RECLAMATION

Managing Water in the West

Final Resource Management Plan and
Final Environmental Impact Statement

Contra Loma Reservoir and Recreation Area

U.S. Department of the Interior
Bureau of Reclamation

September 2014

Mission Statements

The mission of the Department of the Interior is to protect and provide access to our Nation's natural and cultural heritage and honor our trust responsibilities to Indian Tribes and our commitments to island communities.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

Contra Loma Reservoir and Recreation Area
Final Resource Management Plan/Final Environmental Impact Statement

The Bureau of Reclamation (Reclamation) has prepared a Resource Management Plan (RMP) and Environmental Impact Statement (EIS) for the Contra Loma Reservoir and Recreation Area (Contra Loma) located in Contra Costa County, California. The 741-acre Recreation Area consists of the 80-acre Contra Loma Reservoir and approximately 661 acres of surrounding land, including the Contra Loma Regional Park and the Antioch Community Park. Contra Loma Reservoir was constructed in 1967 as part of the Central Valley Project and is managed by Reclamation's Mid-Pacific Region's South-Central California Area Office. The Contra Costa Water District operates and maintains the reservoir under contract with Reclamation. East Bay Regional Park District (EBRPD) currently manages recreation on the reservoir and the recreational lands surrounding the reservoir as the Contra Loma Regional Park pursuant to an agreement with Reclamation. Under a separate agreement with EBRPD, the City of Antioch operates and manages the Community Park located in the northeastern portion of Contra Loma.

The Contra Loma RMP is a long-term (25-year) plan to guide management of the resources on the federal lands of the reservoir and recreation areas. The primary emphasis of the RMP is to protect the water supply and quality of Contra Loma Reservoir while balancing the management of natural and cultural resources with enhancements to recreational uses within Contra Loma.

Reclamation has considered comments on the Draft RMP/EIS during the public review period that concluded on July 2, 2014, and included a public hearing on May 19, 2014. The Final RMP/EIS includes editorial and technical changes, factual corrections, and clarifications made in response to public comments. Changes that are not minor editorial changes are indicated by lines on the left side of the margin. Reclamation has identified the Expanded Recreation and Facilities Alternative (Alternative 3) as the Preferred Alternative. A Record of Decision (ROD) will not be prepared until 30 days after the release of the Final EIS and notice in the Federal Register. The ROD will state the action to be implemented and will discuss factors leading to the decision.

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Executive Summary

Introduction

The Bureau of Reclamation (Reclamation) has prepared a Resource Management Plan (RMP) for the Contra Loma Reservoir and Recreation Area (Contra Loma) located in Antioch, Contra Costa County, California (Figure ES-1). The Contra Loma RMP is a long-term plan to guide management of the resources on the Federal lands within the reservoir and recreation areas. The RMP is being developed in accordance with Reclamation's 2003 *Resource Management Plan Guidebook, Planning for the Future*, and is based on a comprehensive inventory of environmental resources and facilities as well as input from the East Bay Regional Park District (EBRPD), the City of Antioch (City), the Contra Costa Water District (CCWD), and the public. The primary emphasis of the RMP is to protect the water supply and quality of Contra Loma Reservoir, while balancing the management of natural and cultural resources with enhancements to recreational uses within Contra Loma.

Contra Loma consists of the 80-acre Contra Loma Reservoir and approximately 661 acres of surrounding land, including the Contra Loma Regional Park (Regional Park) and the Antioch Community Park (Community Park; Figure ES-2). Contra Loma Reservoir was constructed in 1967 as part of the Central Valley Project (CVP) and is managed by Reclamation's Mid-Pacific Region's South-Central California Area Office. CCWD operates and maintains the reservoir under contract with Reclamation. The reservoir receives and stores water from the Contra Costa Canal. The reservoir is primarily used as a regulating reservoir for peak or short-term municipal water supplies for CCWD customers, for emergency storage, and as a backup water supply during maintenance of upstream facilities. The recreation area was opened to the public in 1968 with few developed recreational facilities.

On September 18, 1972, a management agreement between Reclamation and EBRPD transferred responsibility for land use management and development, construction, and maintenance of public recreational facilities to EBRPD (Bureau of Reclamation 1972). This agreement clarifies that the rights of EBRPD under this agreement are subordinate to the rights of the United States relating to the use of the lands and water areas for water regulation and other project purposes. EBRPD continues to manage the recreational lands surrounding the reservoir. The City operates and manages the Community Park in the northeastern portion of Contra Loma under a Reclamation-approved license agreement granted by EBRPD in 1985 and amended in 1990.

The 1972 management agreement between Reclamation and EBRPD and the license agreement between EBRPD and the City were both scheduled to expire in December 2010. While the RMP process is on-going, Reclamation issued EBRPD an extension of the management agreement. EBRPD has expressed interest in renewing the management agreement with Reclamation. After completion of the RMP process, Reclamation will negotiate a new long-term management agreement with one or more local managing partner(s).

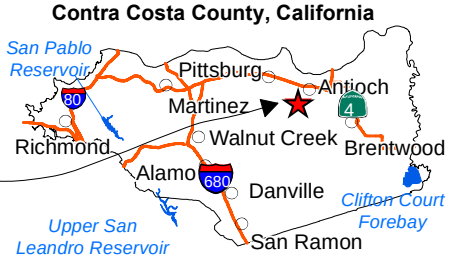
Public Land Survey:
Township: 1N & 2N
Range: 1E
Sections: 1, 2 & 35, 36

USGS 7.5 Quad:
Antioch South - 1980

N

0 1.25 2.5
Miles

Contra Costa County, California



GG:\Projects\30019_Contra_Loma\GIS\Working_Mxds\Resource Inventory Report\30019_Figure_ES-1_Location.mxd 2010-05-19 edouglas revised 05-30-2013 tmooney Source: ESRI

North State Resources, Inc.

Figure ES-1
Project Location and Vicinity Map

G:\Projects\30019_Contra_Loma\GIS\Working_Mxds\Resource Inventory Report\30019_Figure_1_2_Park_Land_Facilities.mxd Created: 2011-05-25 edouglas revised: 2013-05-29 tmooney

North State Resources, Inc.

Figure ES-2
Regional Park Land Use and Facilities

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Decisions directing current management of the recreation area are based on the Reservoir Area Management Plan (RAMP; East Bay Regional Park District 1975a) and the Land Use–Development Plan (LUDP; East Bay Regional Park District 1975b). Both planning documents were prepared by EBRPD in 1975. Reclamation's new RMP will be incorporated by reference in the new long-term management agreement with its local managing partner(s) and is intended to supersede the RAMP and the LUDP once adopted by the new local managing partner(s). Importantly, the RMP will facilitate public understanding of the recreation area and provide consistent and integrated land use planning decisions.

In compliance with the National Environmental Policy Act of 1969, as amended (NEPA; PL 91-190, 42 U.S.C. 4321-4347), and in accordance with the Council on Environmental Quality (40 CFR 1500-1508) and U.S. Department of the Interior (43 CFR Part 46) regulations for implementing NEPA, Reclamation has prepared an Environmental Impact Statement (EIS) to evaluate and disclose the potential direct, indirect, and cumulative environmental effects of implementing the Contra Loma RMP. Because of the similarities between the requirements for an RMP and an EIS, Reclamation has decided to combine the RMP and EIS into a single document, hereafter referred to as the RMP/EIS. The Final RMP/EIS includes editorial and technical changes, factual corrections, and clarifications made in response to public comments. Changes that are not minor editorial changes are indicated by lines on the left side of the margin.

Purpose and Need

The Reclamation Recreation Management Act of 1992 (Public Law [PL] 102-575, Title 28 [2805(c)(1)(A)]) directs Reclamation to "provide for the development, use, conservation, enhancement, and management of resources on Reclamation lands." The Contra Loma RAMP currently guides EBRPD in administering, operating, planning, and developing Contra Loma. The RAMP was prepared in 1975 and some features of the RAMP are either outdated or no longer relevant. In addition, the types of recreational facilities requested by the public and the infrastructure required to operate the recreation area have changed since the RAMP was prepared. Finally, environmental conditions at the recreation area have changed since 1975. These changes have created a need for Reclamation to evaluate resource and recreation management practices at Contra Loma and to prepare an RMP that meets evolving public demand and infrastructure needs.

The Contra Loma RMP has a planning horizon of 25 years. The planning horizon will begin when new management agreement(s) are reached between Reclamation and local managing partner(s). The RMP is needed to provide management guidance to Reclamation and the local agencies and to ensure effective protection and management of Contra Loma's resources, particularly the reservoir. The RMP will also provide guidance on the allowed uses and desired future conditions at Contra Loma and establish the framework for the new management agreement(s).

The purpose of the RMP is to establish a set of management objectives, goals, and actions to be implemented by Reclamation, either directly or through its management agreement(s) that would:

- establish uniform policy and land management guidelines that promote organized use, development, and management of recreation area lands in a way that is compatible with applicable federal and state laws;
- protect the water supply and quality of Contra Loma Reservoir;
- manage natural and cultural resources in and around the reservoir in a way that is consistent with federal law and Reclamation policies;
- provide additional recreational opportunities and facilities requested by the public; and
- provide guidance for future decision making.

Primary Issue Areas

Reclamation conducted public outreach in 2010 and 2011 to explain the scope and objectives of the Contra Loma RMP and to encourage comments from the public and stakeholders, including EBRPD, the City, and CCWD, about the issues that should be addressed in the RMP and evaluated in the EIS. During that time, Reclamation held a public scoping meeting, two public workshops, and solicited written public and stakeholder comments. Based on the comments received and its own review of the issues, Reclamation identified the following primary issue areas to be addressed in the RMP:

- Recreational facilities and opportunities at the Regional Park
- Infrastructure and administrative facilities at the Regional Park
- Facility management at the Regional Park
- Recreational facilities and opportunities at the Community Park
- Facility management at the Community Park
- Reservoir water quality
- Pasture vegetation management at the Regional Park

Reclamation also identified the following environmental and planning topics to be addressed in the EIS:

- Land use and management
- Recreation
- Visitor access and circulation
- Utilities
- Public health and safety
- Water resources

- Vegetation
- Wildlife
- Fisheries
- Geology and soils
- Climate and air quality
- Noise
- Visual resources
- Hazards
- Cultural resources
- Socioeconomics
- Environmental justice

Public Involvement

Public involvement is a critical element in developing a RMP. Reclamation's goal is to gain input from a cross section of the user public and stakeholders, including the current local managing partners. Reclamation held a public scoping meeting and two public workshops in 2010 and 2011 to solicit issues and concerns and to develop alternatives to be analyzed in the RMP. In addition, Reclamation developed a mailing list (and accompanying database), produced and distributed flyers and public notices, and posted project updates and information on Reclamation's Contra Loma RMP/EIS website and the EBRPD website.

A Notice of Intent to prepare the RMP/EIS was published in the *Federal Register* on November 12, 2009. Reclamation held a scoping meeting for the Contra Loma RMP/EIS on February 8, 2010, at the Nick Rodriguez Community Center in Antioch. Reclamation also held a public workshop on August 4, 2010, at Sutter Elementary School in Antioch to seek ideas, concerns, and comments to inform development of the RMP/EIS. Written scoping comments were solicited by Reclamation from February 8 through 22, 2010, and from August 4 through 31, 2010. On March 3, 2011, Reclamation held a second public workshop at Prewett Family Park & Community Center in Antioch to solicit comments on the conceptual draft packages of RMP actions and alternatives.

Reclamation prepared an Issues and Opportunities Report summarizing the public comments and issues raised during the scoping meeting and the first public workshop in August 2010. The report is included as Appendix A and provides a summary of written and verbal comments provided by agencies, organizations, and individuals (Bureau of Reclamation 2010).

Reclamation posted the Draft RMP/EIS for a 60-day public review period to solicit written comments, beginning on May 2 and ending on July 2, 2014. Reclamation also held a public meeting on May 19, 2014, to receive public comments on the Draft RMP/EIS and plan alternatives. Comments received and responses to public comments are included in Appendix G.

Reclamation has identified the Expanded Recreation and Facilities Alternative (Alternative 3) as the Preferred Alternative in the Final EIS. Reclamation will prepare a Record of Decision (ROD) that will identify the selected alternative.

Management Alternatives

Alternatives Evaluated in the RMP/EIS

Reclamation's intent is to develop a broad range of management actions to evaluate alternatives that would represent the varied interests pertaining to Contra Loma. Reclamation identified and evaluated three RMP alternatives, which are designed to address the planning issues, opportunities, and constraints at Contra Loma. The three alternatives evaluated in the Draft RMP/EIS include a No Action Alternative and two action alternatives, as summarized below. The management actions and alternatives are discussed in more detail in Chapter 2. Reclamation has selected Alternative 3 as its preferred alternative.

No Action (Alternative 1 – Status Quo)

The objective of this alternative is to continue the current resource and recreation management direction and practices at Contra Loma.

Under this alternative, the current resource and recreation management direction and practices at Contra Loma would continue unchanged, and would be generally consistent with EBRPD's current RAMP (East Bay Regional Park District 1975a), the Regional Park LUDP (East Bay Regional Park District 1975b), the current management agreement between Reclamation and EBRPD, the license agreement between EBRPD and the City, and the EBRPD land use plans pertaining to Contra Loma. Some features of the RAMP, however, would not be implemented. For example, the Community Park is now located where the RAMP and LUDP had envisioned a day camp recreation zone. Therefore, the Day Camp recreation zone would not be implemented under the No Action Alternative. Also, the RAMP and LUDP had envisioned a picnic meadow cluster to the east of the reservoir that has not yet been built and might not be built under this alternative.

The local managing partner(s) would implement and manage the administrative and operational activities listed in Section 2.5 and Appendix B. The managing partner(s) would implement many of these activities, including those that may require permits or environmental review under NEPA or California Environmental Quality Act or authorization by Reclamation or CCWD. This alternative addresses certain public comments requesting no further substantive change in management direction or intensity be made at Contra Loma. The No Action Alternative provides the appropriate basis by which all other alternatives can be compared. It meets all the primary goals of the Contra Loma RMP except for provision of enhanced or new recreational uses and facilities.

Enhanced Recreation and Facilities (Alternative 2)

The objective of this alternative is to enhance current recreational uses and facilities at Contra Loma to fulfill the evolving needs of the public who recreate at Contra Loma and to implement several basic infrastructure improvements while minimizing changes to Contra Loma's recreation setting and adverse effects on natural resources.

Under this alternative, the management direction would be shifted toward enhancement of current recreational uses and facilities. This alternative includes management actions to enhance, replace, or upgrade existing recreational uses and facilities and installation of new facilities to expand or complement existing uses and facilities. Examples include upgrades to restrooms, the swim lagoon, fishing piers, the trail system, the boat launch, and administrative buildings. Examples also include new facilities such as additional restrooms, sewer lines, picnic sites, parking areas, and habitat restoration activities. Alternative 2 involves no major expansion of recreational facilities. This alternative also includes boundary adjustments between the Regional Park and the Community Park.

