions, including automotive and boat traffic, would have minor adverse impacts on air quality in the Plan Area under all four alternatives. Although automotive and boat traffic would vary among the four alternatives, none of the alternatives would result in levels of park visitation high enough to create heavy and sustained traffic patterns that would produce major air quality issues. The cumulative impacts of development in the Plan Area are discussed in Section 4.2.8.

Dust Emissions

Under all four alternatives, dust emissions would potentially cause minor adverse impacts on air quality due to motor vehicle traffic. Dust and particulate matter in the Plan Area are potentially generated via three sources. The first dust source is automobile traffic on dirt roads and unpaved areas. The second dust source is recreational trail use, including hiking, horseback riding, and mountain biking. The third dust source is grading disturbance from facilities construction.

The dust generated by motor vehicles driving on dirt roads and unpaved areas would result in minor adverse impacts to air quality in the Plan Area. Vehicles could create dust in localized

areas. These minor adverse impacts would be similar under all four alternatives. Dust would be created by vehicles traveling across unpaved areas, which may include dirt roads as well as nonvegetated areas near the water's edge that are sometimes used for parking. Such unpaved areas are only accessible late in the season (late summer and fall) when water levels in the reservoir are at their lowest point for the year. The timing of low visitor levels corresponds with low water levels. The number of vehicles driving on unpaved areas is unlikely, therefore, to vary among the four plan alternatives later in the year.

The dust generated by recreational trail use, including hiking, horseback riding, and mountain biking, would have no impact on air quality in the Plan Area. These types of recreational trail use are not usually fast enough or dense enough to create substantial dust clouds. With the exception of street licensed vehicles being used to access the lake, Millerton Plan Area does not allow recreational use by off-highway motor vehicles (OHMV), such as all terrain vehicles, dune buggies, and dirt bikes. OHMVs can result in substantial dust. The impacts of trail use on erosion are addressed in Section 4.1.

All three action alternatives include some degree of site maintenance and facilities construction, which may include ground-disturbing activities that could generate dust. Maintenance and construction activities would potentially result in minor adverse impacts to air quality due to dust. When specific construction and maintenance activities are developed, a site-specific environmental analysis would be conducted and a more focused assessment of the activity's impacts to air quality would occur. If major impacts to air quality were to be identified, the proposed project would be modified or mitigation measures would be implemented to reduce these impacts to no-impact levels (see Section 4.2.8, Mitigation Measure AQ-1).

Short-Term Combustion Emissions From Prescribed Burning

All four alternatives include the potential for short-term and localized minor adverse impacts from wildfires or prescribed burning. All of the action alternatives include the development of a Vegetation Management Plan, which would allow prescribed burning. The No Action Alternative would not include planning for prescribed burns. The absence of such a plan could increase the risk of wildfires. Fires, whether accidental or prescribed, would result in temporary, localized increases in combustion emissions that would have minor adverse impacts on air quality.

4.2.4 Impacts Specific to No Action Alternative

The impacts of vehicle emissions, dust emissions, and combustion emissions under the No Action Alternative are discussed in Section 4.2.3.

4.2.5 Impacts Specific to Alternative 1

The impacts of vehicle emissions, dust emissions, and combustion emissions under Alternative 1 are discussed in Section 4.2.3.

4.2.6 Impacts Specific to Alternative 2

The impacts of vehicle emissions, dust emissions, and combustion emissions under Alternative 2 are discussed in Section 4.2.3.

4.2.7 Impacts Specific to Alternative 3

The impacts of vehicle emissions, dust emissions, and combustion emissions under Alternative 3 are discussed in Section 4.2.3.

4.2.8 Impacts Summary

On balance, the No Action Alternative, Alternative 1, Alternative 2, and Alternative 3 have similar impacts on air quality. Minor adverse impacts would be created by three components of Plan Area activities and management:

- Dust would generated by vehicle traffic on unpaved areas;
- Construction activities would have the potential to create dust; and
- Prescribed burning or wildfires would release combustion emissions.

All of these impacts would be minor, localized, and temporary. Implementation of mitigation measures would reduce some of these impacts to minor or no-impact levels.

Impact AQ-1

Under all four alternatives, automobile and boat traffic will generate vehicle emissions resulting in a minor impact to air quality in the Plan Area. Although automotive and boat traffic would vary among the four alternatives, none of the alternatives would result in levels of park visitation high enough to create heavy and sustained traffic patterns that would produce major air quality issues

Impact AQ- 2

Under all four alternatives, vehicle traffic on unpaved areas and site maintenance and facilities construction with ground-disturbing activities could generate dust. These activities would potentially result in minor adverse impacts to air quality due to dust.

Mitigation AQ-2

When specific construction and maintenance activities are developed, a site-specific environmental analysis would be conducted and a more focused assessment of the activity's impacts to air quality would occur. If impacts to air quality were to be identified, the proposed project would be modified or mitigation measures would be implemented to reduce these impacts but the remaining impacts would still be minor. For example, exposed soils could be watered during construction to prevent dust.

Impact AQ-3

Fires, whether accidental or prescribed, would result in temporary, localized increases in combustion emissions that would have minor adverse impacts on air quality.

Mitigation AQ-3

Prescribed burns could be timed to minimize impacts to air quality. For example, burning should not be conducted on days when air quality is below normal conditions. These would reduce impacts, but impacts would still be detectable and therefore minor.

Cumulative Impacts

In general, the management activities associated with the four alternatives would have minor adverse impacts on regional air quality.

As developments such as the North Fork Village apply for approval from permitting agencies, mitigation measures to reduce air quality impacts of the developments would be included in environmental documents. The *Draft Environmental Impact Report, North Fork Village–1* (Madera County 2007) identifies a significant air quality impact from the development. Operational air quality impacts may result from motor vehicles traveling to and from the area, the combustion of natural gas for space and water heating, and consumer products. The project applicant must comply with San Joaquin Valley Air Pollution Control District Rule 9510 and implement control measures. Rule 9510 requires that development projects meeting certain criteria to implement control measures and/or purchase emissions offsets to mitigate nitrogen oxide and PM_{10} emissions. Compliance with Rule 9510 is separate from the CEQA process, although the control measures used to comply with Rule 9510 may be used to mitigate CEQA impacts.

Air quality in the Study Area and adjacent vicinity will be adversely affected by ongoing and future development activities, such as North Fork Village–1 and other residential development, that will increase traffic in the Study Area. However, the overall contribution of the Millerton RMP/GP impacts to the region's air quality is considered minor.

4.3 SOILS AND GEOLOGY

4.3.1 Introduction

Three factors have the potential to impact soils and geology in the Plan Area:

- Construction and maintenance of park facilities
- Recreational trails, including construction and use
- Land management, specifically grazing regime

Impacts of the RMP/GP that result in erosion are more thoroughly addressed in Section 4.1.

4.3.2 Impact Thresholds

- **Beneficial Impact**: Impacts to soils or geology that are detectable and positively alter historical or desired conditions. These impacts would contribute to the enhancement of park resources, the public's enjoyment of park resources, or would advance park goals.
- **No Impact**: Impacts to soils and geology that cannot be detected.
- **Minor Adverse Impact:** Impacts to soils and geology are detectable and are within or below regulatory standards or thresholds, and do not interfere with park goals.
- **Major Adverse Impact:** Impacts to soils or geology that are detectable and significantly and negatively alter historical baseline or desired air quality conditions. These impacts would contribute to the deterioration of soils in the Study Area, the public's enjoyment of park resources, or would interfere with park goals. Major adverse is equivalent to the CEQA impact category of Significant Impacts.

4.3.3 Impacts Common to All Alternatives

Construction and Maintenance

All four alternatives include some degree of site maintenance and facilities construction. Areas of geological hazards, unstable soils, or potential erosion hazards could affect location of facilities, including campsites, roads, and buildings. Depending on where these facilities are sited, construction and maintenance activities could have minor adverse impacts on soils resources. When specific construction and maintenance activities are developed for the action alternatives, a site-specific environmental analysis would be conducted and a more focused assessment of the activity's impacts would occur. If significant impacts to soils were to be identified, the proposed project would be modified or mitigation measures would be implemented to reduce these impacts to no-impact levels (Mitigation Measure SG-1).

Recreational Trails

Areas of geological hazards, unstable soils, or potential erosion hazards could affect location of recreational trails. Trail use and construction could have minor adverse impacts on soil resources

through compaction or erosion. New trails (under the action alternatives and where feasible) shall be sited away from unstable soils or potential erosion hazards (Mitigation Measure SG-2).

Land Management

Changes in land management can have negative impacts on soils, such as increased erosion and compaction due to grazing. Grazing within in the Plan Area may continue under all four alternatives. Grazing has the potential to result in minor adverse impacts to soil resources. The three action alternatives include coordination of grazing activities with fire and weed management under a Vegetation Management Plan. This plan shall include management recommendations to minimize negative impacts to soils (see Mitigation Measure SG-3.)

4.3.4 Impacts Specific to No Action Alternative

The impacts of construction and maintenance, trail use and construction, and range management under the No Action Alternative are discussed in Section 4.3.3.

4.3.5 Impacts Specific to Alternative 1

The impacts of construction and maintenance, trail use and construction, and range management under Alternative 1 are discussed in Section 4.3.3.

4.3.6 Impacts Specific to Alternative 2

The impacts of construction and maintenance, trail use and construction, and range management under Alternative 2 are discussed in Section 4.3.3.

4.3.7 Impacts Specific to Alternative 3

The impacts of construction and maintenance, trail use and construction, and range management under Alternative 3 are discussed in Section 4.3.3.

4.3.8 Impacts Summary

On balance, the No Action Alternative, Alternative 1, Alternative 2, and Alternative 3 have similar impacts on soils and geology in the Plan Area. Implementation of mitigation measures would reduce, but not eliminate, the minor adverse impacts that the Millerton RMP/GP may have on soils and geologic resources.

Impact SG-1

Construction and maintenance activities could have minor adverse impacts on soils resources.

Mitigation SG-1

When specific construction and maintenance activities are developed, a site-specific environmental analysis would be conducted and a more focused assessment of the activity's impacts would occur. If significant impacts to soils were to be identified, the proposed project

would be modified or mitigation measures would be implemented to reduce these impacts to no-impact levels.

Impact SG-2

Trail use and construction could have minor adverse impacts on soil resources.

Mitigation SG-2

New trails (under the action alternatives) shall be sited away from unstable soils or potential erosion hazards (Mitigation Measure SG-2). This would reduce but not eliminate potential impacts.

Impact SG-3

Cattle grazing could have minor adverse impacts to soils resources through compaction or erosion.

Mitigation SG-3

The Vegetation Management Plan, which is part of Alternatives 1, 2, and 3, shall include grazing management recommendations to reduce, but not eliminate, impacts to soils.

Cumulative Impacts

In general, the management activities associated with the four alternatives would have minor adverse impacts on soils and geology in the region, which could be mitigated to no-impact levels.

The overall contribution of the Millerton RMP/GP to the region's soils and geology is minimal. Regional soils and geology will be affected by ongoing and future development activities. If future development in the study area is not regulated and zoned properly, groundwater withdrawal by development outside of the Plan Area may become an issue for reducing groundwater reserves and causing land subsidence within the Plan Area.

4.4 BIOLOGY

4.4.1 Introduction

Four categories of biological resources exist in the Plan Area:

- Vegetation
- Wildlife
- Fisheries and aquatic communities
- Special-status species

4.4.2 Impact Thresholds

The biology impact analysis focuses on the potential for impacts on vegetation, wildlife, fisheries and aquatic communities, and special-status species or their habitat from four potential impacts that may vary among the alternatives:

- Camping and recreation, including maintenance or expansion of camping and recreation facilities on the North Shore, South Shore, and Temperance Flat;
- Trail use, including the construction of additional trails;
- Boat use, including density, speed, and type of boats used on the lake.
- Several types of natural resource management, including removal of invasive weeds, grazing, fire, control of water levels in the lake and fisheries management.

The terminology used to assess the degree of impact on biological resources are defined below, and are presented with the corresponding terminology defined by the Endangered Species Act (ESA):

- **Beneficial Impact:** Impacts to biological resources that are detectable and positively alter historical or desired conditions. These impacts would contribute to the enhancement of vegetation, wildlife, fisheries and aquatic communities, or special-status species.
- **No Impact:** Impacts to biological resources that cannot be detected.
- **Minor Adverse Impact:** Impacts to biological resources that are detectable and are within or below regulatory standards or thresholds, and do not interfere with park goals.
- **Major Adverse Impact:** Impacts that are detectable and significantly and negatively alter historical baseline or desired conditions of biological resources. These impacts would contribute to the deterioration of vegetation, wildlife, fisheries and aquatic communities, or special-status species. Major adverse impacts are equivalent to the CEQA impact category considered significant.

The Endangered Species Act (ESA) defines the terminology that shall be used to assess the degree of impacts on listed species. These terms are defined below and presented with the corresponding terminology used through this EIR/EIS:

No Effect: Same as no impact. This term refers to those impacts that cannot be detected, and is used when an action would not affect a listed species or critical habitat. This term is the same as No Effect under the ESA.

Not Likely to Adversely Affect: Includes beneficial impacts. Impacts of this nature are expected to be discountable (extremely unlikely to occur), insignificant (no risk of take or detriment to habitat), or completely beneficial (positive). Includes impacts defined by the ESA as those that are not likely to adversely affect listed species.

Likely to Adversely Affect: Same as minor adverse impact. Impacts may occur as a direct or indirect result of the action, including incidental take and impacts that are both beneficial and detrimental.

Impairment: Same as major adverse impact. Impacts are likely to jeopardize the continued existence of a proposed species, or adversely modify critical habitat.

4.4.3 Impacts Common to All Alternatives

Camping and Recreation

All of the action alternatives include some degree of expanded camping or day-use facilities in the North Shore and South Shore areas. When specific projects are developed, a site-specific environmental study would be conducted and a more focused analysis of the proposed project's impacts to biological resources would occur. At that time, more clearly defined biological impacts may be identified. If significant impacts to biological resources are to be identified, the proposed project would be modified to reduce biological impacts. Mitigation measures would also be developed to compensate for biological impacts. All state and federal environmental regulations would apply. When examined at a programmatic level, however, expansion of camping and day-use facilities would result in no impact to biological resources in the North Shore or South Shore areas.

All of the action alternatives include the evaluation of lands acquisition to provide for additional campsites, or as a buffer to adjacent development for watershed protection. If the lands were used for additional campsites, the accompanying facilities would be upgraded to meet existing needs. Any new facilities would be designed or located in such a way as to avoid sensitive biological resources. Because some of these lands acquired could provide natural resource mitigation lands, new facilities may be balanced with an increase in resource protection. Site-specific studies would be necessary to evaluate biological resource values of additional lands, but all state and federal environmental regulations would apply. Potential lands acquisitions under the action alternatives would result in no impact to biological resources.

All four of the alternatives include concession stands, which could result in minor adverse impacts to wildlife. If trash or food products were to become accessible to wildlife, it could harm animals or create problematic encounters between park visitors and wildlife.

Trail Use

Impacts due to construction and use of recreational trails are addressed separately for each alternative in Sections 4.4.4 through 4.4.7.

Boat Use

Boat use would have no impact on roosting bald eagles. The eagles primarily utilize the Millerton Plan Area during the winter in up-river areas, when boat traffic is at its lowest level of the year.

Other impacts due to boat density are addressed separately for each alternative in Sections 4.4.4 through 4.4.7.

Natural Resources Management

The three action alternatives include the development of a Vegetation Management Plan to address issues of invasive weeds, grazing, and fire management. Addressing these three management issues within a single plan has the benefit of allowing the analysis of the relationships among invasive weeds, grazing and fire. Development of a single integrated Vegetation Management Plan will be more cost effective than developing three separate plans. The issues surrounding invasive weeds, grazing, and fire are described below.

In addition to the Vegetation Management Plan, a Fisheries and Aquatic Communities Management Plan will be developed as part of all three action alternates. This Plan is also discussed below.

Invasive Weeds

As part the three action alternatives, Reclamation and State Parks would work with the Millerton Area Watershed Coalition and other appropriate groups and agencies to address invasive weeds as part of the Vegetation Management Plan. Reclamation would collaborate with the managing partners to acquire funding (e.g., from grazing leases or NRCS funds) for invasive weed control. The Plan Area does not contain many well-developed riparian areas, which are important for wildlife. The few existing riparian areas contain several aggressive exotic plants that are displacing native vegetation. These existing riparian areas should receive extra protection from potential impacts caused by invasive weeds. Under the three action alternatives, these efforts to manage invasive weeds would have beneficial impacts on vegetation and special-status species in the Plan Area. The lack of an invasive weed plan under the No Action Alternative would have a minor adverse impact on vegetation in the plan area.

All of the action alternatives would include the incorporation of native plant species in restoration and landscape plantings. Such plantings would be used for erosion control following facilities construction, for trail enhancement, and for ecosystem restoration projects. The use of native vegetation under the three action alternatives would have beneficial impacts on vegetation in the Plan Area.

Grazing Management

Under all four alternatives, grazing leases in the Plan Area would continue. The effect of grazing, or the lack of grazing on native plants and special-status plants is an important management issue in the Plan Area. Of special concern are the five special-status plants in the vernal pools located on the Big Table Mountain and McKenzie Table. Grazing can potentially improve habitat for native plants or can degrade habitat and damage plants depending on various factors, including

season, duration, intensity, and number and type of livestock, and type of habitat grazed. Potential benefits of grazing include increasing native plant abundance and diversity by removing thatch and decreasing ruderal nonnative plants. Potential negative impacts of grazing include destruction of individual plants by damaging the plants or their reproductive capacity, increasing abundance of nonnative exotic plants such as Italian thistle, and decreasing native plant biodiversity. The Sierra Foothills Conservancy, in conjunction with CDFG, has conducted grazing studies in the Plan Area. These studies address the effects of grazing on floral and faunal diversity.

Under the three action alternatives, grazing leases would be coordinated to manage fire and noxious weeds. The Vegetation Management Plan, which is proposed under the three action alternatives, would address the coordination of weed, grazing, and fire management. The few existing riparian areas should receive extra protection from grazing under the Vegetation Management Plan. Implementation of the comprehensive grazing plan would include collaboration with neighboring property owners, such as the Sierra Foothill Conservancy and CDFG, and would include monitoring of grazing impacts. The Vegetation Management Plan as proposed under the action alternatives would have a beneficial impact on vegetation and special-status species in the plan area. Under the No Action Alternative, the lack of a Vegetation Management Plan would have minor adverse impacts on vegetation and special-status species in the plan area.

Fire Management

Fire suppression has decreased the abundance of certain native plants, including some special-status plants that have evolved in California's fire-dependent ecosystems. Fire suppression favors climax vegetation communities such as woodlands rather than grasslands, and overall, the lack of fire decreases habitat diversity. Fire also favors blue oak trees over gray pine trees, and in California there is concern about the lack of blue oak reproduction. In addition, fire suppression has created fire hazards that could potentially lead to disastrous wildfires. On the other hand, prescribed burning can create a disturbance that could potentially increase the cover of aggressive exotic plants.

Fisheries and Aquatic Communities

Control of the reservoir's hydrologic regime results in dramatic variation in the water level throughout the year, these fluctuations prevent the establishment of aquatic vegetation and emergent wetlands along the lake edge and the reaches of the San Joaquin River that are affected by Friant Dam. The lack of vegetation provides poor-quality habitat for fish and wildlife and is aesthetically unattractive.

Constant changes in the surface elevation of the reservoir do not allow development of a permanent littoral zone, thus cover habitat for centrarchid fish is limited. These fish species, which provide much of the prey base for large sport fish, depend upon resources within the littoral zone. Water level fluctuations also reduce spawning success of fish such as largemouth bass. To maintain healthy and productive populations of sport fishes, such as striped bass, largemouth bass, panfish, and catfish, a fisheries management plan would be developed and implemented under the action alternatives, as discussed in Section 2.

Under the action alternatives, fishing would be improved by creating better spawning grounds in the lake and by preparing a fisheries management plan. Several issues would be addressed in this plan:

- Quality habitat for spawning and rearing of reservoir populations could be created and maintained in the upper San Joaquin River. Management of the upper river should involve constant water flow and passage through the main stem of the San Joaquin River and its tributaries.
- Restoration and protection of a riparian buffer zone along tributaries such as Cottonwood Creek, Big Sandy Creek, and Fine Gold Creek could benefit native fish species. Management of creek habitats could promote a greater diversity among native fish species in the Plan Area. Potential native species includes rainbow trout, California roach, hitch, hardhead minnow, Sacramento sucker, and sculpin. Aggressive or persistent nonnative species such as green sunfish and carp should be managed.
- Native species in creek habitats such as Cottonwood Creek, Big Sandy Creek, and Fine Gold Creek should be monitored and managed. Native species include rainbow trout, California roach, hitch, hardhead minnow, Sacramento sucker, and sculpin.

Fisheries and aquatic communities in the Plan Area would receive beneficial impacts from the implementation of the action alternatives.

4.4.4 Impacts Specific to No Action Alternative

Vegetation

Camping and Recreation

Under the No Action Alternative, the Temperance Flat campground would be moved to the south side of the river. The relocation of this campground would result in no impact to vegetation. The maximum number of campsites would be 25 individual sites, an increase from the current 15 sites. Access would be restricted to boat-in camping. Relocation of the campground must be accompanied by a site-specific environmental study, and all state and federal environmental regulations would apply. Because the increase in camping capacity is small, and access is restricted, the No Action Alternative would result in no impact to vegetation at Temperance Flat and surrounding area.

Trail Use

The No Action Alternative does not include the construction of additional trails. Trail use, as proposed by the No Action Alternative, would have no significant impacts on vegetation in the Plan Area.

Boat Use

Under the No Action Alternative, boat use would have no impact on vegetation. Impacts of the No Action Alternative on aquatic resources, including littoral zone plant communities, are discussed below in the Fisheries and Aquatic Communities section.

Natural Resources Management

The implementation of natural resources management under the No Action Alternative is addressed in Section 4.4.3. The No Action Alternative would not include a Vegetation Management Plan that would be part of the action alternatives. This plan would address noxious weeds and grazing management. The No Action Alternative would implement no new programs to remove invasive species or establish native vegetation. The absence of a Vegetation Management Plan under the No Action Alternative, when compared with the action alternatives, would result in minor adverse impacts to vegetation.

Wildlife

Camping and Recreation

Hunting would be limited to the current archery hunt for turkeys. No changes in hunting programs are proposed under the No Action Alternative.

Trail Use

The No Action Alternative does not include the construction of additional trails. Trail use, as proposed by the No Action Alternative, would have no significant impacts on wildlife in the Plan Area.

Boat Use

Under the No Action Alternative, boat densities up to 5.5 acres/boat during heavy use periods are expected on the main body of the reservoir, and up to 35 acres/boat on the area upstream from Fine Gold Creek. Boat use at this density would have minor adverse impacts on wildlife due to potential disturbance from noise and human presence. These disturbances would be localized and difficult to quantify, but would be greater under the No Action Alternative than under Alternative 1 or Alternative 2.

Natural Resources Management

The absence of a vegetation management plan and a fisheries plan under the No Action Alternative, when compared with the action alternatives, would result in minor adverse impacts to wildlife. Vegetation communities provide habitat for wildlife, and fish provide a food source for wildlife. Management of these resources would enhance wildlife populations. The implementation of a vegetation management plan and a fisheries management plan is addressed in Section 4.4.3.

Fisheries and Aquatic Communities

Camping and Recreation

Under the No Action Alternative, visitor use in the Plan Area would increase as facilities and population growth allow. The extent to which the increase in visitors will correspond with an increase in fishing activity is unknown, but increased fishing may result in a decrease in the fish population of the reservoir. No fisheries management plan is proposed under the No Action Alternative. The No Action Alternative would therefore have a minor adverse impact on fisheries in the Plan Area.

Trail Use

The No Action Alternative does not include the construction of additional trails. Trail use, as proposed by the No Action Alternative, would have no significant impacts on fisheries and aquatic communities in the Plan Area.

Boat Use

The No Action Alternative would have minor adverse impacts to fisheries and aquatic communities. Under the No Action Alternative, increased numbers of boats during periods of heavy use would have minor adverse impacts on water quality, with the potential for major adverse impacts in localized areas (see Section 4.1.4). Major adverse impacts to water quality, such as increased levels of pollutant compounds, could reduce fish populations thereby disturbing aquatic communities

Other Management Issues

The absence of a Vegetation Management Plan under the No Action Alternative, when compared with the action alternatives, would result in minor adverse impacts to wildlife. The implementation of natural resources management under the No Action Alternative is addressed in Section 4.4.3.

Under the No Action Alternative, no fisheries management plan would be developed, resulting in a minor adverse impact to fisheries in the Plan Area.

Special-Status Species

Camping and Recreation

The relocation of the campground at Temperance Flat would not result in adverse impacts to special-status species that occupy vernal pools at nearby Big Table Mountain. The increase in camping capacity is small, and visitor access would be restricted. The No Action Alternative would have no impact on special-status species in the vicinity of Temperance Flat.

Trail Use

The No Action Alternative does not include the construction of additional trails. Trail use, as proposed by the No Action Alternative, would have no impacts on special-status species in the Plan Area.

Boat Use

Under the No Action Alternative, boat use would have no impact on roosting bald eagles (see Section 4.4.3).

Other Management Issues

The absence of a Vegetation Management Plan under the No Action Alternative, when compared with the action alternatives, would result in minor adverse impacts to special-status species. The implementation of natural resources management under the No Action Alternative is addressed in Section 4.4.3.

4.4.5 Impacts Specific to Alternative 1

Vegetation

Camping and Recreation

The impacts of expanded camping facilities at the North Shore and South Shore areas are addressed in Section 4.4.3.

Under Alternative 1, the expansion of camping facilities at Temperance Flat, and the corresponding increase in visitor access would have minor adverse impacts to vegetation. Because visitors would be able to access Temperance Flat via roads, the spread of invasive weed species may occur. The increase in visitor use may result in trespassing and unwanted visitors at nearby Big Table Mountain, where vernal pool vegetation could be harmed by trampling and invasive weed species.

Trail Use

Alternative 1 includes the expansion of recreational trails in the Plan Area, including the addition of more ADA compliant trails and a lake perimeter trail. Maintenance Roads will be opened to bicycle use, and separate trail segments will be provided for bicyclists and hikers/horseback riders.

The expansion of the trail system proposed by Alternative 1 would have minor adverse impacts on vegetation:

- Native plant species could be removed during construction of new trails.
- Seeds of invasive weed species may spread due to trail use and disturbance from construction.

- Concern exists about the spread of serious pathogens, such as *Phytophthora ramorum,* a water mold that causes sudden oak death. Although sudden oak death syndrome is not known in the Millerton Lake area, it is expected to become much more widespread in California and could potentially spread to this area. Increased recreation use and expansion of trails has the potential to facilitate the spread of sudden oak death syndrome should this pathogen reach the Plan Area.

Alternative 1 includes the development and implementation of a trail management plan. The trail management plan shall provide measures to avoid and minimize impacts to native plant species by trail construction, address noxious weed control, and assess the potential for sudden oak death syndrome to become introduced to the Plan Area. The development and implementation of a trail management plan (see Mitigation Measure BI-3), which is already a proposed part of Alternative 1, would result in no impact to vegetation.

Boat Use

Under Alternative 1, boat use would have no impact on vegetation. Impacts of Alternative 1 on aquatic plant communities are discussed below in the Fisheries and Aquatic Communities section.

Natural Resources Management

The implementation of natural resources management under Alternative 1 is addressed in Section 4.4.3.

Wildlife

Camping and Recreation

The impact of camping and recreation facilities on wildlife is addressed in Section 4.4.3.

Trail Use

Increased trail use, as proposed by Alternative 1, would have a minor adverse impact on wildlife. The construction of additional trails may remove some wildlife habitat, and edge effects could result in small-scale degradation of habitat quality. Increases in trail use can result in encounters between humans and wildlife, which can be detrimental to wildlife populations. The trail management plan (see Mitigation Measure BI-3), which would be developed as part of Alternative 1, shall assess potential impacts to wildlife and provide avoidance and minimization procedures so that no adverse impacts to wildlife can be detected (no impact).

Boat Use

Under Alternative 1, boat densities up to 5.5 acres/boat would be managed for the main body of the reservoir, and up to 20 acres/boat on the area upstream from Fine Gold Creek. Boat use at this density would have minor adverse impacts on wildlife due to potential disturbance from noise and human presence. These disturbances would be localized and difficult to quantify.

Adverse impacts under Alternative 1 would be less than the No Action Alternative, and greater than Alternative 2.

Natural Resources Management

The implementation of a Vegetation Management Plan under Alternative 1 is addressed in Section 4.4.3.

Fisheries and Aquatic Communities

Camping and Recreation

Under Alternative 1, visitor use in the Plan Area would increase as facilities and population growth allow. The extent to which the increase in visitors will correspond with an increase in fishing activity is unknown, but increased fishing may result in a decrease in the fish population of the reservoir.

Trail Use

Trail construction activities must adhere to all state and local requirements for erosion control and storm water pollution, therefore increased trail use, as proposed by Alternative 1, would not adversely impact fisheries and aquatic communities.

Boat Use

Alternative 1 would have minor adverse impacts to fisheries and aquatic communities. Emissions from motorized vessels would have minor adverse impacts on water quality, with the potential for major adverse impacts in localized areas until the phase-out is completed (see Section 4.1.5). Impacts to water quality, such as increased levels of pollutant compounds, could affect aquatic communities. Mitigation for these impacts is discussed in Section 4.1.8 and Mitigation Measure BI-4.

Natural Resources Management

The implementation of natural resources management under Alternative 1 is addressed in Section 4.4.3.

Special-Status Species

Camping and Recreation

Expansion of camping facilities at Temperance Flat would have minor adverse impacts to special-status species:

- Prairie falcon, are uncommon nesters in California but are known to nest along the cliffs associated with Big Table Mountain. Currently the prairie falcon is listed as a species of

concern by the CDFG (2007). High levels of disturbance or a decline in prey base could cause the falcon to abandon nesting areas.

- California (western) mastiff bat is known to occur in the cliffs associated with Table Mountain. Currently the bat is listed as a species of concern by the CDFG (2007). Disturbance to roosting sites could cause the bat to abandon current roost sites. Several other bat species may be present in the Plan Area, roosting in abandoned buildings or along the cliffs associated with the Table Mountains, and disturbance to these areas could cause the bats to abandon their roost sites.
- Vernal pool branchiopods in the Plan Area include conservancy fairy shrimp (a federally endangered species), vernal pool fairy shrimp (a federally threatened species), and vernal pool tadpole shrimp (a federally endangered species). These species rely on vernal pools for their survival, and could be adversely impacted by any changes to the vernal pool habitats atop Big Table Mountain and McKenzie Table. The spread of invasive weed species due to increased visitor traffic could impact vernal pools and the wildlife species associated with them.

If Alternative 1 is implemented, mitigation measures shall be implemented such that no impact to special-status species occurs. Reclamation and Parks staff shall monitor visitor use to ensure that visitors comply with regulations.

Trail Use

Increased trail use, as proposed by Alternative 1, would have a minor adverse impact on special-status species. Trail locations shall be selected to avoid special-status species populations. The trail management plan (see Mitigation Measure BI-3), which would be developed as part of Alternative 1, shall assess potential impacts to special-status species and provide avoidance and minimization procedures so that no adverse impacts to special-status will occur (no impact).

Boat Use

Under Alternative 1, boat use would have no impact on roosting bald eagles (see Section 4.4.3).

Natural Resources Management

The implementation of natural resources management under Alternative 1 is addressed in Section 4.4.3.

4.4.6 Impacts Specific to Alternative 2

Vegetation

Camping and Recreation

Expansion of camping facilities at Temperance Flat, as proposed by Alternative 2, would have minor adverse impacts to vegetation. These impacts would be similar to, but less than, those impacts resulting from Alternative 1 (see Section 4.4.5). As discussed in Section 4.4.8,

Reclamation and State Parks staff shall mitigate for impacts to vegetation by implementing additional patrols at Temperance Flat to ensure that visitors comply with park regulations.