Expanded Recreation and Facilities (Alternative 3)
The objective of this alternative is to expand recreational uses and facilities to accommodate increasing demand, especially for additional all-weather sports fields.

Under this alternative, the management direction would be shifted toward expansion of recreational uses and facilities. This alternative includes the management actions listed under Alternative 2 (Enhanced Recreation and Facilities) and provides additional management actions to expand existing recreational uses and facilities and to install new facilities that expand recreational opportunities. Examples include construction of a fishermen's shelter, a playground structure, a disc golf course, and new multi-use sports fields, and expansion of the swim lagoon and the trail system. Other examples include planting of shade trees, installation of shade structures and solar panels, and fish habitat improvements to increase fish populations. This alternative may also include overnight group camping.

Environmental Analysis

The Contra Loma RMP is a programmatic, planning-level document that provides management direction at a broad scale and is not intended to provide project-level detail of future management actions or projects. For this reason, the EIS evaluates the environmental impacts of each RMP alternative in a programmatic manner. Future actions carried out under the purview of the RMP beyond the programmatic analysis presented in the EIS would be subject to project-level NEPA analysis and compliance.

Chapter 4 (Environmental Consequences) evaluates the environmental impacts of implementing each of the alternatives. The chapter is organized in sections by resource topic. Each resource section begins with a brief description of the resources addressed within the section and the types of activities that could affect the resource. Impact thresholds are then defined and are expressed as beneficial impacts, no impacts, minor adverse impacts, or major adverse impacts. A list of assumptions upon which the analysis is based follows. The impacts of activities common to all of the alternatives are then discussed, followed by a discussion of impacts and mitigation measures unique to each alternative. Where appropriate and feasible, mitigation measures are discussed that would avoid or minimize impacts to the affected resource. Therefore, no unavoidable adverse impacts would occur under any of the alternatives. Cumulative impacts are discussed at the end of each resource.

Comparison and Summary of Alternatives and Environmental Consequences

This section provides a summary of the key differences of the environmental effects between the three alternatives. Because this discussion is intended to present the key differences between the alternatives, it does not address all of the effects of the proposed management actions. A full discussion of the environmental effects attributable to each alternative is provided in Chapter 4.

One important characteristic of the alternatives is that the management actions are additive under each successive alternative. The Enhanced Recreation and Facilities Alternative includes all of the management actions that would be included in the No Action Alternative, and the Expanded Recreation and Facilities Alternative includes all of the management actions that would be included in the other two alternatives. Therefore, the Enhanced Recreation and Facilities Alternative would include more new or improved facilities than the No Action Alternative and the Expanded Recreation and Facilities Alternative would include more new or improved facilities than the other two alternatives. Therefore the intensity of development would be more intense under each successive alternative.

Another important, but related, characteristic of the alternatives is the relative increase in visitation to Contra Loma that is expected under each alternative. Visitor use is expected to increase under all of the RMP alternatives; however, the two action alternatives would include more new or expanded recreational opportunities and administrative facilities than the No Action Alternative and would, therefore, result in more visitation than the No Action Alternative. The Expanded Recreation and Facilities Alternative would include more new recreational opportunities than the other two alternatives and, therefore, would generate the highest increase in visitation.

Land Use

Because the two action alternatives would result in higher visitor use than the No Action Alternative, they would increase the potential for conflicts among user groups. The Expanded Recreation and Facilities Alternative would generate the most visitors and would, therefore, have the most potential for such conflicts.

The two action alternatives would include new, enhanced, expanded, or renovated facilities to enhance or expand recreation and improve operations. These facilities are expected to be designed and located in order to promote compatibility with existing land uses, however, some new land use compatibility conflicts could occur under the two action alternatives. The Expanded Recreation and Facilities Alternative would include the most improvements and, therefore, would have the most potential for such conflicts.

Recreation

The No Action Alternative would not alter the recreational opportunities available within Contra Loma. The two action alternatives, however, would include new, enhanced, or expanded recreational opportunities and administrative facilities that would have a beneficial impact on recreation. Examples include an Americans with Disabilities Act facility retrofit program, various trail improvements, additional picnic sites, improvements to the swim lagoon, additional

sports fields, improved fishing and boat launch facilities, a disc golf course, and improvements to various administrative facilities. During construction of these improvements, some existing recreational opportunities may be temporarily unavailable for use resulting in short-term minor adverse recreation impacts. However, these recreational improvements would result in long-term beneficial impacts on recreation. Because the Expanded Recreation and Facilities Alternative would include the most recreational opportunities and improvements, it would have the greatest long-term beneficial impact on recreation.

Increased visitation would incrementally increase the need for routine maintenance activities which could incrementally increase the frequency of temporary restriction or impairment of public use and recreation access. Because the two action alternatives would include new, enhanced, expanded, or renovated facilities to enhance or expand recreation, they would require more routine maintenance activities which could increase the frequency of temporary restriction or impairment of public use and recreation access. Also, because the action alternatives would include more enhanced recreation opportunities than the No Action Alternative, they could result in more visitor use and require incrementally more maintenance. Therefore, these alternatives could result in more frequent occurrences of temporary restriction or impairment of public use and recreation access than the No Action Alternative. Because the Expanded Recreation and Facilities Alternative would have the most new facilities and would generate the most visitors, it would have the most potential for this type of effect. Maintenance activities would have a minor impact on recreation under all of the alternatives.

Visitor Access and Circulation

The increased visitation expected under all of the alternatives would increase the number of vehicles using park roads and parking areas and would increase the number of vehicles using public roads to access Contra Loma. The internal roads and parking areas would be expected to accommodate increased visitation on most days; however, gate closures to vehicles when road and parking capacity is reached could occur more frequently than current conditions. Increased vehicle trips to Contra Loma would represent a small proportion of the existing traffic on local roads serving Contra Loma. These trips would increase average daily traffic from 2 to 6 percent of the current traffic volumes and would be expected to cause a similar increase in volume-to-capacity ratios. It appears that these roads would be sufficient to accommodate increased visitation. Because the two action alternatives would result in higher visitor use than the No Action Alternative, they would generate more vehicle trips to Contra Loma. The Expanded Recreation and Facilities Alternative would generate the most visitors and vehicle trips. Under all of the alternatives, however, increased human use would cause a minor impact on visitor access and circulation within Contra Loma and on the capacity of local roads serving Contra Loma.

Increased visitation would incrementally increase the need for routine maintenance activities which could incrementally increase the frequency of temporary road and trail closures. Because the two action alternatives would include facility improvements and could result in more visitor use, they may generate the need for incrementally more maintenance. The Expanded Recreation and Facilities Alternative would likely generate the most need for maintenance. Under all of the alternatives, however, road or trail closures during maintenance activities would be short term and the impact on visitor access and circulation would be minor.

The two action alternatives would include trail improvements that would have a beneficial impact on visitor access and circulation within Contra Loma. The Expanded Recreation and Facilities Alternative may include construction of new trails and connections that would result in more benefits to visitor access and circulation than the Enhanced Recreation and Facilities Alternative.

The two action alternatives would also include new, enhanced, expanded, or renovated facilities. These facilities could attract more visitors to Contra Loma than the No Action Alternative. The Expanded Recreation and Facilities Alternative would include more new facilities than the other alternatives. The existing roads and parking areas at both the Regional Park and the Community Park are anticipated to be capable of providing an adequate level of service to accommodate increased visitor traffic, although some existing gravel parking areas might be paved and overflow parking at the Regional Park might be expanded, if it becomes necessary to accommodate more vehicles. Facility improvements would not result in any permanent impacts on visitor access or circulation. However, road or trail closures, if needed during construction, could result in temporary, minor impacts on visitor access and circulation. The Expanded Recreation and Facilities Alternative would have the most potential for such temporary, minor impacts.

Utilities

The increased visitation expected under all of the alternatives would increase demand for publicly available utilities such as restrooms, potable water, electricity, and litter and waste disposal. Because the two action alternatives would result in higher visitor use than the No Action Alternative and because these alternatives could increase the volume of water pumped from the reservoir to irrigate the Regional Park, they would generate more demand for utilities than the No Action Alternative. The Expanded Recreation and Facilities Alternative would generate the most demand. Under all of the alternatives, however, increased human use would cause a minor impact on utilities.

The two action alternatives may include new permanent restrooms to replace the existing portable chemical toilets. This would be a beneficial impact that would not occur under the No Action Alternative.

The two action alternatives would include new, enhanced, expanded, or renovated administrative and recreational facilities. The Expanded Recreation and Facilities Alternative would include more new facilities and would, therefore, generate more new demand for utilities than the Enhanced Recreation and Facilities Alternative. The new facilities would increase demand for utilities; however, the increased demand would result in a minor adverse impact under both action alternatives.

To help meet the increased demand for energy, the Expanded Recreation and Facilities Alternative would include installation of solar panels on shade structures or buildings in the Regional Park. Energy derived from these solar panels would be used to supplement the Regional Park’s energy needs, decreasing its dependency on commercial electricity. This would result in a beneficial impact that would not occur under the other two alternatives.

Public Health and Safety

The increased visitation expected under all of the alternatives would generate more solid and sanitary waste, which could create public health and safety issues. Increased facility use could result in greater potential for unsanitary conditions, among other concerns. Increased visitation could also increase the amount of solid waste, discarded food, and other attractants for unwanted pests (such as rodents or wasps), and could increase the potential for accidental fires. Because the two action alternatives would result in higher visitor use than the No Action Alternative, they would have a higher potential for such issues to occur. The Expanded Recreation and Facilities Alternative would generate the most visitors and would, therefore, have the most potential for such issues to occur. Under all of the alternatives, however, the managing partner(s) would provide adequate sanitary and solid waste services, would continue to implement integrated pest management plans to control pests, and would continue to reduce fire hazards by mowing and grazing the grassland areas such that these public health and safety issues would be minor.

The two action alternatives may include replacing the existing portable chemical toilets with permanent restrooms and new or upgraded sewer lines to connect future permanent restrooms to the City's sewer and wastewater system. These improvements would reduce the potential for inadvertent spills from the portable restrooms, resulting in a beneficial impact on public health and safety that would not occur under the No Action Alternative.

The increased visitation expected under all of the alternatives would increase demand for emergency services, including fire and police, as well as the number of rescues and assistance responses performed by lifeguards at the swim lagoon and possibly the reservoir. Use of existing and expanded emergency and safety services, and the development and implementation of emergency preparedness plans would ensure that increased visitor use of Contra Loma would have no impact on the public health and safety of park users.

All of the alternatives include continuation of routine maintenance and repair activities that could affect visitor health and safety. Increased visitation could incrementally increase the amount of facility maintenance required, thereby incrementally increasing the potential risk to visitors. Because the two action alternatives would result in higher visitor use than the No Action Alternative and would also include new facilities requiring maintenance, they would have a higher potential for such issues to occur. Because the Expanded Recreation and Facilities Alternative would generate the most visitors and would include the most new facilities, it would have the most potential for such issues to occur. Under all of the alternatives, however, facility maintenance would have a minor adverse impact on public health and safety because the managing partner(s) would be expected to perform maintenance and repair activities in a manner that meets the RMP goal of protecting public health and safety.

The two action alternatives would include renovations to the existing administrative facilities intended to better provide for public service and safety. These renovations would result in a beneficial impact on public health and safety that would not occur under the No Action Alternative.

The two action alternatives may include fishing dock improvements to provide anglers with safe, reliable fishing opportunities. They may also include a "safe swim" area or splash pad that would

improve swim safety for small children. These improvements would result in a beneficial impact on public safety that would not occur under the No Action Alternative.

The Expanded Recreation and Facilities Alternative would include expanded recreational facilities and opportunities beyond those of the other alternatives that could increase the potential for visitor injuries. However, the managing partner(s) would ensure that adequate staff and emergency plans are available to effectively accommodate the increased risk to public health and safety related to expanded recreational facilities resulting in a minor impact.

The two action alternatives may include a new radio communications tower that would enhance emergency response and preparedness and may include call boxes and/or security cameras at the Community Park. These improvements would have a beneficial impact on public safety that would not occur under the No Action Alternative.

Water Resources

The increased visitation expected under all of the alternatives would increase the potential for human-related impairment of water quality. Increased visitation could increase the potential for unauthorized human contact with the reservoir, increasing the potential for human-borne pathogens and viruses to affect reservoir water quality. An increased volume of solid, human, and domestic animal (e.g., dogs and horses) waste could also affect reservoir water quality. Increased boating activity could increase the potential for reservoir infestation by zebra and quagga mussels and other non-native species. Increased trail use could increase localized erosion, and the resulting sediment could be transported to the reservoir by surface runoff.

Because the two action alternatives would result in higher visitor use than the No Action Alternative, they would have a higher potential to impair water quality. The Expanded Recreation and Facilities Alternative would generate the most visitors and would, therefore, have the most potential for water quality impairment. Under all of the alternatives, however, the local managing partner(s) would continue to implement restrictions on body contact with the reservoir, and would continue programs for litter and waste reduction, regular restroom maintenance and inspection, prevention of zebra and quagga mussel infestation, and trail maintenance. Under all of the alternatives, these potential water quality issues would be minor.

The two action alternatives may include new permanent restrooms to replace the existing portable chemical toilets. This improvement would reduce the potential for inadvertent spills from the portable restrooms, resulting in a beneficial impact on water resources that would not occur under the No Action Alternative.

The Expanded Recreation and Facilities Alternative may include overnight group camping on a discretionary basis as part of the current day camp programs or other special events. Because camping would be discretionary and would receive oversight from the Regional Park’s local managing partner, and because body contact restrictions would continue to be enforced, adverse impacts to water quality from overnight group camping would be minor.

The two action alternatives may include a new storm water retention basin to improve the quality of water carried by the Regional Park’s storm drain system before it reaches the reservoir. This

would have a beneficial impact on reservoir water quality that would not occur under the No Action Alternative.

The two action alternatives would include new, enhanced, expanded, or renovated administrative and recreational facilities. Construction activities and drainage improvements could affect water quality through erosion and sedimentation, a temporary increase in reservoir turbidity due to runoff from construction areas, or inadvertent spilling of construction-related chemicals. The Expanded Recreation and Facilities Alternative would include more new facilities and would, therefore, increase the potential for construction-related water quality impacts. However, both action alternatives include a management action requiring a focused site-specific assessment of any potential impact on water quality when specific construction activities are proposed, preparation of a stormwater pollution prevention plan, and implementation of Best Management Practices, if needed, to protect water quality from construction activities. This management action would ensure that construction activities and drainage improvements would result in minor adverse effects on water quality.

Vegetation

The increased visitation expected under all of the alternatives would increase the potential for visitors to damage vegetation. Because the two action alternatives would result in higher visitor use than the No Action Alternative, they would have a higher potential for damage. Under the No Action Alternative and the Enhanced Recreation and Facilities Alternative, this impact would be minor. Because the Expanded Recreation and Facilities Alternative would generate the most visitors and may include expansion of the trail system, however, it would have the most potential for damage and could result in a major adverse impact on vegetation. Mitigation Measure Vegetation-3 would incorporate signage along equestrian and bicycle trails to prevent horses and bicycles from leaving trails and Mitigation Measure Vegetation-4 would route any new trails to avoid sensitive vegetation communities, and provide for an educational leaflet program. These measures would ensure that this impact is minor.

The two action alternatives would include new, enhanced, expanded, or renovated administrative and recreational facilities. New construction can cause impacts to vegetation from vegetation removal on the structure footprint, from ground disturbance due to equipment operations, or from covering due to spoils deposition or erosion. The Expanded Recreation and Facilities Alternative would include more new facilities and would, therefore, increase the potential for construction-related vegetation impacts. Most of the affected vegetation is expected to be non-native annual grassland; however, impacts to more sensitive vegetation communities could also occur. New construction could result in a major adverse impact on vegetation. Mitigation Measure Vegetation-1 would require the local managing partner(s) to perform a focused impact assessment on vegetation resources when proposing specific construction activities. Feasible wetland or riparian mitigation such as avoidance, minimization or compensatory measures would be required for temporary and permanent losses of wetlands or riparian vegetation communities. Mitigation Measure Vegetation-2 would require the local managing partner(s) to perform a focused impact assessment on vegetation resources. Feasible wetland or riparian mitigation such as avoidance, minimization, or compensatory measures would be required for temporary and permanent losses of special-status plants. These measures would ensure that construction-related vegetation impacts are minor.

The Expanded Recreation and Facilities Alternative may include increased withdrawal of reservoir water for irrigation. Increased irrigation may have a beneficial impact on vegetation resources in developed areas of Contra Loma, including managed landscaping. However, the additional reservoir drawdown would cause a small decrease in the reservoir's wetted perimeter adjacent to existing wetland vegetation at the reservoir high water mark, resulting in a minor impact to wetland vegetation resources.

Wildlife

The increased visitation expected under all of the alternatives would increase the potential for visitors to disturb wildlife. Increased visitation would also increase the need for operation and maintenance activities by the managing partners, which can also adversely affect wildlife. Because the two action alternatives would result in higher visitor use and require more maintenance than the No Action Alternative, they would have a higher potential for disturbance. Because the Expanded Recreation and Facilities Alternative would generate the most visitors and would require the most maintenance, it would have the most potential for wildlife disturbance. Under all alternatives, the potential for wildlife disturbance would be minor.

The two action alternatives would include new, enhanced, expanded, or renovated administrative and recreational facilities. New construction and related ground disturbing activity can cause impacts to wildlife from direct mortality, habitat removal, habitat fragmentation, or disruption of wildlife corridors. The Expanded Recreation and Facilities Alternative would include more new facilities and would, therefore, increase the potential for construction-related wildlife impacts. New construction could result in major short-term and long-term adverse impacts on wildlife. Mitigation Measures Wildlife-1 and Wildlife-2 would require the local managing partner(s) to perform a focused impact assessment on avian wildlife resources and special status wildlife when proposing specific construction activities. Feasible mitigation such as avoidance, minimization, or compensatory measures would be required to ensure that the activity does not lead to take of migratory birds or special status wildlife. These measures would ensure that construction-related wildlife impacts are minor.

The Expanded Recreation and Facilities Alternative may also expand Contra Loma's trail system, which could cause unexpected stress to wildlife species. New trails routed too close to sensitive habitats could also result in an increased tendency for humans to venture into sensitive habitats, causing stress to wildlife. This could result in a major adverse impact on wildlife that would not occur under the other alternatives. Mitigation Measure Wildlife-3 would incorporate signage along equestrian and bicycle trails to prevent horses and bicycles from leaving trails in order to minimize this potential impact.

The two action alternatives may include increased withdrawal of reservoir water for irrigation. The additional irrigation would have a positive impact on the urban habitat component in developed areas of Contra Loma, and may have a small positive impact on wildlife there. The additional irrigation of managed landscaping may also help maintain the hydrology of certain wetland and stream corridor wildlife habitats that receive runoff from the landscaped areas. Conversely, fertilizers and pesticides applied to non-native landscape plantings could be transported to aquatic habitats by the additional landscape irrigation and cause a minor adverse effect on wildlife and aquatic resources. The additional reservoir drawdown would cause a small decrease in the reservoir's wetted perimeter adjacent to existing wetland vegetation at the

reservoir high water mark, resulting in a minor impact to wetland habitat and the wildlife supported by that habitat.

Fisheries

The increased visitation expected under all of the alternatives would increase pressure on Contra Loma's recreational fisheries. Because the two action alternatives would result in higher visitor use than the No Action Alternative, they would result in greater fishing pressure. Because the Expanded Recreation and Facilities Alternative would generate the most visitors, it would create the most fishing pressure. Under all alternatives, however, the impact of increased pressure on the fishery resources of Contra Loma would be minor.

Under all alternatives, the risk of introducing exotic species, such as zebra or quagga mussels, baitfish, or crayfish into the reservoir would be minor. Two action alternatives would generate more visitor use and, therefore, would present a greater risk of introduction of these species.

Fall and winter reservoir drawdown can limit access for fishermen because existing fishing and boat launch docks are not seasonally extended, and weed beds which are normally submerged or suppressed at higher levels may limit fishing access to open water during lower levels. The two action alternatives may include modification, reconstruction, or replacement of the existing fishing piers to allow safe, continuous fishing during reservoir drawdowns. They would also include more fishing piers if needed to accommodate increased demand and other fishing and boat launch improvements to partially compensate for the existing adverse effects on the angler experience during fall and winter low water conditions. These improvements would have a beneficial impact on fishing that would not occur under the No Action Alternative.

The Expanded Recreation and Facilities Alternative may include creation or modification of fish habitat if desirable to increase fish populations. If implemented, this management action would serve to partially compensate for the existing adverse effects on the angler experience during fall and winter low water conditions and would have a beneficial impact that would not occur under the other two alternatives.

The two action alternatives may include modification, reconstruction, or replacement of existing fishing piers, installation of additional fishing piers, and several improvements at the boat launch area. Some of the new or rehabilitated piers and docks may require new pilings. Construction activities of this type may cause temporary impacts on lake water quality, may adversely affect fish resources (especially young panfish and bass), and may temporarily inconvenience anglers. This would cause minor adverse impacts on fishery resources.

Geologic and Soil Resources

The two action alternatives would include all-season surfacing of several trails near the reservoir. These improvements would reduce the potential for soil erosion and for the resulting sediment to reach the reservoir. This would be a beneficial impact that would not occur under the No Action Alternative.

The two action alternatives may include construction of new or expanded buildings and facilities. All new buildings and facilities would meet applicable building code standards pertaining to

geologic hazards and stability. Therefore, these facility improvements would have a minor impact with respect to geologic and soil resources.

The Expanded Recreation and Facilities Alternative may also include construction of a disc golf course in the Regional Park, potentially in a location with steep unstable terrain. Construction of the tee pads would not require any major ground disturbance associated with heavy equipment use; therefore, the impact on geologic stability would be minor.

The Expanded Recreation and Facilities Alternative may include expansion of bicycle use on unpaved trails, which could slightly increase the potential for erosion. This would be a minor impact that would not occur under the other alternatives.

Climate and Air Quality

The increased visitation expected under all of the alternatives would increase the number of vehicles traveling to and from Contra Loma, thereby increasing the volume of air pollutants including greenhouse gases (GHGs) generated by visitors' vehicles. The two action alternatives would generate more pollutants than the No Action Alternative; the Expanded Recreation and Facilities Alternative would generate the most. These increases are not likely to result in levels of park visitation high enough to cause exceedance of National Ambient Air Quality Standards for any alternative. Reclamation would also implement Mitigation Measure Air Quality-2 to reduce GHG emissions from park operations.

Increased visitation would also increase the amount of particulate matter (i.e., PM2.5 and PM10) generated by vehicle travel on unpaved roads and by visitor use of trails, barbecue grills, and the Community Park ball fields. The two action alternatives would generate more particulate matter than the No Action Alternative; the Expanded Recreation and Facilities Alternative would generate the most. With implementation of Mitigation Measure Air Quality-1, the volume of particulate matter generated would not be substantial, resulting in a minor impact for all of the alternatives.

Increased visitation would incrementally increase the need for routine maintenance activities which could incrementally increase the amount of air pollutants, including particulate matter and GHGs, generated by maintenance activities. Because the two action alternatives would include new, enhanced, expanded, or renovated facilities to enhance or expand recreation, they would require more routine maintenance and, therefore, generate more air pollutants. The Expanded Recreation and Facilities Alternative would require the most maintenance. Under all alternatives, however, maintenance activities would have a minor impact on air quality and climate change.

The two action alternatives would include new, enhanced, expanded, or renovated administrative and recreational facilities. Construction activities can temporarily generate air pollutants, including particulate matter and GHGs. Because the Expanded Recreation and Facilities Alternative would include the most new facilities it would generate the most construction-related emissions. Under all alternatives, however, construction activities would have a minor impact on air quality and climate change.

The Expanded Recreation and Facilities Alternative would include installation of solar panels to supplement the Regional Park's energy needs. Solar panels would reduce the Regional Park's

demand for conventionally generated electricity, thereby slightly reducing air pollutant emissions generated at the power plants that serve Contra Loma. This would be a beneficial impact that would not occur under the other two alternatives.

Noise

The increased visitation expected under all of the alternatives would increase the amount of noise generated by recreationists and their vehicles. Because the two action alternatives would result in higher visitor use than the No Action Alternative, they would generate more noise. Because the Expanded Recreation and Facilities Alternative would generate the most visitors, it would generate the most noise. Noise level increases from human use and visitor vehicle noise are not expected to be noticeable; therefore, noise impacts resulting from increased visitation would be minor under all alternatives.

Increased visitation would incrementally increase the need for routine maintenance activities which could incrementally increase noise generated within Contra Loma. Because the two action alternatives would include new, enhanced, expanded, or renovated facilities to enhance or expand recreation, they would require more routine maintenance and, therefore, generate more noise. The Expanded Recreation and Facilities Alternative would require the most maintenance. Under all alternatives, however, maintenance activities would have a minor noise impact.

The two action alternatives would include new, enhanced, expanded, or renovated administrative and recreational facilities. Construction activities can temporarily increase noise levels within Contra Loma, which could be distracting to some park visitors. Construction noise may also be audible from some offsite areas, depending on the location and the nature of the construction activity. Because the Expanded Recreation and Facilities Alternative would include the most new facilities it would generate the most construction noise. However, construction activities would be short-term. Also, the managing partner(s) can limit construction activities to days and times that reduce noise-related effects on visitors and on sensitive receptors near Contra Loma. Under all alternatives, construction activities would have a minor noise impact.

The Expanded Recreation and Facilities Alternative may include the addition of two new sports fields and increased parking capacity in the Community Park. The sports fields would have floodlights to allow evening use in addition to those currently used within sports fields 1, 2, and 3. Therefore, this alternative may expand sports field use, including evening league play, at the Community Park. Noise generated at the new sports fields could be noticeable to some residents near the eastern portion of the Community Park. When considering the context and intensity of additional noise generated by new sports fields, the new fields would have a minor noise impact. In addition, the local managing partner(s) for the Community Park would have the ability to adjust the hours of use to accommodate the needs of nearby residents.

Use of the other facilities constructed under the two action alternatives could increase ambient noise levels within the Regional Park at certain times. The Expanded Recreation and Facilities Alternative would include the most new facilities and would, therefore, generate the most noise. However, the impact would occur over limited time periods, would typically occur in areas of concentrated human use such as the swim lagoon and south shore of the reservoir, and would not occur near noise-sensitive land uses located outside Contra Loma. In addition, such noises are

generally an accepted part of the ambient noise levels experienced by park visitors; therefore, noise level increases from these improvements are not expected to be noticeable.

Visual Resources

The two action alternatives would include new, enhanced, expanded, or renovated administrative and recreational facilities that could affect visual resources within Contra Loma. Because the Expanded Recreation and Facilities Alternative would include the most new facilities, it would have the most potential to affect visual resources within Contra Loma.

Some of the new or renovated facilities would improve the visual quality within the Regional Park. Examples include new permanent restroom facilities to replace portable chemical toilets and renovated fishing docks to replace deteriorating docks. Such improvements would result in a beneficial impact on localized views in the vicinity of these improvements. Some of the proposed improvements would represent noticeable changes to the visual environment but would not impair the visual quality or character of the Contra Loma because they would be consistent with the existing visual character of Contra Loma. For example, park visitors are accustomed to seeing picnic areas, shade structures, trail signs, and restrooms when visiting Contra Loma, and consider such facilities to be important components of their recreational experience. Such improvements, therefore, would have no impact on visual resources.

Other proposed improvements, however, have the potential to impair visual resources. These include the larger and more prominent improvements that would be visible from various locations within Contra Loma and may be visible from offsite locations. Because the specific designs and locations of these facilities are not yet known, the potential impact on visual resources could vary in intensity. Improvements that are designed to blend well with the visual environment would result in minor adverse impacts. Alternatively, improvements that appear inconsistent with the visual environment could impair the visual character of Contra Loma from viewpoints within the recreation area and from viewpoints outside the recreation area, resulting in major adverse impacts. When feasible and appropriate, the proposed activity would be modified or design measures would be implemented to reduce the visual impacts of the new improvements, as described in Mitigation Measure Visual-1. This measure would ensure that potential impacts are minor.

The Expanded Recreation and Facilities Alternative may include the addition of two new sports fields and increased parking capacity in the Community Park. The sports fields would have floodlights to allow evening use in addition to those currently used within sports fields 1, 2, and 3. The new sports fields would be approximately 800 feet away from the nearest residences, located on the north site of James Donlon Boulevard, and would be screened by vegetation and topography. At night, glare or general skyglow from the floodlights may be visible from some residences. When considering the context and intensity of the new lighting, the sports field lights would result in a minor adverse impact on visual resources. In addition, the lights would be shut off each night after their use, and the local managing partner(s) for the Community Park would have the ability to adjust the hours of use to accommodate the needs of nearby residents.

Hazards

All of the RMP alternatives include continuation of routine maintenance and repair activities that sometimes require the use of potentially hazardous materials (e.g., cleaning solutions, petroleum

products). Increased visitation could incrementally increase the amount of facility maintenance required. Because the two action alternatives would result in higher visitor use than the No Action Alternative and would include new or expanded facilities, they would require more maintenance. Because the Expanded Recreation and Facilities Alternative would generate the most visitors and would include the most new facilities, it would require the most maintenance. Continued use of potentially hazardous materials for maintenance, although at a slightly greater level, would result in a minor impact with respect to hazards under all alternatives.

The two action alternatives may include construction of a new fueling station and fuel storage tank for use by managing partner(s) personnel to refuel equipment and vehicles used for Regional Park operations. The risk that an inadvertent spill would cause an environmental hazard is expected to be relatively low for several reasons. The facility would be designed with fuel containment devices to protect public health and safety and prevent spilled fuel from creating an environmental hazard. Also, the fueling station would not be available for public use and would only be operated by trained managing partner staff. In addition, the local managing partners(s) will be required to prepare a hazardous waste/spill prevention plan subject to review and approval by Reclamation.