Trail Use

Under Alternative 2, impacts of increased trails and trail use would be similar to, but less than, Alternative 1. Trail expansion is proposed under Alternative 2, but separate trail segments for bicyclists and hikers/horseback riders would not be provided as in Alternative 1. Trail use, as proposed by Alternative 2, would have minor adverse impacts on vegetation in the Plan Area. These impacts shall be addressed by the development and implementation of the trail management plan (see Alternative 1, Section 4.4.5, and Mitigation Measure BI-3).

Boat Use

Under the Alternative 2 boat use would have no impact on vegetation. Impacts of the Alternative 2 on aquatic plant communities are discussed below in the Fisheries and Aquatic Communities section.

Natural Resources Management

The implementation of natural resources management under Alternative 2 is addressed in Section 4.4.3.

Wildlife

Camping and Recreation

Special use permitted hunting in accordance with CDFG would be explored.

Trail Use

Increased trail use, as proposed by Alternative 2, would have a minor adverse impact on wildlife. The trail management plan (see Mitigation Measure BI-3), which would be developed as part of Alternative 2, shall assess potential impacts to wildlife and provide avoidance and minimization procedures so that no adverse impacts to wildlife will occur (no impact).

Boat Use

Under Alternative 2, management direction would support boat densities up to 10 acres/boat would be allowed on the main body of the reservoir, and up to 80 acres/boat on the area upstream from the confluence with Fine Gold Creek. Boat use at this density would have minor adverse impacts on wildlife due to potential disturbance from noise and human presence. These disturbances would be localized and difficult to quantify. Adverse impacts under Alternative 2 would be less than the No Action Alternative, and less than Alternative 1.

Natural Resources Management

The implementation of natural resources management under Alternative 2 is addressed in Section 4.4.3.

Fisheries and Aquatic Communities

Camping and Recreation

Expansion of camping and recreation facilities would be limited under Alternative 2, and would include compliance with local and state erosion control and water quality regulations. Impacts of camping and recreation facilities on water quality are addressed in more detail in Section 4.1. Camping and recreation facilities, as proposed by Alternative 2, would have no impact on fisheries and aquatic communities in the Plan Area.

Trail Use

Trail construction activities must adhere to all state and local requirements for erosion control and storm water pollution, therefore increased trail use, as proposed by Alternative 2, would not adversely impact fisheries and aquatic communities.

Boat Use

Alternative 2 would have minor adverse impacts to fisheries and aquatic communities. Emissions from motorized vessels would have minor adverse impacts on water quality, with potential for major adverse impacts in localized areas until the phase-out is completed (see Section 4.1.6). Adverse impacts to water quality, such as increased levels of pollutant compounds, could reduce fish populations and disturb aquatic communities. Mitigation for these impacts is discussed in Section 4.1.8.

Natural Resources Management

The implementation of natural resources management under Alternative 2 is addressed in Section 4.4.3.

Special-Status Species

Camping and Recreation

Expansion of camping facilities at Temperance Flat, as proposed by Alternative 2, would have minor adverse impacts to special-status species that occupy the vicinity of Big Table Mountain. These impacts would be similar to, but less than, those impacts resulting from Alternative 1 (see Section 4.4.5). Reclamation and Parks staff shall monitor visitor use at Temperance Flat to ensure that visitors comply with regulations, to protect special-status species.

Trail Use

Increased trail use, as proposed by Alternative 2, would have a minor adverse impact on special-status species. The trail management plan (see Mitigation Measure BI-3), which would be developed as part of Alternative 2, shall assess potential impacts to special-status species and provide avoidance and minimization procedures so that no adverse impacts to special-status will occur (no impact).

Boat Use

Under Alternative 2, boat use would have no impact on roosting bald eagles (see Section 4.4.3).

Natural Resources Management

The implementation of natural resources management under Alternative 2 is addressed in Section 4.4.3.

4.4.7 Impacts Specific to Alternative 3

Vegetation

Camping and Recreation

Alternative 3 would not include an expansion of camping facilities at Temperance Flat beyond the No Action, and therefore would result in no impact to vegetation.

Trail Use

Under Alternative 3, an entire lake perimeter trail and a San Joaquin Trail linkage would be pursued.

Boat Use

Under Alternative 3, boat use would be limited. Alternative 3 would have no impact on vegetation in the Plan Area.

Natural Resources Management

The implementation of natural resources management under Alternative 3 is addressed in Section 4.4.3.

Wildlife

Camping and Recreation

Alternative 3 would maintain boat-in camping at Temperance Flat with 15 alternative camping sites. No impacts to wildlife are expected.

Trail Use

Trail use, as proposed by Alternative 3, would have no impact on vegetation in the Plan Area.

Boat Use

Under Alternative 3, management direction would support boat densities up to 15 acres/boat would be allowed on the main body of the lake, and 80 acres/boat from Fine Gold Creek upstream. Alternative 3 would have a minor adverse impact on wildlife in the up-river area, and this impact would be less than under Alternative 2.

Natural Resources Management

The implementation of natural resources management under Alternative 3 is addressed in Section 4.4.3.

Wildlife areas would be maintained and improved under the Alternative 3, resulting in beneficial impacts to wildlife.

Fisheries and Aquatic communities

Camping and Recreation

Expansion of camping and recreation facilities would be limited under Alternative 3, and would include compliance with local and state erosion control and water quality regulations. Impacts of camping and recreation facilities on water quality are addressed in more detail in Section 4.1. Camping and recreation facilities, as proposed by Alternative 3, would have no impact on fisheries and aquatic communities in the Plan Area.

Trail Use

Trail use, as proposed by Alternative 3, would have no impact on fisheries in the Plan Area.

Boat Use

Under Alternative 3, boat use would be limited. Alternative 3 would have no impact on fisheries and aquatic resources in the Plan Area.

Natural Resources Management

The implementation of natural resources management under Alternative 3 is addressed in Section 4.4.3.

Special-Status Species

Camping and Recreation

Alternative 3 would maintain boat-in camping at Temperance Flat with 15 alternative camping sites. No impacts to special-status species are expected.

Trail Use

Trail use, as proposed by Alternative 3, would have no impact on vegetation in the Plan Area.

Boat Use

Under Alternative 3, boat use would have no impact on roosting bald eagles (see Section 4.4.3).

Natural Resources Management

The implementation of natural resources management under Alternative 3 is addressed in Section 4.4.3.

4.4.8 Impacts Summary

On balance, the No Action Alternative, Alternative 1, Alternative 2, and Alternative 3 range from the greatest adverse impact on biological resources to the least adverse impact on biological resources. The impacts of the No Action Alternative are most adverse because this alternative does not provide management of boat traffic or park visitors, and does not include natural resource management plans. The three action alternatives represent a range of actions from recreation intensive (Alternative 1) to natural resource protection (Alternative 3). Alternative 3 would impact natural resources the least because it provides for less boat use, fewer visitors, fewer trails, and less impact to Temperance Flat.

As described above, the four Actions include several minor and some possible major adverse impacts to biological resources. Using appropriate mitigation measures, adverse impacts associated with Alternatives 1, 2, and 3 could be reduced to minor impacts.

Impact BI-1

Expansion of camping and recreation facilities may have minor adverse impacts to biological resources.

Mitigation Measure BI-1

For expansion of facilities, including camping and parking, site-specific environmental studies must be conducted to assess biological impacts and determine mitigation measures that will reduce these impacts. Mitigation measures would include avoidance and/or setbacks from sensitive habitat and other measures discussed under BI-2 and BI-3. Remaining impacts would be minor.

Impact BI-2

The expansion of camping facilities at Temperance Flat, along with increased visitor access, would have minor adverse impacts to vegetation and special-status species.

Mitigation BI-2

If Alternative 1 or Alternative 2 is implemented, Reclamation and Parks staff shall monitor visitor use at Temperance Flat to ensure that visitors comply with park and other appropriate regulations.

Impact BI-3

The expansion of the trail system proposed by Alternative 1 and Alternative 2 would have minor adverse impacts on vegetation, wildlife, and special-status species:

- Native plant species could be removed during construction of new trails.
- Seeds of invasive weed species may spread due to trail use and disturbance from construction.
- Increased recreation use and expansion of trails has the potential to facilitate the spread of sudden oak death syndrome should this pathogen reach the Plan Area.

Trail construction could result in small-scale removal of wildlife and special-status species habitat and increased edge effects that would degrade habitat quality.

Mitigation BI-3

A trail management plan shall be developed to manage trail usage. The trail management plan shall provide measures to avoid and minimize impacts to native plant species by trail construction, address noxious weed control, and present a monitoring plan for sudden oak death syndrome whereby managers can determine if this plant pathogen has been introduced to the vicinity of the Plan Area. Implementation of mitigation measures in the trail management plan would reduce impacts, but the remaining impacts would still be minor.

Impact BI-4

The No Action Alternative could have minor to major impacts to aquatic communities through 2020, when the manufacturers' phase-out would be approximately 95 percent. Under Alternatives 1 and 2, motorized vessels emissions would be primarily minor and short term. Alternative 3 would result in beneficial impacts.

Mitigation BI-4

No mitigation is proposed since impacts will be primarily minor and short-term because of the phase-out. Remaining impacts would be minor.

Impact BI-5

Implementation of the vegetation and fisheries management plan would have beneficial impacts under Alternatives 1, 2, and 3. The absence of these plans under the No Action Alternative would lead to minor impacts.

Cumulative Impacts

Biological resources in the Study Area and adjacent vicinity will be affected by ongoing and future development activities in the vicinity, such as continued recreation and facilities expansion outside the Millerton Plan Area, and increased residential development. Cumulative impacts to vegetation would include continued decreases in native plant species, and increases in invasive weeds. Cumulative impacts to wildlife and special-status species would result from continued removal of habitat and increased habitat fragmentation. Development or disturbance of grassland used by the California tiger salamander for aestivation could negatively impact the species. Disturbance to the vernal pool habitat would affect the breeding suitability of the area for the salamander. Draining, overgrazing, undergrazing, and invasive vegetation could impact vernal pools and the wildlife and special-status species associated with them.

Development of North Fork Village–1 is anticipated to result in the removal of 35 percent of the known extant population of Hartweg's golden sunburst (*Pseudobahlia bahiifolia*). The *Draft Environmental Impact Report, North Fork Village–1* (Madera County 2007) describes this as a cumulatively significant adverse impact and proposes a mitigation strategy that includes acquisition and protection of Hartweg's golden sunburst habitat off-site at a compensation ratio of 2:1 or 3:1. Although some of the known population of Hartweg's golden sunburst falls within the Millerton Lake Study Area, none of it is within the Millerton Lake Plan Area. As a result, any potential management actions within the Millerton Lake Plan Area will not add to cumulative impacts on the Hartweg's golden sunburst population.

In general, the management activities included in Alternatives 1, 2, and 3 would have a beneficial long-term impact on biological resources in the region. The cumulative impact of the Millerton RMP/GP on biological resources is beneficial because the Plan would provide for management of open space. The beneficial impact varies among the four alternatives because it varies in approach to managing the resources. The Millerton RMP/GP would provide beneficial impacts to the Study Area through conservation enhancement and management of natural resources, and by providing a framework under which to manage impacts to vegetation, wildlife, fisheries and aquatic communities, and special-status species. This would result in an overall beneficial long-term impact on biological resources in the region.

4.5 CULTURAL RESOURCES

4.5.1 Introduction

Potential cultural resource impacts would be related to:

- Increased visitor use resulting in an increase of unauthorized collection, or vandalism to cultural resource sites
- Ground-disturbing activities associated with new facilities installation or improvements
- New trail construction
- Increased lake margin erosion at archaeological sites caused by increased wake speed and numbers of boaters
- Construction of new utilities
- Use of prescribed burns

4.5.2 Impact Thresholds

- **Beneficial Impact:** This impact category would occur when a planning element could result in enhanced visitor awareness regarding the fragile and irreplaceable nature of cultural resources. A beneficial impact would also occur when opportunities for public interpretation of cultural resource sites are implemented.
- **No Impact:** This impact category would occur if any proposed activity would result in no change over existing cultural resource conditions.
- **Minor Adverse Impact:** This impact category would occur if an activity would result in a direct or indirect effect to a cultural resource that has been determined to not be eligible for inclusion on the National Register of Historic Places or California Register of Historic Resources. No mitigation would be required for this type of impact.
- **Major Adverse Impact:** This impact category would occur if an activity would result in a direct or indirect effect to a cultural resource determined to be eligible for inclusion on the NRHP or CRHR. Mitigation would be required for this type of impact.

4.5.3 Impacts Common to All Alternatives

Within the RMP/GP elements for all four alternatives, there are identified facilities and infrastructural improvements that are common to all alternatives. However, any specific improvement that would result in ground-disturbing activity or increased visitor use would be subject to a project-specific environmental review that would include an assessment of potential impacts to cultural resources. When specific projects are developed, a site-specific environmental analysis would be conducted and a more focused analysis of the proposed project's impacts to cultural resources would occur. At that time, more clearly defined cultural resource impacts may be identified. If significant cultural resource impacts were to be identified,

the proposed project would be modified or mitigation measures, as described under NEPA and CEQA, would be implemented to reduce these impacts.

Under all of the alternatives the following actions/activities would occur that would have the potential to impact cultural resources.

- Facilities and Services: Restroom facilities would be upgraded. Construction activity associated with this action could potentially disturb previously unidentified archaeological sites.
- Utilities: Improve physical facilities including ADA compliance. Construction activity associated with this action could potentially disturb previously unidentified archaeological sites.
- Cultural Resources: Restrict or limit access to Kechaye Cultural Preserve and restrict access to any known cultural resource sites. These measures will help to physically protect cultural resources as well as provide public education opportunities to inform the public of the fragile and irreplaceable nature of cultural resources.
- Fire Management: Prescribed burn activities may be utilized for vegetation management in the Plan Area. Prescribed burns have the potential to expose archaeological sites. Such exposure can result in disturbance caused by erosion or looting activity.
- Private lands/Trespass Issues: The reduction of trespassing, which would be emphasized under all alternatives, would reduce the potential for illicit and unregulated use of the Plan Area including unauthorized collection of artifacts. Because trespassers are unregulated, they have the opportunity to utilize the Plan Area in manners other than the intended land uses within the Plan Area. This element would reduce the potential use of the Plan Area in ways that are not intended and result in a beneficial cultural resource impact.
- Traffic Control: Extension of the left turn lane and changing the location of the entrance kiosk (on the south shore) under all alternatives. Construction activity associated with this action could potentially disturb previously unidentified archaeological sites.
- Boating: Under all alternatives, it is anticipated that the overall number of boats utilizing the main body of the lake would increase over the existing condition. The increase in motorboats could potentially increase the amount of wake-induced erosion, which could expose previously unknown archaeological sites, or further erode currently exposed sites.

4.5.4 Impacts Specific to No Action Alternative

Potential impacts to cultural resources under all alternatives include:

Facilities and Services – Up-river

Under this alternative the Temperance Flat campground would be moved to the south side of the river for up to 25 campsites. In addition, physical facilities would be improved to accommodate ADA, security, and law-enforcement requirements. Construction activity associated with these actions could potentially disturb previously unidentified archaeological sites.

Trails

A portion of the McKenzie Point Trail would be widened for ADA accessibility under all alternatives. Construction activity associated with this action could potentially disturb previously unidentified archaeological sites.

4.5.5 Impacts Specific to Alternative 1

Potential impacts to cultural resources under this alternative include:

Facilities and Services – North Shore

This alternative would increase the Group Camp capacity and associated parking spaces, replace the entrance kiosk and widen lanes around it and add other appurtenant facilities. Ground disturbing activities associated with this alternative could potentially disturb previously unidentified archaeological sites.

Facilities and Services – South Shore

This alternative would add a stationary food service facility. Ground disturbing activities associated with this alternative could potentially disturb a previously unidentified archaeological site.

Facilities and Services – Up-river

Provisions for a group camping area at Temperance Flat and appurtenant facilities have been identified under this alternative. Ground disturbing activities associated with this alternative could potentially disturb previously unidentified archaeological sites.

Trails

A number of trail improvements and additions are identified under this alternative. Modification of trails to make them ADA-compliant, or other trail construction could potentially disturb previously unidentified archaeological sites. A potential lake perimeter trail, or new trail east of Fine Gold Creek could provide increased visitor access to cultural resource sites that could be subject to looting or vandalism.

Boating Density and Boat Speed

Under this alternative boating would be at the maximum proposed densities and highest speeds. It is possible increased boat use and/or speed could cause wake-induced erosion of exposed or buried archaeological sites.

4.5.6 Impacts Specific to Alternative 2

Potential impacts to cultural resources under this alternative include impacts that are common to the other alternatives as well as the following:

Facilities and Services – North Shore

This alternative would increase the Group Camp capacity to a somewhat lesser degree than under Alternative 1. Ground disturbing activities associated with this alternative could still potentially disturb previously unidentified archaeological sites.

Facilities and Services – Up-river

Provisions for a group camping area at Temperance Flat and appurtenant facilities have been identified under this alternative, but with a reduction in the number of people that could use the facility compared to Alternative 1. However, ground-disturbing activities associated with this alternative could potentially disturb previously unidentified archaeological sites.

Boating Density

Under this alternative boating would be at reduced densities compared to Alternative 1. Boat densities could cause wake-induced erosion of exposed or buried archaeological sites, but to a lesser degree that under Alternative 1.

4.5.7 Impacts Specific to Alternative 3

Potential impacts to cultural resources under this alternative include impacts that are common to the other alternatives as well as the following:

Boating Density

Under this alternative boating would be reduced from the higher densities compared to Alternatives 1 and 2. However, there is still the potential for wake-induced erosion of exposed or buried archaeological sites.

4.5.8 Impacts Summary

Impact CU-1

For the action alternatives, at a programmatic level, the number and intensity of potential adverse impacts to cultural resources in general would be slightly larger for Alternative 1 than for Alternative 2, while Alternative 3 would have the least adverse impacts. However, since cultural resources are distributed across the landscape, any of the action alternatives could result in the greatest number of impacts to cultural resources. The various ground-disturbing activities and/or increased visitor usage could result in major cultural resource impacts if sites eligible for inclusion on the NRHP or CRHR were adversely affected by the activity. Pending formal field surveys related to specific activities and formal evaluations of potentially affected sites the nature and extent of cultural resource impacts cannot be characterized. Impacts could vary from major to minor.

Mitigation Measure CU-1

The RMP/GP is a programmatic document and the cultural resource mitigation measures provided herein are generic in their application, as specific actions at specific locations that might have a potential adverse effect on a specific cultural resource have not been identified at this stage.

There are three classes of resources that could potentially be affected by the actions carried out under the RMP/GP. These include:

- Built environment resources (buildings, structures and other above ground built features)
- Archaeological sites (prehistoric, historic, or mixed component)
- Traditional Cultural Properties (TCP) (traditional use areas such as plant gathering areas which still retain significance for living populations)

The kinds of activities that could potentially affect the resource classes described above include:

- Ground-disturbing activity caused by construction, maintenance, or wake-induced erosion
- Vandalism and/or looting of archaeological or built environment resources as a result of increased visitor use and/or improved visitor access
- Willful or unintentional disturbance to a TCP through direct physical disturbance, installation of facilities or infrastructure in an inappropriate area or visitor use of an area leading to vandalism or looting.

Classes of mitigation measures include:

- Prior to any specific proposed undertaking that would have the potential to affect cultural resources a cultural resources inventory will be conducted for the areas of potential effects by qualified personnel. This effort may be in conjunction with consultation with members of the local Native American community and consultation with other interested member of the public as appropriate.
- In the event a significant cultural resource as defined by the NRHP and CRHR criteria, is identified and has the potential to be adversely affected, appropriate measures will be taken to avoid the resource. In the event the resource cannot be avoided measures such as data recovery, further study, enhanced recordation, interpretation, physical protection or some combination of these measures will be implemented to reduce impacts to minor.

4.6 VISUAL RESOURCES

4.6.1 Introduction

Impacts to visual resources in the Plan Area could occur due to changes in viewsheds caused by development activities in the North Shore area, South Shore area, Winchell Cove area, South Fine Gold area, Temperance Flat area, and along the perimeter of the main body of the lake.

4.6.2 Impact Thresholds

- **Beneficial Impact:** This impact category would occur if the visual quality or the visual character of an existing viewshed were improved by a specific RMP/GP element or group of elements. In addition, the creation of a new viewshed could result in a beneficial impact.
- **No Impact:** This impact category would occur if a specific element or group of elements does not result in a change in the quality or visual character of a viewshed.
- **Minor Adverse Impact:** This impact category would occur if a specific element or group of elements results in a decrease in the visual quality or visual character of a viewshed. This impact would be minimal or temporary, but detectable. This impact category is equivalent to a less-than-significant impact under CEQA.
- **Major Adverse Impact:** This impact category would occur if a specific element or group of elements results in a permanent, highly noticeable, and substantial decrease in the visual quality or visual character of a viewshed. This impact category is equivalent to a significant impact under CEQA.

4.6.3 Impacts Common to All Alternatives

At a programmatic level, there are no RMP/GP elements that are common to all four alternatives that would result in a noticeable and permanent change in the visual quality or visual character of this region or any other region of the Plan Area. When specific projects are developed, a site-specific environmental analysis would be conducted and a more focused analysis of the proposed project's impacts to visual resources would occur. If significant visual resources impacts were identified, the proposed project would be modified or mitigation measures would be implemented to reduce these impacts.

If prescribed burn activities were to occur, they could temporarily alter the viewsheds throughout the Plan Area by introducing large amounts of smoke into the area. Smoke caused by this activity could dramatically reduce the visual resources of the Plan Area and would have an adverse impact on visual resources. Due to the temporary and infrequent occurrences of prescribed burning activities, this would be a minor adverse impact, as defined above.

Under all alternatives, the number of visitors to the Plan Area would increase over the existing conditions. Elements common to all action alternatives would involve new and redesigned Plan Area facilities to, in part, address the expected increase in visitors. These developments could include new campsites and roadway improvements in the North Shore Area, new day use sites in the South Shore Area, redesigned Plan Area entrance stations, capitol improvements at the Winchell Cove concession facilities, permanent concession facilities at various day use and

camping areas, and new parking lots. Though the addition or modifications of Plan Area facilities may change the viewshed in the Plan Area, these facilities would be designed to not adversely impact the visual resources of the Plan Area. These new facilities would be compatible with the existing surrounding land uses and facilities within the Plan Area. They would not change the visual character within the Plan Area. No impacts to visual resources would be expected from these RMP/GP elements that are common to all of the action alternatives.

Under the action alternatives, land may be acquired in the North Shore area to serve as a buffer to the Plan Area boundary. This RMP/GP element would assist in preserving the immediate viewshed and visual quality of the landscape immediately surrounding the North Shore area to a pre-development, open space character. By accounting for potential change in the visual resources that could occur upland of the main body of the lake on private land, this element would result in a beneficial impact to visual resources.

4.6.4 Impacts Specific to No Action Alternative

The managed maximum boat density would be higher under the No Action Alternative than under the existing conditions for the whole lake. At its peak density of use, the increase in boats on the lake may be noticeable. Because there are boats that currently use the lake in a similar manner as they would under this alternative, the quality and visual character of the viewshed of the lake would not significantly change. Since the change in boat density may be noticeable but the visual character would not significantly change, a minor adverse impact to visual resources would be expected.

All other specific RMP/GP elements under the No Action Alternative would not result in changes in the visual character or visual quality within the Plan Area. Therefore, no impacts to visual resources for all other specific RMP/GP elements are expected under this alternative.

4.6.5 Impacts Specific to Alternative 1

Similar to the No Action Alternative, Alternative 1 would result in the managed maximum boat density to be higher throughout most of the lake than under the existing conditions. At its peak density of use, the increase in boats on the lake may be noticeable. Because there are boats that currently use the lake in a similar manner as they would under this alternative, the quality and visual character of the viewshed of the lake would not significantly change. This visual change of the viewsheds on the lake due to the increase in boat density would result in a minor adverse impact.

Alternative 1 would result in new facilities at various areas of the Plan Area that could affect several viewsheds. In the North Shore area, campgrounds and paved parking would be expanded, the size of the amphitheatre would be increased, a multipurpose facility would be installed at the Group Campground, and permanent concession facilities would be installed at the boat ramp. A new food service facility would be installed in the South Shore area. New boat slips and a launch facility could be added to the Winchell Cove Marina, and the other marina facilities would be upgraded. The campground at Temperance Flat would be expanded with additional campsites containing running water, electricity, and round stoves. Though these RMP/GP elements could affect and change the viewsheds in parts of the Plan Area, they would be designed to not diminish the visual resources of the Plan Area. These new facilities would be compatible with the existing land uses in the area; they would be suitable land uses, under this alternative, for the

areas they would affect; and they would not change the visual character or the visual quality of their immediate surroundings. Minor or no impact to visual resources would be expected from these RMP/GP elements under Alternative 1.

Under this alternative, new trails, including a lake perimeter trail, would be established. In areas where there currently are no trails and visitor access is limited, these new trails would create new viewsheds of the Plan Area and the surrounding terrain. Where these elements would lead to the creation of new viewsheds within the Plan Area, they would result in beneficial impacts to visual resources.

4.6.6 Impacts Specific to Alternative 2

Similar to Alternative 1, Alternative 2 would result in the managed maximum boat density to be higher in parts of the lake than under the existing conditions. At its peak density of use, the increase in boats on the lake may be noticeable. Because there are boats that currently use the lake in a similar manner as they would under this alternative, the quality and visual character of the viewshed of the lake would not significantly change. This visual change of the viewsheds on the lake due to the increase in boat density would result in a minor adverse impact.

Under Alternative 2, new facilities would be constructed at various areas of the Plan Area that could affect many viewsheds. These RMP/GP elements would be similar to those proposed under Alternative 1. In the North Shore area, campgrounds and paved parking would be expanded, the size of the amphitheatre would be increased, a multipurpose facility would be installed at the Group Campground, and corrals and shaded ramadas would be added at the Horse Camp. New boat slips and a launch facility could be added to the Winchell Cove Marina, and the other marina facilities would be upgraded. The campground at Temperance Flat would be redesigned to have running water and fire rings. Though these elements could affect and change the viewsheds in parts of the Plan Area, they would be designed to not diminish the visual resources of the Plan Area. These new facilities would be compatible with the existing land uses in the area, they would be suitable land uses under this alternative for the areas they would affect, and they would not change the visual character or the visual quality of their immediate surroundings. Minor or no impacts to visual resources would be expected from these RMP elements under Alternative 2.

Under this alternative, a lake perimeter trail would be established throughout the Plan Area. In areas where there currently is no trail and visitor access is limited, this new trail would create new viewsheds of the Plan Area and surrounding terrain for Plan Area visitors. If this element would lead to the creation of new viewsheds within the Plan Area, it would result in a beneficial impact to visual resources.

4.6.7 Impacts Specific to Alternative 3

Under Alternative 3, the boat density in the upstream areas of the lake above the main body of the lake would be equal to or greater than under existing conditions. The boat density upstream of the main lake body would be equal to or less than under the existing conditions. This difference in boat densities may be noticeable but would be relatively minimal. The reduction of boat density in the upper reaches of the lake would result in a beneficial impact to visual resources.

With the small amount of development of new facilities in the Plan Area proposed to occur under Alternative 3, the existing viewsheds within the Plan Area would not be changed. No impact to visual resources would be expected under Alternative 3 for development of new facilities or upgrading existing facilities.

New primitive campsites would be established along the San Joaquin River Trail. These new campsites would create new viewsheds of the Plan Area and the surrounding terrain. This element would result in beneficial impacts to visual resources

Under this alternative, additional land could be acquired for resource protection or to serve as a buffer to the development that could occur adjacent to the Plan Area. This RMP/GP element would assist in preserving some of the viewshed adjacent to the current Plan Area boundary. By accounting for the change in the visual resources that could occur upland of the main body of the lake, this element would result in a beneficial impact to visual resources.

4.6.8 Impacts Summary

Impact VR-1

Smoke that could result from potential prescribed burn activities under all alternatives would be temporary and infrequent, resulting in a minor adverse impact to visual resources.

Impact VR-2

The noticeable change in the boat density on the lake would result in a minor adverse impact to visual resources for the No Action Alternative, Alternative 1, and Alternative 2. Of these three alternatives, Alternative 2 would have the least noticeable change in boat density. Under the No Action Alternative, the maximum density of boats on the entire lake would be noticeably higher than under the action alternatives

Impact VR-3

Under Alternative 3, the upper reaches of the lake would have a lower boat density than under the other alternatives and existing conditions. This would result in a beneficial impact to visual resources.

Impact VR-4

New facilities proposed under Alternatives 1, 2, and 3 would not appreciably diminish the visual resources of the Plan Area and would result in minor or no impacts to visual resources.

Impact VR-5

Under Alternatives 1, 2 and 3, acquisitions, easements, or mitigation measures on lands adjacent to the existing Plan Area boundary may result in reduced impacts from surrounding development. This would be a beneficial impact.

Cumulative Impacts

During the RMP/GP planning period, the general viewshed and visual character outside of the Plan Area but within the Study Area will gradually change and degrade in visual quality as the area becomes more densely developed. Developments outside of the Plan Area are described in the *Final Rio Mesa Area Plan* (Keith Companies 1995), *Madera County General Plan* (Madera County 1995), *Millerton Specific Plan* (Fresno County 1984, amended 1988), Sierra-North Regional Plan (Fresno County 1982, amended 1997), and the *Draft Environmental Impact Report, North Fork Village–1* (Madera County 2007). As the visual resources outside of the Plan Area become degraded, the relatively high visual quality of the Plan Area would begin to contrast with these surrounding views.

As developments are advanced for approval, the environmental documents prepared to support the projects will need to assess the potential projects' visual impacts and include mitigation measures to reduce impacts. The *Draft Environmental Impact Report, North Fork Village–1* (Madera County 2007), for example, identifies the following significant visual impacts due to the development:

- The existing rural, open-space character of the site will be substantially altered with development of the proposed project.
- The proposed project will introduce new sources of light and glare into the project area through street and security lighting, outdoor residential lighting, and light generated from project-related traffic.

The North Fork Village EIR proposes mitigating these impacts by complying with the Grading Plan Development Standards specified in the *North Fork Village–1 Specific Plan* (Ennis Consulting and Forma 2006), and by limiting public street lighting to the minimum necessary for public safety to maintain the desired rural atmosphere of the community. However, according to the EIR, the project's visual impacts would still be significant after mitigation.

When visible, the Plan Area under the RMP/GP would improve the visual quality of the general viewsheds in the Study Area. Although the North Fork Village development is expected to create significant visual impacts, at a cumulative level and with consideration of the planned developments, the RMP/GP actions would provide a beneficial impact to the overall visual resources of the Study Area.

4.7 LAND USE

4.7.1 Introduction

Potential land use impacts would be related to:

- Land use conflicts could arise from limiting access in the Plan Area during prescribed burning activities.
- Potential land use conflicts resulting from increases in noise.
- Access issues if access restrictions or the lack of access restrictions conflicts with other Plan Area land uses.

4.7.2 Impact Thresholds

- **Beneficial Impact:** This impact category would occur when a planning element could result in the elimination, reduction or resolution of a conflict between existing land uses.
- **No Impact:** This impact category would occur if planning elements would result in no change over the existing condition.
- **Minor Adverse Impact:** This impact category would occur if an activity would result in deterioration in the intended use of the Plan Area or when an activity would result in a conflict between intended land uses. This type of impact would often be temporary and no mitigation would be required. This impact category is equivalent to a less-than-significant impact under CEQA.
- **Major Adverse Impact:** This impact category would occur if an activity would result in a dramatic deterioration of the intended use of the Plan Area or when a planning element would result in a severe conflict between intended land uses. This type of impacts would often be long term and substantial. This impact category is equivalent to a significant impact under CEQA.