Cultural Resources

Approximately 25 percent of the Area of Potential Effects (APE) has been disturbed by dam/reservoir and recreation-associated developments. Small intact sites, isolated artifacts, or sparse scatters of archaeological materials may still exist in these developed areas. However, in general, any larger or potentially significant (per National Register of Historic Places [NRHP] criteria) cultural resources in these areas likely would have been destroyed or at least damaged by construction activities. Portions of the APE (approximately 170.62 acres [about 23 percent]) have been subjected to surface archaeological surveys including those conducted in 2011 for this EIS.

A total of ten cultural resources investigations have been conducted within Contra Loma. These studies included surface archaeological survey, reviews of historic mapping, and an examination of Reclamation documents and other sources. This research indicates that 12 prehistoric and historic-era sites and features have been identified within or immediately adjacent to Contra Loma. These sites represent early Native American use of the landscape and historic-era activities such as ranching, transportation, and water storage and conveyance in and around Contra Loma. The surface archaeological surveys conducted in 2011 for this EIS identified three of these resources; CA-CCo-572, Contra Loma Dam/Reservoir, and the Contra Costa Canal which is situated outside but immediately adjacent to the northern edge of the APE.

Outreach with Native American Tribes did not yield any specific information about traditional cultural properties or other pertinent Native American cultural interests in the immediate area.

None of the prehistoric and historic-era sites and features have been assessed as to NRHP listing eligibility. However, the Contra Loma Dam and Reservoir is an important element in the Delta Division of the CVP system. Reclamation considers and treats the CVP as eligible for NRHP listing because of its national and local economic contribution to the development of California. Therefore, the dam may be determined eligible for NRHP listing as a contributing property to the

CVP (Perry, pers. comm. 2014). Additional sites, features, and artifacts associated with prehistoric and historic-era activities may be present in un-surveyed portions of the APE.

If any unidentified historic properties are located within Contra Loma, visitors could affect them through inadvertent trampling or unauthorized collecting. Because the two action alternatives would result in higher visitor use than the No Action Alternative, they would increase the potential for effects to unidentified historic properties. The Expanded Recreation and Facilities Alternative would generate the most visitors and would, therefore, have the most potential for such effects.

The two action alternatives would include new, enhanced, expanded, or renovated facilities to enhance or expand recreation and improve operations. Under the Enhanced Recreation and Facilities Alternative, most construction or renovation activities would occur within the footprint of existing buildings or structures where there would be no impacts on unidentified historic properties. However, some new construction activities could occur in areas that have not been surveyed for cultural resources and could affect unidentified historic properties, if any are present.

The Expanded Recreation and Facilities Alternative would include construction of new or expanded recreation facilities in addition to those that would be built under the Enhanced Recreation and Facilities Alternative; therefore, this alternative would have more potential to affect unidentified historic properties than the other two alternatives.

When specific construction activities are proposed, site-specific environmental analyses would be conducted that include a more focused assessment of any potential impact on historic properties. If impacts are identified, the proposed activities may be modified or other mitigation measures may be implemented to eliminate these impacts when possible (see Section 4.16.8, Mitigation Measure Cultural-1). Reclamation would follow the process for complying with Section 106 of the National Historic Preservation Act as outlined in 36 CFR, Part 800. These impacts would not occur under the No Action Alternative.

Cultural resources and human remains are also protected according to the provisions of the Archaeological Resources Protection Act of 1979 and the Native American Graves Protection and Repatriation Act.

Socioeconomics

Visitation is expected to increase under all of the alternatives. This would have a net beneficial socioeconomic impact for all of the alternatives, although increasing use fees could impair the affordability of some uses for members of low-income populations.

Continuation of the recreational fishing program and management of fish populations through fish planting (i.e., stocking) programs would continue to contribute to the local economy, resulting in a beneficial socioeconomic impact for all of the alternatives.

Increased visitation would incrementally increase the need for routine maintenance activities. Because the two action alternatives would include facility improvements and could result in more visitor use, they may generate the need for incrementally more maintenance. The Expanded

Recreation and Facilities Alternative would likely generate the most need for maintenance. Increased facility maintenance could have a minor beneficial socioeconomic impact on the region under all of the alternatives, because the managing partner(s) would need to purchase additional supplies and services.

The two action alternatives would include facility improvements for the purpose of improving operation and enjoyment of Contra Loma. The Expanded Recreation and Facilities Alternative would include the most improvements. The facility improvements would create temporary construction-related jobs and increase the amount the services and supplies purchased by the local managing partner(s). Facility improvements would contribute to the local and regional economies, resulting in temporary beneficial socioeconomic impacts. None of these impacts would occur under the No Action Alternative.

The two action alternatives would include a management action to increase the frequency of fish stocking in the reservoir from current levels in order to meet demand. Increasing fisheries resources would benefit the local economy by increasing the desirability of the reservoir as a fishing destination, resulting in a beneficial socioeconomic impact that would not occur under the No Action Alternative.

Environmental Justice

Although some residents in the general vicinity of Contra Loma have incomes below the poverty level, the proportion of low-income households within the community is not high enough to be considered a low-income population. Therefore, none of the alternatives would disproportionately affect low-income populations.

Although the population in the general vicinity of Contra Loma includes a relatively high proportion of minorities, none of the alternatives would cause dislocation, adverse changes in employment, or increase flood, drought, or disease and none would disproportionately impact economically disadvantaged or minority populations in an adverse manner.

All of the alternatives have the potential to increase employment and business opportunities within Contra Loma and in the surrounding communities. None of the alternatives would reduce or eliminate employment opportunities.

All of the alternatives would include management actions that encourage continued use of Contra Loma’s recreational facilities by low-income groups (e.g., low-income youth swimming programs), thereby benefiting low-income individuals.

Summary Table

The impacts of each alternative to each resource topic are summarized in Table ES-1.

Unresolved or Controversial Issues

No controversial or unresolved issues have been identified.

Table ES-1. Summary of Impacts and Mitigation Measures

Impacts	Impact Magnitude of Alternatives			Mitigation Measures
	No-Action	Enhanced Recreation and Facilities	Expanded Recreation and Facilities	
Land Use (Section 4.2)				
Conflicts among user groups	Minor	Minor	Minor	N/A
Land use conflicts from livestock grazing	Minor	Minor	Minor	N/A
Land use compatibility	Minor	Minor	Minor	N/A
Impacts on fishing	N/A	N/A	Beneficial	N/A
Recreation (Section 4.3)				
Impacts to recreation from facilities management	No to Inconsequential Impact	No to Inconsequential Impact	No to Inconsequential Impact	N/A
Impacts to recreation from routine maintenance	No to Inconsequential Impact	No to Inconsequential Impact	No to Inconsequential Impact	N/A
Impacts to recreation from resource management	Minor	Minor	Minor	N/A

Impacts	Impact Magnitude of Alternatives			Mitigation Measures
	No-Action	Enhanced Recreation and Facilities	Expanded Recreation and Facilities	
Recreation conflicts from livestock grazing	Minor	Minor	Minor	N/A
Impacts to recreation from facility improvements	Short-term Minor, Long-Term Beneficial	Short-term Minor, Long-Term Beneficial	Short-term Minor, Long-Term Beneficial	N/A
Visitor Access (Section 4.4)				
Increased demand on internal road and parking facilities	Minor	Minor	Minor	N/A
Increase vehicle trips on local roads	Minor	Minor	Minor	N/A
Temporary road and trail closure for routine maintenance and operation	Minor	Minor	Minor	N/A
Impacts on visitor access and circulation from natural and cultural resource management and protection	Minor	Minor	Minor	N/A
Impacts on visitor access and circulation from trail improvements	Short-term Minor, Long-Term Beneficial	Short-term Minor, Long-Term Beneficial	Short-term Minor, Long-Term Beneficial	N/A
Impacts on visitor access and circulation from facility improvements	Short-term Minor	Short-term Minor	Short-term Minor	N/A
Utilities (Section 4.5)				
Increased demand caused by increased visitation	Minor	Minor	Minor	N/A
Replacement of portable chemical toilets	N/A	Beneficial	Beneficial	N/A
Increased utility demand from facility improvements	Minor	Minor	Minor	N/A
Installation of solar panels to reduce demand for commercial electricity	Minor	Minor	Minor	N/A
Water demand for livestock grazing	N/A	N/A	Beneficial	N/A

Impacts	Impact Magnitude of Alternatives			Mitigation Measures
	No-Action	Enhanced Recreation and Facilities	Expanded Recreation and Facilities	
Public Health and Safety (Section 4.6)				
Increased potential for unsanitary conditions from increased visitation	Minor	Minor	Minor	N/A
Increased potential for unwanted pests from increased visitation	Minor	Minor	Minor	N/A
Increased demand for emergency preparedness	Minor	Minor	Minor	N/A
Increased potential for health and safety issues from routine maintenance	Minor	Minor	Minor	N/A
Renovation of existing administrative facilities	N/A	Beneficial	Beneficial	N/A
Impacts from safety-related recreational improvements	N/A	Beneficial	Beneficial	N/A
Impacts from other recreational improvements	N/A	Minor	Minor	N/A
Water Resources (Section 4.7)				
Water quality impacts from increased visitation	Minor	Minor	Minor	N/A
Water quality impacts from replacement of portable chemical toilets	N/A	Beneficial	Beneficial	N/A
Water quality impacts from new fueling station and fuel storage tank	N/A	No Impact	No Impact	N/A
Water quality impacts from group camping	N/A	N/A	Minor	N/A
Water quality impacts from grazing	No Impact	No Impact	No Impact	N/A
Water quality impacts from construction activities	N/A	Minor to Major	Minor to Major	N/A

Impacts	Impact Magnitude of Alternatives			Mitigation Measures
	No-Action	Enhanced Recreation and Facilities	Expanded Recreation and Facilities	
Impacts from increased withdrawal of reservoir water	N/A	N/A	Minor	N/A
Vegetation (Section 4.8)				
Impact of occasional grassland fire on noxious weeds	Beneficial	Beneficial	Beneficial	N/A
Risk of catastrophic wildland fire on vegetation	Minor	Minor	Minor	N/A
Impacts on special status plant from conservation and protection actions	Beneficial	Beneficial	Beneficial	N/A
Damage to vegetation from increased visitation	Minor	Minor	Minor to Major	***Mitigation Measure Vegetation-3: Incorporate signage along equestrian and bicycle trails to prevent horses and bicycles from leaving trails.*** All new or expanded trails proposed under the Expanded Recreation and Facilities Alternative, and any expansion of equestrian or bicycle use on existing trails as proposed under this alternative, shall incorporate signage at reasonable intervals (subject to Reclamation approval) prescribing no equestrian or bicycle use off established trails. ***Mitigation Measure Vegetation-4: Route any new trails to avoid sensitive vegetation communities, and provide for an educational leaflet program.*** All new trails or trail connectors proposed under the Expanded Recreation and Facilities Alternative shall be routed to provide a minimum 50 foot buffer from wetland and riparian communities, quail restoration areas, and known rare plant communities. Additionally, if new trails, trail connectors, or expanded facilities are proposed within 100 feet of such vegetation communities, an educational leaflet program will be developed to provide information to the public

Impacts	Impact Magnitude of Alternatives			Mitigation Measures
	No-Action	Enhanced Recreation and Facilities	Expanded Recreation and Facilities	
				on the sensitive nature of the vegetation communities adjacent to the proposed trail or improvement and to encourage users to limit human disturbance within and adjacent to such sensitive areas. The leaflets will be available at each visitor kiosk at the park entrances and from leaflet stands where trails leave parking areas, and adjacent to wetland and riparian vegetation communities.
Impacts on vegetation from livestock grazing	No Impact	No Impact	No Impact	N/A
Introduction of invasive species	Minor	Minor	Minor	N/A
Impacts on vegetation from construction activities	N/A	Minor to Major	Minor to Major	***Mitigation Measure Vegetation-1: Perform wetland delineations for construction related impacts to wetland and riparian vegetation communities.*** When specific construction activities are proposed, site-specific environmental analysis would be conducted that would include a more focused assessment of any potential impact on vegetation resources. If deemed necessary by Reclamation, the local managing partner(s) proposing a construction activity will perform a delineation of wetland and riparian vegetation of all areas potentially affected by temporary or permanent construction-related activities. The delineation will fully describe all areas classified as Waters of the U.S. (Federal Clean Water Act). Feasible mitigation shall be proposed for any temporary or permanent losses of wetlands or for any wetland or riparian vegetation communities impacted. Such project-specific mitigation could

Impacts	Impact Magnitude of Alternatives			Mitigation Measures
	No-Action	Enhanced Recreation and Facilities	Expanded Recreation and Facilities	
				include impact avoidance, minimization or compensatory measures, or a combination thereof. All projects would be designed to avoid waters of the United States, to the extent practicable, but if impacts are identified, a Section 404 Clean Water Act permit may be necessary and appropriate mitigation measures will be identified to offset impacts (e.g., payment into a mitigation bank, on-site restoration or enhancement of wetlands). The type of permit will be dependent on the nature and extent of impacts, although most projects are expected to fall under Nationwide Permits. ***Mitigation Measure Vegetation-2: Perform protocol level surveys for presence of special-status plants.*** When specific construction activities are proposed, site-specific environmental analysis would be conducted that would include a more focused assessment of any potential impact on vegetation resources. If deemed necessary by Reclamation, the local managing partner(s) proposing a construction activity will perform protocol level surveys for the presence of special-status plants. The surveys will follow protocols as directed by Reclamation, which may elect to use standardized protocols, and may include those developed by CDFW. Focused plant surveys shall be used to propose feasible means of avoiding or minimizing any temporary or permanent losses of special-status plants. Such project-specific measures could include restoration or re-routing of trails to avoid sensitive vegetation (as described below for Mitigation Measure Vegetation-4) where applicable; transplantation; or a combination thereof.

Impacts	Impact Magnitude of Alternatives			Mitigation Measures
	No-Action	Enhanced Recreation and Facilities	Expanded Recreation and Facilities	
Impacts to non-reservoir vegetation from increased irrigation	Beneficial	Beneficial	Beneficial	N/A
Impacts to reservoir vegetation from increased withdrawals	N/A	N/A	Minor	N/A
Wildlife (Section 4.9)				
Impact of occasional grassland fire on wildlife	Beneficial	Beneficial	Beneficial	N/A
Risk of catastrophic wildland fire on wildlife	Minor	Minor	Minor	N/A
Wildlife disturbance from increased visitation	Minor	Minor	Minor	***Mitigation Measure Wildlife-3: Incorporate signage along equestrian and bicycle trails to prevent horses and bicycles from leaving trails.*** To protect special status wildlife species, all new or expanded trails and any expansion of equestrian or bicycle use on existing trails shall incorporate signage adjacent to sensitive wildlife habitats at reasonable intervals, subject to Reclamation approval, prescribing no equestrian or bicycle use off established trails.
Wildlife disturbance from routine maintenance	Minor	Minor	Minor	N/A
Impacts on wildlife from livestock grazing	No Impact	No Impact	No Impact	N/A
Impacts on wildlife from construction activities	N/A	Minor to Major	Minor to Major	***Mitigation Measure Wildlife-1: Perform nest surveys for construction related impacts to special status birds within riparian, wetland, woodland, or grassland wildlife habitats or their margins.*** When specific construction activities are proposed, a site-specific environmental analysis would be conducted that includes a more focused assessment of the activity's impact on special status avian wildlife resources. If deemed

Impacts	Impact Magnitude of Alternatives			Mitigation Measures
	No-Action	Enhanced Recreation and Facilities	Expanded Recreation and Facilities	
				necessary by Reclamation, the local managing partner(s) proposing a construction activity will perform surveys for special status bird nests or burrows in all areas potentially affected by temporary or permanent construction related activities. The surveys will be conducted at times selected to target all special status bird species potentially affected by a construction activity and shall propose feasible mitigation for any temporary or permanent impacts to special status wildlife or reproductive success. Such project-specific mitigation could include impact avoidance (which could include removal of nest materials prior to the applicable reproductive cycle), minimization (which could include appropriate buffers), compensatory measures, or a combination thereof that does not lead to take of migratory birds. Specific measures will be identified in coordination with USFWS and CDFW on a project-by-project basis depending on the species that could be affected. ***Mitigation Measure Wildlife-2: Perform protocol level surveys for presence of special status wildlife species.*** When specific construction activities are proposed, a site-specific environmental analysis would be conducted that includes a more focused assessment of the activity's impact on special status wildlife resources. If deemed necessary by Reclamation, the local managing partner(s) proposing a construction activity will perform protocol level surveys for presence of special status wildlife species. The surveys shall propose feasible mitigation for any temporary or permanent losses of special status wildlife species or their habitat. Such project-specific mitigation would require input from USFWS

Impacts	Impact Magnitude of Alternatives			Mitigation Measures
	No-Action	Enhanced Recreation and Facilities	Expanded Recreation and Facilities	
				and/or CDFW on specific measures to achieve no or minor impacts.
Impacts on wildlife from expanding the trail system	N/A	Minor to Major	Minor to Major	See Mitigation Measure 3 above.
Impacts to wildlife from increased irrigation	Minor	Minor	Minor	N/A
Impacts to wildlife from increased reservoir withdrawals	N/A	N/A	No Impact	N/A
Fisheries (Section 4.10)				
Increased fishing pressure	Minor	Minor	Minor	N/A
Increased risk of introducing invasive or exotic species to the reservoir	Minor	Minor	Minor	N/A
Fishing access during reservoir drawdowns	Minor	Beneficial	Beneficial	N/A
Creation or improvement of fish habitat	N/A	N/A	Beneficial	N/A
Impacts from in-water construction activities	Minor	Minor	Minor	N/A
Geologic and Soil Resources (Section 4.11)				
Impacts on soil erosion from maintenance activities	Beneficial	Beneficial	Beneficial	N/A
Impacts on erosion from fire suppression	No Impact	No Impact	No Impact	N/A
Impacts on soil erosion from trail improvements	N/A	Beneficial	Beneficial	N/A
Geologic hazards from new facilities	N/A	Minor	Minor	N/A
Impacts on erosion from expanded bicycle use on unpaved trails	N/A	N/A	Minor	N/A

Impacts	Impact Magnitude of Alternatives			Mitigation Measures
	No-Action	Enhanced Recreation and Facilities	Expanded Recreation and Facilities	
Climate and Air Quality (Section 4.12)				
Increased emissions from visitor vehicles	Minor	Minor	Minor	***Mitigation Measure Air Quality-2: Implement measures to reduce GHG emissions.*** The following lists present some examples of feasible measures that could be implemented to reduce CO_2 emissions from vehicles and related sources. The measures are categorized as passenger vehicles and park maintenance and infrastructure. These measures would be evaluated for applicability as each project gets funded and planned and could be included as mitigation at the project-level analysis. Passenger Vehicles ▪ Limit trailhead access by vehicle ▪ Limit parking expansion to the existing parking areas ▪ Prohibit motorized dirt bikes ▪ Give reservation preference to visitors with hybrid or high fuel economy vehicles ▪ Improve vehicle access/alleviate congestion near park entrances ▪ Add dedicated lane for existing campers returning to camp Park Maintenance and Infrastructure ▪ High-efficiency lighting ▪ Tank-less water heaters ▪ Solar panels for power ▪ Clean park maintenance fleet vehicles (electric vehicles, golf carts, or CNG) ▪ Use electric-powered landscaping/maintenance equipment If funding is available, several energy-saving measures currently in use in “green” buildings and housing could be implemented in the park infrastructure to reduce GHG emissions. High-

Impacts	Impact Magnitude of Alternatives			Mitigation Measures
	No-Action	Enhanced Recreation and Facilities	Expanded Recreation and Facilities	
				efficiency lighting could replace incandescent bulbs, tank-less water heaters would reduce energy loss from conventional hot water tanks, and solar panels could be constructed for power needs within the park. In addition, park maintenance vehicles could be electric, use compressed natural gas fuel, or be gas-electric hybrids.
Increased generation of particulate matter	Minor	Minor	Minor	See Mitigation Measure Air Quality-2 above.
Increased emissions from routine maintenance	Minor	Minor	Minor	See Mitigation Measure Air Quality-2 above.
Increased emissions from construction activity	Minor	Minor	Minor	***Mitigation Measure Air Quality-1: Implement fugitive dust and emission control measures during construction activities.*** When specific projects or actions are identified for Alternatives 2 and 3, a site-specific environmental analysis would be conducted to quantify air quality impacts and identify appropriate mitigation measures to comply with the Clean Air Act and BAAQMD rules and regulations. Construction activities for individual projects will comply with the required BAAQMD rules and regulations to mitigate for short-term construction emissions involving earthmoving, regardless of the project size and duration. The following mitigation measures are recommended by BAAQMD and may be implemented on a project-by-project basis: ▪ Water all active construction sites at least twice daily. ▪ Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least 2 feet of freeboard. ▪ Apply water three times daily or apply non-toxic soil stabilizers on all unpaved

Impacts	Impact Magnitude of Alternatives			Mitigation Measures
	No-Action	Enhanced Recreation and Facilities	Expanded Recreation and Facilities	
				access roads, parking areas, and staging areas at construction sites. ▪ Sweep daily (with water sweepers) all paved access roads, parking areas, and staging areas at construction sites. ▪ Sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent public streets. ▪ Hydroseed or apply non-toxic soil stabilizers to inactive construction areas (previously disturbed areas inactive for 10 days or more). ▪ Enclose, cover, and water twice daily, or apply non-toxic soil binders to exposed stockpiles (dirt, sand, etc.). ▪ Install sandbags or other erosion control measures to prevent silt runoff to public roadways. ▪ Replant vegetation in disturbed areas as quickly as possible. ▪ Suspend excavation and grading activity when winds (instantaneous gusts) exceed 20 miles per hour. ▪ Minimize idling time to 5 minutes or less. ▪ Maintain properly tuned equipment.
Reduced emissions from installation of solar panels	N/A	N/A	Beneficial	N/A
Noise (Section 4.13)				
Noise from increased visitation	Minor	Minor	Minor	N/A
Noise from increased maintenance	Minor	Minor	Minor	N/A
Noise from recreational use of new facilities	Minor	Minor	Minor	N/A
Noise from construction activity	Minor	Minor	Minor	N/A

Impacts	Impact Magnitude of Alternatives			Mitigation Measures
	No-Action	Enhanced Recreation and Facilities	Expanded Recreation and Facilities	
Visual Resources (Section 4.14)				
Visual impacts from increased visitation	Minor	Minor	Minor	N/A
Visual impacts of new facilities	N/A	Minor to Major	Minor to Major	
Visual impacts of new lighted sports fields	N/A	N/A	Minor	***Mitigation Measure Visual-1: Implement design measures to reduce visual impacts from new development.*** When a specific project is proposed, a site-specific environmental analysis would be conducted that includes a more focused assessment of the potential impact on visual resources. When feasible and appropriate, the proposed activity would be modified to reduce impacts on visual resources. Such modifications may include, but are not limited to: ▪ Design all new development to be visually compatible with Contra Loma's visual character and quality. ▪ Use building materials that are visually compatible with Contra Loma's natural setting. ▪ Avoid removal of native vegetation to the extent possible. ▪ Minimize grading of slopes to the extent possible. ▪ Revegetate cut and fill slopes with native plants. ▪ Avoid the placement of infrastructure, including communications facilities, on ridges and peaks in order to maintain open viewsheds.
Hazards (Section 4.15)				
Increased potential for hazards from routine maintenance	Minor	Minor	Minor	N/A
Fire hazard reduction from grazing	No Impact	No Impact	No Impact	N/A

Impacts	Impact Magnitude of Alternatives			Mitigation Measures
	No-Action	Enhanced Recreation and Facilities	Expanded Recreation and Facilities	
Impacts from fire and emergency preparedness plans	No Impact	No Impact	No Impact	N/A
Hazard from new fueling station	N/A	Minor	Minor	N/A
Cultural Resources (Section 4.16)				
Impacts to known historic properties	No Impact	No Impact	No Impact	N/A
Impacts to unidentified historic properties from routine maintenance activities	No Impact	No Impact	No Impact	N/A
Impacts to unidentified historic properties from human use	Minor	Minor	Minor	N/A
Impacts to unidentified historic properties from grazing	Minor	Minor	Minor	N/A
Impacts to unidentified historic properties from facility improvements	Minor	Minor	Minor	***Mitigation Measure Cultural-1: Implement measures to protect unidentified historic properties during construction activities.*** Prior to the implementation of undertakings incorporating potential ground-disturbing activities in un-surveyed areas of Contra Loma, Reclamation and the local managing partner(s) proposing the activity will follow the Section 106 process as outlined in 36 CFR, Part 800. These regulations, which describe implementation of Section 106 of the NHPA, call for consultation with the State Historic Preservation Officer, Indian Tribes, and interested members of the public throughout the Section 106 compliance process. The four principal steps are: ▪ initiate the Section 106 process (36 CFR, Part 800.3), ▪ identify historic properties (36 CFR, Part 800.4), ▪ assess the effects of the undertaking on historic properties within the APE (36 CFR, Part 800.5), and

Impacts	Impact Magnitude of Alternatives			Mitigation Measures
	No-Action	Enhanced Recreation and Facilities	Expanded Recreation and Facilities	
				▪ resolve adverse effects (36 CFR, Part 800.6). The identification step would consist of a cultural resources inventory to document any historic properties that could be affected by the proposed activities. Reclamation is responsible for Native American community and public consultation and will modify undertakings if possible to avoid historic properties and make every effort to avoid other cultural resources. In addition, Reclamation, in cooperation with local managing partner(s) will ensure compliance with Section 106 of the NHPA prior to undertaking authorization. Cultural resources and human remains are also protected according to the provisions of the Archaeological Resources Protection Act of 1979 (ARPA) and the Native American Graves Protection and Repatriation Act (NAGPRA). The ARPA strengthened the permitting procedures required for conducting archeological fieldwork on federal lands, originally mandated by the Antiquities Act of 1906. It also establishes rigorous fines and penalties for unauthorized excavation on or the removal of archaeological materials from federal land. ARPA is important from the standpoint of managing archeological collections because it: ▪ acknowledges federal ownership of objects excavated from federal lands; ▪ calls for the preservation of objects and associated records in a "suitable" institution and, ▪ prohibits public disclosure of information concerning the nature and location of archeological resources that require a permit or other permission under ARPA for their excavation or removal.

Impacts	Impact Magnitude of Alternatives			Mitigation Measures
	No-Action	Enhanced Recreation and Facilities	Expanded Recreation and Facilities	
				NAGPRA requires federal agencies and institutions that receive federal funding to return Native American "cultural items" to lineal descendants and culturally affiliated Indian tribes and Native organizations. NAGPRA also establishes procedures for the inadvertent discovery or planned excavation of Native American cultural items and human remains on federal or tribal lands. While these provisions do not apply to discoveries or excavations on private or state lands, the collection provisions of NAGPRA may apply to Native American cultural items if they come under the control of an institution that receives federal funding. In addition, NAGPRA makes it a criminal offense to traffic in Native American human remains without right of possession or in Native American cultural items obtained in violation of NAGPRA.
Socioeconomics (Section 4.17)				
Impacts from increased visitation	Beneficial	Beneficial	Beneficial	N/A
Impacts from recreational fishing	Beneficial	Beneficial	Beneficial	N/A
Impacts from facility maintenance	Beneficial	Beneficial	Beneficial	N/A
Impacts of livestock grazing	No Impact	No Impact	No Impact	N/A
Increased attractiveness to visitors by facility improvements	Beneficial	Beneficial	Beneficial	N/A
Impacts on local and regional economies from facility improvements	Beneficial	Beneficial	Beneficial	N/A
Impacts from increased fish stocking	Beneficial	Beneficial	Beneficial	N/A
Environmental Justice (Section 4.18)				
Impacts to low-income and/or minority populations	No Impact	No Impact	No Impact	N/A

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Abbreviations and Acronyms

ADA	Americans with Disabilities Act
APE	Area of Potential Effects
ARPA	Archaeological Resources Protection Act of 1979
BAAQMD	Bay Area Air Quality Management District
BART	Bay Area Rapid Transit
BMPs	best management practices
Cal Fire	California Department of Forestry and Fire Protection
Cal-IPC	California Invasive Plant Council
CAP	Bay Area 2010 Clean Air Plan
CCCFPD	Contra Costa County Fire Protection District
CCWD	Contra Costa Water District
CDFA	California Department of Food and Agriculture
CDFW	California Department of Fish and Wildlife
CDPH	California Department of Public Health
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CGS	California Geological Survey
City	City of Antioch
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
Community Park	Antioch Community Park
Contra Loma	Contra Loma Reservoir and Recreation Area
Corps	Army Corps of Engineers
CVP	Central Valley Project
CWHR	California Wildlife Habitat Relationship
DDSD	Delta Diablo Sanitation District
Delta	Sacramento-San Joaquin Delta
DOHS	California Department of Health Services
DOI	Department of the Interior
EBRPD	East Bay Regional Park District

EIS	Environmental Impact Statement
EIR	Environmental Impact Report
EPA	United States Environmental Protection Agency
ESU	Evolutionarily Significant Unit
°F	degrees Fahrenheit
GHG	greenhouse gases
GIS	Geographic Information System
HEC-HMS	Army Corps of Engineers' Hydraulic Modeling Software
I-	Interstate
IPM	integrated pest management
ITA	Indian Trust Asset
LUDP	Land Use Development Plan
MCL	maximum contaminant level
MBTA	Migratory Bird Treaty Act
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Protection and Repatriation Act
NAHC	Native American Heritage Commission
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NOx	nitrogen oxides
NRHP	National Register of Historic Places
NSR	North State Resources, Inc.
PG&E	Pacific Gas and Electric Company
PGA	Peak Ground Acceleration
PL	Public Law
PM	particulate matter
RAMP	Reservoir Area Management Plan
Reclamation	United States Department of the Interior, Bureau of Reclamation

Regional Park	Contra Loma Regional Park
RMP	Resource Management Plan
ROG	reactive organic gases
RPR	Rare Plant Rank
RRMA	Reclamation Recreation Management Act
RWQCB	Regional Water Quality Control Board
SCS	Soil Conservation Service
SDWA	Safe Drinking Water Act
SR	State Route
USC	United States Code
USFWS	United States Fish and Wildlife Service
USGS	Geological Survey
USTs	Underground Storage Tanks
WALROS	Water and Land Recreation Opportunity Spectrum
WROS	Water Recreation Opportunity Spectrum

Chapter 1. Introduction

1.1 Background Information

The Bureau of Reclamation (Reclamation) prepared a Resource Management Plan (RMP) for the Contra Loma Reservoir and Recreation Area (Contra Loma) located in Antioch, Contra Costa County, California (Figure 1-1). The RMP was developed in accordance with Reclamation's 2003 *Resource Management Plan Guidebook, Planning for the Future*, and was based on a comprehensive inventory of environmental resources and facilities as well as input from the East Bay Regional Park District (EBRPD), the City of Antioch (City), the Contra Costa Water District (CCWD), and the public. The Contra Loma RMP is a long-term plan to guide management of the resources on the Federal lands within the reservoir and recreation areas. The primary emphasis of the RMP is to protect the water supply and quality of Contra Loma Reservoir while balancing the management of natural and cultural resources with enhancements to recreational uses within Contra Loma.