4.7.3 Impacts Common to All Alternatives

Many of the RMP/GP elements for all four alternatives have been designed to reduce land use conflicts and to clearly designate specific land uses in appropriate areas of the Plan Area. Therefore, except for the few planning elements described below, at a programmatic level, most of the planning elements that are common for all of the alternatives would have no impacts to land use. When specific projects are developed, a site-specific environmental analysis would be conducted and a more focused analysis of the proposed project's impacts to land use would occur. At that time, more clearly defined land use impacts may be identified. If significant land use impacts were to be identified, the proposed project would be modified or mitigation measures, as described under CEQA, would be implemented to reduce these impacts.

Under all of the alternatives, prescribed burn activities may be allowed for vegetation management in the Plan Area. Prescribed burns would only occur when specific fuel moisture and climatic conditions has been achieved and when permission from the San Joaquin Valley Air

Pollution Control District and the California Department of Forestry and Fire Prevention has been provided. Due to these limitations, prescribed burns may not occur annually in the Plan Area. Prescribed burns typically occur in the fall and the spring, though the necessary climatic and fuel conditions are less common in the spring. The burning activity generally occurs over a couple of days and mop-up and monitoring activities occur during the following week or two.

For prescribed burns to occur safely, areas of the Plan Area would need to be closed to Plan Area visitors during the days of the burning activities. The precise areas that would be closed would be dependent on the location of the prescribed burn. The closure of parts of the Plan Area could result in limiting public access to areas where access is generally permitted. These closures could create a land use conflict with other intended functions of the Plan Area. Depending on the location, all Plan Area users (boaters, campers, trail users, hunters, etc.) could be affected by area closures in the Plan Area. In addition, depending on prevailing winds, smoke and ash could affect areas of the Plan Area where public access would be permitted during the burning activities, making visitor use of these areas less desirable.

As described in Section 3, visitor use of the Plan Area is relatively low during the fall and relatively high during the spring. The land use conflicts between prescribed burning activities and access for Plan Area users would be minimized if the burns occurred in the fall. Prescribed burns that would occur in the spring have the potential to affect more Plan Area users and result in a larger land use conflict. Regardless of the season that a prescribed burn would occur, the land use impact would be minimal and temporary because area closures would only occur for a few days. Due to the temporary nature of the land use impact and the infrequency that this impact may occur, this would be a minor adverse impact.

The private mineral rights and mining claims that currently exist within the Plan Area would remain intact. Currently, no mining activities are occurring at these locations, but there is potential for a landowner to begin mining activities during the RMP/GP's planning period. Mining activities could directly conflict with other adjacent land uses in the Plan Area. Mining activities could create conflicts with Plan Area users participating in appropriate activities. Access to trails could be restricted due to mining activities, and access to Temperance Flat and day use areas could be affected if mining activities increase.

Under all alternatives, it is anticipated that the number of and/or density of boats utilizing the main body of the lake would increase over the existing condition. The increase in motorboat use would increase general noise levels on the water surface and in the adjacent lands surrounding the lake. Under all alternatives, the intended boat density would be compatible with the applicable WROS zone (urban or suburban, depending on the alternative). Therefore, although the noise levels would be an increase over the existing conditions, they would be consistent with the intended land use.

4.7.4 Impacts Specific to No Action Alternative

Under the No Action Alternative, there would not be a coordinated effort with the Millerton Area Watershed Coalition to integrate fire management and vegetation management between the Plan Area and surrounding lands within the watershed. Not coordinating with the Millerton Area Watershed Coalition on activities such as prescribed burning on this property could lead to land use conflicts with use of Plan Area by Plan Area visitors. For example, Plan Area visitors may not be able to utilize an area of the Plan Area because of a prescribed burn or other vegetation

management practice that is occurring outside of the Plan Area. This would especially be a problem if there is no communication between the Plan Area and the Millerton Area Watershed Coalition where Plan Area users may not be advised ahead of time of actions to occur immediately outside of the Plan Area.

4.7.5 Impacts Specific to Alternative 1

Hunting activities by special use permit could result in land use conflicts in the Plan Area. Under this alternative, with the expansion and increase of visitor facilities (campsite, day use areas, and trails) and the encouragement of more Plan Area visitors during the off-season, hunting activities may conflict with other activities in the Plan Area. Depending on special permit conditions, the potential conflicts could result in compromises in the quality of experience and safety of other Plan Area visitors that are not hunting. The most likely conflicts would occur along trails and among backcountry campers. Because this activity would be temporary and would only occur during the time periods when hunting would be permitted, this activity could result in a minor adverse impact.

4.7.6 Impacts Specific to Alternative 2

Under this alternative, hunting activities by special use permit would occur in the same manner as Alternative 1. Therefore, the same potential land use conflicts, resulting in a minor adverse impact, would occur under Alternative 2.

4.7.7 Impacts Specific to Alternative 3

The addition of primitive campsites along the San Joaquin River Trail would provide for the ability for Plan Area users to utilize these areas in a manner that would be consistent with the intended semi-primitive management level. This element would result in an improvement on the land use of the area. This would have a beneficial land use impact.

The RMP/GP element of working with conservation groups to preserve adjacent and nearby open spaces and restrict nearby development would result in land uses outside of the Plan Area to be similar to ones within the Plan Area. Similar adjacent land uses would result in a reduction of potential land use conflicts that could occur along the perimeter of the Plan Area, if the adjacent lands are heavily developed. This reduction of potential land use conflicts would result in a beneficial land use impact.

4.7.8 Impacts Summary

As described above, none of the four alternatives would result in large or substantial land use impacts. Many of the RMP/GP elements for all four alternatives have been designed to reduce land use conflicts and to clearly designate specific land uses in appropriate areas of the Plan Area.

Impact LU-1

Common to all alternatives, land use impacts from potential prescribed burning activities would be temporary and infrequent, resulting in a minor adverse impact to land use.

Impact LU-2

The expansion of hunting activities under Alternatives 1 and 2 could directly conflict with other Plan Area activities, resulting in a minor adverse impact to land use.

Impact LU-3

The addition of primitive campsites under Alternative 3 could result in a beneficial impact due to consistency with the designated semi-primitive land use of the area.

Impact LU-4

Under Alternative 3, the element of working with conservation groups to manage land uses outside of the Plan Area to be similar to ones within the Plan Area would result in a beneficial impact due to the reduction of potential land use conflicts along the perimeter of the Plan Area.

Cumulative Impacts

Under the action alternatives, the integration of the fire management and vegetation management plans with adjacent land managers would result in a beneficial cumulative land use impact. Planning land uses and management of areas within the whole watershed would lead to more cohesive management of the area. This would allow for the management of vegetation in the Plan Area to be more successful because vegetation management approaches used within and outside of the Plan Area would be complementary.

As developments are advanced for approval, the environmental documents prepared to support the projects will need to assess the potential projects' land use impacts and include mitigation measures to reduce those impacts. The *Draft Environmental Impact Report, North Fork Village–1* (Madera County 2007), for example, identifies the following potentially significant land use impacts due to the development:

- Potential for unwanted human access or trespass at the North Fork Village–1 and Millerton Lake SRA boundary
- Increased risk of wildfires along the common boundary with Millerton Lake SRA.

The North Fork Village EIR proposes mitigating these impacts by preparing a Boundary Zone Plan that specifies the proposed boundary design in conformance with the standards and guidelines of the *North Fork Village–1 Specific Plan* (Ennis Consulting and Forma 2006). The boundary zone plan will identify specific access control measures to be employed (e.g., fencing, walls, signage, etc.), landscape treatments, and fire hazard reduction measures. The North Fork Village developers will also produce pamphlets that promote awareness of the resource values of the Millerton Lake SRA and identify designated facilities and access points. These materials would be provided at residential occupancy and could be made available through Homeowners' Associations to residents and guests. The content of the materials will be coordinated with State Parks and Millerton Lake SRA. Although the North Fork Village is expected to create significant land use impacts, mitigation would reduce these impacts to less than significant. The contribution of the Millerton RMP/GP impacts would be minor, and therefore cumulative impacts would be minor.

4.8 RECREATION

4.8.1 Introduction

Visitors to the Millerton Lake Plan Area participate in a wide variety of water-based and water-related land activities. Popular water-based activities include fishing, boating, swimming, water skiing, and jet skiing. Hiking, mountain biking, picnicking, camping, horseback riding, seasonal hunting, and wildlife viewing are also common among visitors. Under each of the alternatives described in Section 2, opportunities for recreationists to engage in any or all of these activities depend on: 1) the availability of appropriate facilities and resources, 2) the quality of these resources and settings, and 3) the density of recreational use. Recreation goals and preferences will vary and may even conflict among users, and managers will have to make decisions that guide recreational uses. Recommendations for management actions are included in this section, such as the use of a permitting system to control the number and types of uses in different portions of the lake, but these recommendations are intended as broad guidelines, and may be altered based on actual usage. For example, management actions may be altered during holiday and high use summer weekends when recreational use is high. Management actions will influence visitor perceptions of the quality of the recreation experience.

This section presents the likely effects to recreation that would result from implementing each of the alternatives under consideration. For each alternative, impacts are characterized based on their intensity and context. The analysis of these impacts is provided to help decision-makers and the public understand the type and magnitude of the effects to recreation activities in the Millerton Lake Plan Area.

4.8.2 Impact Thresholds

Since one or all primary recreational uses in Millerton Plan Area is boating, emphasis is placed on this type of recreational use. The discussion of impacts for boat usage is quantified to the extent possible based on comparison of estimated capacity of Millerton Lake and estimated demand.

As described in Sections 2 and 3, WROS management zones were assigned to the Millerton Lake Plan Area for each alternative, based on projections for types of use, management actions, physical and social settings. For recreational resources, the WROS zones serve as a guide to understanding the type and location of the six types of recreation opportunities that make up the WROS spectrum: Urban, Suburban, Rural Developed, Rural Natural, Semi-Primitive, and Primitive. The attributes that differentiate these WROS management zones have implications on the recreational opportunities and benefits that recreationists may experience.

In this section, impacts to boating are characterized based on a comparison of existing conditions and demand to the projected capacities and demand for proposed management zones. A breakdown of estimated boating capacities for each WROS management zone is provided in Table 4.8-1. These estimated boating capacity coefficients are based on collaborative expert opinions, published literature and professional judgment (Aukerman and Hass 2005).

The No Action Alternative and Alternative 1 boat capacities are based on the main body of the lake progressing to an Urban WROS zone. This zone corresponds to an average of 5.5 acres per

boat. Alternatives 2 and 3 both categorize the main body of the lake as Suburban, but Alternative 2 uses the low end of the Suburban spectrum (S2) with 10 acres per boat, while Alternative 3 uses the middle Suburban category (S3) with 15 acres per boat. These boat densities (and thus management zone capacities) will result from specific management actions that will be applied over the planning horizon. Evaluation of the different WROS zones allows for alternative scenarios that are both reasonable and foreseeable for managing boating usage.

Existing and projected demand for boat launches from ramps and the marina boat usage values are shown in Table 4.8-2. The percentage of active boats on the lake at any one time (BAOT) from total daily launches is estimated at 60 percent. This estimate was taken from the 1979 General Plan for Millerton Lake and corroborated with current State Parks staff.

According to the current manager of the Winchell Cove Marina, the estimated existing demand from marina slips is based on 40 percent of marina slips occupied by boat owners on the maximum use day. Of this 40 percent occupancy, 60 percent of the boats may be on the lake at any time (BAOT). Observational data from the marina operator indicates that BAOT from the marina decreases as boat traffic on the lake becomes most dense. For planning purposes, the 90th percentile of boat launches from ramps was selected for the point at which marina BAOT would begin to decrease. Therefore, above and below the 90th percentile, decreases in BAOT from the marina are assumed as shown in Table 4.8-2.

It should be noted that approximately 75 percent of the total boats at the existing marina are sailboats. Sailboats are less maneuverable and require more space than powerboats to obtain a comparable recreational experience. Therefore, the estimated reduction in BAOT from marina slips as the lake becomes crowded reflects the decrease in use by sailboats as boat density reaches urban and suburban levels of use.

Figure 4.8-1 brings together the percent demand and BAOT with the capacity data for the existing and projected (2020) conditions. The boat capacities estimated for the three action alternatives, along with the No Action Alternative are projected onto these demand curves to indicate at what percent of maximum demand would capacities be exceeded.

In the following discussion of impacts, effects other than boat usage are also quantified where possible. In the absence of quantitative data, however, best professional judgment prevails. In many cases, impacts are characterized using ranges of potential impacts or in qualitative terms, as appropriate.

Terms referring to impact intensity, context, and duration are used in the analysis of effects on recreation. Unless otherwise stated, the standard definitions for these terms are as follows:

- **Beneficial Impact:** The impact of the action is positive.
- **No Impact:** The impact is at the lower level of detection; there would be no measurable change.
- **Minor Adverse Impact:** The impact is slightly adverse, but detectable; there would be a small change. This impact category is equivalent to a less-than-significant impact under CEQA.
- **Major Adverse Impact:** The impact is adverse and severe; there would be a highly noticeable, long-term or permanent measurable change. This impact category is equivalent to a significant impact under CEQA. A major adverse impact on recreation would be considered

to have exceeded a significance threshold, as it would indicate a marked decline in the quality or quantity of opportunities to participate in a recreation activity as a result of implementing an alternative. Therefore, to determine whether an impact is major, this discussion considers the effect of an alternative on recreational facilities, the setting and physical resources, and use density.

4.8.3 Impacts Common to All Alternatives

Under all alternatives, including the No Action Alternative, existing policies and agreements would continue to be enforced. Private docks and private access to the lake would remain prohibited. All applicable federal and state regulations would be followed, and appropriate actions to ensure compliance would be taken. For example, management of facilities to comply with Floodplain Management Executive Order 11988 would continue to be enforced. Prescribed burns may be allowed, as needed, to control vegetation growth and associated fire hazards, and a seasonal emergency response plan would be developed. Minor impacts will result from the continuation of these activities.

The existing recreational facilities will also be upgraded as necessary to comply with applicable laws and regulations, such as the Americans with Disabilities Act (ADA). Presently, of the 148 campsites within the six camping areas in the north shore, 137 sites (nearly 93 percent of the sites) are not in compliance with the ADA. At least 4 of the 11 restroom facilities serving these campsites (36 percent of the existing restrooms) are not ADA-compliant. The physical features of these facilities will be upgraded to current standards, making the existing facilities accessible to more recreationists who use camping facilities, having a beneficial impact.

At a minimum, existing facilities including campgrounds, group camps, and the amphitheater on the north shore that are in compliance with governing laws and regulations will continue to be maintained under all alternatives, and there would be no adverse impacts to recreation as a result. Seasonal events and activities would continue to be promoted. Along the north shore, seasonal concession stands would be provided under all alternatives. Regular maintenance will preserve the quality of the facilities, which would have a beneficial impact for users.

Safety measures would be enforced and emergency response plans would be in place under all alternatives. The practice of placing speed limits in controlled areas on the main body of the lake and boating directional patterns will be continued regardless of the alternative selected, enhancing safety for recreation users such as swimmers who may be sharing the lake with boaters. These restrictions would also have other beneficial impacts that could enhance the recreational experience of swimmers and shoreline campers; for example, as restrictions may reduce noise levels, depending on the relative location and speed of watercraft. Enforcing restrictions would have minor adverse impacts on some recreational users.

Access to areas with known cultural resources or special-status species habitat will be restricted under all alternatives in order to protect significant resources. The Kechaye Cultural Preserve is an example of a site that would not be accessible to visitors. All federal and state regulations would be followed for habitat protection and riparian habitat protection. Special habitats, such as the wintering/roosting bald eagle areas, would be restricted to visitor use during certain times of the year. Visitors would be educated about the protection of natural and cultural resources, maps would be provided, and visitors would be instructed to stay on trails and keep away from sensitive areas. In addition to the accessibility and management of facilities, the availability of

recreational facilities and educational information about the resources can enhance visitors' experiences, resulting in beneficial impacts for recreation.

Under all three action alternatives (Alternatives 1, 2, and 3), in addition to complying with policies and regulations, Reclamation and State Parks will take a proactive approach to integrating management actions in this RMP/GP. Managers will coordinate with appropriate agencies to maintain and develop the San Joaquin River Trail System.

With all action alternatives, existing recreational facilities would also be enhanced or upgraded to meet existing and projected needs, although specific actions will differ based on WROS goals and objectives. Permanent concession facilities would be developed on the north shore and seasonal concession stands for rental equipment would be provided along the south shore. Entrance stations would be redesigned to meet growth, and a permanent station would be constructed at South Fine Gold. Improvements would be made to swim beaches on the south shore. All of the day use facilities would be maintained or upgraded as necessary, and new day use areas, such as picnic sites or loop trails, would be added under all of the build alternatives. Improvements would be accompanied by expansion of utilities, as necessary. These actions would have short-term construction effects that may restrict recreation activities; such impacts are characterized as minor due to their temporary nature. New facilities would be designed so that they do not diminish the visual character of the area. Under these alternatives, managers would also add more staff and equipment needed to maintain the facilities and resources of the Plan Area. Overall, improvements, upgrades, and enhancements will have beneficial impacts to recreationists.

The idea of acquiring additional lands on the north shore for additional campsites or buffer zones from planned residential development would be pursued under the action alternatives. If new campsites were added, the accompanying utilities would be upgraded or expanded to meet service needs. In addition, managers would study and implement additional infrastructure improvements, such as widening the road at the North Shore entrance station. Stretches of roads prone to flooding would also be raised. Furthermore, additional parking spaces would be provided. Any expansion of or repairs to infrastructure and services will result in beneficial impacts for recreational users.

Physical features such as gates and cameras will be installed at the marina, in compliance with security requirements. Watercraft size limitations of 35 feet downstream of Fine Gold Creek will be enforced, and waterskiing would not be permitted above Fine Gold Creek. The need for a seasonal lifeguard would be evaluated on the north shore. Patrols would be increased throughout the lake during the summer, and security patrols at the dam and visitor center would be provided as necessary. Safety-related enhancements will have beneficial impacts to recreation users.

Under the action alternatives, in addition to providing visitor information maps and basic resource information, Reclamation and State Parks would set up educational displays around the park to reach out to the public and emphasize important characteristics of the natural resource environment. Staff will also be added to help maintain facilities. Such actions will help protect existing resources in the future, enabling park staff to take a more active role in educating visitors. Therefore, these actions would have beneficial impacts on recreation groups.

In order to control BAOT levels, particularly in up-river areas where Rural Developed, Rural Natural, or Semi-Primitive settings may be desired under the various action alternatives, managers may institute a permit system for boaters entering the Millerton Lake Plan Area. A

limited number of permits may be issued to boaters traveling upstream through an advance reservation system. These boaters would receive a colored sticker or other marker so that they can be identified from a distance by lake patrols. Once up-river, the boaters would self-manage densities, maintaining the tranquil setting they seek. A permit system would be recommended for most weekdays and weekends, but could be relaxed or bypassed during holiday weekends such as Memorial Day weekend when crowds are typically larger. BAOT restrictions and other restrictions on size and speed may also be waived during competitions such as bass tournaments.

In addition to measures to control BAOT levels up-river, the formation of party boat congregations (flotillas) in the Temperance Flat area would be discouraged. Specific enforcement measures would be detailed in a boating management plan. Reduction of disturbances to other recreational users and improvement of safety conditions would be considered a beneficial impact.

4.8.4 Impacts Specific to the No Action Alternative

The No Action Alternative largely maintains the status quo, with new actions being limited to compliance requirements under federal and state regulations. This alternative does not provide additional facilities to accommodate existing or projected shortfalls in recreational opportunities, unless there is a regulatory driver that requires action in order to be in compliance, or a pre-existing condition that provides the rationale for action. As such, actions under this alternative are limited to the following:

- Upgrade existing facilities as necessary in order to comply with ADA.
- Move Temperance Flat campground to the south side of the river for up to 25 campsites, providing camping (mostly boat-in) facilities with restricted access;
- Repair the dock, provide a new fuel delivery system, renovate the store at the marina, and improve utilities and parking.
- Implement actions required to retain current level of recreational opportunities through maintenance of trails, facilities, services (i.e. patrols, park staff), and existing restrictions.

The No Action Alternative is characterized by the continued provision of services and facilities, with current management practices in place. Both Fresno and Madera Counties are projected to have growth rates higher than the state average. With this projected population growth, recreational demand is also anticipated to be high. As shown in Table 3.9-17, depending on the type of recreational activity, increases in demand range from 20 to 70 percent between 1995 and 2020 for all recreational activities except hunting.

As demand continues to increase over time, the WROS zones at the lake will likely change; boat densities will likely increase in the absence of controlling management actions. Without any measures in place that would specifically control or accommodate that projected population growth of 64 percent by the year 2020, the main body of the lake would become a largely Urban environment, with 3,931 acres being part of the Urban setting under the No Action Alternative (Table 4.8-1). As show in Figure 4.8-1, with 2020 demand, an urban boating capacity could accommodate demand at least 98 percent of the time.

Although the boating demand analysis presented in Table 4.8-2 only uses data from 2000 to 2002 (the highest level of historic boating demand for the period 2000–2006), the general pattern of

use from 2003 to 2006 remained the same. Boating demand decreased in correlation with fee increases in 2002 and 2004. Future population increases due to nearby development and general growth in the state will continue to add potential boaters to the region, and future fee levels cannot be predicted for the park. As such, the analysis of 2000 through 2002 is still considered representative of area trends and of a worst case or high-impact scenario.

Although boating demand could be met most of the time, under the No Action Alternative boat densities would reach capacity more often than currently. With higher BAOT densities on the main body of the lake, some visitors' experiences would be compromised. Sailboats, which need a larger area to maneuver than many other boats, would face greater challenges in navigating through the Plan Area when it is more crowded. Fishing boats may also have more limited opportunities to get to quiet secluded areas with greater crowds. In general, the user groups favoring lower boat densities would be adversely impacted by a lower quality experience and absence of a boating management plan. This would be a major adverse impact.

Similarly, the number of trail users would increase, but there would be no associated increase in trails. With a higher concentration of trail users on existing trails, the potential for conflict among different types of trail users (hikers versus mountain bikers, for example) would increase. While recreation opportunities will exist for all recreation users most of the time, the quality of recreational experiences would decline when crowds exceed management zone densities. The frequency at which demand exceeds management zone densities will increase. This will be a major adverse impact.

For those user groups for whom an urban setting may not detract from the recreational experience (i.e., large groups out for a lakeside picnic), other factors may adversely affect the quality of the experience. Insufficient support facilities and services such as fewer per capita concession stands, restrooms, and parking, would likely reduce the quality of visitors' experiences. Poor access to recreational sites and insufficient patrols and lifeguards would also dampen visitors' experiences. For other user groups, the quality of the recreational experience would also be adversely impacted by the change in setting. Depending on the user group, these impacts can be major. Insufficient support facilities and lack of recreational resources can deter potential visitors. Poor access can also limit recreational opportunities. Insufficient patrols and staff can have detrimental consequences for visitor safety.

Some actions, such as the upgrade of facilities to meet regulatory requirements, will take place under the No Action Alternative that would be beneficial to recreational users in the short-term. However, the No Action Alternative does not manage the anticipated increase in the number of recreational users in the long run. There would be minor to major adverse impacts to recreation users (depending on user group) with the adoption of the No Action Alternative, and major adverse impacts cannot be mitigated under this alternative.

4.8.5 Impacts Specific to Alternative 1

Under Alternative 1, the Recreation Expansion Alternative, the resources of the Plan Area would be managed to maximize recreational opportunities for users, while emphasizing a wide range of visitor experiences. Improvements and additions to existing facilities would be made to accommodate the increasing visitor demands on the Plan Area. Types of actions that would characterize this alternative include:

- Expansion of recreation facilities to include: up to 150 additional camping facilities, increase group camping capacity up to 230 campers, more food service facilities, a multipurpose facility at the Group Camp, expansion of the amphitheater, possibly additional boat ramps, and possibly a new, expanded, or improved marina and a concession facility added at Boat Ramp 6. More corrals and shade ramadas would be added at the Horse Camp. Expansion would include a group camping area at Temperance Flat on south side of the river with room for 50 people and 25 alternative camping sites for individual camping, provided by special use permit.
- Addition of 200 slips or moorings at Winchell Cove, with improved docks, dry dock storage, and related infrastructure; provision of additional paved parking and a fish cleaning facility at the Meadows campground and Boat Ramp 6, and an addition of 250 parking spaces at Winchell Cove. Addition of parking spaces may require land acquisition.
- Provision of interpretation, orientation, and visitor facilities at many locations throughout the park to facilitate hands-on experiences.
- Development of a trail management plan and evaluate opportunities for additional ADA-compliant trails to the existing system along the lake perimeter. Separate trail segments would also be provided for mountain biking and joint hiking / horseback riding, if possible.
- Retention of recreation or maintenance facilities currently in sensitive areas, and new uses may be planned in these areas with mitigation.

Like the No Action Alternative, the main body of Millerton Lake until just upstream of Fine Gold Creek would be classified as Urban, accommodating a higher BAOT density than currently handled. Approximately 4.7 percent of the Plan Area, from Fine Gold Creek to the Smith Basin, would be classified as Rural Developed, and another 15 percent toward the northeastern limits of the Plan Area would be maintained as Rural Natural. As shown in Figure 4.8-1, with 2020 demand and an expanded marina, boating capacity would meet demand at least 98 percent of the time.

Although the boating demand analysis presented in Table 4.8-2 only uses data from 2000 to 2002 (the highest level of historic boating demand for the period 2000–2006), the general pattern of use from 2003 to 2006 remained the same. Boating demand decreased in correlation with fee increases in 2002 and 2004. Future population increases due to nearby development and general growth in the state will continue to add potential boaters to the region, and future fee levels cannot be predicted for the park. As such, the analysis of 2000 through 2002 is still considered representative of area trends and of a worst case or high-impact scenario.

As described in Section 2 and outlined above, management actions would be aimed at providing facilities and services to maintain or improve the quality of visitor experiences, in accordance with the projected WROS classifications. Boat speeds would be managed based on the character of the different areas of the lake, and a no wake zone would be maintained in the narrows near Temperance Flat. Boat size would be restricted to 35 feet in the main body of the lake. No waterskiing would be permitted upstream of Fine Gold Creek. All nonconformant two-stroke engines, including nonconformant two-stroke personal watercraft, would be banned within 3 years of finalizing the RMP/GP. Safety for swimmers and small boats would be enhanced. Overall, enforcing such restrictions would have a beneficial impact to recreation groups.

The addition of facilities and the provision of supporting infrastructure such as parking facilities, ADA-compliant restrooms and food facilities, and new trails would benefit recreation users by increasing recreational opportunities within the Plan Area. Under Alternative 1, hunting could also be expanded through special use permitted hunting in accordance with California Fish and Game laws. Improvements would also attempt to keep pace with the needs of the anticipated increase in visitor use. This alternative would allow the growing populations of the neighboring counties to have a local recreation and natural resource facility available, which would be a beneficial impact on recreation.

Some minor construction impacts would also result from the proposed infrastructure improvements and increases in paved parking and widening access at the entrance kiosk. Dust can be minimized through the use of best practices, including controlling the timing of construction activities. Construction impacts are temporary in nature, and would not have long-term impacts on recreation users

The road at the North Shore Entrance Station would be widened to accommodate guests that have already registered and are returning to their campsites. In addition, the gated road to Temperance Flat would be accessible with a special use permit for camping. Additional funding for seasonal and permanent staff would be sought to meet the demands of more recreation users. Ease of access and the addition of support staff would enhance the quality of visitor experiences. This would constitute a beneficial impact to recreation.

Along with the beneficial impacts associated with the proposed management actions under Alternative 1, some adverse impacts would also result. Although boating demand could be met most of the time, under Alternative 1, boat densities would reach capacity more often than currently. With higher BAOT densities on the main body of the lake, some visitors' experiences would be compromised. Sailboats, which need a larger area to maneuver than many other boats, would face greater challenges in navigating through the Plan Area when it is more crowded. Fishing boats may also have more limited opportunities with greater crowds. In general, user groups favoring lower boat densities would be adversely impacted by a lower quality experience. This would be a major adverse impact. If a permit system is employed to control boat densities, users may experience inconvenience in trip planning and increased possibilities of not obtaining a permit. Some users could perceive implementing a permit system as a decline in the quantity of opportunities for private boaters. Therefore, the reduction in the availability of Rural Developed and Rural Natural settings would have a major adverse impact for some recreation users.

People with large boats (larger than 35 feet) and owners of boats with nonconformant two-stroke engines would also be restricted from using the lake's resources. Relative to the current conditions, actions under Alternative 1 would have minor adverse impacts to these user groups.

A trail system with some separate trail segments for mountain biking and other users as designed in a trail management plan would be generally beneficial. Additional opportunities for seasonal hunters, however, could dampen the experience of hikers or campers who seek a quiet and peaceful setting. These impacts would be minor since the inconveniences that may result would be offset by the addition of recreational opportunities.

In general, adverse impacts under Alternative 1 – the Recreation Expansion Alternative – would be similar to those under the No Action Alternative. The alternative is characterized by higher BAOT densities more often than under current conditions. While this means more visitors would have an opportunity to experience the resources of Millerton Lake Plan Area, some recreational

opportunities such as sail boating and fishing would be more limited. Furthermore, the quality of visitors' experiences would decline due to the higher-anticipated visitor densities, although the Plan Area would have necessary facilities and services to support increases in visitor use. Alternative 1 aims to maximize opportunities for a wide range of users and several of the actions under this alternative have beneficial impacts as well.

4.8.6 Impacts Specific to Alternative 2

Under Alternative 2, or the Enhancement Alternative, about 80 percent of the lake surface area would be managed as Suburban, 10 percent as Rural Natural, and approximately 9 percent as Semi-Primitive. Actions characterized by this alternative include:

- Expansion of capacity at recreational facilities: 1) At the Group Camp in the North Shore, the capacity would be increased to accommodate up to 180 additional campers and 5 to 15 new parking spaces; 2) Within the Plan Area, up to 100 new campsites with accompanying utilities would be added; and 3) For Temperance Flat, a group camping area would be added on the south side of the river for up to 25 people by special permit and 25 alternative camping sites. Primitive campground facilities will be provided.
- Access improvements to the recreation area would be provided. The entrance to the Plan Area would be improved by widening lanes near the entrance kiosk.
- Mobile food service facilities would be added in the South Shore for beach and picnic areas.
- Trail-related infrastructure would be improved, consistent with a trail management plan. The plan will address: 1) Land acquisition for trails; 2) opportunities for ADA-compliant trails; 3) Joint use by hiking, horseback riding, and biking; 4) Special use permits to use the trail to San Joaquin Gorge; and 5) Trailhead services at South Fine Gold day use area.
- Bicycle access would be provided on selected maintenance roads.
- Facilities for boaters would be increased. Up to 200 new slips or moorings would be added to the existing marina.
- Restrictions for boaters that would enable managers to control the WROS management zones and provide enhanced visitor experiences would be applied: 1) Boat speeds would be restricted as appropriate from Fine Gold Creek upstream, and further restricted, as appropriate, above Smith Basin; 2) personal watercraft would not be allowed above Fine Gold Creek; 3) a boater permitting system would be established to regulate BAOT levels in the lake and river; 4) special use permits would be required for kayaks that float downstream from Temperance Flat to Fine Gold Creek; and 5) nonconformant two-stroke internal combustion engines on watercraft would be phased out in 3 years.
- New opportunities for hunting would be explored.
- Assistance would be provided for interpretive and educational opportunities.

As outlined above, Alternative 2 would provide a number of benefits to recreational users. Camping resources for recreation users would be enhanced relative to existing conditions. As with Alternative 1, hookups and utilities would be added at the Group Camp, a multipurpose facility would be built, the size and capacity of the amphitheater would be increased, and off-

season use would be encouraged. In addition, group camping opportunities would increase for boaters under this alternative. This would be a beneficial impact.

Currently, Temperance Flat has 25 first-come, first-serve camping sites on the north shore of the reservoir. Under Alternative 2, a group camping area would be provided on the south side of the reservoir with room for up to 25 people by special permit and 25 alternative camping sites. The management goal for this group camping area would be to provide a primitive camping experience. Therefore, only primitive campground facilities with fire rings and water would be provided. Access to the site would be by trail, boat, or controlled gated access. In contrast with Alternative 1, this Alternative would provide a more varied spectrum of visitor experiences, with the addition of the primitive campground environment. This addition would have a beneficial impact to recreation resources.