In compliance with the National Environmental Policy Act of 1969, as amended (NEPA; PL 91-190, 42 U.S.C. 4321-4347), and in accordance with the Council on Environmental Quality (40 Code of Federal Regulations [CFR] 1500-1508) and U.S. Department of the Interior (DOI; 43 CFR Part 46) regulations for implementing NEPA, Reclamation prepared an Environmental Impact Statement (EIS) to evaluate and disclose the potential direct, indirect, and cumulative environmental effects of implementing the Contra Loma RMP. Because of the similarities between the requirements for an RMP and an EIS, Reclamation combined the RMP and EIS into a single document, hereafter referred to as the RMP/EIS. The Final RMP/EIS includes editorial and technical changes, factual corrections, and clarifications made in response to public comments. Changes that are not minor editorial changes are indicated by lines on the left side of the margin.

1.2 Overview and History of Contra Loma Reservoir and Recreation Area

Contra Loma consists of the 80-acre Contra Loma Reservoir and approximately 661 acres of surrounding land, including the Contra Loma Regional Park (Regional Park; Figure 1-2) and the Antioch Community Park (Community Park; Figure 1-3). Contra Loma Reservoir was constructed in 1967 as part of the Central Valley Project (CVP) and is managed by Reclamation's Mid-Pacific Region's South-Central California Area Office. CCWD operates and maintains the reservoir under contract with Reclamation. The reservoir receives and stores CVP water from the Contra Costa Canal until it is released back to the canal via gravity flow.

The reservoir is primarily used as a regulating reservoir for peak or short-term municipal water supplies for CCWD customers, for emergency storage, and as a backup water supply during maintenance of upstream facilities. The recreation area was opened to the public in 1968 with few developed recreational facilities.

Public Land Survey:
Township: 1N & 2N
Range: 1E
Sections: 1, 2 & 35, 36

USGS 7.5 Quad:
Antioch South - 1980

N

0 1.25 2.5
Miles

GG:\Projects\30019_Contra_Loma\GIS\Working_Mxds\Resource Inventory Report\30019_Figure_1_Location.mxd 2010-05-19 edouglas Source: ESRI

North State Resources, Inc.

Figure 1-1
Project Location and Vicinity Map

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North State Resources, Inc.

Figure 1-2
Regional Park Land Use and Facilities

G:\Projects\30019 Contra Loma RMP EIS\GIS\30019 Figure 1-3 Antioch Community Park.mxd Created: 2011-05-25 edouglas Revised: 2013-05-29 tmooney

North State Resources, Inc.

Figure 1-3
Antioch Community Park

On September 18, 1972, a management agreement between Reclamation and EBRPD transferred responsibility for land use management and development, construction, and maintenance of public recreational facilities to EBRPD (Bureau of Reclamation 1972). EBRPD continues to manage the recreational lands surrounding the reservoir.

In 1985, EBRPD transferred management of approximately 48 acres in the northwestern portion of Contra Loma to the City under a Reclamation-approved license agreement that allowed for the creation of the Community Park. The City is currently responsible for management and maintenance of the Community Park. The license agreement was amended in 1990. The license agreement was scheduled to expire in December 2010; however, Reclamation has authorized extension of the license agreement.

The 1972 management agreement between Reclamation and EBRPD and the license agreement between EBRPD and the City were both scheduled to expire in December 2010. While the RMP process is on-going, Reclamation issued EBRPD an extension of the management agreement. EBRPD has expressed interest in renewing the management agreement with Reclamation. After completion of the RMP process, Reclamation will negotiate a new long-term management agreement with one or more local managing partner(s).

1.3 Purpose and Need

The Reclamation Recreation Management Act (RRMA) of 1992 (Public Law [PL] 102-575, Title 28 [2805(c)(1)(A)]) directs Reclamation to “provide for the development, use, conservation, enhancement, and management of resources on Reclamation lands.” An RMP is a guide for future land resources management to ensure land and waters of the United States (U.S.) are maintained and protected as provided for under the authorizing purposes over a given period of time. The Contra Loma Regional Park Reservoir Area Management Plan (RAMP; East Bay Regional Park District 1975a) currently guides EBRPD in administering, operating, planning, and developing Contra Loma. The RAMP was prepared in 1975 and some features of the RAMP are either outdated or no longer relevant. For example, the Community Park is now located where the RAMP had envisioned a Day Camp recreation zone. Also, the RAMP’s Picnic Meadow zone, located east of the reservoir, has not been developed. In addition, the types of recreational facilities requested by the public (e.g., new multi-use sports fields) and the infrastructure required to operate the recreation area have changed since the RAMP was prepared. Finally, environmental conditions at the recreation area have changed since 1975. These changes have created a need for Reclamation to compile a current inventory of Contra Loma’s resources.

The Contra Loma RMP has a planning horizon of 25 years. The planning horizon will begin when new management agreement(s) are reached between Reclamation and local managing partner(s). The RMP is needed to provide management guidance to Reclamation and local managing partner(s) in order to ensure effective protection and management of Contra Loma’s resources, particularly the reservoir. The RMP will also provide guidance on the allowed uses and desired future conditions at Contra Loma and establish the framework for new management agreement(s).

The purpose of the RMP is to establish updated management objectives, goals, and actions consistent with the authorized purposes of the lands associated with Contra Loma Reservoir. The RMP shall be implemented by Reclamation, either directly or through its management agreement(s) that would:

- establish uniform policy and land management guidelines that promote organized use, development, and management of recreation area lands in a way that is compatible with applicable Federal and state laws;
- protect the water supply and quality of Contra Loma Reservoir;
- manage natural and cultural resources in and around the reservoir in a way that is consistent with Federal law and Reclamation policies;
- provide additional recreational opportunities and facilities requested by the public; and
- provide guidance for future decision making.

1.4 Project Authority

The authority to establish and implement the Contra Loma RMP rests in a series of Federal legislation and guidance. The key Federal authorities are identified in this section. Additional information about the Federal regulations, laws, and planning policies relevant to each environmental topic is provided in Appendix C.

Reclamation's authority to operate water projects is vested in the authority of the Reclamation Act of 1902 (Chapter 1093, 32 Stat. 388) and the Reclamation Project Act of 1939 (Chapter 418, 53 Stat. 1187).

Reclamation's authority to prepare RMPs is derived from the authority of the Reclamation Act of 1902; the Reclamation Project Act of 1939; the Federal Water Project Recreation Act (PL 89-72, 79 Stat. 213); and, more specifically, the RRMA. Water or power operations or water service contracts are outside the scope of an RMP and either have been or would be covered under separate actions and environmental review. Contra Loma Reservoir is operated as a component of the CVP. Management of the land surrounding the reservoir is secondary to operation of the CVP and is required to support Reclamation's core mission of managing, developing, and protecting water and related resources in an environmentally and economically sound manner.

The Federal Water Project Recreation Act of 1965, PL 89-72, as amended, was enacted in part to help Reclamation utilize non-Federal public entities in managing Federal land and to provide a means for cost-sharing assistance with non-Federal managing partners for planning, constructing, and managing recreation facilities, opportunities, and programs.

The Reclamation Manual Directives and Standards (RCD TRMR-15) is a series of Policies, Directives, and Standards and Delegations of Authority that collectively assign program

responsibility and authority and document Reclamation-wide methods of carrying out its responsibilities (Bureau of Reclamation 1998).

1.5 Organization of the RMP/EIS

The format and content of the RMP/EIS are as follows:

- **Cover Sheet** – provides an abstract of the RMP/EIS, list of responsible agencies, state and county of the action location, and contact information of the person at Reclamation who can supply additional information.

- **Executive Summary –** provides a brief overview of the RMP/EIS, including the purpose and need for the project, planning issues, public involvement, management alternatives, a summary of environmental impacts (including a summary table of the impacts for each alternative), and unresolved or controversial issues.

- **Chapter 1, Introduction –** provides background information and describes the purpose and need for the project, project authority, organization of the RMP/EIS, project history, existing management documents, RMP/EIS development, and the public involvement process.

- **Chapter 2, Resource Management Plan and Alternatives –** provides the goals and policies that are proposed to guide future management of Contra Loma for the next 25 years, and identifies the potential resource management opportunities and constraints for resolving the planning issues addressed in the RMP. Chapter 2 presents three alternatives that provide a range of management options. Each RMP alternative was evaluated.

- **Chapter 3, Affected Environment –** provides information about the existing regional and local conditions for each environmental topic area being evaluated.

- **Chapter 4, Environmental Consequences –** provides a programmatic analysis of environmental effects for each environmental topic area.

- **Chapter 5, Consultation and Coordination –** identifies the agencies, organizations, and stakeholders with which Reclamation has consulted or coordinated during preparation of the RMP/EIS.

- **Chapter 6, List of Preparers –** identifies the agency and consulting staff members who have prepared or contributed to the RMP/EIS.

- **Chapter 7, References –** contains bibliographic information about each document, website, or individual that serves as a reference source for this document.

- **Chapter 8, Index –** list and directory of specific information in the RMP/EIS.

- **Appendices –** included to provide more detailed technical and regulatory information.

1.6 Existing Regulatory and Management Guidance

Currently, management guidance for Contra Loma is derived from Federal, State, and local laws, regulations, policies, and planning documents. A complete list of Federal regulations applicable to the RMP is found in Appendix C. The primary land use and management documents currently applicable to Contra Loma are as follows:

- **Reclamation Manual –** The Reclamation Manual (RCD TRMR-15) consists of a series of Policies, Directives, and Standards and Delegations of Authority, which collectively assign program responsibility and authority and document Reclamation-wide methods of carrying out its responsibilities. All requirements in the Reclamation Manual are mandatory and constitute official Reclamation management direction. The Reclamation Manual also serves as a link to Reclamation's supplements to the DOI and government-wide regulations, such as the Federal Acquisition Regulations.

- **Management agreement between Reclamation and EBRPD –** The management agreement between Reclamation and EBRPD (Bureau of Reclamation 1972) transfers responsibility from Reclamation to EBRPD for development, construction, administration, operation, and maintenance of public recreation, recreation facilities, and other purposes within Contra Loma, including the water surface area of the reservoir. The management agreement was amended in 1977, 1981, and 1989. While the RMP process is on-going, Reclamation issued EBRPD an extension of the management agreement.

- **Master Plan –** EBRPD's Master Plan 2013 (East Bay Regional Park District 2013) defines EBRPD's vision, mission, and priorities for the future. The Master Plan establishes policies for conserving natural and cultural resources; providing recreational opportunities; and balancing the distribution, acquisition, protection, restoration, management, and development of the regional parks. It also describes the future physical growth and expansion of EBRPD.

- **Contra Loma Regional Park Reservoir Area Management Plan –** The RAMP (East Bay Regional Park District 1975a) is designed to guide EBRPD in administering, operating, planning, and developing Contra Loma. The RAMP was prepared in accordance with the 1972 management agreement between Reclamation and EBRPD.

- **Contra Loma Regional Park Land Use-Development Plan –** The purpose of the Land Use-Development Plan (LUDP; East Bay Regional Park District 1975b) is to direct future park development by outlining expected levels of use and development, delineating general park character, planning access and circulation, and locating areas of preserves and recreational development.

- **City of Antioch General Plan –** The City's General Plan (City of Antioch 2003) is a comprehensive strategy for achieving the community's goals and enhancing the quality of life for the City's residents. As the City's lead policy document, the General Plan outlines how the City will manage its future and how the City expects to coordinate its activities with those of other agencies. Planning directives are provided in the form of goals, objectives, and policies.

1.7 Public Involvement

Public involvement is a critical element in developing the RMP. Reclamation's goal is to gain input from a cross section of the user public and stakeholders, including the current local managing partners. Reclamation held a public scoping meeting and two public workshops in 2010 and 2011 to solicit issues and concerns and to develop alternatives to be analyzed in the RMP. In addition, Reclamation developed a mailing list (and accompanying database), produced and distributed newsletters, and provided notices and project updates on Reclamation's Contra Loma RMP/EIS website and the EBRPD website.

A Notice of Intent to prepare the RMP/EIS was published in the *Federal Register* on November 12, 2009. Reclamation held a scoping meeting for the Contra Loma RMP/EIS on February 8, 2010, at the Nick Rodriguez Community Center in Antioch. Reclamation held a public workshop on August 4, 2010, at Sutter Elementary School in Antioch to seek ideas, concerns, and comments to inform development of the RMP/EIS. Reclamation also solicited written scoping comments between February 8 and 22, 2010, and solicited written comments from August 4 through 31, 2010. On March 3, 2011, Reclamation held a public workshop at Prewett Family Park & Community Center in Antioch to solicit comments on the conceptual draft packages of RMP actions and alternatives.

Attendance at the three public meetings/workshops totaled 59 participants: 20 people attended the scoping meeting, 26 attended the August 4, 2010 workshop, and 13 people attended the March 3, 2011 workshop. Some participants attended more than one meeting or workshop. Some attendees at the scoping meeting and the March 3, 2011 workshop provided verbal comments, which were recorded by hand and are summarized in Appendix D. Written comments were received from the following public agencies and elected officials:

- The Office of U.S. Congressman John Garamendi
- The Office of Contra Costa County (County) Supervisor Federal D. Glover
- EBRPD
- CCWD
- Antioch City Council
- Antioch Parks and Recreation Commission
- City of Antioch Recreation Department

Comments were received from the following nongovernmental organizations or representatives of such organizations:

- Delta Youth Soccer League
- Turf and Track Group
- St. Anthony Church

- Village Community Resource Center

Reclamation prepared an Issues and Opportunities Report summarizing the public comments and issues raised during the scoping meeting and the first public workshop in August 2010. The report is included as Appendix A and provides a summary of written and verbal comments provided by agencies, organizations, and individuals (Bureau of Reclamation 2010). A summary of the March 2011 workshop was also prepared and is included as Appendix D.

Reclamation held a public meeting on May 19, 2014, to receive public comments on the Draft RMP/EIS. Comments received and responses to public comments are included in Appendix G.

1.8 RMP/EIS Development

As described above, Reclamation prepared an Issues and Opportunities Report (Appendix A) which provided an overview of the facilities and the natural and cultural resources to be addressed in the RMP/EIS. The report also identified potential issues, constraints, and opportunities relating to management of these resources and summarized input provided to Reclamation by the current local managing partners, stakeholders, and the public early in the RMP/EIS development process on topics and issues of concern.

In addition, Reclamation drafted planning criteria that helped establish the sideboards and parameters for development of the RMP/EIS and helped highlight major areas of concern and management objectives for the RMP. From this, Reclamation drafted three conceptual RMP alternatives. Reclamation then sought technical comments from EBRPD, the City, and CCWD (i.e., the current managing partners) on the draft planning criteria, draft management objectives, draft goals, and the conceptual draft alternatives before presenting them to the public at a workshop in March 2011. After receiving comments from the managing partners and the public, Reclamation developed the draft alternatives in more detail. The conceptual draft alternatives are attached to this EIS as Appendix E.

These initial documents assisted Reclamation in identifying issues of concern and developing the Draft RMP/EIS.

1.9 Programmatic Environmental Impact Analysis

RMPs are programmatic, planning-level documents that provide management direction at a broad scale and are not intended to provide project-level detail of future management actions or projects. For this reason, the EIS evaluates the environmental impacts of each RMP alternative in a programmatic manner. Any future actions carried out under the purview of the RMP beyond the programmatic analysis presented in the EIS would be subject to project-level NEPA analysis and compliance.

Chapter 2. Resource Management Plan and Alternatives

As described in the RMP Guidebook (Bureau of Reclamation 2003), an RMP is a document that provides management direction consistent with authorized Reclamation project purposes while recognizing the rights and interests of existing contracts, legislation, and other entities for an identified land area that is under the jurisdiction of Reclamation. An RMP identifies measures necessary to achieve a desired future condition of the resources within a management unit covered by the RMP. Management direction is set forth in the form of goals and objectives that provide overall guidance for the RMP to be implemented by Reclamation, either directly or through its management agreement(s). The management direction can be general in nature covering the entire management unit (area wide), or unique to a portion of the management unit (site specific).

2.1 Section Organization

This chapter first describes the planning process and planning influences that led to the formulation of alternatives for the Contra Loma RMP. Then the No Action Alternative and two action alternatives developed for this RMP are identified and described (Sections 2.6 through 2.8).

The planning process for the Contra Loma RMP involves the integration of issues, opportunities and constraints, management actions, and management zones. As discussed in Chapter 1, the RMP follows the guidance of Federal planning mandates by considering management actions that balance recreation opportunities with natural and cultural resource stewardship. These planning process elements are discussed in Section 2.2.

The goals identified in Section 2.3 will provide overall guidance for the RMP management direction and actions. A variety of planning influences were considered in the planning process that lead to the formulation of alternatives. These influences include public input (addressed in Section 1.7), opportunities and constraints (addressed in Section 2.2.3), and the roles of Reclamation and the managing partner(s) (addressed in Section 2.4.3). The management actions common to all the RMP alternatives are described in Section 2.5 and the three RMP alternatives are described in Sections 2.6 through 2.8.

2.2 Planning Process

The following are the basic elements of the RMP 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, and
- define the management zones for Contra Loma.

More specifically, the development of the RMP alternatives followed the RMP planning process steps outlined in Reclamation's RMP Guidebook. The steps in this process are described below.

- **Step 1: Identify Issues**. This step involved the identification of various resource and management issues at Contra Loma. These issues might involve resource problems needing corrections or adjustment or resources needing special protection. Management issues might also include unrealized opportunities, unresolved conflicts or problems, or development of new programs to address changing regulations or values that may be impaired.

- **Step 2: Identify Opportunities and Constraints**. This step involved the identification of opportunities and constraints at Contra Loma. Opportunities can include resources, programs, and management frameworks that can facilitate the implementation of the RMP. Constraints can include laws, regulations, budgets, staffing, and environmental limitations. Reclamation conducted a public involvement program early in the Contra Loma RMP planning process to seek input from the public, EBRPD, the City, CCWD, and resource agencies about issues, opportunities, and constraints.

- **Step 3: Develop RMP Goals**. Reclamation developed RMP goals based on the issues identified in Step 1 and in consideration of the purpose of an RMP. These goals represent broad statements that provide overall guidance to the management direction and actions in the RMP alternatives. The management direction embodies an overall approach or strategy for managing resources and recreation.

- **Step 4: Planning Criteria**. Reclamation developed planning criteria, which are short and concise statements that establish the "sideboards" and parameters for the development of the RMP alternatives. These planning principals were then used in formulating and selecting management actions to be considered in the RMP alternatives.

- **Step 5: Gather and Analyze Resource Information**. In this step, Reclamation collected information about the physical, biological, and cultural resources of the Federal property. In addition, information about the recreation and land use was also gathered. These data were compiled into a Geographic Information System (GIS) to facilitate a display and analysis of multidisciplinary considerations. This step involved literature review, field studies, and coordination with EBRPD, City, and CCWD staff.

- **Step 6: Formulate RMP Alternatives**. This step involved the formulation of multiple RMP alternatives. Three alternatives were developed that provide a range of varying degrees of resource protection and recreational opportunities. The alternatives were designed to meet the overall RMP goals, although the extent to which they meet each goal varies.

- **Step 7: Conduct Environmental Impact Assessment**. Adoption of an RMP represents a Federal discretionary action subject to NEPA's environmental review requirements. Under this step, Reclamation evaluates the environmental impacts of the RMP alternatives in a comparative manner. The results provide the basis for Reclamation to identify tradeoffs amongst various environmental resources, and between recreation and environmental resources.

- **Step 8: Issue Draft RMP and EIS for Public Review**. Reclamation is currently in this step of the planning process. This Draft RMP/EIS is being circulated to the public to provide an opportunity to review the Draft RMP alternatives, including a comparison of how well they meet the RMP goals and their environmental impacts.

- **Step 9: Prepare Final RMP and EIS**. After a review and consideration of public comments, Reclamation will prepare a Final RMP/EIS that addresses any comments received on the RMP/EIS and identify Reclamation's Preferred Alternative. The Final RMP/EIS will be circulated to the public for 30-days.

- **Step 10: Prepare Record of Decision.** A Record of Decision will also be prepared based on the Final EIS that identifies Reclamation's decision regarding the RMP and the basis for that decision.

- **Step 11: Implement the RMP**. This step involves implementing the RMP actions in accordance with the guidance described in the RMP. Implementing the actions identified in the RMP will be the responsibility of the local managing partner(s), although actions not covered in the RMP/EIS will require Reclamation approval and additional environmental review.

2.2.1 Primary Issue Areas

Reclamation conducted public outreach in 2010 and 2011 to explain the scope and objectives of the Contra Loma RMP and to encourage comments from the public and stakeholders, including EBRPD, the City, and CCWD, about the issues that should be addressed in the RMP and evaluated in the EIS. During that time, Reclamation held a public scoping meeting, two public workshops, and solicited written public and stakeholder comments as described in Section 1.7. Based on the comments received and its own review of the issues, Reclamation identified the following primary issue areas to be addressed in the RMP:

- Recreational facilities and opportunities at Contra Loma Regional Park
- Infrastructure and administrative facilities at Contra Loma Regional Park
- Facility management at Contra Loma Regional Park
- Recreational facilities and opportunities at the Community Park
- Facility management at the Community Park
- Reservoir management and reservoir water quality
- Pasture vegetation management at the Regional Park

Reclamation also identified the following environmental and planning topics to be addressed in the EIS:

- Land use and management
- Recreation
- Visitor access and circulation
- Utilities
- Public health and safety
- Water resources
- Vegetation
- Wildlife
- Fisheries
- Geology and soils
- Climate and air quality
- Noise
- Visual resources
- Hazards
- Cultural resources
- Socioeconomics
- Environmental justice

2.2.2 Planning Criteria

Reclamation has drafted the following planning criteria for the Contra Loma RMP. Each RMP alternative must be consistent with all of the following planning criteria:

- Protect the water supply and water quality of the reservoir.
- Protect and enhance natural resources.
- Manage cultural resources.
- Recognize community concerns and values about Contra Loma.
- Encourage a range of recreational uses that accommodate public demand within the parameters of the Water and Land Recreation Opportunity Spectrum (WALROS) setting.
- Ensure compliance with Federal policies, laws, and regulations.

- Protect public health and safety.
- Limit alternatives to those with reasonable certainty that:
  - the management actions can be implemented within the 25-year planning period;
  - Reclamation or managing partner(s) can fund the management actions; and
  - Reclamation or managing partner(s) are committed to seeking financial, program, and staffing resources necessary to implement the management actions.

2.2.3 Opportunities and Constraints

During the planning process, Reclamation identified potential resource management opportunities and constraints for resolving the operational, natural resources management, land use, cultural, recreational, and socioeconomic issues that fall under the primary issue areas listed in Section 2.2.1 above.

Opportunities

The primary opportunities at Contra Loma include the following:

- Available space could be used to expand recreational and administrative facilities in the vicinity of the reservoir.
- Existing sports fields, including the two soccer fields, could be reconfigured to accommodate additional types of sports.
- Relatively underutilized shoreline area.
- Availability of fishing stocks
- Fish habitat could be created or modified.
- Availability of existing utility services at park boundary.
- The expansive natural areas might be suitable for additional quail habitat restoration.
- Opportunities for interpretation and education.
- Natural resources such as plants of importance to local Native American groups could be promoted as areas of interest to the general public through the use of signs, or could be protected and made available for practitioners of traditional tribal practices.

Constraints

The primary constraints at Contra Loma include the following:

- Compliance with applicable laws, regulations, policies, WALROS settings and local zoning.

- Compliance with existing contracts/agreements with CCWD about reservoir operations.
- Protection and maintenance of the water quality of the reservoir.
- Protection of the reservoir's water supply function.
- Avoidance/protection of special-status species.
- Avoidance/protection of existing California quail habitat enhancement and restoration projects.
- Avoidance/protection of wetland and riparian habitat.
- Steep slopes across much of the recreation area that inhibit construction of structures and roads.
- Clay soils having high degrees of shrink-swell that can be susceptible to erosion and slumping.
- Clay soils that have high runoff potential.
- Lighting, noise, traffic, and parking compatibility with nearby land uses.
- Consistency with the rural open space character of a regional park.
- Management of cultural resources.
- Funding availability for implementing management actions by local managing partner(s).
- Potential language barriers to non-English speaking park users.

2.2.4 Management Zones

Reclamation uses WALROS as a management tool for classifying water and land use zones in terms of recreational experience. In 2009, the WALROS system replaced its predecessor, the Water Recreation Opportunity Spectrum (WROS), which placed more emphasis on water-based recreation than land-based recreation. The WALROS system is discussed in more detail in Section 3.2 (Recreation).

Two distinct management zones based on the WROS system have been identified for Contra Loma Reservoir. The southern half of the reservoir is classified as Suburban (S) and the northern half of the reservoir is classified as Rural Developed (RD) (Figure 1-2). These zones are similar, though not identical, to the S and RD zones under the WALROS system. None of the RMP alternatives include adjustments to the WROS classification zones. Therefore, the management actions proposed for the RMP alternatives are intended to be consistent with the existing WROS classifications.

2.3 Goals

Reclamation has developed the following primary goals of the Contra Loma RMP to provide overall guidance for the RMP management direction and actions. The degree to which the RMP alternatives meet these goals are described in Sections 2.6 through 2.8 below.

- Promote responsible stewardship of Federal land and water resources for the public benefit.
- Protect and maintain water quality.
- Protect and enhance the natural resources at Contra Loma.
- Manage the cultural resources at Contra Loma.
- Protect public health and safety
- Protect and maintain existing recreational uses and educational opportunities.
- Provide for enhanced or new recreational uses and facilities that are compatible with other RMP goals.
- Maintain the social and natural setting of Contra Loma as described in the WALROS.
- Promote continued compatibility with nearby land uses.

2.4 Formulation of Alternatives

2.4.1 Introduction

This section briefly describes the RMP alternatives designed to address the planning issues, opportunities, and constraints at Contra Loma and Reclamation's process for identifying the alternatives. This section also describes the roles of Reclamation and the local managing partner(s), and describes Reclamation's approach for implementing and amending the RMP after its adoption.

2.4.2 Alternatives Development

Reclamation's first step in developing the RMP alternatives included public outreach to seek the opinions of the public and the current local managing partners about Contra Loma's existing recreational uses and facilities and to identify possible management actions and opportunities to improve the management of resources at Contra Loma. After considering the input received, Reclamation began developing management actions and screening them against the RMP goals and planning criteria to ensure consistency. Reclamation then grouped the management actions into sets that represent a range of alternatives that address the varied interests pertaining to Contra Loma. Reclamation then circulated the conceptual draft alternatives to the public for review and comment. The process resulted in the development of the following three alternatives:

- **No Action (Alternative 1 – Status Quo)** This alternative manages land and activities with the continuation of current management practice.

- **Enhanced Recreation and Facilities (Alternative 2)** This alternative enhances recreation opportunities and existing facilities, but limits expansion of recreation and facilities to minimize changes to park character and adverse effects on natural resources.

- **Expanded Recreation and Facilities (Alternative 3)** This alternative emphasizes expanded recreation opportunities and facilities and has been identified as Reclamation's Preferred Alternative.

2.4.3 Roles of Reclamation and Local Managing Partner(s)

Reclamation intends to negotiate a long-term agreement with one or more local managing partner(s) for Contra Loma. The local managing partner(s) will have overall responsibility for managing, operating, and maintaining public access, recreation, infrastructure, public services (including public safety and law enforcement), and natural resources in Contra Loma, excluding the dam. Responsibilities for dam and reservoir operations are subject to a separate contract between Reclamation and CCWD; therefore, these operations would not be affected by the RMP. The RMP will provide the overall resource and recreation management direction and framework for Contra Loma. It will be a guidance document for the local managing partner(s) for day-to-day operations and long-range planning.

Reclamation will have overall responsibility for ensuring that all actions in Contra Loma by Reclamation and its managing partner(s) are consistent with the RMP. The managing partner(s) must ensure that its actions in managing Contra Loma and associated land and natural resources, recreation facilities, and infrastructure, are consistent with the RMP.

The agreement with the managing partner(s) will require them to use the RMP as the primary land use, natural resource, recreation, and facility management guidance document to be followed during the management of Contra Loma. A long term management agreement will recognize the RMP as a document that can effectively assist Reclamation and the managing partner(s) in planning, decision-making, and implementing actions and activities affecting the resources in Contra Loma. The purpose of the RMP is to chart the desired future condition for the area in question. The RMP will be implemented through recommendations for specific management actions and improvement projects.