Like Alternative 1, Alternative 2 would also add more paved parking and a fish cleaning facility at the Meadows campground and Boat Ramp 6. This would have a beneficial impact for recreational boat users, and fishermen in particular by providing a central public facility for cleaning fish. Restroom and shower facilities would be upgraded for all campgrounds and more sites would be added, if possible. More corrals and shade ramadas would be added to the four existing corrals at the Horse Camp near the Meadows campground. The addition of these facilities would have beneficial impacts on recreation users by providing more recreational opportunities in the area.

The managing partner will develop a trail management plan to regulate usage on the joint use trail system. Opportunities for land acquisition for trail systemwidening or expansion will be evaluated under this alternative. New ADA-compliant trails will be considered. Under this alternative, a trail management plan would be in place to provide a functional system to prevent conflicts between different user groups. Special use permits would be required to use the trail to San Joaquin Gorge, and trailhead services at South Fine Gold day use area would be increased to compensate for the limited services at Temperance Flat. Having a functional trail management plan that incorporates special use permits will also help to minimize the potential for conflict between different trail user groups. Therefore, this alternative provides a beneficial impact to trail users.

For boaters, Alternative 2 would provide additional infrastructure that would increase opportunities. Like Alternative 1, the addition of 200 slips or moorings at the existing marina is envisioned under Alternative 2. Associated infrastructure including gates, dry dock storage, and launch facilities would also be provided. These improvements would be beneficial for boaters.

As in the case of the other alternatives, guidelines would be in place to manage boating densities under Alternative 2. This alternative would include a capacity constraint of 10 acres per boat in the main body of the lake. This represents the highest boat density for a Suburban WROS zone, and thus would accommodate more demand than Alternative 3 but less than Alternative 1. In the areas up-river from Fine Gold Creek the lake would be managed with Rural, Natural and Semi-primitive WROS zones. The expected demand by 2020 with the expanded marina would only be accommodated 68 percent of the time based on Alternative 2 boat capacity (Figure 4.8-1).

Although the boating demand analysis presented in Table 4.8-2 only uses data from 2000 to 2002 (the highest level of historic boating demand for the period 2000–2006), the general pattern of use from 2003 to 2006 remained the same. Boating demand decreased in correlation with fee increases in 2002 and 2004. Future population increases due to nearby development and general

growth in the state will continue to add potential boaters to the region, and future fee levels cannot be predicted for the park. As such, the analysis of 2000 through 2002 is still considered representative of area trends and of a worst case or high-impact scenario.

In order to control boating densities, the local land manager would have to turn people away at the gate when the maximum boating capacity has been reached, or institute a reservation and/or permit system that controls the boat densities at the lake. As described in Section 4.8.3, during heavy use periods a permit system could be employed for various parts of the lake, so that patrols could manage crowds on the lake. Maintaining these Suburban, Rural Natural, and Semi-Primitive densities would aid users with different preferences for recreational experiences, thus having beneficial impacts for very different recreational user groups.

Restrictions on boat size and speed would also be included in the boating management plan. Boat size would be restricted to 35 feet in the main body of the lake. No waterskiing or personal watercraft would be permitted upstream of Fine Gold Creek. All nonconformant two-stroke engines, including those on personal watercraft, would be banned within 3 years of finalizing the RMP/GP. Kayaks, etc. could be barged up to Temperance Flat by special use permit to float downstream to Fine Gold Creek. From Fine Gold Creek upstream to Smith Basin a reduced speed limit would be enforced. Boat speeds would be further limited to an appropriate speed above Smith Basin. By special use permit, kayaks, canoes, etc. would be allowed to enter at Temperance Flat via car access at Wellbarn Road to float down to Fine Gold Creek. These restrictions would help maintain safety on the lake, and would have a beneficial impact for recreation users.

Under Alternative 2, supporting infrastructure and services would be enhanced for recreational users. In addition to parking facilities mentioned above, access to the recreational area would also be improved. Unlike Alternative 1, the North Shore entrance would not be replaced, but would be improved by widening the lanes around the entrance kiosk. Bicycle access would be provided on maintenance roads. New hunting opportunities would also be explored under this alternative and a mobile food service facility would be considered. New interpretative programs would also be explored; however, public involvement activities are expected to be somewhat less than under Alternative 1, depending on state funding. These facilities and services would serve the needs of the anticipated increase in visitor population, providing long-term benefits for recreational users.

Although there are many beneficial impacts associated with the management actions proposed under Alternative 2, adverse impacts would also result to some user groups. Shared trails among hikers, horseback riders, and bicyclists can present potential conflicts, particularly during holiday or summer weekends when crowds are larger. Having a trail management plan would mitigate the impacts of shared use, but minor adverse impacts would remain; these impacts would become more evident during times of peak recreational use.

Although group camping facilities would increase at Temperance Flat on the south side of the reservoir, the camping area would have limited room and special permits would be required. Although this would enable managers to maintain a primitive setting for recreational users seeking tranquil settings, it would limit the opportunities for recreational users relative to Alternative 1, which can accommodate a greater number of users.

Boating restrictions with respect to size, speed, and use density can also adversely affect certain user groups. While sailboats could maneuver more easily than under Alternative 1, fewer boats

would be allowed onto the lake and BAOT densities would remain lower than under the No Action Alternative or Alternative 1. To mitigate for the effects of restricted opportunities under this alternative, managers may relax or waive permit or other requirements during peak recreational weekends and during bass tournaments and other events. Instituting a reservation system, permit, or other requirements could also prevent many users from being turned away at the gate after having come to the lake.

People with large pontoon boats (larger than 35 feet) and owners of boats with nonconformant two-stroke engines would also be restricted from using the lake's resources. Relative to the current conditions, actions under Alternative 2 would have minor adverse impacts to these user groups.

Having a fish cleaning facility is helpful for fishermen, but may generate an odor, and this may be a minor adverse impact to other recreation users in and around the lake. This impact can be mitigated with regular cleaning, and the selection of a location that is not near many other recreational facilities.

Some minor construction impacts would also result from the proposed infrastructure improvements and increases in paved parking and widening access at the entrance kiosk. Dust can be minimized through the use of best practices, including controlling the timing of construction activities. Construction impacts are temporary in nature, and would not have long-term impacts on recreation users.

The Enhancement Alternative (Alternative 2) emphasizes balancing protection of the natural and cultural resources with recreational opportunities for various user groups. In doing so, this alternative provides for a wider spectrum of visitor experiences than Alternative 1.

4.8.7 Impacts Specific to Alternative 3

Alternative 3, or the Resource Protection / Limited Enhancement Alternative, envisions a setting that emphasizes visitor experiences that are consistent with a high degree of resource protection. This alternative shares several elements with Alternative 2. Unique elements of this alternative include:

- Boat-in camping at Temperance Flat would be limited to 15 primitive sites. Special permit access would be provided at the gate off Wellbarn Road. There would be a vault toilet only at Temperance Flat, preserving a primitive experience.
- The area from Fine Gold Creek to Big Bend would be managed to maintain a Rural Natural setting, with densities of 50 acres per boat. Approximately 15 percent of the water surface area, from Big Bend upstream, would be maintained at a WROS setting of Semi-Primitive, with 110 acres per boat.
- Boat speeds would be appropriately limited from Big Bend upstream.
- Only electric motors or nonmotorized crafts would be allowed upstream of Big Bend.
- Nonconformant two-stroke internal combustion engines on watercraft would be phased out within one year.
- New hunting opportunities would be limited to archery, with special permits. Managers of the Plan Area would coordinate with the California Department of Fish and Game.

Alternative 3 includes many management actions that are similar to Alternative 2. As with Alternative 2, under Alternative 3 a mobile food service facility for beach and picnic areas could be added on the south shore. The entrance kiosk on the South Shore would be upgraded. The entrance on the North Shore would be improved by widening lanes around the entrance kiosk. Facilities at the marina would be upgraded, including adding gates, security, cameras, utilities, and services. The existing trail system would also be maintained for joint use by hikers, horseback riding, and mountain bikes. A trail management plan would be developed with provisions to reduce conflicts between users. The existing San Joaquin River Trail would be maintained, including installing the bridge over Big Sandy Creek. Reclamation and State Parks would coordinate with for the entire San Joaquin River Trail system. In addition, primitive campsites could be added along the San Joaquin River Trail. Like Alternative 2, these actions would have both beneficial impacts, and minor adverse impacts. By increasing facilities, access, and services for recreation users in and around the main body of the lake, this alternative enhances visitor experiences. However, conflicts among different user groups on the trail system would be a minor adverse impact, particularly during peak visitor use weekends and holidays. Trail use under the Resource Protection/Limited Enhancement Alternative could also affect sensitive habitat or threatened and endangered species but hikers would be informed of the need for protection of these resources. Measures in the trail management plan would help mitigate some of these effects.

Recreational opportunities and services would be more limited under Alternative 3, to protect sensitive resources, although public education materials would be provided. Under this alternative, user groups seeking a tranquil setting that highlights the importance of protecting natural and cultural resources will benefit, but the size of these user groups will be limited by definition. Therefore, many recreation users would not be able to participate in these enhanced experiences without significant advance planning. Effects specific to this alternative are described below.

The area above Fine Gold Creek would be managed as Semi-Primitive. In order to achieve that objective, camping at Temperance Flat would be restricted to boat-in camping or trail users within 15 primitive sites to provide for a natural environment. The existing vault toilet at Temperance Flat would remain in use. While the experiences for visitors seeking a rudimentary environment would be enhanced, opportunities for these experiences would be limited in order to maintain the character of the setting. As the number of recreation users rises with increases in nearby populations, opportunities will become increasingly limited relative to demand. Therefore, this management goal and related actions would have a minor adverse effect on recreational resources in the short-term and a potentially major adverse impact in the long-term, as the gap between demand and recreation opportunities increases.

Boat speeds would be reduced from Fine Gold to Big Bend, and further reduced from Big Bend upstream. Only electric motors or nonmotorized crafts would be allowed above Big Bend. No personal watercraft or waterskiing would be allowed above Fine Gold Creek. All nonconformant two-stroke engines would be banned within 1 year of finalizing the RMP/GP. Kayaks, canoes etc. would be permitted to float from Temperance Flat to Fine Gold Creek, but access to Temperance Flat would be via vessel up Millerton Lake rather than by car. Boat speeds, watercraft types, and types of activities will help managers control the level of noise on the lake and preserve the tranquil recreational setting that users experience. These restrictions would have beneficial impacts to some recreation user groups, but may limit opportunities for some user

groups such as water-skiers and those wishing to operate at high speeds. Therefore, some minor adverse impacts would result.

As with Alternative 2, approximately 80 percent of the Millerton Lake Plan Area would be Suburban. However, boat use in the lake would be managed for lower densities than under Alternative 2 (maintaining a WROS standard of S5 rather than S4). In other words, in the main body of the lake, Alternative 3 would incorporate a standard of 15 acres per boat, accommodating 262 boats in an area of 3,931 acres (Table 4.8-1). The expected demand during the planning period, with no expansion of boat slips at the marina, would be met 50 percent of the time (Figure 4.8-1). The lower BAOT under Alternative 3 relative to other alternatives demonstrates the value of the quality of the recreational experience over the quantity of recreational opportunities in this scenario. This represents a beneficial impact for those seeking a pristine setting such as fishermen but an adverse impact for those who may not have the opportunity to participate in the recreational experiences.

Although the boating demand analysis presented in Table 4.8-2 only uses data from 2000 to 2002 (the highest level of historic boating demand for the period 2000–2006), the general pattern of use from 2003 to 2006 remained the same. Boating demand decreased in correlation with fee increases in 2002 and 2004. Future population increases due to nearby development and general growth in the state will continue to add potential boaters to the region, and future fee levels cannot be predicted for the park. As such, the analysis of 2000 through 2002 is still considered representative of area trends and of a worst case or high-impact scenario.

As discussed for Alternative 2, boating restrictions with respect to size, speed, and use density can also adversely affect certain user groups that may not be negatively affected by higher speeds and boat density. While sailboats could maneuver more easily than under Alternative 1 or 2, fewer boats would be allowed onto the lake and BAOT densities would remain lower than under the Alternatives 1 or 2. To compensate for restricted opportunities under this alternative, the land manager could relax or waive the permit requirements during peak recreational weekends and during bass tournaments and other events. Instituting a reservation system or permit requirements could also prevent many users from being turned away at the gate after having come to the lake.

The Resource Protection/Limited Enhancement Alternative would be likely to enhance the recreational experiences for those who value the solitude and primitive natural resources on public lands. Recreation management would have indirect effects on the local economy as well. The level and mix of tourism could be expected to shift more toward those users who value primitive recreation experiences, wilderness scenery, and other quiet / nonmotorized pursuits, since the area available for motorized boat travel would be reduced from existing conditions.

With the anticipated increase in the population in neighboring counties, demand for recreational opportunities in the Millerton Lake Plan Area will increase over time. By limiting capacity to preserve natural resources and primitive recreational experiences, unmet demand will increase under this alternative. Transportation would also be affected under the Resource Protection/Limited Enhancement Alternative. Under this alternative, access to Temperance Flat would not be allowed, thus eliminating transportation issues for the upper reaches of Millerton Lake Plan Area.

4.8.8 Impacts Summary

As described above, the four alternatives would result in a range of beneficial and adverse impacts to recreational resources. For each management action, effects may be different for different user groups. Impacts are evaluated based on recreational opportunities that exist to meet projected demand and based on the quality of visitor experiences. Recreational opportunities are determined by the physical infrastructure available to support recreational activities, access to recreational resources, and the services provided in the Plan Area. Over time, the opportunities relative to increasing demand will decline without proportionate increases in recreational resources. Quality of visitor experiences may differ based on the user group in question. However, impacts to recreational experiences are determined by the quality of the available resources and settings provided in the Plan Area and the density of recreational use.

The adverse impacts summarized below are based on the relative opportunity accorded to recreation users and the quality of the recreational experiences users may experience. With appropriate mitigation measures, some of the adverse impacts of the action alternatives can be reduced.

Under the No Action Alternative, Reclamation and State Parks staff will not provide new facilities or services for visitors except those that are required to comply with laws and regulations, or those that have been approved under previous plans and agreements. As populations increase in the nearby counties of Fresno and Madera, the demand for recreational opportunities will also increase. With increases in boating demand, since no management actions will be in place to manage recreational use, boating densities will increase under this alternative. Projected demand will be accommodated most of the time, with the possible exception of peak recreational use on weekends and holidays such as Memorial Day, the 4th of July, and Labor Day. With no restrictions in place on boat size or type, all boaters would be able to continue accessing all parts of the lake. However, with approximately 5.5 acres per boat in the main body of the lake, the boating density would compromise the quality of the experience for some boaters.

As larger numbers of people visit the Millerton Lake Plan Area, there will be additional wear-and-tear on existing infrastructure and resources. Increases in the number of trail users over time will raise the potential for conflict among users on multiuse trails. Under the No Action Alternative, only the current trails will be maintained, as is; except a 1.2-mile widening on McKenzie Point Trail. No coordinated management or trail use system would be in place under this alternative. There will be a greater need for facilities, services, and staff support, which would not be accommodated under this alternative. In general, as crowds increase, the quality of some visitor experiences on the water and on the trail system will deteriorate, even though demand will usually be satisfied under the No Action Alternative.

Under Alternative 1, management actions would have the objective of maximizing opportunities for visitors. Facilities would be added and expanded for various recreation user groups. Specifically, new camping facilities, food service facilities, a fish cleaning facility, boat ramps, corrals and ramadas, and ADA-compliant trails will be added under this alternative. Additional parking and permitted hunting opportunities will be provided. A trail management plan would also be established, with separate trail segments for mountain biking and hiking/horseback riding. To ensure the safety of the growing population of recreational users using the recreation facilities, some restrictions will be enforced on the lake. Boat size and speeds will be regulated

based on the WROS management zones in different parts of the lake. No water-skiing would be allowed above Fine Gold Creek. With increases in recreational demand and the number of available opportunities for various recreational activities, adverse effects to some users will also result. Boating densities will increase compared with existing conditions. Therefore, some boat users seeking tranquil settings or large areas in which to maneuver may be disappointed with the quality of their experiences. Fishermen and sailboats that need more space to navigate may be at a disadvantage under this alternative. Overall, opportunities for recreational use will increase under Alternative 1 for all user groups, and demand can be satisfied most of the time, with the possible exception of peak demand days. But, the quality of the experiences for some boat users will decline as the demand for limited resource use rises.

Alternative 2 provides opportunities for more varied recreational experiences than either the No Action Alternative or Alternative 1 – ranging from Suburban to Semi-Primitive. Accordingly, new recreational facilities and services would be provided as under Alternative 1, but they may be more limited in order to balance the quality of recreational experiences with opportunities for various user groups. For example, a group camping area would be provided at Temperance Flat on the south side of the river, but instead of accommodating 50 people and 25 alternative camping sites with water and electric utilities provided (under Alternative 1), the area would accommodate 25 people by special permit and 25 alternative camping sites, and only primitive campground services would be provided. Therefore, although both increase the number of available recreational opportunities from existing conditions, there is a difference in degree and the quality of users' experiences.

Under Alternative 2, there would be an increase in facilities and support services for all recreation user groups. Rather than a stationary food service facility as proposed for Alternative 1, a mobile facility would be provided for beach and picnic areas. New opportunities for trail users (such as the addition of ADA-compliant trails and the establishment of a trail management plan) would be similar to those under Alternative 1, except that trails would be maintained for joint rather than separate use by hikers/horseback riders and mountain bikers. To mitigate for the possibility for conflicts among users on trails, a management plan will be developed. Most recreation user groups have more varied experiences than under existing conditions.

Boating densities would be managed at lower levels throughout the lake than under the No Action Alternative or Alternative 1. In the main body of the lake, densities would not exceed 10 acres per boat. Above the main lake body where it first narrows (Up-River), maximum densities would be managed for 50 or 110 acres per boat, depending on the WROS management zone. Therefore, boaters would have more varied and generally higher quality recreational experiences, but opportunities – particularly in the Up-river areas – may be more limited than under the No Action Alternative or Alternative 1. Some boaters may have to be turned away or boating use would have to be managed through a permit or reservation system, in order to maintain the desired BAOT levels. These restrictions could be waived during peak use periods in order to better satisfy demand. Based on demand projections, an average of 68 percent of demand will be satisfied under this alternative (Figure 4.8-1).

Alternative 3 aims to maximize visitor experiences that are consistent with a high degree of resource stewardship. Like the other action alternatives, Alternative 3 also provides for new, upgraded and enhanced facilities for recreation users along the north and south shores. However, recreational opportunities under this alternative may be more limited by design, in order to preserve the area's natural resources. Rather than a group camping area at Temperance Flat, for

example, Alternative 3 envisions a boat-in camping area with 15 primitive sites. No new trails would be added, maintenance roads would not be opened to bicycle access, and no additional boat slips would be added under this alternative, unlike other action alternatives. Boating densities would also be lower than under any of the other alternatives. Boat speed and size restrictions would be in place. In general, Alternative 3 would provide high quality experiences for recreation users seeking uncongested and tranquil settings such as sailboaters, campers, fishermen, and swimmers, but opportunities would be limited for recreation user groups including trail users and boaters. While restrictions may be waived during peak visitor use periods, in general only approximately 50 percent of projected boating demand would be satisfied under Alternative 3 with no expanded marina.

In summary, the No Action Alternative does not manage or accommodate the projected growth in recreational demand. Although resource capacities will usually meet demand, the quality of experiences for various recreational user groups will decline under the No Action Alternative. Alternative 1 provides more infrastructure and service support to accommodate the projected demand, but the density of boat usage would compromise the quality of experience for many boaters. Those recreationists seeking tranquil and serene settings would have limited opportunities under this alternative. Alternative 2 provides fewer recreational opportunities than Alternative 1, but still satisfies approximately 68 percent of the boating demand. Mitigation measures help offset some adverse impacts, and this alternative provides a balance between opportunity and quality of experience for most user groups, including boaters. Alternative 3 provides a high quality of experience for a smaller number of users. Trail users would have limited facilities and many boaters may be declined entry into parts of the lake. Therefore, on balance, Alternative 2 provides the best balance between opportunity and quality of experience for a wide spectrum of recreation user groups.

Impact R-1

Expansion of camping and recreation facilities would have temporary construction-related minor impacts that could affect recreational users in the vicinity of the construction activities.

Mitigation Measure R-1

Construction-related impacts such as fugitive dust can be controlled with the use of Best Management Practices. Remaining impacts would be minor.

Impact R-2

In order to maintain the quality and character of the proposed WROS management zones for each of the action alternatives, the land manager will have to control the BAOT levels on the lake. Under Alternatives 2 and 3, there are likely to be scenarios when capacity cannot satisfy visitor demand and visitors may be turned away. This would be a minor impact to recreation opportunities for visitors that cannot enter.

Mitigation Measure R-2

If Alternative 2 or Alternative 3 is implemented, when BAOT is at capacity, staff would have to either turn visitors away at the gate or use a permit / reservation, monitoring, or other system to

control the number of visitors on different parts of the lake. During holidays and other peak recreation use weekends, managers could relax or waive requirements and WROS management zones. Remaining impacts to recreational use would be minor.

Impact R-3

With the No Action Alternative and Alternative 1 there would be a major impact to the quality of the boating experience. With Alternatives 2 and 3 beneficial impacts to the quality of the boating experience would occur because of the control of boat densities.

Mitigation Measure R-3

No mitigation is proposed.

Impact R-4

There would be potential conflicts between users on trails shared between different user groups including hikers, mountain bikers, and horseback riders. This would be a major impact for the No Action Alternative, Alternative 2, and Alternative 3. It would be a minor impact for Alternative 1 if separate trail segments were constructed.

Mitigation Measure R-4

A trail management plan would be developed under all of the action alternatives. The plan would include provisions to minimize user conflict and manage of trails. Remaining impacts would be major for the No Action Alternative and minor for Alternatives 1, 2, and 3.

Impact R-5

Restrictions on boat speed, size, and types of recreational activities will be in place. These restrictions could adversely affect some users because of conflicts with current established recreational uses.

Mitigation Measure R-5

No mitigation is proposed for this impact.

Impact R-6

Provisions of the boating management plan would discourage the congregation of party boaters in the Temperance Flat area. This would result in beneficial impacts by minimizing disturbance to other recreationists and improving safety conditions.

Mitigation Measure R-6

No mitigation is proposed for this impact.

Cumulative Impacts

The geographic boundary of the analysis area for recreational cumulative impacts is roughly a 50-mile radius from the approximate center of the planning area. In addition to Millerton Lake, five major recreation areas offer similar recreational opportunities for visitors within a 50-mile radius of the project area. These recreation areas include: 1) Sierra National Forest (U.S. Forest Service), 2) Eastman Lake (Army Corps of Engineers), 3) Hensley Lake (Army Corps of Engineers), 4) Pine Flat Lake (Army Corps of Engineers), and 5) Tioga Road / Yosemite National Park (Department of Transportation / National Park Service). The implementation of one of the action alternatives for the Millerton Lake Plan Area would ensure that State Parks coordinates the management of the recreational area with other recreational resources in the region.

Both Alternatives 1 and 2 include plans that would link new trails around Millerton Lake with existing trails elsewhere in the region. New trails would connect with and complement the San Joaquin Trail that will allow hiking, equestrian, and bike access through the park and join the trail leading up the San Joaquin River in the San Joaquin River Gorge area, which is located in the upper portion of Millerton Lake and is managed by BLM. An integrated trail system would offer seamless recreational opportunities for various user groups. Shore fishing opportunities would also be extended. Interpretive nature trails and cultural information would further enhance visitors' experiences.

In the watershed and surrounding areas of the Millerton Lake Plan Area, several developments are under way and/or proposed during the planning horizon, including North Fork Village–1 and other new residential developments along the north shore and the expansion of hotel and casino facilities along the south and eastern shores. As the setting of the watershed changes to one that is largely urban/suburban, the Millerton Lake Plan Area would provide a recreational sanctuary for residents and visitors. Water-based recreation would be preserved for the community, providing beneficial cumulative impacts for regional communities.

The proposed North Fork Village–1 project will increase human activity and recreational access to both the Millerton Lake SRA and the San Joaquin River corridor. The North Fork Village–1 Draft EIR (Madera County 2007) projects an increase of 26,697 visitor-days per year due to the project. The Millerton Lake RMP/GP already analyzes projected increases in visitors due to demographic shifts in the region. Therefore, the analysis in this section accounts for the added visitor-days due to nearby development, including north shore development, so no additional cumulative impact would occur.

4.9 VISITOR ACCESS AND CIRCULATION

4.9.1 Introduction

Potential impacts would be related to:

- Access to and parking at Temperance Flat on Wellbarn Road and via Millerton Lake
- Access to, circulation in, and parking in the North Shore area
- Access to, circulation in, and parking in the South Shore area
- Trail use and expansion, including potential trail conflicts between pedestrians, bicycles, and horses.

4.9.2 Impact Thresholds

- **Beneficial Impact:** This impact category would occur when visitor access to and circulation within the Plan Area is improved. An activity would be considered a beneficial impact if it improves conditions beyond the No Action Alternative.
- **No Impact:** This impact category would occur if planning elements would result in no changes over the existing conditions.
- **Minor Adverse Impact:** This impact category would occur if an RMP/GP element would lead to a decrease in visitor access or circulation within the Plan Area. This impact would be minimal or temporary, but detectable. This impact category is equivalent to a less-than-significant impact under CEQA.
- **Major Adverse Impact:** This impact category would occur if an RMP/GP element would result in a considerable decrease in visitor access or circulation within the Plan Area. This type of impacts would often be long term, highly noticeable, and substantial. This impact category is equivalent to a significant impact under CEQA.

4.9.3 Impacts Common to All Alternatives

Many of the RMP elements for all four alternative would either not result in changes in visitor access or circulation in the Plan Area or would result in correcting or addressing a pre-identified, existing problem. Except for the few planning elements described below, most of the planning elements that are common for all of the alternatives would have no impacts to visitor access or circulation. When specific projects are developed, a site-specific environmental analysis would be conducted and a more focused analysis of the proposed project's impacts to circulation could occur. At that time, more clearly defined visitor access and circulation impacts may be identified. If significant visitor access or circulation impacts were to be identified, the proposed project would be modified or mitigation measures would be implemented to reduce these impacts.

As a common element for all of the alternatives, the South Shore entrance kiosk would be moved to improve current entrance circulation and to accommodate additional traffic under all alternatives. This would improve internal circulation and shorten the queues on the highway entrance.

Prescribed burns would only occur when specific fuel moisture and climatic conditions have been achieved and when permission from the San Joaquin Valley Air Pollution Control District and the California Department of Forestry and Fire Prevention has been provided. For prescribed burning activities to occur safely, areas of the Plan Area may need to be closed to visitors during the days of the burning activities. Due to these limitations, prescribed burns may not occur annually in the Plan Area. Prescribed burns typically occur in the fall and the spring, though the necessary climatic and fuel conditions are less common in the spring. The burning activity occurs over a couple of days and mop-up and monitoring activities occur during the following week or two. The action of closing off areas of the Plan Area to conduct prescribed burning could lead to a temporary reduction in visitor access. Access would be limited for the few days when the prescribed burn would occur. The location of access restrictions would be dependent on the locations of the prescribed burning activities. Prescribed burning could occur in areas where visitor access would generally be limited because of a lack of nearby trails or roadways. At these locations, there would be no impact on visitor access. Prescribed burning activities could also occur in areas where visitor access is relatively simple. For instance, the last prescribed burn to occur in the Plan Area was in the Temperance Flat area, which is accessible by boat and hiking trail. At locations with simple access, the impact to visitor access from prescribed burning activities would be adverse. This impact would be temporary, would occur on an infrequent basis, and would therefore result in minor adverse impact.

Several RMP/GP elements that would occur under the action alternatives would affect visitor access and circulation in the Plan Area. The redesign of the North Shore entrance would result in an improvement in visitor circulation. The coordination with the San Joaquin River Conservancy, BLM, and other interested parties for linking the San Joaquin River Parkway and the San Joaquin River Trail would result in increased visitor access both to and within the Plan Area and in increased circulation of trail users within the Plan Area, which would lead to a beneficial impact.

4.9.4 Impacts Specific to No Action Alternative

Apart from the intended improvements to the entrance at the South Shore area, all roadway designs within the Plan Area would remain unchanged. With the predicted increase in visitor use, vehicular congestion within the Plan Area and at Plan Area entrances could become worse during the RMP/GP's 20-year planning period. The increase in vehicle congestion could result in a reduction in circulation efficiencies along the Plan Area's roadway network and an increase in the driving time for visitors to access the various areas of the Plan Area.

Under the No Action Alternative, improvements in available parking would not occur. Under the scenario when the lake level is high and Plan Area usage is high, parking in the South Shore area and the South Fine Gold area would not be sufficient. This would result in a restriction to visitor access to these areas.

4.9.5 Impacts Specific to Alternative 1

No RMP/GP elements specific to Alternative 1 would result in a decrease in visitor access or circulation within the Plan Area. No minor or major adverse impacts are expected to occur to visitor access or circulation under Alternative 1 that have not been previously described.

Several activities involving the management of the trail system in the Plan Area would result in improvements in visitor access over the existing conditions. The potential addition of trails within the Plan Area, which may include a lake perimeter trail and trails created on acquired land or easements, could result in improving visitor access throughout the Plan Area. These trails could be located in areas where existing access is very limited. The new trails within the Plan Area could improve user circulation within the trail system by providing more options for trail users. These activities would result in a beneficial impact to visitor access and circulation over the existing conditions.

A trail management plan would be developed to reduce conflicts between trail users. This RMP element could improve circulation for specific trail users who have access to the trails because it could reduce the total volume of trail users. This element, along with the addition of more trails in the Plan Area, would result in a beneficial impact to circulation along the trail system. At the same time, the trail management plan could result in a restriction of visitor access to the trails. Therefore, this activity would result in a minor adverse impact to visitor access along the Plan Area's trail system.

The specific addition of parking to the Meadows campground and Boat Ramp 6 would improve visitor access to this area of the Plan Area and would result in a beneficial impact to visitor access.

4.9.6 Impacts Specific to Alternative 2

No RMP/GP elements specific to Alternative 2 would result in a decrease in visitor access or circulation within the roadway system of the Plan Area. No major adverse impacts are expected to occur to visitor access or circulation under Alternative 2 that have not been previously described.

Several activities involving the management of the trail system in the Plan Area would result in improvements in visitor access over the existing conditions. The potential addition of trails within the Plan Area, which may include a lake perimeter trail and trails created on acquired land or easements, could result in improving visitor access throughout the Plan Area. These trails could be located in areas where existing access is very limited. The new trails within the Plan Area could improve user circulation within the trail system by providing more options for trail users. These activities would result in a beneficial impact to visitor access and circulation over the existing conditions.

A trail management plan would be developed to reduce conflicts between trail users. This RMP element could improve circulation for specific trail users who have access to the trails because it could reduce the total volume of trail users. This element, along with the addition of more trails in the Plan Area, would result in a beneficial impact to circulation along the trail system. At the same time, the trail management plan could result in a restriction of visitor access to the trails. Therefore, this activity would result in a minor adverse impact to visitor access along the Plan Area trail system.

As under Alternative 1, the specific addition of parking to the Meadows campground and Boat Ramp 6 would improve visitor access to this area of the Plan Area and would result in a beneficial impact to visitor access.

4.9.7 Impacts Specific to Alternative 3

No RMP/GP elements specific to Alternative 3 would result in a decrease in visitor access or circulation within the Plan Area. No major adverse impacts are expected to occur to visitor access or circulation under Alternative 3 that have not been previously described.

A trail management plan that may include rotational use or other measures would be developed to reduce conflicts between trail users. This RMP/GP element could improve circulation for specific trail users who have access to the trails because it would likely reduce the total volume of trail users. The addition of trails within the Plan Area, which may include a lake perimeter trail and trails created on acquired land or easements, could result in improving visitor access throughout the Plan Area, a beneficial impact. At the same time, the trail management plan could result in a restriction of visitor access to the trails when a user group is not permitted to use the trails. Therefore, this activity could result in a minor adverse impact to visitor access along the Plan Area's trail system. Trail restrictions would be temporary and would occur on a scheduled basis. User groups would continue to have access to the trails, but only during specific times.

The addition of primitive campsites along the San Joaquin River Trail would improve visitor access along the trail route. This activity would result in a beneficial impact to visitor access.

4.9.8 Impacts Summary

Impact TR-1

For the No Action Alternative, the lack of planning elements related to improving visitor access and circulation would lead to a reduction in circulation, especially along the Plan Area roadways as the number of Plan Area visitors increases. This would be a major impact. Planning elements and roadway improvements included in Alternatives 1, 2, and 3 would result in no impact to visitor access and circulation.

Impact TR-2

The main differences in visitor access and circulation for the action alternatives would be related to RMP/GP elements involving the Plan Area trail system. Alternative 1 would provide the largest improvement in visitor access and circulation along the trail system, resulting in a beneficial impact. The use of a rotational schedule, or other measures, for trail user groups under Alternatives 2 and 3 may restrict access but improve circulation along the same trails, resulting in a minor adverse impact to visitor access and a beneficial impact to visitor circulation.

Impact TR-3

For the No Action Alternative, the lack of a trail management plan would lead to reduced visitor access to trails, resulting in a major impact. Under the action alternatives, a trail management plan would be developed to reduce conflicts between users. At the same time, this element could result in a restriction of visitor access to the trails when a user group is not permitted to use the trails. Therefore, this activity could result in a minor adverse impact to visitor access to trails.

Impact TR-4

Under the No Action Alternative, the lack of a trail management plan would lead to reduced visitor circulation on trails due to high volumes, resulting in a major impact. A trail management plan would be developed to reduce conflicts between trail users for all action alternatives. This RMP element could improve circulation for specific trail users who have access to the trails because it could reduce the total volume of trail users, creating a beneficial impact.

Cumulative Impacts

The RMP element under the action alternatives to coordinate with Parkway Trust and BLM for the entire San Joaquin River Parkway and San Joaquin River Trail systems would result in a cumulatively beneficial impact to trail access both within and nearby the Plan Area.

Traffic congestion at the South Shore entrance currently exists during periods of high use. This congestion results from traffic from surrounding development (which will continue to increase) in combination with visitors accessing Millerton Plan Area. This cumulative impact could be addressed by extending the left turn lane at the South Shore Entrance or other entrance design changes. To alleviate this congestion, Reclamation and State Parks will request that Fresno County evaluate alternative design improvements and funding mechanics such as county development impact fees.

Similar congestion is likely to occur at the North Shore entrance as surrounding development is completed. Reclamation and State Parks would request that Madera County evaluate design improvements and funding mechanisms similar to those discussed for the South Shore entrance.

4.10 SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES THAT WOULD BE CAUSED BY THE PROPOSED PROJECT SHOULD IT BE IMPLEMENTED

Section 15126.2(c) of the CEQA Guidelines and Section 1502.16 of NEPA require that this RMP/GP consider significant irreversible environmental changes that could be caused by the RMP/GP should it be implemented. An impact would be determined to be a significant and irreversible change in the environment if implementation of the RMP/GP would:

- Involve a large commitment of nonrenewable resources;
- Commit future generations to similar uses;
- Involve uses in which irreversible damage could result from any potential environmental accidents associated with the RMP; or
- Result in an unjustified consumption of resources.

Implementation of the proposed RMP/GP would not involve any commitment of nonrenewable resources, use of resources that could cause irreversible damage, or an unjustified consumption of resources.

4.11 GROWTH-INDUCING IMPACTS

In accordance with Section 15126.2(d) of the CEQA Guidelines, the action proposed in this RMP/GP must consider the ways in which it would:

- Foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment;
- Remove obstacles to population growth;
- Promote economic growth; or
- Encourage and facilitate other activities that would affect the environment, either individually or cumulatively.

Fresno and Madera Counties are projected to have substantial growth in the next 20 years. Implementation of the RMP/GP would not encourage, foster, or promote growth. Rather, the implementation of the RMP/GP would balance or expand recreational opportunities to accommodate the expected increased number of people from the surrounding areas that participate in recreational activities within the Millerton Lake Plan Area.

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Tables

Table 2-1
Goals and Objectives for Millerton Lake Plan Area by Resource Category

Goal	Objectives
Recreation and Project Facilities	
Provide for public enjoyment and visitor appreciation of Millerton Lake State Recreation Area (Plan Area).	Manage and provide for recreational activities, including, but not limited to, fishing, boating, swimming, waterskiing, hiking, camping, mountain biking, horseback riding, hunting, and wildlife viewing.
	Follow appropriate regulations for operations, maintenance, and upgrading of existing facilities and for constructing new facilities.
	Coordinate and manage contracts and or permits with concessionaires that provide services to visitors of Millerton Lake.
	Integrate or maintain integration of recreational activities and facilities with reservoir operations and constraints; applicable land use constraints; physical, natural, and cultural resource regulations and constraints; and health and safety regulations and constraints.
	Coordinate with and maintain communication with organizations or special interest groups that use the recreational facilities and opportunities of the Plan Area, that manage or own property within or outside of the Plan Area where recreational activities may cross the boundaries of such properties, or where changes in land uses in their properties could effect recreation in the Plan Area.
Natural and Cultural Resource Management and Protection	
Preserve and protect the natural and cultural resources of the Plan Area.	Maintain or improve the overall quantity, quality, and protection of natural and cultural resources in accordance with appropriate natural and cultural resource laws and regulations.
	Integrate recreational activities and other land uses to adequately protect and preserve natural and cultural resources, and educate visitors about appropriate activities in relation to Plan Area efforts to manage, protect, and preserve natural and cultural resources.
	Coordinate with or maintain current levels of communication with outside entities who own property that is near or upstream of the Plan Area to make them aware of the impacts of their land uses on the natural and cultural resources within the Plan Area.
Health and Safety	
Provide a safe and healthy environment for visitors.	Educate Plan Area users about rules and regulations for the Plan Area and possible hazards in the Plan Area.
	Follow applicable federal, state, and local health and safety regulations and policies.
	Coordinate and maintain communication with entities outside the Plan Area regarding any shared responsibility for health and safety issues (e.g. California Department of Forestry and Fire Protection for fire-related issues).

Table 2-1
Goals and Objectives for Millerton Lake Plan Area by Resource Category

Goal	Objectives
Land Use Management	
Manage land uses in the Plan Area that help achieve the goals and objectives of the Plan Area.	Manage and maintain lands within the Plan Area to ensure appropriate and compatible land uses that integrate resource protection, visitor needs, and visitor safety.
	Plan for land uses that anticipate increases in visitor numbers that are appropriate to predicted increases in regional populations.
	Coordinate with local governments to develop appropriate infrastructure outside the Plan Area to accommodate increases in visitor use of the Plan Area and to create and maintain buffers between Plan Area land uses and conflicting land uses that could occur outside of Plan Area.
	Provide or maintain accessibility to recreational facilities and improve circulation within the Plan Area and on roadways that service the Plan Area.
Park Administration/Public Involvement	
Provide adequate park administration for management actions of the preferred alternative.	Maintain and manage Plan Area facilities, law enforcement services, Plan Area administration systems, recreation-related services, resource protection services, and emergency response services to allow the Plan Area to meet its goals, objectives, and management actions.
	Enforce rules and regulations for visitors, vendors, and other groups or individuals operating within the Plan Area under a license, lease, or other agreement.
	Update existing and develop new rules and regulations, as appropriate.
	Coordinate with outside entities to support potential emergency service needs in the Plan Area.
Provide a system to allow the public to participate in management of the Plan Area and to fully utilize the Plan Area resources in an appropriate manner.	Provide interpretive media to visitors about the recreational opportunities at the Plan Area, the resources that are protected and preserved in the Plan Area, and the management issues that the Plan Area encounters that are related to recreational opportunities and resource protection and preservation.
	Maintain or upgrade visitor services such as the Visitor Center, resource protection programs, and interpretive programs.

Table 2-2
Summary of Issues for Millerton Lake Plan Area by Resource Category

Recreation and Project Facilities
Recreation opportunities are limited to the area that is owned by Reclamation, State Parks and other cooperating agencies. • Projected population growth in Fresno and Madera counties will put pressure on existing recreation facilities. • There is very little room to expand existing campsites or add more campsites near the current North Shore camping areas. • Planned subdivisions on the South Shore may limit expansion of day use facilities. • Lands outside existing Plan Area may need to be acquired to provide additional recreation opportunities and/or to preserve and protect natural resources. • Different types of recreation opportunities could be available at separate locations around the lake to provide a varied recreation experience.
The Marina operation needs improvement, such as improved security, lighting, electricity, parking, group picnic areas, new docks, store facility, utilities, dry dock storage, emergency phone, access from top, etc..
Seasonal or permanent concession facilities could be provided at both North and South Shore recreation areas.
Facilities are needed to attract recreational groups. • There are no existing fish cleaning facilities or fish weighing pavilions for fishing tournaments. • Waterskiing facilities need to be relocated at different lake levels. Coordination is needed between local yachting club, Marina operators, State Parks, and other watercraft users.
Trails need to be improved and/or expanded. • Coordinate with the appropriate agencies and organizations to complete the San Joaquin River Trail. • Easements and/or right-of-ways are needed to cross private lands. • Explore possibility of entire perimeter trail (crossing of Fine Gold Creek may be problematic). • Additional ADA trails or trail segments needed. • Loop trails and destination trails needed. • Multi-use as well as separate use trails could be provided. • Maintenance roads could be opened up for biking and hiking.
Boat speeds, types, and densities need to be managed in the various areas of the lake.
Visual resources need to be maintained or improved with the addition or expansion of recreation areas.
Utilities, including water, sewer, electrical, and telephone, need to be maintained or upgraded if recreation areas are improved or expanded.
Natural and Cultural Resource Management and Protection
Need to protect federally- and state-protected species and habitat, including wetlands and riparian areas.
Public needs to be informed about importance of natural resources and threatened and endangered species.
Invasive species, spread of pathogens, and noxious weeds should be eradicated and native plants incorporated.
Prescribed burning and grazing could be used in vegetation management.
Hunting could be expanded, eliminated, or maintained as is.
The wildlife management area east of Fine Gold Creek could be expanded, eliminated, or maintained.
Habitat for fish spawning and rearing could improve fishing in the lake and tributary creeks.
Water resources need to be managed for supply and quality.
Air quality needs to be maintained per regional air district standards.

Table 2-2
Summary of Issues for Millerton Lake Plan Area by Resource Category

Areas of geologic hazards, unstable soils, or potential erosion areas need to be managed.
Cultural and historical resources need to be preserved and protected. • Access to Kechaye Cultural Preserve or other known cultural or historical sites should be restricted. • Interpretive program should be developed to inform visitors of importance of protecting cultural and historical resources.
Health and Safety
Restrict activities based on current Federal regulations for flood management.
Fire management activities, such as prescribed burns, visitor education, and agency coordination, need to be managed.
Follow current Federal and State regulations for handling, transporting and storing hazardous materials.
Land Use Management
Trespassing and use of private docks or private access to the lake needs to be eliminated.
Permits for communication towers, transmission lines, grazing leases, and special events should be managed by State Parks in cooperation with Reclamation.
Mining claims need to be rescinded and mineral rights withdrawn.
Traffic control and road issues need to be addressed. • Some roads need to be widened or upgraded. • Parking needs to be expanded, where feasible. • Entrance stations need improvement, both at North and South Shores. • Future development in areas adjacent to the Plan Area may require new traffic control measures.
Park Administration/Public Information
Visitor services should include brochures, handouts, maps, interpretive signage, educational opportunities, and interpretive programs.
Increased seasonal patrol staff.
Increased Lifeguard staff, including the addition of a junior lifeguard program.
Provide adequate administrative staff, maintenance staff, and full-time resource interpreter, if possible.
Seasonal special events and activities should be promoted.
Concession management guidelines from Reclamation should be included in contract-renewal language with State Parks.
Exclusive use issues should be addressed by the managing partner.
Interagency coordination should be addressed, including emergency response issues.

Table 2-3
Systemwide and Regional Planning Influences for Millerton Lake Plan Area

Level of Planning Influence	Planning Influence
Systemwide Planning	Public Resources Code (PCR) 5019.53
	California Code of Regulations
	California Environmental Quality Act
	National Environmental Policy Act
	California Outdoor Recreation Plan
	Reservoirs of Opportunities, report by the National Recreation Lakes Study Commission
	California Recreation Trails Plan
	The Seventh Generation- The Strategic Vision of California State Parks
	Volunteers in Parks Guidelines
	Interpretive Planning Workbook
	Access to Parks Guidelines
	California State Park System Plan
	Systemwide Resource Directives
	Systemwide Policies Concerning Park Operations and Concessions
	DAM/DOM
	California Heritage Task Force
	Natural Communities Conservation Program
Regional Planning	Memorandums of Agreement or Understanding
	Plans of Local Jurisdictions
	Regional Transportation/Circulation Plans
	Regional Water Conservation Plans
	Regional Habitat Plans
	Watershed Management Plans
	Units Role in the Context of Surrounding state park units

Table 2-4
Proposed Common and Unique Management Elements for Alternatives for Millerton Lake Plan Area

= COMMON ACTION = UNIQUE ACTION THAT DEFINES ALTERNATIVE

Element	No Action	Alt 1	Alt 2	Alt 3
RECREATION				
Facilities and Services				
North Shore				
Maintain campgrounds and Group Camp/amphitheater. All campsites – upgrade with restrooms, shower facilities, and other physical features to comply with laws and regulatory requirements and bring into ADA compliance.	●	●	●	●
Consider concession stand seasonally.	●	●	●	●
Evaluate land acquisition to provide for additional campsites or as a buffer to adjacent development for watershed management.		●	●	●
Consider permanent concession facility.		●	●	●
Request funds for modernizing kiosk south shore entrance.		●	●	●
Improve south shore entrance circulation by moving kiosk back.		●	●	●
Increase Group Camp capacity up to 230 campers and 20-30 parking spaces.		●		
All campsites - add up to 150 sites (individual/alternative/RV) with accompanying utilities.		●		
Group Camp - add hookups and utilities; build multi-purpose building; increase size and capacity of amphitheater; encourage off-season use. Boat Ramp 6 - add more paved parking; add fish cleaning facility. Horse Camp - add more corrals and shade ramadas.		●	●	
Increase Group Camp capacity up to 180 campers and 5-15 parking spaces.			●	
All campsites - add up to 100 sites (individual/alternative/RV) with accompanying utilities.			●	
South Shore				
Upgrade facilities as needed and add some new day use sites, such as picnic areas or loop trails.		●	●	●
Add seasonal concessions stands at beach locations for rental of personal watercraft, kayaks, etc.		●	●	●
Improve/Enhance swim beaches		●	●	●
Add up to 35 individual/alternative/RV camping sites with utilities at South Fine Gold		●	●	
Maintain status quo in main body of the lake.	●			
Maintain adequate level of maintenance.	●			
Consider stationary food service facility for beach and picnic areas.		●		
Consider mobile food service facility for beach and picnic areas.			●	●

Table 2-4
Proposed Common and Unique Management Elements for Alternatives for Millerton Lake Plan Area

= COMMON ACTION = UNIQUE ACTION THAT DEFINES ALTERNATIVE

Element	No Action	Alt 1	Alt 2	Alt 3
Up-River				
Planned move of Temperance Flat campground to the south side of the river for up to 25 campsites. Provide primitive camping with restricted access, mostly boat-in camping.	●			
Provide a group camping area at Temperance Flat on south side of river with room for up to 50 people and 25 alternative campsites for individual camping. Provide water, electricity, round stoves and gated access from Wellbarn Road.		●		
Provide a group camping area at Temperance Flat on south side of river with room for up to 25 people by special permit and 25 alternative campsites. Provide primitive campground with fire rings and water. No electricity. Access by trail, boat, or controlled gated access at Wellbarn Road.			●	
Relocate boat-in camping at Temperance Flat with 15 primitive sites. Special permit access at gate off Wellbarn Road. Vault toilet only at Temperance Flat.				●
Maintain adequate level of maintenance and patrol.	●			
Add primitive campsites along San Joaquin Trail.				●
Trails				
Coordinate with the appropriate agencies for the entire San Joaquin River Trail system.		●	●	●
With the exception of access by street licensed vehicles to the lake and special tours, prohibit use of off-highway motor vehicles (OHMVs).	●	●	●	●
Maintain trails on south and north shores. Portion of McKenzie Point trail (1.2 miles) to be widened for ADA accessibility with transitional point at the overlook.	●			
Develop a trail management plan to manage trail usage.		●	●	●
Explore adding more ADA compliant trails to the system.		●	●	
Provide entire lake perimeter trail or, if Fine Gold Creek cannot be easily crossed, provide a trail east of Fine Gold Creek.		●	●	●
Open selected maintenance roads up to bikes as appropriate.		●	●	
Explore adding more ADA compliant trails to the system.		●	●	
Evaluate land acquisition or easements to provide for trail system widening and/or expansion.		●	●	
Provide separate trail segments within the trail system for mountain biking and joint hiking/ horseback riding.		●		
Maintain trails for joint use by hikers, horseback riding and mountain biking with a trail management plan. Require special use permits to use trail to San Joaquin Gorge (restricted car access at Temperance Flat). Increase trailhead services at South Fine Gold day use area to make up for lack of services at Temperance Flat.			●	●

Table 2-4
Proposed Common and Unique Management Elements for Alternatives for Millerton Lake Plan Area

= COMMON ACTION = UNIQUE ACTION THAT DEFINES ALTERNATIVE

Element	No Action	Alt 1	Alt 2	Alt 3
Marina and Boating Support				
Improvements to include dock repair/replacement, new fuel delivery system, power to the marina, store renovation, and parking improvements.	●	●	●	●
Add gates, security, cameras, and utilities. Upgrade services (fuels and concessions).		●	●	●
Add up to 200 boat slips or moorings to existing marina. Add gates, security, dry dock storage, and launch facility. Upgrade services and docks.		●	●	
Boating Density				
Develop a boating management plan to manage boat numbers and densities.		●	●	●
Discourage party boat flotillas in Temperance Flat area.		●	●	●
Manage for a maximum boating density at levels of 5.5 acres/boat (Urban 1) on main body of lake (80%).	●			
Manage for a maximum boating density at levels of 35 acres/boats (Rural Developed 5) from Fine Gold Creek upstream (20%).	●			
Manage for a maximum boating density at levels of 5.5 acres/boat (Urban 1) on main body of lake (80%).		●		
Manage for a maximum boating density at levels of 20 acres/boat (Rural Developed 4) from Fine Gold Creek to Smith Basin (10%), and 80 acres/boat (Rural Natural 7) from Smith Basin upstream (9%).		●		
Manage for a maximum boating density at levels of 10 acres/boat (Suburban 2) on main body of lake (80%)			●	
Manage for a maximum boating density at levels of 80 acres/boat (Rural Natural 7) from Fine Gold Creek to Smith Basin (10%) and 295 acres/boat (Semi-Primitive 9) from Smith Basin upstream (9%).			●	
Manage for a maximum boating density at levels of 15 acres/boat (Suburban 3) on main body of lake (80%)				●
Manage for a maximum boating density at levels of 80 acres/boat (Rural Natural 7) from Fine Gold Creek to Big Bend (5%) and 295 acres/boat (Semi-Primitive 9) from Big Bend upstream (15%).				●
Boat Speed				
Maintain safe speed limits on main body of the lake. Current controlled areas (where there are hazards or swimmers or near shore) maintained.	●	●	●	●
Safe speed from Fine Gold upstream; up-river speeds near Temperance Flat are reduced as the reservoir lowers.	●	●		
Safe speed from Fine Gold Creek upstream. Reduced above Smith Basin.			●	
Reduced speed from Big Bend upstream.				●

Table 2-4
Proposed Common and Unique Management Elements for Alternatives for Millerton Lake Plan Area

= COMMON ACTION = UNIQUE ACTION THAT DEFINES ALTERNATIVE

Element	No Action	Alt 1	Alt 2	Alt 3
Boat Type/Size				
No waterskiing above buoys. (Up-River)		●	●	●
Size limit of 35 feet		●	●	●
No restrictions on boat type or size.	●			
3 Year Phase Out of two-stroke internal combustion engines on personal watercraft and other watercraft		●	●	
1 Year Phase Out of two-stroke internal combustion engines on personal and other watercraft				●
No personal watercraft above Fine Gold Creek			●	●
Barge kayaks, canoes etc. up to Temperance Flat for floating downstream to South Fine Gold Day Use Area by special use permit.			●	●
Electric motors or non-motorized crafts only above Big Bend				●
Utilities				
Improve physical facilities to comply with laws and regulatory requirements, such as ADA, security measures, and law enforcement.	●	●	●	●
Expand utilities as needed if more campsites or day use facilities are added.		●	●	●
Visual Resources				
New facilities designed to not diminish visual resources.		●	●	●
NATURAL AND CULTURAL RESOURCE MANAGEMENT AND PROTECTION				
Habitat/Natural Resource Protection				
Maintain habitat at current levels of resource management. Mitigation lands may be needed if new facilities are built.		●	●	●
Develop a vegetation management plan to address issues of invasive noxious weeds and grazing.		●	●	●
A fisheries management plan would be prepared.		●	●	●
Threatened and Endangered Species				
Manage access to areas with endangered species. Educate public about species.	●	●	●	●
Native Vegetation				
Incorporate more native plants; encourage public to see Visitor Center plant and landscape display.	●	●	●	●
Wetlands/Riparian Areas				
Protect riparian areas where not affected by annual lake level fluctuations.	●	●	●	●
Invasive Species				
Managing partner to pursue funding for noxious weed control	●	●	●	●
Incorporate more native plants, particularly in less traveled areas and at Temperance Flat. Work with appropriate agencies and organizations to promote use of native species, and to develop a Watershed Level Noxious Weed Plan.		●	●	●

Table 2-4
Proposed Common and Unique Management Elements for Alternatives for Millerton Lake Plan Area

= COMMON ACTION = UNIQUE ACTION THAT DEFINES ALTERNATIVE

Element	No Action	Alt 1	Alt 2	Alt 3
Water Quantity and Quality				
Water quality testing at different times of the year and at different locations (Marina, North Shore, up-river).	●	●	●	●
Improve water quality by requiring boat inspections for engine type		●	●	●
Hunting				
Explore opportunities for hunting in accordance with State Fish and Game laws with special use permit; coordinated by State Parks.		●	●	
Archery only with special permits; coordinated by State Parks.				●
Cultural Resources				
Restrict or limit access to Kechaye Cultural Preserve or provide interpretive program for Kechaye Cultural Preserve (off site). Restrict access to any known cultural or historical sites in the canyon or on the table tops.	●	●	●	●
Air Quality				
Follow all regulations per regional air quality district.	●	●	●	●
HEALTH AND SAFETY				
Flood Management				
Restrict activities based on current Federal regulations. Use FEMA floodplain maps and designations in management of facilities.	●	●	●	●
Fire Management				
Update fire plan. Educate campers about fire dangers.	●	●	●	●
Continue to evaluate the feasibility of prescribed burn activities and conduct burns where possible. Work with USFS and CDF to establish annual prescribed burn schedule.		●	●	●
Work with Millerton Area Watershed Coalition to integrate fire management with vegetation management.		●	●	●
Hazardous Materials				
Enforce Federal and State regulations for handling, transporting and storing hazardous materials.	●	●	●	●
LAND USE MANAGEMENT				
Private Docks/Access				
Prohibit private docks and private access to the lake.	●	●	●	●
Private Lands/Trespass Issues				
Enforce 600-foot elevation on private development. Provide increased trespass enforcement.	●	●	●	●

Table 2-4
Proposed Common and Unique Management Elements for Alternatives for Millerton Lake Plan Area

= COMMON ACTION = UNIQUE ACTION THAT DEFINES ALTERNATIVE

Element	No Action	Alt 1	Alt 2	Alt 3
Permits				
Communication Towers				
Permit communication towers as appropriate	●	●	●	●
Electrical/Transmission Lines				
Permit electrical/transmission towers as appropriate.	●	●	●	●
Grazing Leases				
Continue grazing leases where and if appropriate.	●	●	●	●
When permitted, manage grazing leases to coordinate fire management and noxious weed control. Develop a comprehensive grazing plan, which would be a sub-element of a vegetation management plan that implements an adaptive management approach to grazing.		●	●	●
Special Events				
By special permit only - set fees and restrictions.	●	●	●	●
Roads				
Work with Madera County to request development funds to widen road at North Shore entrance station Coordinate traffic pattern analysis with counties as growth occurs. Study, and implement as needed, additional improvements, including adding lanes.		●	●	●
.Fix stretches of roads prone to flooding.	●	●	●	●
Maintain roads at current level of management. Coordinate traffic pattern analysis with counties as growth occurs.	●			
Open road to Temperance Flat; gated but access via special use permit.		●	●	
Keep road to Temperance Flat gated with no access to public.				●
Traffic Control				
Require traffic improvements with future development in area.	●	●	●	●
Stop Lights				
Study need and placement.		●	●	●
Park Entrance Access				
Maintain turn lanes at current level of management.	●			
Work with Fresno County to require developers to mitigate for future development; i.e., extend left turn lane at South Shore entrance.		●	●	●
Move entrance kiosk back to accommodate traffic.	●	●	●	●
Parking				
Develop more parking as needed. Pave more parking spots in existing lots.		●	●	●

Table 2-4
Proposed Common and Unique Management Elements for Alternatives for Millerton Lake Plan Area

= COMMON ACTION = UNIQUE ACTION THAT DEFINES ALTERNATIVE

Element	No Action	Alt 1	Alt 2	Alt 3
Entrance Stations				
Redesign entrance station to meet future growth.		●	●	●
PARK ADMINISTRATION/ PUBLIC INFORMATION				
Enforcement - lifeguards, security				
Increase patrols during summer; continue patrol routine to allow for radio-cell transmission from up-river areas.		●	●	●
Evaluate the need for permanent patrol to upper river to enforce speed limit, boat types, other regulations.		●	●	●
Maintain patrols; continue patrol routine to upper river.	●			
Seasonal Events or Activities				
Promote seasonal events or activities	●	●	●	●
Concessions				
Consider concession opportunities to meet visitor needs.	●	●	●	●
Exclusive Use				
Any and all uses (i.e. partnerships, concessionaire agreements, and other management contracts) on Federal property shall be consistent with BOR and Federal exclusive use policies.	●	●	●	●
Visitor Services				
Brochures/ Informational Handouts				
Provide park maps and information describing recreation activities at different parts of the lake.	●	●	●	●
Educational Opportunities				
BOR and State Parks to evaluate the reestablishment of public use at the Visitor Center and other partnership opportunities.	●	●	●	●
Improve public education to emphasize natural and cultural resources.		●	●	●

Table 3.1-1
Reservoirs Upstream of Friant Dam

Reservoir	Capacities (acre-feet)	Owner or Operating Agency	Department of Water Resources Dam No.	CDEC* Station ID
Thomas A. Edison Lake (Vermillion Valley Dam)	125,000	Southern California Edison	104-023	
Florence Lake	64,000	Southern California Edison	104-009	
Huntington Lake	89,000	Southern California Edison	104-010	HNT
Shaver Lake	136,000	Southern California Edison	104-018	SHV
Mammoth Pool	122,000	Southern California Edison	104-025	
Redinger Lake (Big Creek No. 7 Dam)	26,000	Southern California Edison	104-022	RDN
Bass Lake (Crane Valley Dam)	45,500	Pacific Gas and Electric Co.	95-003	
Kerckhoff Reservoir	4,188	Pacific Gas and Electric Co.	95-008	KRH
Millerton Lake	520,500	U.S. Bureau of Reclamation	9000-154	FRT, MIL

* California Data Exchange Center

Table 3.1-2
Millerton Reservoir – Ramp No. 3
Baseline Water Quality Monitoring Program – MTBE Investigation

Date Sampled	Measured Concentrations (micrograms per liter)									
	MTBE	2-Methyl-2-propanol	Benzene	Ethylbenzene	Isopropyl ether	Meta, Para-Xylene	Ortho-xylene	Tert-amyl methyl ether	Tert-butyl ethyl ether	Toluene
5/20/98	10									
5/26/98	<5									
7/1/98	<5									
7/7/98	5.3									
9/2/98	5.9									
9/11/98	<5									
5/26/99	6.3									
6/1/99	11.6									
7/2/99	8.3									
7/10/99	13									
9/2/99	4.2									
9/7/99	6									
5/26/00	6.5	<100			<2			<0.5	<0.5	
5/30/00	12	<100			<2			<0.5	<0.5	
6/30/00	3.3	<100			<2			<0.5	<0.5	
7/5/00	11	<100			<2			<0.5	<0.5	
9/1/00	2.8	<100			<2			<0.5	<0.5	
9/5/00	3.3	<100			<2			<0.5	<0.5	
5/24/01	11	<10			<1			<1	<1	
5/29/01	86	<10			<1			<1	<1	
6/29/01	3.3	<10			<1			<1	<1	
7/5/01	13	<10			<1			<1	<1	
8/31/01	2.8	<5			<1			<1	<1	
9/4/01	16	<5			<1			<1	<1	

Table 3.1-2
Millerton Reservoir – Ramp No. 3
Baseline Water Quality Monitoring Program – MTBE Investigation

Date Sampled	Measured Concentrations (micrograms per liter)									
	MTBE	2-Methyl-2-propanol	Benzene	Ethylbenzene	Isopropyl ether	Meta, Para-Xylene	Ortho-xylene	Tert-amyl methyl ether	Tert-butyl ethyl ether	Toluene
5/24/02	5.2	<5	0.68	<0.5	<1	1.8	0.77	<1	<1	2.3
5/28/02	3.2	<5	<0.5	<0.5	<1	0.62	<0.5	<1	<1	0.78
7/3/02	5.3	<5	<0.5	<0.5	<1	<0.5	<0.5	<1	<1	<0.5
7/8/02	8.3	<5	<0.5	<0.5	<1	<0.5	<0.5	<1	<1	0.54
8/30/02	1.8	<5	<0.5	<0.5	<1	<0.5	<0.5	<1	<1	<0.5
9/3/02	4.8	<5	<0.5	<0.5	<1	<0.5	<0.5	<1	<1	<0.5

Table 3.2-1
State and Federal Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[a]	National Standards[b]		Fresno/Madera State Status	Fresno/Madera National Status
		Concentrations[c]	Primary [c, d]	Secondary [c, e]		
Ozone [f]	8-hour 1-hour[f]	-- 0.09 ppm	0.08 ppm 0.12 ppm	Same as Primary	Nonattainment	Nonattainment
Carbon Monoxide	8-hour 1-hour	9.0 ppm 20.0 ppm	9 ppm 35 ppm	Same as Primary	Attainment (Fresno), Unclassified (Madera)	Attainment/ Unclassified
Nitrogen Dioxide	Annual Mean 1-hour	-- 0.25 ppm	0.053 ppm --	Same as Primary	Attainment	Attainment
Sulfur Dioxide	Annual Mean 24-hour 3-hour 1-hour	-- 0.04 ppm -- 0.25 ppm	0.03 ppm 0.14 ppm -- --	-- -- 0.5 ppm --	Attainment	Unclassified
Fine Particulate Matter (PM_{10})	Annual Mean Annual Geometric Mean 24-hour	-- 30 μg/m^3 50 μg/m^3	50 μg/m^3 -- 150 μg/m^3	Same as Primary -- Same as Primary	Nonattainment	Nonattainment
Fine Particulate Matter ($PM_{2.5}$)	Annual Mean 24-hour	-- --	15 μg/m^3 65 μg/m^3	Same as Primary	Unclassified	Unclassified

Notes:
μg/m^3 = micrograms per cubic meter
ppm = parts per million

[a] California standards, other than carbon monoxide, sulfur dioxide (1-hour), and fine particulate matter, are values that are not to be equaled or violated. The carbon monoxide, sulfur dioxide (1-hour), and fine particulate matter standards are not to be violated.

[b] National standards, other than ozone, the 24-hour $PM_{2.5}$, the PM_{10}, and those standards based on annual averages, are not to be exceeded more than once a year. The 1-hour ozone standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above the standard is equal to or less than one. The 8-hour ozone standard is attained when the 3-year average of the annual fourth highest daily maximum concentration is less than 0.08 ppm. The 24-hour PM_{10} standard is attained when the 99th percentile of 24-hour PM_{10} concentrations in a year, averaged over 3 years, at the population-oriented monitoring site with the highest measured values in the area, is below 150 μg/m^3. The 24-hour $PM_{2.5}$ standard is attained when the 98th percentile of 24-hour $PM_{2.5}$ concentrations in a year, averaged over 3 years, at the population-oriented monitoring site with the highest measured values in the area, is below 65 μg/m^3. The annual average $PM_{2.5}$ standard is attained when the 3-year average of the annual arithmetic mean $PM_{2.5}$ concentrations, from single or multiple community oriented monitors is less than or equal to 15 μg/m^3.

[c] All measurements of air quality are to be corrected to a reference temperature of 25° C and a reference pressure of 760 mm of mercury (Hg) (1013.2 millibar); ppm in this Table refers to ppm by volume, or micromoles of pollutant per mole of gas.

[d] National Primary Standards: The levels of air quality deemed necessary by the federal government, with an adequate margin of safety, to protect the public health.

[e] National Secondary Standards: The levels of air quality deemed necessary by the federal government, to protect the public welfare from any known or anticipated adverse effects to a pollutant.

[f] The 1-hour ozone standard will be replaced by the 8-hour standard on an area-by-area basis when the area has achieved 3 consecutive years of air quality data meeting the 1-hour standard.

Table 3.2-2
Health Effects Summary of Air Pollutants of Regulatory Concern

Air Pollutant	Adverse Effects
Ozone	Eye irritation
	Respiratory function impairment
Carbon Monoxide	Impairment of oxygen transport in the bloodstream, increase of carboxyhemoglobin
	Aggravation of cardiovascular disease
	Impairment of central nervous system function
	Fatigue, headache, confusion, and dizziness
	Can be fatal in the case of very high concentrations in enclosed places
Particulate Matter Less Than Ten Microns (PM_{10})	Increased risk of chronic respiratory disease with long exposure
	Altered lung function in children
	With SO_2, may produce acute illness
	May lodge in and/or irritate the lungs.

Source: Bay Area Air Quality Management District, 1996.

Table 3.2-3
Summary of Criteria Air Pollutant Monitoring

Monitoring Station	Pollutant	1999	2000	2001
Ozone				
Perimeter Road	Peak 1-hour concentration (ppm)	0.129	0.116	0.124
(Shaver Lake)	Days above federal standard	1	0	0
	Days above state standard	30	26	25
Perimeter Road	Peak 8-hour concentration (ppm)	0.095	0.094	0.099
(Shaver Lake)	Days above federal standard	12	13	10
	Days above state standard	N/A	N/A	N/A
Pump Yard	Peak 1-hour concentration (ppm)	0.084	0.06	0.06
(Madera)	Days above state standard	0	0	0
	Annual average (ppm)	0.014	0.013	0.011

Source: CARB 1999, 2000, and 2001, Internet Air Quality Data Summaries.
*Data for carbon monoxide, PM_{10}, and sulfur dioxide in the project area were not available.

Table 3.4-1
Special-Status Plant Species Known to Occur or with Potential to Occur in the Plan Area
(Based on Lists Generated by CNPS, CNDDB, and USFWS Databases)

Scientific Name	Common Name	Federal/ State Status[1]	CNPS[2]	Preferred Habitat and Blooming Periods[3]	Occurrence in the Plan Area[4]
Calyptridium pulchellum	Mariposa pussypaws	T/None	1B.1	Cismontane woodland on granite domes, restricted to exposed sites; 400–1,100 meters; April–August	Potential to occur; suitable habitat present; occurs in vicinity in Auberry and O'Neals quads; closest CNDDB occurrence is approximately 13 miles east of Plan Area in Auberry quad in the Sierra National Forest at Sugarloaf Conversion Project (CNDDB 2007; CNPS 2007).
Carex praticola	Meadow sedge	None/ None	2.2	Moist to wet meadows and seeps; 0–3,200 meters; May–July	Potential to occur; suitable habitat present; occurs in vicinity in Cascadel Point quad at Pitcher Creek (CNDDB 2007; CNPS 2007).
Carpenteria californica	Tree-anemone	None/T	1B.2	Cismontane woodland and chaparral in well-drained granitic soils, mostly on north-facing ravines and drainages; 340–1,340 meters; May–July	Potential to occur; suitable habitat present; known to occur in the Study Area north of Squaw Leap in Millerton Lake East quad and in the vicinity in Auberry, Cascadel Point, and North Fork quads (CNDDB 2007; CNPS 2007).
Castilleja campestris ssp. succulenta	Succulent (fleshy) owl's-clover	T/E	1B.2	Vernal pools in valley and foothill grasslands, often in acidic soils; 25–750 meters; April–May	Occurs in the Plan Area at Big Table Mountain and McKenzie Table (Millerton Lake East quad), in the study area at Kennedy Table (Millerton Lake East quad) and near Roads 145 and 211(Millerton Lake West quad), and in the vicinity in Friant, Humphreys Station, Round Mountain, Fresno North (possibly extirpated), and Lanes Bridge quads (CNDDB 2007; CNPS 2007).
Caulanthus californicus	California jewelflower	E/E	1B.1	Chenopod scrub and Valley and foothill grassland; 70–1,000 meters; February–May	Potential to occur; suitable habitat; last recorded in 1930 from a non-specific location in the vicinity of Fresno (CNPS 2007).
Collomia rawsoniana	Flaming trumpet	None/ None	1B.2	Riparian forest and lower montane coniferous forests in riparian zones on stabilized alluvium; endemic to Madera and Mariposa Counties; 775–2,060 meters; July–August	Potential to occur; suitable habitat present; occurs in vicinity in Cascadel Point 7.5 minute quadrangle approximately 10 miles northeast of Plan Area (CNDDB 2007; CNPS 2007).

Table 3.4-1
Special-Status Plant Species Known to Occur or with Potential to Occur in the Plan Area
(Based on Lists Generated by CNPS, CNDDB, and USFWS Databases)

Scientific Name	Common Name	Federal/ State Status[1]	CNPS[2]	Preferred Habitat and Blooming Periods[3]	Occurrence in the Plan Area[4]
Delphinium hansenii ssp. ewanianum	Ewan's larkspur	None/ None	4	Cismontane woodland and valley and foothill grassland in rocky soils; 60–600 meters; March–May	Potential to occur; suitable habitat present; occurs in Madera County (CNPS 2007); *Delphinium hansenii* ssp. *hansenii* occurs in the Table Mountain area (Fresno County) (CPRD 1996) and *Delphinium hansenii* but not the subspecies *ewanianum* was identified at McKenzie Table (BLM 1991) and in the Table Mountain area (Fresno County) (SFC 1998); occurs in Madera County (CNPS 2007).
Eryngium spinosepalum	Spiny coyote thistle	None/ None	1B.2	Vernal pools in valley and foothill grasslands; some sites on clay soil of granitic origin; 100–420 meters; also occurs in vernal pools, roadside ditches, depressions, and swales in annual grasslands and oak woodlands (USFWS 2003); April–May	Occurs in the Plan Area at Big Table Mountain (Millerton Lake East quad) (CDFG 2003) and in the vicinity in Millerton Lake West, Round Mountain (possibly extirpated), and Little Table Mountain quads; closest CNDDB occurrences (two) are approximately 5 miles east of Plan Area in Little Table Mountain quad (CNPS 2007; CNDDB 2007).
Gratiola heterosepala	Boggs Lake hedge-hyssop	None/E	1B.2	Usually in vernal pools, sometimes on lake margins and man-made structures such as stock ponds, borrow pits, and reservoirs; clay soils; 5–2,400 meters; April–August	Occurs in the Millerton Lake East quad in the Plan Area at Big Table Mountain and McKenzie Table and in the study area at Kennedy Table quads (CNDDB 2007); occurs in vicinity of Plan Area in North Fork quad (CNPS 2007; CNDDB 2007).
Imperata brevifolia	California satintail	None/ None	2.1	Chaparral, mesic riparian scrub, meadows, and seeps that are often alkali; 0-500 meters; September-May	Potential to occur; suitable habitat; last recorded in 1893 from a non-specific location in the vicinity of Fresno (CNPS 2007).
Jensia yosemitana	Yosemite tarplant	None/ None	3.2	Lower montane coniferous forest and meadows and seeps in granite; 1,200–2,300 meters; April–July	Potential to occur; suitable habitat present; occurs in vicinity in Auberry quad (CNPS 2007).

Table 3.4-1
Special-Status Plant Species Known to Occur or with Potential to Occur in the Plan Area
(Based on Lists Generated by CNPS, CNDDB, and USFWS Databases)

Scientific Name	Common Name	Federal/ State Status[1]	CNPS[2]	Preferred Habitat and Blooming Periods[3]	Occurrence in the Plan Area[4]
Leptosiphon serrulatus	Rose leptosiphon	None/ None	1B.2	Cismontane woodland and lower montane coniferous forest on dry slopes, often on decomposed granite in woodland; 80–1,575 meters; April–May	Occurs in the Plan Area near Millerton Lake at Big Bend and South Bay (Millerton Lake West) and in the vicinity in the Millerton Lake West, Friant, Knowles and O'Neals quads (CNDDB 2007; CNPS 2007).
Lupinus citrinus var. citrinus	Orange lupine	None/ None	1B.2	Chaparral, cismontane woodland, and lower montane coniferous forest in rocky, decomposed granitic outcrops usually in open areas on flat to rolling terrain; 600–1,350 meters; April–July	Potential to occur; suitable habitat present; occurs in vicinity in Auberry, O'Neals, and Cascadel Point quads; closest CNDDB occurrence approximately 4 miles east of Plan Area and several other occurrences east of Plan Area occur within approximately 8 miles (CNDDB 2007; CNPS 2007).
Mimulus acutidens	Kings River monkeyflower	None/ None	3	Cismontane woodland and lower montane coniferous forest in moist places; 305–1,220 meters; April–July	Occurs in Plan Area at McKenzie Table (Millerton Lake East quad) and in the vicinity in Auberry quad (CNPS 2007; BLM 1991).
Mimulus gracilipes	Slender-stalked monkeyflower	None/ None	1B.2	Chaparral, cismontane woodland, and lower montane coniferous forest in disturbed places such as burns and railroad grades; also on thin granitic soil in cracks in large granite rocks; known only from Fresno and Mariposa Counties; 500–1,300 meters; April–June	Potential to occur; suitable habitat present; occurs in vicinity in Auberry quad (CNPS 2007).
Orcuttia inaequalis	San Joaquin Valley orcutt grass	T/E	1B.1	Deep vernal pools; endemic to San Joaquin Valley; 30–755 meters; April–September	Occurs in Millerton Lake East quad in Plan Area at McKenzie Table, in study area at Kennedy Table, and in vicinity in Friant, Fresno North (extirpated) and Lanes Bridge quads (CNDDB 2007; CNPS 2007).

Table 3.4-1
Special-Status Plant Species Known to Occur or with Potential to Occur in the Plan Area
(Based on Lists Generated by CNPS, CNDDB, and USFWS Databases)

Scientific Name	Common Name	Federal/ State Status[1]	CNPS[2]	Preferred Habitat and Blooming Periods[3]	Occurrence in the Plan Area[4]
Orcuttia pilosa	Hairy orcutt grass	E/E	1B.1	Vernal pools, endemic to the Sacramento Valley; 25–125 meters; May–September	Potential to occur; suitable habitat present; occurs in vicinity in Lanes Bridge quad; closest CNDDB occurrence is approximately 6 miles southwest of Plan Area at Little Table Mountain Southwest (CNDDB 2007; CNPS 2007).
Pseudobahia bahiifolia	Hartweg's golden sunburst	E/E	1B.1	Nonnative grasslands and at the edges of cismontane woodland, usually on north-facing or knolls (with the highest densities on upper slopes with minimal grass cover) (Stebbins 1991) and along shady creeks; strongly correlated with Amador and Rocklin soil series (well-drained and acidic) (Stebbins 1991); 15–150 meters; March–April	Potential to occur; suitable habitat present; Amador soil series and Rocklin soil series, which are highly correlated with this species, are not mapped in Plan Area, but Rocklin soil series is adjacent to Plan Area where this species is known to occur in the study area in Friant and Millerton Lake West quads; occurs in vicinity in Millerton Lake West and Friant (extirpated) quads (CNDDB 2007; CNPS 2007).
Pseudobahia peirsonii	San Joaquin adobe sunburst, Tulare pseudobahia	T/E	1B.1	Cismontane woodland, valley and foothill grassland, on grassy valley floors and rolling foothills and mima mounds in heavy clay soil; endemic to adobe clay soils, most often with Porterville, Centerville, Cibo and Mount Olive series (Stebbins 1991); 85–800 meters; March–April	Potential to occur; suitable habitat present, though most of the Plan Area has loamy soil series and some clay soil series rather than Porterville, Centerville, Cibo or Mount Olive series (NRCS 1998; NRSC 1971); occurs in vicinity in Round Mountain quad; closest CNDDB occurrence in approximately 12 miles south of Plan Area (CNDDB 2007; CNPS 2007).
Sagittaria sanfordii	Sanford's arrowhead	None/ None	1B.2	Standing or slow moving water in freshwater ponds, marshes, and ditches; 0–610 meters; May–October	Potential to occur; suitable habitat present; occurs in vicinity in Clovis and Fresno North quads (CNDDB 2007; CNPS 2007).
Tropidocarpum capparideum	Caper-fruited tropidocarpum	None/ None	1B.1	Valley and foothill grassland; 1–455 meters; March–April	Potential to occur; suitable habitat; last recorded in 1930 from a non-specific location in the vicinity of Fresno (CNPS 2007).

Table 3.4-1
Special-Status Plant Species Known to Occur or with Potential to Occur in the Plan Area
(Based on Lists Generated by CNPS, CNDDB, and USFWS Databases)

Scientific Name	Common Name	Federal/ State Status[1]	CNPS[2]	Preferred Habitat and Blooming Periods[3]	Occurrence in the Plan Area[4]
Tuctoria greenei	Greene's tuctoria, Greene's Orcutt grass	E/R	1B.1	Dry bottoms of vernal pools in open valley and foothill grasslands; 30–1,065 meters; May–September	Potential to occur; suitable habitat present; historically occurred in vicinity in Round Mountain and Clovis quads, but these populations are extirpated (CNDDB 2007; CNPS 2007).
Viburnum ellipticum	Oval-leaved viburnum	None/ None	2.3	Chaparral, cismontane woodland, lower montane coniferous forest; 215–1,400 meters; May–June	Potential to occur; suitable habitat present; occurs in vicinity in Auberry quad (CNPS 2007).

1. Federal and California Endangered Species Act:
   - E = Endangered
   - T = Threatened
   - C = Candidate for listing status
   - PT = Proposed for listing as Threatened
   - D = Delisted

2. California Native Plant Society (CNPS)
   - List 1B = Plant species that are rare, threatened, or endangered in California and elsewhere
   - List 2 = Plant species that are rare, threatened, or endangered in California but more common elsewhere
   - List 3 = Plant species about which we need more information (a review list)
   - List 4 = Plant species of limited distribution (a watch list).
     - .1 = Seriously endangered in California (over 80% of occurrences threatened/high degree of immediacy of threat)
     - .2 = Fairly endangered in California (20-80% of occurrences threatened)
     - .3 = Not very endangered in California (<20% of occurrences threatened or no current threats known)

3. Sources for habitats (unless referenced otherwise): CNDDB 2007; CNPS 2007.

4. Vicinity is defined as one or more of the 15 quadrangles that include and surround the Plan Area: Millerton Lake West, Millerton Lake East, Friant, Knowles, O'Neals, North Fork, Cascadel Point, Little Table Mountain, Auberry, Lanes Bridge, Academy, Humphrey's Station, Fresno North, Clovis, and Round Mountain. The Plan Area is located in the Millerton Lake West, Millerton Lake East, and Friant quadrangles.

Sources: BLM 1991; CDFG 2005; CDFG 2003; State Parks 1996; CNDDB 2007; CNPS 2007; Stebbins, Trayler, and Kokx 1991; SFC 1998; USFWS 2007a and 2007b.

Table 3.4-2
Special-Status Wildlife Species Known to Occur or with Potential to Occur in the Plan Area
(Based on Lists Generated by USFWS and CNDDB)

Scientific Name **COMMON NAME**	**Federal/ State Status[1]**	**Other Status[2]**	**Preferred Habitat**	**Potential to Occur in the Plan Area**
Taxidea taxus AMERICAN BADGER	None/ None	SSC	Dry, open areas of most shrub, forest and herbaceous habitats with friable soils	Moderate Study area provides suitable habitat; confirmed occurrence within 12 miles of Plan Area
Perognathus inornatus inornatus SAN JOAQUIN POCKET MOUSE	None/ None	-	Grasslands, blue oak savannas; needs friable soils	Moderate Blue oak woodlands in Plan Area provide suitable habitat.
Dipodomys nitratoides exilis FRESNO KANGAROO RAT	E/E	-	Alkali scrub, dry, sparsely vegetated loam soils in western San Joaquin Valley	Low Plan Area is east of known range and does not offer suitable habitat.
Ammospermophilus nelsoni SAN JOAQUIN ANTELOPE SQUIRREL	None/T	-	Western San Joaquin Valley from 200–1,200 feet on dry, sparsely vegetated loam soils; needs widely scattered shrubs, forbs, and grasses in broken terrain with gullies and washes	Low Plan Area is east of known range and does not offer suitable habitat.
Vulpes macrotis mutica SAN JOAQUIN KIT FOX	E/T	-	Annual grassland or grassy open stages with scattered shrubby vegetation; needs loose-textured sandy soils for burrowing and suitable prey base	Low No known populations or confirmed sightings in vicinity. Plan Area is east of known range.
Myotis thysanodes FRINGED MYOTIS	None/ None	HP	Widespread in California, occurring in all but the Central Valley and Colorado and Mojave Deserts; generally at 4,300–7,200 feet	Low Generally prefers higher elevations than those in Plan Area.
Myotis volans LONG-LEGGED MYOTIS	None/ None	HP	Coast ranges, Cascade/Sierra ranges, Mojave Desert mountains, common above 4,000 feet	Low Generally prefers higher elevations than those in Plan Area.
Myotis yumanensis YUMA MYOTIS	None/ None	-	Forests and woodlands with sources of water over which to feed; roosts in buildings, mines, caves, crevices, occasionally under bridges	High Plan Area offers suitable foraging and roosting habitat.
Myotis evotis LONG-EARED MYOTIS	None/ None	MP	Widespread in California; avoids the arid Central Valley and hot deserts	Low Prefers coniferous woodlands.

Table 3.4-2
Special-Status Wildlife Species Known to Occur or with Potential to Occur in the Plan Area
(Based on Lists Generated by USFWS and CNDDB)

Scientific Name **COMMON NAME**	**Federal/ State Status[1]**	**Other Status[2]**	**Preferred Habitat**	**Potential to Occur in the Plan Area**
Myotis ciliolabrum SMALL-FOOTED MYOTIS	None/ None	MP	Arid woody or brushy uplands, near water, west and east sides of Sierra Nevada; 0–8,900 feet	Moderate Prefers drier habitat than Plan Area, but could utilize cliffs.
Eumops perotis californicus GREATER WESTERN MASTIFF BAT	None/ None	SSC/ HP	Many open, semi-arid to arid habitats; roosts in crevices in cliff faces, high buildings, trees and tunnels	Present Known populations in study area; observed in Plan Area.
Corynorhinus townsendii townsendii TOWNSEND'S WESTERN BIG-EARED BAT	None/ None	SSC/ HP	Prefers mesic areas; roosts in caves or similar structures	Moderate Prefers more mesic habitat and higher elevations those in present in the Plan Area.
Antrozous pallidus PALLID BAT	None/ None	SSC/HP	Grasslands, shrublands, woodlands, and forests from sea level up through mixed conifers	High Plan Area offers suitable foraging and roosting habitat.
Euderma maculatum SPOTTED BAT	None/ None	SSC/ HP	Montane open coniferous forests; low deserts; roosts in cliff faces	Moderate Suitable habitat is present, particularly in cliffs; very uncommon.
Agelaius tricolor TRICOLORED BLACKBIRD	None/ None	SSC	Cattail-Tule marsh; requires open water, protected nesting substrate, and foraging area with insect prey.	Moderate. Suitable habitat is present; confirmed occurrence within 12 miles of plan area
Aquila chrysaeto GOLDEN EAGLE	None/ None	SSC/ Fully Protected	Rolling foothills, mountain areas, sage-juniper flats, and deserts; nests in large trees and on cliffs	Present Known populations in vicinity; observed in Plan Area.
Athene cunicularia hypugea WESTERN BURROWING OWL	None/ None	SSC	Nests and winters in grassland and sparse shrubland habitats throughout California; uses abandoned burrows of burrowing mammals for shelter and nest sites	Moderate Suitable habitat is limited to the grasslands in the southern portion of the study area.
Buteo regalis FERRUGINOUS HAWK	None/ None	SSC	Nests from Oregon to Canada; winters in grassland or desert habitats throughout California	Low Prefers open habitat near agricultural lands.
Buteo swainsoni (nesting) SWAINSON'S HAWK	None/T	-	Nests in the Central Valley within riparian areas and oak woodlands as well as isolated and roadside trees close to grassland or agricultural foraging habitat; winters in Mexico, Central and South America	Low Uncommon along eastern side of San Joaquin Valley; few observations in vicinity.

Table 3.4-2
Special-Status Wildlife Species Known to Occur or with Potential to Occur in the Plan Area
(Based on Lists Generated by USFWS and CNDDB)

Scientific Name **COMMON NAME**	**Federal/ State Status[1]**	**Other Status[2]**	**Preferred Habitat**	**Potential to Occur in the Plan Area**
Charadrius montanus MOUNTAIN PLOVER	PT/None	SSC	Nests in Montana, New Mexico, Oklahoma, Colorado, and Texas; winters primarily within the Central and Imperial Valleys of California within cultivated fields and grasslands	Moderate Suitable wintering habitat is limited to the undisturbed, western grasslands.
Accipiter striatus SHARP SHINNED HAWK	None/ None	SSC	Dense, mid-elevation woodlands sites, often riparian corridors; prefers north facing slopes in some instances	Present Observed in Plan Area.
Falco peregrinus anatum AMERICAN PEREGRINE FALCON	D/E	Fully Protected	Nests on protected cliffs near large waterbodies where prey is abundant; uncommonly found in the Central Valley as a winter resident	Present Known populations in vicinity, observed in Plan Area.
Haliaeetus leucocephalus BALD EAGLE	None/E	Fully Protected	Nests and roosts in large-diameter trees or snags near large waterbodies where prey is abundant	Present Large wintering populations in Plan Area.
Elanus leucurus WHITE-TAILED KITE	None/ None	Fully Protected	Nests among dense-topped trees; forages in open grasslands, meadows, or marshes	Present Observed in Plan Area.
Lanius ludovicianus LOGGERHEAD SHRIKE	None/ None	SSC	Open canopied valley and foothill hardwood, riparian; urban areas	Present Observed in Plan Area.
Melanerpes lewis LEWIS' WOODPECKER	None/ None	-	Open pine-oak woodlands, coniferous forests, and riparian woodlands; prefers burned and logged woodlands	Present Observed in Plan Area.
Accipiter cooperi COOPER'S HAWK	None/ None	SSC	Dense riparian habitat or live oak forest, generally near water	Present Breeding population in study area.
Falco mexicanus (nesting) PRAIRIE FALCON	None/ None	SSC	Dry open terrain, level or hilly; breeding sites located on cliffs; forages far afield, even to marshlands and ocean shores	Present Breeding population in study area.
Eremophilia alpestis actia HORNED LARK	None/ None	SSC	Open habitats, including deserts	Present Breeding population in study area.
Calicina mesaensis TABLE MOUNTAIN HARVESTMAN	None/ None	-	Under basalt rocks in oak grasslands. Only known occurrences are from the Table Mtn. area, Fresno Co.	Present Observed on edge of plan area, within study area boundary

Table 3.4-2
Special-Status Wildlife Species Known to Occur or with Potential to Occur in the Plan Area
(Based on Lists Generated by USFWS and CNDDB)

Scientific Name **COMMON NAME**	**Federal/ State Status[1]**	**Other Status[2]**	**Preferred Habitat**	**Potential to Occur in the Plan Area**
Phrynosoma coronatum frontale CALIFORNIA HORNED LIZARD	None/ None	SSC/ Protected	Valley-foothill hardwood, conifer, and riparian habitats, as well as pine-cypress, juniper, and annual grass habitats; basks on low boulders or rocks, burrow into soil or under objects for cover and hibernation	High Plan Area offers suitable habitat.
Clemmys marmorata WESTERN POND TURTLE	None/ None	SSC/ Protected	Ponds, marshes, rivers, streams, irrigation ditches with aquatic vegetation; needs basking site, and suitable upland habit (sandy banks or grassy open fields) for egg laying	Present Observations have occurred within the study area.
Ambystoma californiense CALIFORNIA TIGER SALAMANDER	T/None	SSC/ Protected	Annual grasslands and grassy understory of valley-foothill hardwood habitats; needs underground refuges; needs vernal pools or other seasonal water sources for breeding	Present Documented from the study area; grasslands offer suitable habitat.
Scaphiopus hammondii WESTERN SPADEFOOT TOAD	None/ None	SSC/ Protected	Grassland and valley-foothill hardwood woodlands; vernal pools or seasonal wetlands are essential for egg laying	Present Documented from the study area; Plan Area offers suitable habitat.
Rana boylii FOOTHILL YELLOW-LEGGED FROG	None/ None	SSC/ Protected	Partly shaded, shallow streams and riffles with a rocky substrate in a variety of habitats; requires some cobble-sized substrate for egg-laying	Moderate Suitable habitat is limited in study area; no known occurrences from vicinity.
Oncorhynchus tshawytscha FALL-RUN CHINOOK SALMON	None/ None	SSC	Pacific Ocean; spawns in large, permanent coastal streams and rivers, over gravel beds	Low Populations have been decimated by dams.
Oncorhynchus tshawytscha SPRING-RUN CHINOOK SALMON	T/T	-	Pacific Ocean; spawns in large, permanent coastal streams and rivers, over gravel beds	Low Populations have been decimated by dams.
Oncorhynchus tshawytscha WINTER-RUN CHINOOK SALMON	E/E	-	Pacific Ocean; spawns in large, permanent coastal streams and rivers, over gravel beds	Low Populations have been decimated by dams.
Oncorhynchus mykiss CENTRAL VALLEY STEELHEAD	T/None	-	Pacific Ocean; spawns in coastal streams and rivers, over gravel beds	Low Populations have been decimated by dams.
Lampetra tridenta PACIFIC LAMPREY	None/ None		Pacific Ocean; spawns over gravel beds in coastal streams and rivers	Low No suitable habitat in study area.

Table 3.4-2
Special-Status Wildlife Species Known to Occur or with Potential to Occur in the Plan Area
(Based on Lists Generated by USFWS and CNDDB)

Scientific Name **COMMON NAME**	**Federal/ State Status[1]**	**Other Status[2]**	**Preferred Habitat**	**Potential to Occur in the Plan Area**
Lampetra ayresi RIVER LAMPREY	None/ None	SSC	San Joaquin–Sacramento Delta and northward, including the Sacramento River	Low No suitable habitat in study area.
Lampetra hubbsi KERN BROOK LAMPREY	None/ None	SSC	San Joaquin rivers and waterways	Present Known from San Joaquin River above Millerton Lake.
Acipenser medirostris GREEN STURGEON	PT/ None	SSC	Pacific Ocean; seldom migrates inland beyond estuaries of large rivers	Low Suitable estuarine habitat is not present.
Lavinia symmetricus ssp.1 SAN JOAQUIN VALLEY ROACH	None/ None	SSC	Streams of a variety of types, including intermittent, perennial, and human modified	Moderate Suitable habitat is present in study area.
Mylopharodon conocephalus HARDHEAD	None/ None	SSC	Clear, deep pools with sand-gravel-boulder bottoms and slow water velocity; not found where exotic centrarchids dominate	Moderate Suitable habitat is present in study area.
Branchinecta conservatio CONSERVANCY FAIRY SHRIMP	E/None	-	Found in large, turbid pools in the northern 2/3 of the Central Valley; inhabits astatic pools located in swales formed by old, braided alluvium, filled by winter/spring rains that last until June	Low Outside of primary range; no occurrences known from vicinity.
Branchinecta lynchi VERNAL POOL FAIRY SHRIMP	T/None	-	Vernal pools; inhabits small, clear-water sandstone depression pools and grassed swale, earth slump, or basalt-flow depression pools	Present Known populations in Plan Area.
Branchinecta mesovallensis MIDVALLEY FAIRY SHRIMP	None/ None	-	Vernal pools in grasslands in Sacramento, Solano, Contra Costa, Madera, Merced and Fresno Counties	Low No known occurrences in Plan Area.
Linderiella occidentalis CALIFORNIA LINDERIELLA	None/ None	-	Seasonal pools in unplowed grasslands with old alluvial soils underlain by hardpan or in sandstone depressions; water has very low alkalinity, conductivity and TDS	Present Known populations in Plan Area.
Lepidurus packardi VERNAL POOL TADPOLE SHRIMP	E/None	-	Seasonal pools in unplowed grassland with old alluvial soils underlain by hardpan or in sandstone depressions; water in the pools has very low alkalinity and conductivity	Present Known populations in Plan Area.

Table 3.4-2
Special-Status Wildlife Species Known to Occur or with Potential to Occur in the Plan Area (Based on Lists Generated by USFWS and CNDDB)

Scientific Name **COMMON NAME**	**Federal/ State Status[1]**	**Other Status[2]**	**Preferred Habitat**	**Potential to Occur in the Plan Area**
Desmocerus californicus dimorphus VALLEY ELDERBERRY LONGHORN BEETLE	T/None	-	Restricted to blue elderberry shrubs in the Central Valley and adjacent foothills for all stages of life	High Known populations in study area, including an occurrence south of McKenzie Table.
Lytta molesta MOLESTAN BLISTER BEETLE	None/ None	-	Central Valley of California, from Contra Costa to Kern and Tulare Counties; found on vernal pool vegetation	Present Known populations from vernal pools in Plan Area.

1. Federal and California Endangered Species Act:
   - E = Endangered
   - T = Threatened
   - C = Candidate for listing status
   - PT = Proposed for listing as Threatened
   - D = Delisted
   - PD = Proposed for delisting

2. Other Status:
   - SSC = California Department of Fish and Game Species of Special Concern
   - Protected and Fully Protected = Species that cannot be taken or possessed without a permit from the Fish and Game Commission and/or Department of Fish and Game
   - MP = Medium Priority species are designated by the Western Bat Working Group as species for which inadequate information exists to assess the species' status
   - HP = High Priority species are designated by the Western Bat Working Group as a species imperiled, or at a high risk of imperilment

Table 3.4-3
Vegetation Communities in the Plan Area

Vegetation Community	Acres
Gray Pine - Oak Woodland (87.130.03)	6,157
Blue Oak Woodland (71.020.00)	361
Nonnative Grassland (42.000.00)	538
Interior Live Oak Woodland/Forest (71.080.06/71.080.07)	200
Northern Basalt Flow Vernal Pools (44.131.00)/ Nonnative Grassland (42.000.00)	319
Silver Bush Lupine (32.081.01)/Nonnative Grassland (42.000.00)	182
Mixed Riparian Forest and Woodland (61.900.00)	50
Developed/Disturbed	268
TOTAL	8,074

Note: Numbers in parentheses are CNDDB (2002b) numbers for vegetation communities.

Table 3.4-4
Changes in Fish Fauna in the San Joaquin River at Friant, Fresno County

	1898	1934	1941	1971	1985
Native Species					
Sacramento splittail	X	--	--	--	--
Hitch	X	X	X	--	--
California roach	X	X	X	--	--
Hardhead minnow	X	X	X	--	--
Sacramento pikeminnow	X	X	X	--	--
Sacramento blackfish	X	X	X	--	--
Chinook salmon	X	X	X	--	--
Tule perch	X	X	X	--	--
Sacramento sucker	X	X	X	X	X
Rainbow trout	X	X	X	X	X
Prickly sculpin	X	X	X	X	X
Threespine stickleback	X	X	X	X	X
Kern brook lamprey	N	N	N	X	X
Pacific lamprey	N	N	N	X	X
Introduced Species					
Brown trout	--	X	X	X	X
Common carp	--	X	X	X	X
Bluegill	--	X	X	X	X
Smallmouth bass	--	X	X	N	X
Brown bullhead	--	--	--	X	X
Mosquitofish	--	--	--	X	X
Green sunfish	--	--	--	X	X
Largemouth bass	--	--	--	X	X
Total number of species	14	17	21	14	14
Percent native species	100	77	62	43	43

Notes: This was originally a transitional reach between valley floor and foothills, so it had a high diversity of native fishes. After 1941 flow in the reach was regulated by releases from Friant Dam, converting it into a coolwater trout stream containing trout that are mostly of hatchery origin. Abbreviations: N, probably present but not recorded; X, present.

Sources: Moyle 2002. Based on information from Rutter (1903); Needham and Hanson (1935); Dill (1946); Moyle and Nichols (1974); and Brown and Moyle (1993).

Table 3.5-1
Millerton Lake SRA Archaeological Site Data
(Sites within 0.5 Mile of Plan Area)

Site Number	Date Recorded	Milling	Lithics	Site Type	Comments from Site Record	Existing Pool
CA-MAD-000008	1939	BRM: 97+	Yes	Camp	Sweat house, 400 burials reported, obs. pts., pestles, steatite sherds. See Hewes 1941	Within
CA-MAD-000089	1986	BRM: 9	None	Milling	----	Outside
CA-MAD-000090	1986	BRM: 20	None	Milling	BRM, slicks: 9	Outside
CA-MAD-000091	1987	BRM: 90	Yes	Camp	"Extensive village site"; 9 house pits, 23 cupules, 38 slicks, flakes, mano frags, pestle frag, hist. ceramic frags.	Within
CA-MAD-000095	1991	BRM: 150	Yes	Camp	1983 form: "large midden site"; ground stone collected 1961	Outside
CA-MAD-000096	1986	BRM: 5	None	Milling	4 slicks	Outside
CA-MAD-000098	1987	BRM: 94	Yes	Camp	Possible house pits, 18 cupules, 16 slicks, obs. eastgate pt., FAR, obs flakes, chopper, hammerstone, faunal B&S	Within
CA-MAD-000100	1983	BRM: 2	None	Milling	----	Outside
CA-MAD-000101	1978	BRM: 4	Flakes	Camp	BRMs and flakes	Outside
CA-MAD-000102	1978	BRM: 95+	None?	Camp?	"Large habitation site," but no mention of lithics or FAR	Outside
CA-MAD-000556	1978	None	Yes	Camp?	"Manos, choppers, large crude flakes" and "habitation debris"	Within
CA-MAD-000557	1978	None	Yes	Quarry	"Schist quarry," "chopping tools"	Outside
CA-MAD-000558	1978	BRM: 6	None	Milling	----	Within
CA-MAD-000559	1978	BRM: 1	None	Milling	----	Outside
CA-MAD-000560	1978	BRM: 8	None	Milling	Also 1 slick	Outside
CA-MAD-000561	1978	BRM: 2	None	Milling	----	Outside
CA-MAD-000562	1978	Slick: 1	None	Milling	----	Within
CA-MAD-000563	1978	Slick: 1	None	Milling	----	Within
CA-MAD-000564	1978	BRM: 2	None	Milling	Mano and "2 boiling stones"	Within
CA-MAD-000565	1978	BRM: yes	Yes	Camp	"Large site scoured by water fluctuation," large lithic scatter	Within
CA-MAD-000566	1978	None	Scatter	Lithic Scatter	Flakes and "broken cobbles" exposed in campground road	Within
CA-MAD-000567	1978	BRM: 16	None	Milling	7 slicks	Within
CA-MAD-000568	1978	BRM: 12	Yes	Camp	BRMs, 3 housepits, midden (outside of SRA)	Outside
CA-MAD-000571	1978	BRM: 3	Yes	Camp	"Habitation site," obs. flakes, choppers, core, scrapper	Outside
CA-MAD-001090	1983	BRM: 1	None	Isolate	Single BRM	Outside
CA-MAD-002084	1991	BRM: 98	None	Milling	7 loci. "Some metal and glass trash" noted as artifacts.	Outside

Table 3.5-1
Millerton Lake SRA Archaeological Site Data
(Sites within 0.5 Mile of Plan Area)

Site Number	Date Recorded	Milling	Lithics	Site Type	Comments from Site Record	Existing Pool
CA-FRE-000071	1939	BRM: yes	Yes	Camp	Terse record; obs. chips, steatite rim sherd – "habitation"	Within
CA-FRE-000231	1986	BRM: 39	None	Milling	Milling: BRMs, 4 slicks, 1 cupule, 3 slabs, and 12 basins	Outside
CA-FRE-000232	1986	BRM: 16	None	Milling	Single quartzite chopper reported from earlier survey	Outside
CA-FRE-000348	1986	BRM: 12	2 flakes	Milling	At edge of water	Adjacent
CA-FRE-000349	1986	BRM: 24	None	Milling	BRM, slicks, possible petroglyph, covered in silt	Within
CA-FRE-000350	1978	BRM: 2	None	Milling	2 mortars and 3 slicks	Within
CA-FRE-000352	1978	BRM: 8+	Yes	Camp	"Large habitation area with considerable deposit..." State Parks designated as a Cultural Preserve.	Outside
CA-FRE-000353	1986	BRM: 51	Yes	Camp	BRM, 3 housepits, rock shelter?, few lithics	Outside
CA-FRE-000354	1986	BRM: 16	Yes	Camp	BRM, 4 housepits, 2 pestles, point (concave base), flakes	Outside
CA-FRE-000355	1986	BRM: 29	Few	Camp	BRM, 4 housepits, mammal bone, shell, 2 flakes. Original 1961 form: 14 house pits; park collection has trade beads+	Outside
CA-FRE-000356	1978	BRM: 15+	None	Milling	1 portable metate removed; in park collection	Within
CA-FRE-000357	1978	BRM: 2	None	Milling	----	Within
CA-FRE-000762	1978	BRM:3	None	Milling	"Seasonal milling station"	Outside
CA-FRE-000866	1978	BRM: 45	None	Camp	BRM, FAR, pestles, no obsidian	Outside
CA-FRE-000997	1978	BRM: 4	None	Milling	----	Within
CA-FRE-000998	1979	Slicks: 2	None	Milling	----	Outside
CA-FRE-000999	1978	BRM: 10	None	Milling	BRM, slicks: 8	Outside
CA-FRE-001000	1978	BRM: 57	Lithics	Camp	BRM, slicks: 8, 3 housepits, artifacts scatters, dark midden	Outside
CA-FRE-001001	1978	BRM: 2	Few	Camp	2 possible housepits, 3 flakes, core, 2 bifacial cobbles	Outside
CA-FRE-002339	1989	None	Yes	Lithic Scatter	Steatite outcrop-possible quarry; basalt core and 5 flakes	Outside
CA-FRE-000358	1961	BRM: 5	Flake	Milling	Apparently one obsidian flake noted	Within
CA-FRE-000359	1978	BRM: 92+	None	Milling	Pestle found near site: in park collection	Within
CA-FRE-000360	1978	BRM: ?	Few	Unknown	1961: BRM: 26, housepits: 9 (update different site?) 1978: Cairns: 2 (burials?), choppers, few flakes	Outside
CA-FRE-000361	1978	BRM: 41	Few	Camp Mining	"Large occupation site," "3 housepits (destroyed)"; mine: 2 large pits; arrastra; "modified heavily by mining"	Outside
CA-FRE-000669	1976	BRM: 23	Flakes	Temporary Camp	Possible midden development, 3 obs flakes noted	Outside
CA-FRE-002190	1988	BRM: 18	None	Camp	2 clusters: brm; 7 housepits, mano & pestle frags, midden	Outside
CA-FRE-002191	1988	BRM: 6; Met	None	Milling	Outcrops with BRMs and metate	Outside

Table 3.5-1
Millerton Lake SRA Archaeological Site Data
(Sites within 0.5 Mile of Plan Area)

Site Number	Date Recorded	Milling	Lithics	Site Type	Comments from Site Record	Existing Pool
CA-FRE-003126/H	1999	BRM: 130	Yes	Camp (P-4466)	16 housepits; possible sweat lodge, protohistoric site	Outside
CA-FRE-003127	1999	BRM: 5	None	Milling(P-4467)	"Rancheria Village Site about 150 m to the north"	Outside
CA-MAD-000087	1978	BRM: 25	schist?	Milling	"Theodoratus noted steatite (schist) frags in area [1961]"	Outside
CA-MAD-000092	1961	BRM: 3	None	Milling	None	Outside
CA-MAD-000093	1978	BRM: 80	None	Camp	"Cultural deposit" with "6 house pits" and BRMs	Outside
CA-MAD-000094	1978	BRM: 14	None	Milling	----	Within
CA-MAD-000099	1961	BRM: 22	Unknown	Milling	No artifacts noted on form	Outside
CA-MAD-000211	1969	BRM: yes	Unknown	Milling?	Partial site form: BRMs, beads, & china checked	Outside
CA-MAD-000569	1978	BRM: 19	Few	Milling	Lake scoured site: 1 mano frag, 1 core, a few flakes.	Outside
CA-MAD-02123H	1995	None	None	Mining	(P2124) arrastra, rock walls, mining altered terrain	Outside
CA-MAD-002125H	1995	None	None	Mining	(P2126) 6 adits, engine, orecart & rail, metal, waste piles	Outside
CA-MAD-002126H	1995	None	None	Mining	(P2127) adits, tailings, rock foundation & walls, trail, trash	Outside
CA-MAD-002127	1995	BRM: 5	Lithics	Temporary Camp	(P2128)"chopper," 2 additional flakes noted	Outside
P-10-004492	2000	None	None	Historic	"Historic commercial building"	Outside
P-10-004493	2000	None	None	Historic	"Locally quarried 'pumatile' masonry block storage building"	Outside
CA-FRE-003111	1982	BRM:13	None	Milling	"10 BRMs and 3 bedrock metates"	Outside
CA-FRE-000763	1978	BRM: 14	None	Milling	"14 mortars on 5 separate outcrops"	Outside
CA-FRE-000764	1978	BRM: 5	None	Milling	Mortars	Outside
CA-MAD-002085	1991	None	None	Historic	Stone structure remains, possible line shack for cattle ranching.	Outside
CA-MAD-000212	1969	None	None	Historic	Problematic record: "ore crusher" and "Spanish" and "Historic"	Outside
CA-MAD-002124	1995	None	None	Mining	Arrastra, rock walls, diggings	Outside
CA-MAD-002128	1995	BRM: 5	Few	Milling	Single outcrop of granite with BRMs and a few lithics.	Outside
CA-MAD-002129	1995	BRM: 82	Yes	Camp	10 outcrops w/ 82 cups, 6 house pits?, midden, milling.	Outside
CA-MAD-002130	1995	BRM: 3	None	Milling	3 mortars only.	Outside
CA-MAD-002131	1995	BRM: 2	None	Milling	Two cups on large outcrop.	Outside
CA-MAD-002132	1995	BRM: 9	None	Milling	Two granite outcrops.	Outside
P-20-002134	1995	None	None	Other	500+ foot long rock wall - probably historic.	Outside
P-20-002135	1995	None	None	Other	Rock wall in 3 sections, totals 78 feet, some wire noted.	Outside
P-20-002136	1995	None	None	Other	Rock wall in 4 sections, totals 36 feet.	Outside

Table 3.5-1
Millerton Lake SRA Archaeological Site Data
(Sites within 0.5 Mile of Plan Area)

Site Number	Date Recorded	Milling	Lithics	Site Type	Comments from Site Record	Existing Pool
CA-MAD-000240	1991	BRM:100 +	None	Milling	"Considerable historic disturbance"	Outside
CA-MAD-000570	1978	None	Yes	Lithics	"… Large and hand sized choppers... no midden…"	Within
CA-MAD-000086	1978	BRM: 25	None	Camp	"Habitation area with 3 visible house pits…"	Outside
CA-MAD-000088	1961	BRM: 25	None	Milling	Milling station	Outside
CA-FRE-000351	1978	BRM:8	None	Milling	"7 or maybe 8 metates no mortars present"	Outside
CA-FRE-001039	1978	None	None	Milling	Mine shaft with some shoring	Outside
CA-FRE-001390	1982	None	None	Milling	"Rectangular pit dug into shale bedrock"	Outside
CA-FRE-002180	1988	BRM:3	Unknown	Milling +	"Major portion of sites lies… outside project boundary."	Outside
CA-FRE-002367	1990	BRM:5	None	Milling	"Five shallow cups"	Outside
CA-FRE-002368	1990	BRM:1	None	Milling	One	Outside
CA-FRE-002369	1990	BRM-2	None	Milling	Two	Outside
CA-FRE-003173	1999	None	Yes	Prehistoric/Historic	Historic: glass, metal, ceramics; prehist: flakes, core and 1 mano	Outside
CA-MAD-002122	1995	None	None	Mining	(P2124) arrastra, rock walls, mining altered terrain	Adjacent
P-10-004490	2000	None	None	Historic	"Historic automotive garage and convenience store"	Outside
P-10-004491	2000	None	None	Historic	"Historic motel located in a line of three historic buildings"	Outside

Table 3.5-2
Surveyed Properties and Their Eligibility for Listing in the NRHP and Historical Significance Under CEQA

	Resource Name	Description	Construction Date	Eligible for NRHP/Historically Significant?
1	Friant Dam, with outlet gates for Friant-Kern and Madera canals and associated structures	Dam	1939-1945	Yes
2	Building 1126, 1125 and 1128	Restrooms	1946	No
3	Crew Warehouse	Maintenance	1945	No
4	Visitors' Center	Visitors' Center	1951	No
5	Construction Foreman's Office	Maintenance	1948	No
6	Maintenance Yard Warehouses (3)	Maintenance	1948	No
7	Oil / Paint House	Maintenance	1948	No
8	Pole Barn	Maintenance	1948	No
9	Maintenance Yard Shop Building	Maintenance	Ca. 1957	No
10	Water Tank	Water Tank	Ca. 1946	No
11	Rocky Point Campground Water Tank	Water Tank	Ca. 1947-48	No
12	North Shore Maintenance Area Quonset Hut	Maintenance	1948	No

Table 3.9-1
North Shore Camping Sites at Millerton Lake

	Rocky Point	Mono	Fort Miller	Dumna Strand	Valley Oak	Meadows	Large Group	Small Group	Campfire Center
CAMPING UNITS	21	16	36	10	6	59	75	45	
- Standard	17	15	36	9	6	55			
- ADA	4	1	1	1		4			
TABLES	21	15	36	10	6	58	19	11	39
- Wood	19	15	34	10	6	53	19	11	39
- Concrete	2		2			5			
- Recycled									
FIRE RINGS	20	15	36	10	6	60	3	1	40
BARBECUES							3 triple	2 triple, 1 Belson	
TRASH CANS	11	12	17	10	9	37	9	10	1
TRASH DUMPSTER							Dump Station		
RESTROOM FACILITIES									
- Chemical			1	2	1				
- Vault							1	1	
- Flush	2	1	2			2	1		
- ADA	1Y	1Y	3Y	1Y		2Y	1Y		
SHOWER BUILDINGS	1	1	2	N	N	2	1		
WATER	Y	Y	Y	Y	Y	Y	*Y*	*Y*	
- Fountain									
- Hose bib									
- Field hydrant	2	2	2						
SHELTERS	2					28		1	

Table 3.9-1
North Shore Camping Sites at Millerton Lake

	Rocky Point	Mono	Fort Miller	Dumna Strand	Valley Oak	Meadows	Large Group	Small Group	Campfire Center
BULLETIN BOARDS	1		2			2			
CHILDREN PLAY AREA									
TRAFFIC CONTROL									
ROADS	Road 145	Road 145	Road 145	Road 145	Road 145	Road 145	Road 145	Road 145	
PARKING	3/site	3/site	3/site	3/site	3/site	3/site	Y	Y	
Total No. Spaces	Total campground developed parking = 634; developed day use parking = 55; undeveloped day use parking = 1,947								

Table 3.9-2
South Shore Day Use Areas

Site Name	Millerton Court house	Crows Nest/ Ramp 1	La Playa	Grange Grove	Blue Oak	South Bay/ Ramp 4	McKenzie Point/ Ramp 5	Winchell Cove Marina	South Fine Gold	Ramp 2	Ramp 3
Boat Ramp Elevation		487-high				500-520	472-500			520-537	537-high
TABLES	3	13	95	74	3	9			10	1	
- Wood	1	11	95	48	3	9			6	1	
- Concrete	2	2		14 group, 12 single					4		
- Recycled											
FIRE RINGS		2	1	33	3	7			1		
BARBECUES		6	62	28	3	6			3		
TRASH CANS	6	13	66	43	4	7	2	0	7		5
TRASH DUMPSTER									2		
TOILETS											
- Chemical		1	3		1			3		1	
- Vault			1			1	1	1	1		
- Flush	2	1	1	1							
- ADA	2		2	1		1	1				
WATER	Y	Y	Y	Y				Y, well	Y		
- Fountain											
- Hose bib											
- Field hydrant				1							
ELECTRICAL	Y		Y	Y				Y	Y		
SHELTERS				1					1		
BULLETIN BOARDS											

Table 3.9-2
South Shore Day Use Areas

Site Name	Millerton Court house	Crows Nest/ Ramp 1	La Playa	Grange Grove	Blue Oak	South Bay/ Ramp 4	McKenzie Point/ Ramp 5	Winchell Cove Marina	South Fine Gold	Ramp 2	Ramp 3
CHILDREN PLAY AREA											
TRAFFIC CONTROL											
ROADS	Courthouse Road	Courthouse Road	Courthouse Road	Courthouse Road	McKenzie Road	McKenzie Road	McKenzie Road	Winchell Road	Sky Harbor Road	At Grange Grove	At Grange Grove
PARKING		75				100	200			175	430
BOAT SLIPS		8						500			
TRAIL HEAD					Y	Y					
MOBILE HOMES									1		

Table 3.9-3
North Shore Day Use Areas

Site Name	N Shore Ent Station	Eagle's Nest	Buzzard's Roost	Horse Camp	Sunset Point/ Ramp 6
Boat Ramp Elevation					high-low water
TABLES	1	2	2	1	10
- Wood		2	2	1	10
- Concrete					
- Recycled	1				
FIRE RINGS			12	1	
BARBECUES		2	2		9
TRASH CANS	3	2	2	2	9
TRASH DUMPSTER					
TOILETS	1		2		
- Chemical	1			1	
- Vault			1		
- Flush					
- ADA			1		
WATER	Y		Y	Y	Y
- Fountain					
- Hose bib					
- Field hydrant	1				
ELECTRICAL	Y				
SHELTERS					
BULLETIN BOARDS					
CHILDREN PLAY AREA					
TRAFFIC CONTROL					
ROADS	Road 145	Road 145		Road 145	At Meadows
PARKING					150
BOAT SLIPS					
TRAIL HEAD		Y			
MOBILE HOMES					

Table 3.9-4
Millerton Lake Total Visitor Use by Year, Fiscal Years 1995–1996 to 2005–2006
(Excluding Fiscal Year 1997–1998)

Fiscal Year	Total Attendance
1995–1996	553,978
1996–1997	370,229
1998–1999	585,080
1999–2000	347,981
2000–2001	610,957
2001–2002	633,889
2002–2003	563,194
2003–2004	448,411
2004–2005	418,256
2005–2006	328,493

Table 3.9-5
Millerton Lake Total Visitor Use by Month, Fiscal Years 2000–2001 to 2005–2006

	2000–2001				2001–2002				2002–2003				2003–2004				2004–2005				2005–2006			
	Paid Daily Use	Free Daily Use	Overnight Use	Total Use	Paid Daily Use	Free Daily Use	Overnight Use	Total Use	Paid Daily Use	Free Daily Use	Overnight Use	Total Use	Paid Daily Use	Free Daily Use	Overnight Use	Total Use	Paid Daily Use	Free Daily Use	Overnight Use	Total Use	Paid Daily Use	Free Daily Use	Overnight Use	Total Use
July	50,757	4,990	11,421	67,168	67,017	22,095	12,216	101,328	82,917	573	11,153	94,643	99,776	663	12,182	112,621	31,330	125	6,183	37,638	75,106	451	9,372	84,929
August	32,284	3,391	6,669	42,344	65,072	16,864	9,567	91,503	60,475	357	12,160	72,992	79,806	555	10,619	90,980	20,922	72	4,029	25,023	33,671	437	4,425	38,533
September	20,735	2,988	4,423	28,146	47,028	14,086	4,723	65,837	36,543	395	3,773	40,711	44,312	179	3,886	48,377	47,016	2,623	7,440	57,079	13,414	183	4,642	18,239
October	19,809	2,542	872	23,223	14,934	283	1,053	16,270	16,440	259	1,318	18,017	14,412	216	794	15,422	12,017	2,177	14,979	29,173	12,199	115	1,544	13,858
November	12,940	2,901	289	16,130	8,047	1,584	319	9,950	14,269	125	724	15,118	6,495	67	497	7,059	7,228	0	797	8,025	11,470	0	883	12,353
December	12,293	2,987	257	15,537	9,799	581	154	10,534	13,429	408	302	14,139	10,907	75	410	11,392	8,770	0	224	8,994	3,910	0	389	4,299
January	13,195	4,622	278	18,095	13,725	790	392	14,907	17,436	689	797	18,922	15,145	1,121	926	17,192	13,003	0	462	13,465	3,390	0	470	3,860
February	13,808	4,288	459	18,555	18,023	1,332	459	19,814	16,518	233	456	17,207	17,030	1,025	586	18,641	17,446	593	824	18,863	2,733	0	581	3,314
March	22,581	19,320	953	42,854	24,224	278	1,739	26,241	17,186	0	1,709	18,895	26,161	859	1,283	28,303	25,191	17	1,455	26,663	6,791	0	832	7,623
April	72,615	6,086	5,639	84,340	67,732	530	3,906	72,168	30,292	451	5,170	35,913	22,006	132	3,956	26,094	73,174	1,227	4,296	78,697	21,427	136	4,935	26,498
May	89,079	29,347	11,836	130,262	93,652	874	8,622	103,148	80,182	348	9,089	89,619	29,871	235	5,534	35,640	50,840	141	7,217	58,198	37,135	334	6,850	44,319
June	94,244	15,938	11,505	121,687	91,175	686	10,328	102,189	115,159	287	11,572	127,018	29,929	106	6,655	36,690	50,281	357	5,800	56,438	61,805	315	8,548	70,668
Total	**454,340**	**99,400**	**54,601**	**608,341**	**520,428**	**59,983**	**53,478**	**633,889**	**500,846**	**4,125**	**58,223**	**563,194**	**395,850**	**5,233**	**47,328**	**448,411**	**357,218**	**7,332**	**53,706**	**418,256**	**283,051**	**1,971**	**43,471**	**328,493**

Table 3.9-6
Millerton Lake Seasonal Visitor Day and Overnight Use Summary for Fiscal Years 2000–2001 to 2005–2006

Season	Period	User Types	2000–2001		2001–2002		2002–2003		2003–2004		2004–2005		2005–2006	
			Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Spring	Weekday	Day	111,585	93.10%	91,576	92.70%	70,121	93.19%	54,773	85.11%	74,911	91.05%	26,369	79.50%
		Overnight	8,276	6.90%	7,243	7.30%	5,123	6.81%	9,581	14.89%	7,367	8.95%	6,798	20.50%
	Total Weekday Users		119,862		98,819		75,244		64,354		82,278		33,167	
	Weekend	Day	180,092	91.60%	138,737	91.30%	59,164	86.23%	66,745	90.48%	75,680	93.60%	38,984	87.99%
		Overnight	16,527	8.40%	13,241	8.70%	9,446	13.77%	7,025	9.52%	5,179	6.40%	5,322	12.01%
	Total Weekend Users		196,618		151,978		68,610		73,770		80,859		44,306	
Spring Total Day Users			**291,677**		**230,313**		**129,285**		**121,518**		**150,591**		**65,353**	
Spring Total Overnight Users			**24,803**		**20,484**		**14,569**		**16,606**		**12,546**		**12,120**	
Summer	Weekday	Day	55,040	86.70%	92,129	89.80%	52,997	84.80%	105,760	83.32%	58,822	81.53%	41,337	84.41%
		Overnight	8,475	13.30%	10,507	10.20%	9,513	15.20%	21,169	16.68%	13,325	18.47%	7,633	15.59%
	Total Weekday Users		63,516		102,637		62,510		126,929		72,147		48,970	
	Weekend	Day	90,284	83.40%	159,236	89.50%	119,845	87.70%	129,349	93.16%	86,681	91.84%	68,328	92.64%
		Overnight	17,985	16.60%	18,732	10.50%	16,734	12.30%	9,504	6.84%	7,699	8.16%	5,429	7.36%
	Total Weekend Users		108,269		177,968		136,580		138,853		94,380		73,757	
Summer Total Day Users			**145,324**		**251,365**		**172,843**		**235,109**		**145,503**		**109,665**	
Summer Total Overnight Users			**26,460**		**29,239**		**26,248**		**30,673**		**21,024**		**13,062**	
Fall	Weekday	Day	22,698	97.70%	19,496	97.10%	22,801	94.80%	44,802	93.89%	34,255	84.36%	20,053	83.66%
		Overnight	535	2.30%	575	2.90%	1,255	5.20%	2,915	6.11%	6,353	15.64%	3,918	16.34%
	Total Weekday Users		23,232		20,071		24,056		47,717		40,608		23,971	
	Weekend	Day	30,159	95.20%	28,619	93.80%	24,955	93.40%	32,726	93.59%	33,491	94.05%	17,324	85.40%
		Overnight	1,523	4.80%	1,898	6.20%	1,766	6.60%	2,240	6.41%	2,117	5.95%	2,961	14.60%
	Total Weekend Users		31,682		30,517		26,721		34,966		35,608		20,285	
Fall Total Day Users			**52,857**		**48,114**		**47,756**		**77,528**		**67,746**		**37,377**	
Fall Total Overnight Users			**2,058**		**2,473**		**3,021**		**5,155**		**8,470**		**6,879**	
Winter	Weekday	Day	22,698	97.70%	19,496	97.10%	22,801	94.80%	30,266	96.57%	23,567	96.73%	5,657	83.76%
		Overnight	535	2.30%	575	2.90%	1,255	5.20%	1,075	3.43%	796	3.27%	1,097	16.24%
	Total Weekday Users		23,232		20,071		24,056		31,341		24,363		6,754	
	Weekend	Day	30,159	95.20%	28,619	93.80%	24,955	93.40%	15,032	94.66%	16,244	95.81%	4,375	87.71%
		Overnight	1,523	4.80%	1,898	6.20%	1,766	6.60%	848	5.34%	710	4.19%	613	12.29%
	Total Weekend Users		31,682		30,517		26,721		15,880		16,954		4,988	
Winter Total Day Users			**52,857**		**48,114**		**47,756**		**45,298**		**39,811**		**10,032**	
Winter Total Overnight Users			**2,058**		**2,473**		**3,021**		**1,923**		**1,506**		**1,710**	

Table 3.9-7
Millerton Lake Campsite Occupancy for Fiscal Years 2000–2001 to 2005–2006

		2000–2001			2001–2002			2002–2003			2003–2004			2004–2005			2005–2006		
		Campsites Used	Available	Percent Occupied	Campsites Used	Available	Percent Occupied	Campsites Used	Available	Percent Occupied	Campsites Used	Available	Percent Occupied	Campsites Used	Available	Percent Occupied	Campsites Used	Available	Percent Occupied
Spring	Weekday	1,739	7,992	21.80%	1,597	7,992	20.00%	2125			2,149			1,683			1,529		
	Weekend	3,348	5,772	58.00%	2,844	5,772	49.30%	1244			1,586			1,234			1,188		
Spring Total		**5,087**	**13,764**	**37.00%**	**4,441**	**13,764**	**32.30%**	**3369**			**3,735**			**2,917**			**2,717**		
Summer	Weekday	1,799	7,844	22.90%	2,019	7,696	26.20%	1,906	7,104	26.80%	4,504			2,835			1,624		
	Weekend	3,750	5,920	63.30%	3,491	6,068	57.50%	3,269	5,180	63.10%	2,022			1,638			1,155		
Summer Total		**5,549**	**13,764**	**40.30%**	**5,510**	**13,764**	**40.00%**	**5,175**	**12,284**	**42.10%**	**6,526**			**4,473**			**2,779**		
Fall	Weekday	181	7,548	2.40%	190	7,696	2.50%	433	7,696	5.60%	658			1,602			1,065		
	Weekend	464	5,772	8.00%	503	5,624	8.90%	527	5,772	9.10%	517			784			781		
Fall Total		**645**	**13,320**	**4.80%**	**693**	**13,320**	**5.20%**	**960**	**13,468**	**7.10%**	**1,175**			**2,386**			**1,846**		
Winter	Weekday	180	7,400	2.40%	180	7,400	2.40%	30	888	3.40%	398			295			306		
	Weekend	294	5,772	5.10%	294	5,722	5.10%	23	592	3.90%	314			263			227		
Winter Total		**474**	**13,172**	**3.60%**	**474**	**13,122**	**3.60%**	**53**	**1,480**	**3.60%**	**712**			**558**			**533**		
Total		**11,755**	**54,020**	**21.80%**	**11,118**	**53,970**	**20.60%**	**9,557**	**27,232**	**22.70%**	**12,148**			**10,334**			**7,875**		

Table 3.9-8
Reasonable Boating Capacity Coefficients

WROS Classification	Low Range	High Range
Urban	1 acres/boat	10 acres/boat
Suburban	10 acres/boat	20 acres/boat
Rural Developed	20 acres/boat	50 acres/boat
Rural Natural	50 acres/boat	110 acres/boat
Semi-Primitive	110 acres/boat	480 acres/boat
Primitive	480 acres/boat	3,200 acres/boat

Source: Aukerman and Haas 2002.

Table 3.9-9
Millerton Lake Current Boating Capacity Based on WROS Classifications

WROS Class	Gross Acres	BAOT Coefficient	Capacity Number
Suburban	1,795 (37 percent)	15 acres/boat	120
Rural Developed	1,940 (44 percent)	35 acres/boat	55
Rural Natural	363 (8 percent)	80 acres/boat	5
Semi-Primitive	517 (12 percent)	295 acres/boat	2
WROS-based boats at one time on Millerton Lake			182

Source: Haas 2003.

Table 3.9-10
Millerton Lake Boating Use, Fiscal Years 2000–2001 to 2005–2006

Fiscal Year	2000–2001		2001–2002		2002–2003		2003–2004		2004–2005		2005–2006	
	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
July	5,625	18.1%	5,103	17.5%	4,690	13.0%	9,972	22.2%	6,390	24.3%	4,762	20.9%
August	4,239	13.6%	4,399	15.1%	4,491	12.4%	8,739	19.4%	5,424	20.6%	3,201	14.1%
September	2,498	8.0%	2,917	10.0%	2,408	6.7%	4,829	10.7%	0	0.0%	1,854	8.2%
October	289	0.9%	1,471	5.0%	1,140	3.2%	1,685	3.7%	1,332	5.1%	1,592	7.0%
November	347	1.1%	637	2.2%	650	1.8%	1,145	2.5%	766	2.9%	775	3.4%
December	417	1.3%	402	1.4%	495	1.4%	921	2.0%	470	1.8%	240	1.1%
January	549	1.8%	529	1.8%	800	2.2%	570	1.3%	529	2.0%	361	1.6%
February	584	1.9%	667	2.3%	587	1.6%	806	1.8%	820	3.1%	668	2.9%
March	1,267	4.1%	1,254	4.3%	1,360	3.8%	1,738	3.9%	1,598	6.1%	674	3.0%
April	2,764	8.9%	1,920	6.6%	1,400	3.9%	3,057	6.8%	2,121	8.1%	1,686	7.4%
May	7,003	22.5%	4,193	14.4%	7,599	21.0%	5,439	12.1%	3,171	12.1%	2,821	12.4%
June	5,513	17.7%	5,658	19.4%	10,502	29.1%	6,043	13.4%	3,651	13.9%	4,104	18.0%
Total	**31,095**		**29,150**		**36,122**		**44,944**		**26,272**		**22,738**	

Table 3.9-11Summary of Outdoor Recreation Demand in California

Recreation Activity	Percentage of Californians Participating in 1997	Ranking Based on Percent Supporting Public Funds Expenditure to Provide	Avg. Dollars per Day	Percent that would participate if available
Walking (recreational)	84.6	14.7	4.51	20.4
Visiting museums, historical sites	74.6	16.5	8.81	13.9
Use of open grass or turf areas	68.4	13.0	6.31	10.1
Driving for pleasure	68.3	3.2	9.69	5.9
Beach activities	67.8	8.8	7.29	10.2
Visiting zoos and arboretums	66.3	11.4	10.38	10.6
Picnicking in developed sites	65.0	14.5	5.93	10.0
Trail hiking	58.0	19.0	5.02	15.7
Swimming in lakes, rivers, ocean	57.2	8.5	6.20	10.9
Attending outdoor cultural events	56.0	9.6	12.96	14.2
General natural wildlife study	54.0	17.7	8.19	10.8
Attending outdoor sports	51.9	2.5	17.63	4.8
Camping in developed sites	51.8	33.1	13.41	19.8
Swimming (in outdoor pools)	48.0	5.8	4.70	6.7
Bicycling (on paved surfaces)	42.8	9.2	4.56	7.7
Use of play equipment, tot-lots	40.0	15.8	5.50	7.9
Fishing - freshwater	37.3	7.2	8.50	10.1
Jogging and running	28.6	3.0	4.19	3.8
Softball and baseball	26.4	2.7	6.81	
Camping in primitive areas	25.8	13.4	9.82	10.3
Other (N-M) winter sports	23.0	1.6	9.58	
Fishing - saltwater	22.7	2.9	19.39	4.0
Power boating	21.1	1.2	12.16	
Kayaking, rowboating, canoeing	18.3	1.5	18.27	4.7
Basketball	18.1	0.7	5.83	
Golf	17.9	2.4	24.10	4.8
Mountain biking (not on paved surfaces)	17.7	3.4	5.60	4.5
Target shooting (pistol & skeet)	17.0	2.2	8.90	3.8
Skateboarding and rollerblading	16.0	2.8	5.78	
Downhill (Alpine) skiing	15.6	0.8	34.09	
4-wheel drive off paved roads	14.6	2.0	8.46	
Horseback riding	14.2	3.0	17.53	7.8
Soccer	13.8	1.3	3.07	
Water skiing	12.8	0.5	12.90	

Table 3.9-11
Summary of Outdoor Recreation Demand in California

Recreation Activity	Percentage of Californians Participating in 1997	Ranking Based on Percent Supporting Public Funds Expenditure to Provide	Avg. Dollars per Day	Percent that would participate if available
Tennis	12.6	0.5	7.46	
Mountain climbing	10.1	0.6	13.39	
Motorcycles, dirt bikes, ATVs	9.9	3.7	9.46	
Hunting	8.7	2.7	12.55	4.2
Football	8.5	0.4	3.00	
Cross-country skiing	7.2	0.6	12.39	
Sailboating and windsurfing	6.7	0.8	18.27	
Surfing	5.3	0.1	16.25	
Snowmobiling	2.5	0.4	21.00	

Source: State Parks 1998.

Table 3.9-12
Regional Comparison of California Reservoirs
Providing Alternative Recreation Opportunities for the Public

RESERVOIR	Storage (1,000 ac-ft)	Surface Area (ac)	Shoreline (miles)	Elevation (feet)	Individual Camp-grounds	Total Camp-sites	Individual Picnic Sites	Picnic/ Day Use Parking	Total Boat Ramp Lanes	Total Ramp Parking	Floating Restrooms	Number of Marinas	Total Moorage
Almanor	1,300	28,500	52	4,500	13	600	55	135	13	300	0	22	669
Berryessa	1,600	20,700	165	440	6	635	152	510	39	550	3	7	1,500
Don Pedro	2,030	12,960	160	830	3	550	25	75	13	600	6	2	457
Folsom	1,010	11,400	75	475	2	150	230	1,600	48	1,935	2	1	685
Isabella	570	11,400	38	2,600	8	872	8	75	14	300	0	3	80
McClure	1,040	7,400	80	867	5	614	165	430	13	375	4	3	336
Millerton	520	4,900	51	578	2	263	150	270	26	600	3	1	500
Nac./San Ant.	700	11,120	225	800	3	900	57	260	25	1,250	4	2	220
New Melones	2,400	12,500	100	1,088	5	302	100	260	17	490	2	1	225
Oroville	3,620	21,000	167	900	7	312	300	805	61	2,200	7	2	1,160
Pine Flat	1,000	5,970	67	950	10	400	114	300	8	450	4	2	686
San Luis	2,950	15,720	89	500	4	194	500	500	22	530	0	0	0
Shasta	4,550	29,500	370	1,067	27	750	54	500	35	1,600	6	11	2,555
Trinity	2,590	17,280	145	2,370	15	802	36	77	17	500	4	5	782
Tri-Dams	960	14,240	140	500	7	750	189	275	27	600	13	4	290

Source: DWR 2001

Table 3.9-13
Regional Comparison of Special Recreation Facilities or Services

RESERVOIR	Signed Equestrian Trail(s)	Signed Bicycle Trail(s)	Signed Hiking Trail(s)	Signed OHV Trail(s)/Area	Advertised Float Plane Access	Drive-to Undeveloped Shoreline	ADA-Accessible Fishing Site(s)	Designated Group Picnic Areas	Designated Group Campsites	Open Shoreline Camping	Developed Boat-In Camps	Equestrian Camping	Floating Campsites	Commercial Resort Lodging	Visitor Center w/Interpretive Displays	Fish Hatchery, w/Tours	Designated Model Airplane Area	Designated Hang-Gliding Area	Designated Shooting Area	Designated Archery Range	Boating Club/Event Facility	Sandy, Developed Beach Area	Maintained Turf Areas	Playground Equipment
Almanor		X	X			X			X					X	X					X	X	X		
Berryessa			X					X	X	X				X	X							X		
Don Pedro			X					X	X	X	X				X							X	X	
Folsom	X	X	X			X	X	X	X						X	X					X	X	X	X
Isabella			X	X		X			X	X					X	X	X		X					X
McClure			X				X	X	X									X		X		X	X	X
Millerton	X	X	X			X		X	X		X	X											X	
Nac./San Ant.	X	X	X			X		X	X	X		X		X	X							X	X	X
New Melones	X	X	X		X				X						X		X					X		X
Oroville	X	X	X	X		X	X	X	X		X	X	X		X	X	X		X		X	X	X	
Pine Flat			X			X	X	X	X						X								X	X
San Luis	X	X	X	X		X		X	X	X		X			X			X				X	X	
Shasta			X	X		X			X	X	X			X	X								X	X
Trinity			X			X	X		X	X	X			X								X		
Tri-Dams	X		X			X	X	X	X					X	X							X	X	X

Source: DWR 2001

Table 3.9-14
Regional Comparison of Recreation User Fees at California Reservoirs

	Camping [a]	Day Use [b]	Boat Launch [c]	Moor/Berth [d]
Almanor	15/NA	0	0	500 [e]
Berryessa	(20-24) [f]	0	0,5,10,15	1,680
Don Pedro	15/22	5	5	1,200
Folsom	14/NA	2-6	5	750-985
Isabella	14/NA	0	5	400+
McClure	14/18	5.50	5	1,250
Millerton [g]	16/22	5	4	775[h]
Nac./San Ant	20/27	6-10	5	1,250+
New Melones	14/NA	0	0	1,500+
Oroville	14/20	3	5	1,200
Pine Flat	10/24	0-7	2	1,100
San Luis	10/15	5	5	None
Shasta	12/~18	0	5	1,300+
Trinity	5-12/25	0	5-15	450-950+
Tri-Dams	14/21	0-5.50	2-6	360-850

Source: DWR 2001

[a] First number (or range) is basic site, second is typical premium or hookup (may be public or private; NA if not available).

[b] Range indicates typical rates over a variety of traditional types of reservoir recreation developments.

[c] Range of rates are normally *in addition to* day use fees.

[d] Annual fee; rates (and/or ranges) are approximate and representative.

[e] Lake Almanor for 6 months only (no winter mooring).

[f] Lake Berryessa has no public campgrounds, only private.

[g] Millerton Lake source from www.infofresno.net.

[h] Marina at Millerton Lake under new concession contract as of April 2003; rates may change.

Table 3.9-15
Percent of U.S. Population Participating in Outdoor Recreation Activities

			Education Level	
	Household Income $25,000 to $49,999	**Number of People in Household - 3**	**Completed High School**	**Completed College**
Fitness Activities	80.0	72.8	63.0	76.3
Individual Sport Activities	27.0	24.4	15.5	30.3
Outdoor Team Sport Activities	34.0	31.3	25.2	23.8
Outdoor Spectator Activities	64.0	64.3	51.4	68.9
Viewing Activities	84.0	80.9	71.9	84.3
Snow and Ice Activities	26.0	20.5	13.5	23.5
Camping (overall)	35.0	30.0	25.5	25.7
Hunting	15.0	11.4	10.7	6.8
Fishing	39.0	32.1	30.5	26.1
Boating	39.0	31.9	25.7	33.9
Swimming Activities	66.0	61.4	48.2	61.9
Outdoor Adventure Activities	48.0	42.8	31.2	42.4
Social Activities	81.0	72.3	64.7	73.9

Source: Cordell 1999

Table 3.9-16
State and County Population Projections

Place	2000 Population	Percent Population changes, 1980–1990	Percent Population changes, 1990–2000	Projected population 2010	Projected percent population change, 2000–2010	Project population 2020	Projected percent population change, 2000–2020
California (according to U.S. Census Bureau)	33,871,648[1]	25.7	13.8	37,644,000[2]	11.1	45,278,000[2]	33.7
California (according to 2001 report from State Department of Finance)[3]	34,480,300[4]			40,262,400[3]	16.8	45,821,900[3]	32.9
Fresno County[3]	799,407[1]	29.7	19.8	970,900[3]	21.5	1,134,600[3]	41.9
Madera County[3]	123,109[1]	39.6	39.8	178,900[3]	45.3	229,200[3]	86.2

[1] From Census 2000 internet site
[2] From U.S. Department of Commerce. *Population Projections: States, 1995-2025.* US Bureau of the Census, Population Division, PPL-47. Current Population Reports. May 1997.
[3] From Department of Finance. *Interim County Population Projections: Estimated July 1, 2000 and Projections for 2005, 2010, 2015, and 2020.* Demographic Research Unit. June 2001. http://www.dof.ca.gov/HTML/DEMOGRAP/P1.doc
[4] Estimated value

Table 3.9-17
Outdoor Recreation Projections for the Pacific Region of the United States

Activities	Number of Participants and Visitor Days	Projections from 1995 Base Year	
	1995 (Base Year)	*Year 2010*	*Year 2020*
Motorboating			
# of participants	6.3 million	+22%	+32%
# of visitor days	82.2 million	+38%	+69%
Fishing			
# of participants	7.5 million	+12%	+20%
# of visitor days	119.0 million	+16%	+25%
Hunting			
# of participants	1.7 million	-15%	-21%
# of visitor days	36.0 million	-5%	-4%
Wildlife Viewing			
# of participants	16.7 million	+23%	+37%
# of visitor days	838.5 million	+33%	+58%
Horseback Riding			
# of participants	2.4 million	+18%	29%
# of visitor days	76.7 million	+10%	21%
Walking			
# of participants	21.1 million	+23%	+34%
# of visitor days	2340.0 million	+22%	+34%
Hiking			
# of participants	10.9 million	+20%	+31%
# of visitor days	192.8 million	+23%	+34%
Developed Camping			
# of participants	8.8 million	+19%	+32%
# of visitor days	92.9 million	+23%	+39%
Primitive Camping			
# of participants	5.6 million	+13%	+23%
# of visitor days	57.5 million	+26%	+46%
Picnicking			
# of participants	15.8 million	+20%	+31%
# of visitor days	180.4 million	+21%	+35%
Rafting/Floating			
# of participants	2.3 million	+20%	+30%
# of visitor days	11.4 million	+27%	+51%
Canoeing			
# of participants	1.2 million	+21%	+30%
# of visitor days	9.7 million	+18%	+29%

Source: Cordell 1999

Table 3.9-18
Qualitative Scale Used to Measure the Degree or Extent of Attributes

Urban	Suburban	Rural Developed	Rural Natural	Semi-primitive	Primitive
100-90%	90-70%	70-50%	50-30%	30-10%	10-0%
Dominant	Very prevalent	Prevalent	Occasional	Minor	Very minor
Extensive	Widespread	Common	Infrequent	Little	Very little
A great deal	Very obvious	Apparent	Periodic	Seldom	Rare
Extremely	Very	Moderately	Somewhat	Slightly	Not at all

Table 3.9-19
Comparison of Regional Reservoirs in the Vicinity of Millerton Lake Based Upon the Percent of Their Water Surface Acres by WROS Class

Regional Lakes (surface acres/ shoreline miles)	Urban (%)	Suburban (%)	Rural Developed (%)	Rural Natural (%)	Semi-primitive (%)	Primitive (%)
Folsom (11,400/75)	0	0	70	30	0	0
Pardee (2,257/37)	0	0	30	60	10	0
Comanche (7,700/53)	0	0	75	25	0	0
New Hogan (4,400/50)	0	0	60	40	0	0
Tulloch (1,260/31)	0	80	20	0	0	0
Don Pedro (12,960/160)	0	0	50	50	0	0
Lake McClure (7,400/80)	0	0	70	30	0	0

Source: Aukerman and Haas 2007.

Table 3.10-1
Monthly Vehicle Counts, Fiscal Years 2000–2001 to 2005–2006

Month	2000–2001	2001–2002	2002–2003	2003–2004	2004–2005	2005–2006
July	19,522	14,259	17,642	21,229	12,050	15,980
August	12,417	13,845	12,867	16,980	8,047	7,164
September	7,975	10,006	7,775	9,428	18,083	2,854
October	7,619	5,744	6,323	5,543	4,418	4,692
November	4,977	3,095	5,488	2,498	2,780	4,410
December	4,728	3,769	5,165	4,195	3,373	1,504
January	5,075	5,279	6,353	5,825	5,001	1,304
February	5,114	6,932	6,706	6,550	6,710	1,051
March	8,685	9,317	6,610	10,062	9,689	2,612
April	15,450	14,411	6,445	8,464	15,569	4,559
May	18,953	19,926	17,060	11,489	10,817	7,901
June	20,052	19,399	19,702	11,511	10,698	***
Annual Total	**130,567**	**125,982**	**118,136**	**113,774**	**107,235**	**54,031**

Table 3.10-2
Expected Level of Service for Year 2025

Road	Route	LOS (2025)
Millerton	Friant to Table Mountain	F
Millerton	Table Mountain to Auberry	A
Auberry	Copper to Millerton	F
Friant	Millbrook to Millerton	F

Source: Council of Fresno County Governments 2001.

Table 3.10-3
Local Transportation Improvements Under Consideration

Route	Project Limits	Description of Improvement
SR-41	Ave 15 and Fresno County Line	Upgrade to 4-Lane freeway
SR 168	Shepherd to Millerton	Construct 2 Lane Expressway on 4 Lane Freeway ROW
SR 168	Millerton to Lodge	Construct 2 Lane Expressway on 4 Lane Freeway ROW
Auberry	Copper to Millerton	2 Lane to 4 Lane and 4-foot wide bike lane
Auberry	SR 168 to Powerhouse Rd	2-Lane Reconstruct
Auberry	Intercity to Fresno	Fresno County Rural Transit Service that runs along Auberry Road within the study area.
Friant	Millbrook to Millerton	2 Lane 4 Lane
Friant Rd	Copper Ave. to Rd 206 (just east of study area	2 Lane to 4 Lane
Friant Rd at SR 41	Ramp	Improve Ramp to Reduce Traffic Congestion
North Fork Rd	Friant to Madera County (SJ River bridge)	2 Lane Reconstruction
Millerton	Friant to 1.4 mile e/o Friant Kern Canal	2 Lane Reconstruction
Millerton	1.4 mile e/o Friant Kern Canal to Sky Harbor	2 Lane Reconstruction
Millerton	Friant to Table Mountain	2 Lane to 4 Lane
Millerton	Table Mountain to Auberry	2 Lane to 4 Lane
Madera County	Rd 145	From SR41 to Rd 206 2 Lane to 4 lane
Madera County	Rd 206	From 145 to Madera County Line: 2 Lane to 4 Lane
Madera County	145 to Lake Millerton	Bike Route
Madera County	SR 41 Near study area	2 Lane to 4 Lane
Madera County	SR 41 From Friant Road to Ave 11	2 Lane to 4 Lane freeway
Madera County	Friant Rd Trail	Pedestrian Trail

Table 3.11-1
Millerton Lake Plan Area Utilities Summary

Campground/ Day Use Area	Potable Water Source	Fire Protection*	Utility Services	Septic System	Electricity	Telephone
North Shore						
Entrance Station and Kiosk	Rocky Point WTP	1 Fire Hydrant	1 Toilet for Staff 1 Chemical Toilet	Septic tank gravity flows to leach field to the right of the road on the shoulder	Yes	Pay phone
Rocky Point (incl. host site)	Water Treatment Plant	2 Fire Hydrants	2 Restrooms 6 Toilets 2 Showers	Gravity feed from septic tanks to lift station at Rocky Point. Pumped through force main to leach field located b/n Rocky Point and Fort Miller Campgrounds	Yes. Electricity at restrooms and host site. Fed from electrical pedestal at Mono.	None
Mono	Rocky Point WTP	2 Fire Hydrants	1 Restroom 2 Toilets 2 Showers	Gravity feed from septic tank to lift station at Rocky Point.	Yes. Fed from electrical pedestal near water tank at Mono.	None
Fort Miller (incl. host site)	Rocky Point WTP	2 Fire Hydrants	2 Restrooms 2 Showers Chemical Toilet	Gravity feed from septic tank to lift station at Rocky Point.	Yes. Fed from electrical pedestal near Group Campground restrooms.	Service at camp host site
Small, Large Group Campground and Campfire Center	Rocky Point WTP	None	1 Restroom 4 Toilets 4 Showers RV Dump Station 2 Vault Toilets	Gravity feed from septic tank to leach field near the road.	Yes. Electricity serves restroom, residences, and campfire center and used for irrigation. Electrical pedestal near restroom.	None
Dumna Strand	Rocky Point WTP	None	2 Chemical Toilets	None.	No.	None
Day Use Areas	Meadows WTP	None	1 Vault toilet for all areas.	None.	No.	None
Horse Camp	Meadows WTP	None	Chemical Toilet	None.	No.	None
Valley Oak	Meadows WTP	None	Chemical Toilet	None.	No.	None
Meadows (incl host site), Boat Parking, Sunset Point Day Use	Water Treatment Plant	None	2 Restrooms 4 Toilets 3 Showers 36 RV hookups	Gravity feed from 2 septic tanks to lift station at Meadows. Pumped through force main to leach field at north end of campground.	Yes.	Service at camp host site and pay phone
Maintenance Yard	Meadows WTP	1 Fire Hydrant	1 Toilet for Staff 1 Shower for Staff	Gravity feed from septic tank to leach field in corner of yard.	Yes.	Service for staff
Ranger residence	Rocky Point WTP	None	Toilet Shower	Gravity feed from septic tank to leach field behind septic tank	Yes.	Service for staff

Table 3.11-1
Millerton Lake Plan Area Utilities Summary

Campground/ Day Use Area	Potable Water Source Service	Fire Protection*	Utility Services	Septic System	Electricity	Telephone
South Shore						
Entrance Station	Friant Water District	1 Fire Hydrant	1 Toilet	Gravity feed from septic tank to leach field	Yes	Service for staff and pay phone
Millerton Courthouse	Friant Water District	None	2 Toilets	Gravity feed from septic tank to leach field	Yes	Service for staff
Courthouse Parking Lot	Friant Water District	None	1 Restroom 6 Toilets	Gravity flow to leach field by corporate yard.	Yes	None
Ranger Office	Friant Water District; Storage tanks near ranger office	None	Toilets	Gravity feed from septic tank to leach field	Yes. Electricity also at water tanks for radio vault.	Service for staff
Corporate Yard	Friant Water District	2 Fire Hydrants	4 Toilets	Gravity flow to leach field by corporate yard.	Yes	Service for staff
Crows Nest	Friant Water District	None	1 Restroom 4 Toilets 1 Chemical Toilet	Gravity flow to leach field by corporate yard.	Yes	None
La Playa Picnic Area	Friant Water District	None	1 Restroom 4 Toilets 1 Vault Toilet 3 Chemical Toilets	Gravity feed to main lift station at park entrance. Pumped through force main to evaporation ponds on S side of Millerton Road.	Yes	None
Park Headquarters, District Office	Friant Water District	None	2 Toilets	Gravity feed to main lift station at park entrance. Pumped through force main to evaporation ponds on S side of Millerton Road.	Yes	Service for staff
Grange Grove	Friant Water District	1 Fire Hydrant (surface water)	6 Toilets	Gravity feed to main lift station at park entrance. Pumped through force main to evaporation ponds on S side of Millerton Road.	Yes	None
Blue Oak Picnic Area	No	None	1 Chemical Toilet	None	None	None
South Bay Picnic Area	No	None	1 Vault Toilet	None	None	None

Table 3.11-1
Millerton Lake Plan Area Utilities Summary

Campground/ Day Use Area	Potable Water Source Service	Fire Protection*	Utility Services	Septic System	Electricity	Telephone
McKenzie Point	No	None	1 Vault Toilet	None	None	None
Other Areas						
Winchell Cove, Marina	Private well	None	1 Vault Toilet 3 Chemical Toilets	None	Yes	Service for staff and pay phone
South Fine Gold Picnic Area	Friant Water District	None	1 Restroom	Lift station and community sewer plant. Park pays fee for hookup.	Yes	None
Temperance Flat	No	None	1 Vault Toilet	None	None	None

Notes:
* Fire hydrants use potable water unless otherwise noted
WTP = Water Treatment Plant

Table 4-1
Impacts Summary

Impacts to Resources	No Action	Alternative 1		Alternative 2		Alternative 3	
	Impact Magnitude	Impact Magnitude	Impact After Mit.	Impact Magnitude	Impact After Mit.	Impact Magnitude	Impact After Mit.
WATER RESOURCES							
WQ-1: Pollutants due to motorized vehicle emissions	Major	Minor	No Impact	Minor	No Impact	Beneficial	Beneficial
WQ-2: Erosion and temporary turbidity due to construction, maintenance, and use of facilities, roads, and trails	Minor	Minor	Minor	Minor	Minor	Minor	Minor
WQ-3: Pollutants from new portable restrooms/vault toilets not pumped/cleaned properly	Minor	Minor	No Impact	Minor	No Impact	Minor	No Impact
AIR QUALITY							
AQ-1: Vehicle emissions from auto and boat traffic	Minor	Minor	No Mitigation	Minor	No Mitigation	Minor	No Mitigation
AQ-2: Dust from vehicle traffic on unpaved areas and site maintenance and facilities construction with ground disturbing activities that generate dust	Minor	Minor	Minor	Minor	Minor	Minor	Minor
AQ-3: Combustion emissions from accidental or prescribed fires	Minor	Minor	Minor	Minor	Minor	Minor	Minor
SOILS AND GEOLOGY							
SG-1: Ground disturbing construction and maintenance activities	Minor	Minor	No Impact	Minor	No Impact	Minor	No Impact
SG-2: Erosion compaction and disturbance due to trail use and construction	Minor	Minor	Minor	Minor	Minor	Minor	Minor

Table 4-1
Impacts Summary

Impacts to Resources	No Action	Alternative 1		Alternative 2		Alternative 3	
	Impact Magnitude	Impact Magnitude	Impact After Mit.	Impact Magnitude	Impact After Mit.	Impact Magnitude	Impact After Mit.
SG-3: Compaction and erosion due to cattle grazing	Minor	Minor	Minor	Minor	Minor	Minor	Minor
BIOLOGY							
BI-1: Expansion of recreation and camping facilities impacting biological resources	No Impact	Minor	Minor	Minor	Minor	Minor	Minor
BI-2: Expansion of camping facilities at Temperance Flat and increased visitor access could impact vegetation and special status species	No Impact	Minor	Minor	Minor	Minor	No Impact	No Impact
BI-3: Expansion of the trail system proposed by Alternatives 1 & 2 & 3 could adversely impact vegetation, wildlife, and special status species	No Impact	Minor	Minor	Minor	Minor	Minor	Minor
BI-4: Motorized vessel emissions may reach high concentrations in localized areas and result in major adverse impacts to fisheries and aquatic communities	Major	Major	Minor	Major	Minor	Minor	Minor
BI-5: Implementation of vegetation, fire, and fisheries plans	Minor	Beneficial	No Mitigation	Beneficial	No Mitigation	Beneficial	No Mitigation

Table 4-1
Impacts Summary

Impacts to Resources	No Action	Alternative 1		Alternative 2		Alternative 3	
	Impact Magnitude	Impact Magnitude	Impact After Mit.	Impact Magnitude	Impact After Mit.	Impact Magnitude	Impact After Mit.
CULTURAL RESOURCES							
CU-1: Construction of proposed facilities (i.e., ground disturbing activities) and increased visitor activity due to new trails and camp sites will expose archaeological sites	Major	Major to Minor	Minor	Major to Minor	Minor	Major to Minor	Minor
VISUAL RESOURCES							
VR-1: Smoke from prescribed burns impacting visual resources	Minor	Minor	No Mitigation	Minor	No Mitigation	Minor	No Mitigation
VR-2: Increase in boat densities in no action alternative and alternative 1 & 2	Minor	Minor	No Mitigation	Minor	No Mitigation	No Impact	No Impact
VR-3: Lower boat densities in the upper lake under alternative 3	N/A	N/A	N/A	N/A	N/A	Beneficial	Beneficial
VR-4: New facilities	No Impact	Minor	No Mitigation	Minor	No Mitigation	Minor	No Mitigation
VR-5: Acquisition, easements, or mitigation measures on adjacent lands.	N/A	Beneficial	N/A	Beneficial	N/A	Beneficial	N/A
LAND USE							
LU-1: Prescribed burning	Minor	Minor	No Mitigation	Minor	No Mitigation	Minor	No Mitigation
LU-2: Expansion of hunting activities	No Impact	Minor	No Mitigation	Minor	No Mitigation	No Impact	No Mitigation
LU-3: Addition of primitive campsites	N/A	N/A	N/A	N/A	N/A	Beneficial	N/A

Table 4-1
Impacts Summary

Impacts to Resources	No Action	Alternative 1		Alternative 2		Alternative 3	
	Impact Magnitude	Impact Magnitude	Impact After Mit.	Impact Magnitude	Impact After Mit.	Impact Magnitude	Impact After Mit.
LU-4: Working with conservation groups outside of the plan area to establish land uses similar to within the plan area	N/A	N/A	N/A	N/A	N/A	Beneficial	N/A
RECREATION							
R-1: Temporary construction activities at camping and recreation facilities	N/A	Minor	Minor	Minor	Minor	Minor	Minor
R-2: Management of BAOT levels resulting in decreased recreational opportunities	Major	No Impact	No Mitigation	Minor	Minor	Major	Minor
R-3: Management of BAOT levels affecting the quality of recreational boating experience	Major	Major	No Mitigation	Beneficial	No Mitigation	Beneficial	No Mitigation
R-4: Conflicts on trails	Major	Minor	Minor	Major	Minor	Major	Minor
R-5: Enforcement of boat speed	Minor	Minor	Minor	Minor	Minor	Minor	Minor
R-6: Discourage boat flotillas at Temperance Flat	Major	Beneficial	N/A	Beneficial	N/A	Beneficial	N/A
VISITOR ACCESS AND CIRCULATION							
TR-1: Visitor access or circulation related to parking and roadway improvements.	Major	No Impact	None	No Impact	None	No Impact	None
TR-2: Visitor access and circulation related to trail improvements.	Major	Beneficial	N/A	Beneficial	N/A	Beneficial	N/A

Table 4-1
Impacts Summary

Impacts to Resources	No Action	Alternative 1		Alternative 2		Alternative 3	
	Impact Magnitude	Impact Magnitude	Impact After Mit.	Impact Magnitude	Impact After Mit.	Impact Magnitude	Impact After Mit.
TR-3: Visitor access related to trail management plan.	Major	Minor	Minor	Minor	Minor	Minor	Minor
TR-4: Visitor circulation related to trail management plan.	Major	Beneficial	N/A	Beneficial	N/A	Beneficial	N/A

Table 4.8-1
Millerton Lake Boating Capacities, Based on WROS Management Zones

WROS Category	WROS Acres/Boat	Current Condition		No Action		Alternative 1		Alternative 2		Alternative 3	
		Acres	No. Boats	Acres	No. Boats	Acres	No. Boats	Acres	No. Boats	Acres	No. Boats
Urban	5.5		0	3,931	715	3,931	715				
Suburban - S4	10.0							3,931	394		
Suburban - S5	15	1,795	120		0		0			3,931	262
Rural Developed	35	2,137	62	969	28	231	7				0
Rural Natural	50	399	8		0	738	15	513	11		0
Semi-Primitive	110	569	6		0		0	456	5	969	9
Primitive	1,840		0		0		0		0		0
TOTAL			196		743		737		410		271

Note: Total boats per WROS category = WROS acres in category / Midpoint of WROS acres per boat

Table 4.8-2
Millerton Lake Boating Demand

Existing Condition								Estimated Increased Demand at 2020[5]		
	Boat Launches[1]			Existing Marina			Total BAOT		Existing Launches and Marina	With expanded Marina (200 additional slips) [6]
Percentile	Launches	% Active[2]	BAOT	Occupied Slips[3]	% Active[4]	BAOT	Launch + Marina	% Increase	BAOT	BAOT
10%	66	60%	40	22	60%	14	54	164%	80	86
20%	106	60%	64	44	60%	27	91	164%	132	143
30%	141	60%	85	67	60%	40	125	164%	179	195
40%	181	60%	109	89	60%	54	163	164%	233	255
50%	212	60%	128	111	60%	67	195	164%	277	304
60%	252	60%	152	133	60%	80	232	164%	329	361
70%	293	60%	176	156	60%	94	270	164%	383	421
80%	330	60%	198	178	60%	107	305	164%	432	475
90%	383	60%	230	200	60%	120	350	164%	497	545
95%	428	60%	257	100	60%	60	317	164%	481	505
98%	505	60%	303	40	60%	24	327	164%	521	531

[1] Demand based on spring and summer weekend data from 2000 through 2002 (including holidays)

[2] Estimated 60% of boats launched would be active on the lake at one time during a 12-hour period, normalized.

[3] Estimated 40% of marina slips have tenants present on the maximum use day. Maximum number of occupied slips of 200 boats is calculated as 40% of 500 slips. This occurs at the 90th percentile of boat launches. Above and below this percentile marina occupants decrease in same proportion as boat launches from ramps.

[4] Estimated 60% of occupied marina slips will have boats active on the lake at one time.

[5] Estimated population growths in Madera and Fresno counties at 64%

[6] Assumes expanded marina is similar to existing (75% sailboats).