If an agreement cannot be reached with any managing partner(s), Reclamation will manage Contra Loma and its associated land and natural resources, recreation facilities, and infrastructure in a manner consistent with the RMP.

Management Actions and Projects

The RMP includes recommendations for various resource management actions and facility improvement projects. These are specific actions that may be implemented at Contra Loma to meet the RMP goals. These management actions and projects are defined at a conceptual or programmatic level in the RMP. More detailed descriptions of the actions and projects will be developed during the planning horizon of the RMP. The responsibility for funding, designing,

and implementing (or constructing) the management actions and improvement projects will be specified in financial assistance agreements with the local managing partner(s).

It should be noted that the RMP will require the local managing partner(s) to implement some of the management actions, but not all of the actions. Required management actions are indicated by the term "will," whereas optional management actions are indicated by the term "may." The local managing partner(s) will have the option of implementing the optional management actions and improvements based on considerations of the following factors: (1) sufficient public demand, (2) sufficient staffing and funding to manage any new or modified facilities in accordance with the RMP, and (3) potential for increased public benefits and use. New facilities or activities allowed under the RMP may also be discontinued in the future at the discretion of the local managing partner(s) if demand decreases, the activity is not economically viable, new security or safety considerations arise, and/or unforeseen significant environmental impacts occur that are irreparable or cannot be effectively mitigated.

Should the local managing partner(s) choose to implement management actions that involve new or expanded recreational activities or facilities identified in the RMP, such as new fishing docks in the reservoir or new sewer lines to connect the Regional Park sanitary facilities to the City's wastewater treatment system, they would be required to conduct an appropriate site specific environmental review. The local managing partner(s) would need to receive Reclamation approval and project-specific environmental documentation would be prepared to meet NEPA and other Federal environmental requirements. In addition, local managing partner(s) will need to satisfy California Environmental Quality Act (CEQA) requirements.

Amendments to the RMP

The RMP can be amended by Reclamation, or by the managing partner(s) with Reclamation's approval, if the need arises. Conditions that may require an amendment could include, but are not limited to, (1) changed environmental conditions; (2) unforeseen events; (3) changes in policies and land use plans that have been determined to be infeasible, impractical, or have undesirable consequences; (4) change in applicable laws and regulations; (5) changes in visitor needs or demands, including recreation; (6) changes needed to accommodate operation and management of the reservoir; or (7) changes to accommodate projects or activities that were not included in the RMP, provided they meet the RMP planning criteria. Reclamation would initiate the RMP amendment process, which would include appropriate NEPA environmental review tiered from this EIS and may include public meetings if warranted.

2.4.4 Concurrent Projects by the Current Local Managing Partners

During the course of the Contra Loma RMP process, Reclamation received proposals from the current local managing partners for improvements within the Regional and Community Park.

In September 2012, Reclamation completed an Environmental Assessment for the City's proposed modernizations of the two multi-use sports fields in the eastern portion of the Community Park, identified as sports fields 4 and 5 on Figure 1-3. Reclamation subsequently approved the project. The improvements include removing the grass from the surface of the sports fields, constructing the base for the new synthetic turf fields, and installing furnishings, perimeter fencing, concrete paving, an electrical/storage building, sports field lighting, perimeter irrigation and landscaping, drainage structures, pavement, and new synthetic turf. The City has

undertaken these improvements. This project is not proposed in the RMP and is, therefore, not evaluated in the EIS as such. Rather, this project is considered in the cumulative impacts analysis as an action with the potential to cumulatively affect the resources discussed in this EIS.

In September 2013, EBRPD requested funding and approval from Reclamation for upgrades to the restroom and fish cleaning facility located in the boat launch marina. Reclamation is currently preparing site-specific environmental documentation for this proposal. EBRPD is also seeking grant funding from the California Department of Boating and Waterways to implement several additional improvements to the Regional Park's boat launch area and fishing docks (see Figure 1-2). The proposed improvements include reconfiguring and repaving the boat launch parking lot, reconstructing the boat ramp, replacing the existing boat dock with a new articulated dock, building a new Americans with Disabilities Act (ADA)-compliant picnic site near the boat launch, rehabilitating the existing ADA-compliant fishing pier, rehabilitating the existing west side fishing pier, building a new east side fishing pier and restroom with ADA-compliant parking, installing concrete trails around the boat launch area, replacing the existing drinking fountains, and installing additional landscaping. Some of the new or rehabilitated docks would require new pilings. Management Action 44 would allow for these improvements. At this time, Reclamation has not received a request for approval of these additional improvements. Should a request be received, Reclamation would conduct site-specific environmental analysis prior to approval.

2.5 Common Management Actions for All Alternatives

Each alternative has different components and management actions that would achieve the objectives of that alternative. However, several components and management actions are common to all alternatives. These are consistent with the current resource and recreation management direction and practices at Contra Loma and are listed in this section. The remaining management actions are listed as they apply to each alternative in Section 2.6 through 2.8.

2.5.1 Facilities Management at Contra Loma Regional Park

Litter and Waste

MA 1: The local managing partners(s) for the Regional Park will continue implementing a litter and waste reduction program to effectively meet demand. Elements of this program will include staff outreach and public education, routine litter and nuisance pickup and removal, litter removal along the shoreline and within the reservoir, and availability of sufficient litter cans and dog feces bag stations. The program may also include organization of local volunteers to assist in cleanup. Elements of this program may be modified or expanded as necessary.

Other Facility Management

MA 2: The local managing partners(s) for the Regional Park will perform ongoing routine maintenance activities and repairs of the existing facilities that would not involve ground-disturbance or otherwise have the potential to cause significant environmental effects. These are the same activities that

have been and are being implemented by EBRPD under its existing management agreements. Examples of ongoing maintenance activities include mowing of the grassland areas to reduce fire hazard; mowing, trimming, and irrigation of vegetation within the landscaped areas; painting and repair of existing buildings and structures; pavement repair; striping of roads and parking lots; installation, replacement, and repair of car stops in parking areas; sign maintenance; cleaning and repair of dock surfaces; repair of dock floats; and pump out of waste from the restrooms and fish cleaning station.

MA 3: The local managing partners(s) for the Regional Park will support and complement CCWD's programs to prevent introduction of zebra and quagga mussels into the reservoir. Management actions may include a continuation of pre-launch boat inspections by trained staff and the continued prohibition against wet boats or gear entering the reservoir. Elements of this program may be modified or expanded as necessary to improve the program's effectiveness in preventing mussel infestation and/or to include other invasive aquatic pest species (e.g., milfoil) that pose a risk to the dam or to the reservoir's water quality or recreational attributes.

MA 4: The local managing partners(s) for the Regional Park will prepare non-aquatic pesticide management plans and integrated pest management plans for weeds and other pests (e.g., rodents, wasps). The plans will be consistent with those to be prepared for the Community Park, will comply with Reclamation Manual directives, standards, and policies and will require Reclamation approval before implementation.

MA 5: The local managing partners(s) for the Regional Park will develop and implement a plan(s) for fire and emergency preparedness and to provide public safety with police and fire services. These services may be operated by the local managing partners(s) or the services may be contracted with other local agencies that provide police or fire services. Management actions may include continued operation of the existing police substation and fire station at the Regional Park and will include continued provision of lifeguard services at the swim lagoon with emergency response capability at Contra Loma reservoir. Management actions may also include bicycle patrols of the trail system. The plan(s) will comply with Reclamation Manual directives, standards, and policies and will require Reclamation approval before implementation.

MA 6: The local managing partners(s) for the Regional Park will be responsible for performing management activities, such as collection of entrance fees, regulation of park uses (e.g., reservoir recreation), opening and closing park gates for daily operation, administration of concession contracts, issuance of permits for special events, and human waste management.

MA 7: The local managing partners(s) for the Regional Park will prepare a grazing management plan specifically for Contra Loma to address current and future grazing practices within the Regional Park. The grazing management plan may incorporate applicable components of the Wildland Management Policies and Guidelines document prepared by the current managing partner for the Regional Park (East Bay Regional Park District 2001). The plan will describe all grazing-related maintenance activities to be carried out by the local managing partners(s) for the Regional Park. The plan(s) will comply with Reclamation Manual directives, standards, and policies and will require Reclamation approval before implementation.

MA 8: The local managing partners(s) for the Regional Park will prepare a hazardous waste/spill prevention plan. The plan will comply with Reclamation Manual directives, standards, and policies and will require Reclamation approval before implementation.

2.5.2 Facilities Management at Antioch Community Park

Litter, Waste, and Graffiti

MA 9: The local managing partners(s) for the Community Park will implement a litter, waste, and graffiti reduction program to effectively meet demand. Elements of this program may include staff outreach and public education, routine litter pickup and removal, availability of sufficient litter cans and dog feces bag stations, and prompt graffiti removal. The program may also include organization of local volunteers to assist in cleanup. Elements of this program may be modified or expanded as necessary.

Public Safety

MA 10: The local managing partners(s) for the Community Park may be required to implement routine police patrols or other operational measures needed to provide sufficient security.

MA 11: The local managing partners(s) for the Community Park will develop and implement a plan(s) for fire and emergency preparedness and to provide public safety with police and fire services. These services may be operated by the local managing partners(s) or the services may be contracted with other local agencies that provide police or fire services. The plan(s) will comply with Reclamation Manual directives, standards, and policies and will require Reclamation approval before implementation.

Other Facility Management

MA 12: The local managing partners(s) for the Community Park will perform ongoing routine maintenance activities and repairs of the existing facilities that would not involve ground-disturbance or otherwise have the potential to cause significant environmental effects. These are the same activities that have been and are being implemented by the City under its existing license in addition to routine maintenance activities for the sports field

improvements performed in 2013. Examples of ongoing maintenance activities include mowing, trimming, irrigation, aeration, fertilization, and replacement of vegetation within the landscaped areas, cleanout and repair of storm drain facilities, maintenance of sports fields and restrooms, pest control (e.g., gophers, snails), painting, and damage repair. The local managing partners(s) for the Community Park will prepare non-aquatic pesticide management plans and integrated pest management plans for weeds and other pests (e.g., rodents, wasps). The plans will be consistent with those to be prepared for the Regional Park. The plan(s) will comply with Reclamation Manual directives, standards, and policies and will require Reclamation approval before implementation.

MA 13: The local managing partners(s) for the Community Park will be responsible for performing management activities, such as regulation of park uses, opening and closing park gates for daily operation, administration of concession stands, issuance of permits for use of the group picnic area, implementing a reservation system for use of the sports fields, and human waste management.

MA 14: The local managing partners(s) for the Community Park will prepare a hazardous waste/spill prevention plan. The plan will comply with Reclamation Manual directives, standards, and policies and will require Reclamation approval before implementation.

2.5.3 Recreational Facilities and Opportunities at Contra Loma Regional Park

Swim Lagoon

MA 15: The local managing partners(s) for the Regional Park will operate and maintain the swim lagoon and all the associated facilities (e.g., ADA-compliant pool lift, showers, changing rooms etc.) for public recreation, including the grass area adjacent to the lagoon and within the lagoon area fence.

Fishing

MA 16: The local managing partners(s) for the Regional Park will provide a recreational fishing program in the reservoir and to manage fish populations through fish planting (i.e., stocking) programs. Management activities may include monitoring of fish populations and provision of educational information to the public. Management activities may also include catch-and-release practices for certain fish species, tracking of stocking rates and angler permit sales, periodic evaluation and adjustment of stocking rates to maximize angler success and experience, and restrictions on the use of certain live baits.

MA 17: The local managing partners(s) for the Regional Park will enforce State and local fishing regulations in cooperation with the California Department of

Fish and Wildlife, including regulations prohibiting unauthorized fishing (i.e., poaching).

Other Recreation

MA 18: Windsurfing and limited boating use will be allowed on the reservoir in a manner that minimizes body contact with the reservoir to protect the reservoir's domestic water supply from pathogens such as *Cryptosporidium*. Windsurfing and the use of self-bailing kayaks represent the only authorized activities with the potential for limited or indirect body contact with the reservoir. Water quality protection measures will include a requirement for windsurfers and paddlers using self-bailing kayaks to shower before entering the water and to wear wet suits while on the reservoir. Visitors may use kayaks, canoes, and small boats (up to 17 feet) with electric motors only. No gasoline-powered engines will be allowed on the reservoir in order to protect water quality.

MA 19: The existing Regional Park trail system will be operated, managed, and maintained for hiking, equestrian, and bicycle use. Trail maintenance activities may include placing gravel and rocks on fire trails to maintain all-weather access for emergency vehicles, annual grading of fire roads and trails with machinery and hand tools to maintain the quality of the trail surface and maintain proper drainage, trimming and mowing of vegetation and spray application of herbicides to maintain a clear path for trail users, and maintenance and repair of existing retaining walls and culverts, and installation of wattles and straw netting to control erosion when needed. Specific herbicides will be identified on a project-by-project basis in coordination with Reclamation.

MA 20: The Regional Park will provide opportunities for wildlife viewing, photography, and painting.

MA 21: The Regional Park may continue to provide recreation programs such as low-income youth swim programs, junior lifeguard programs, Girl Scout and Boy Scout events, fishing derbies, outdoor and environmental education experiences for children, cross-country running meets, fundraiser events, youth day camps, and similar programs.

2.5.4 Natural Resource Management and Protection

MA 22: The local managing partner(s) for the Regional Park may perform periodic biological surveys to inventory and assess special-status plant and wildlife species.

MA 23: The local managing partner(s) for the Regional Park may develop programs to protect special-status species likely to occur at the park. Such species may include burrowing owl, loggerhead shrike, California tiger salamander, San Joaquin kit fox, tri-colored blackbird, white-tailed kite, and stinkbells.

MA 24: All operations and maintenance activities will be consistent with Federal and state laws and regulations that govern the protection of natural, cultural, and paleontological resources within Contra Loma.

MA 25: All operations and maintenance activities within the Regional Park may endeavor to be consistent with existing habitat restoration projects.

2.6 Management Actions for No Action Alternative (Alternative 1 - Status Quo)

2.6.1 Objective

The objective of this alternative is to continue the current resource and recreation management direction and practices at Contra Loma.

2.6.2 Description

Under this alternative, the current resource and recreation management direction and practices at Contra Loma would continue unchanged, and would be generally consistent with EBRPD's current RAMP (East Bay Regional Park District 1975a) the Contra Loma Regional Park LUDP (East Bay Regional Park District 1975b), the current management agreement between Reclamation and EBRPD, the license agreement between EBRPD and the City, and the EBRPD land use plans pertaining to Contra Loma. Some features of the RAMP, however, would not be implemented. For example, the Community Park is now located where the RAMP and LUDP had envisioned a day camp recreation zone. Therefore, the Day Camp recreation zone would not be implemented under the No Action Alternative. Also, the RAMP and LUDP had envisioned a picnic meadow cluster to the east of the reservoir that has not yet been built and might not be built under this alternative.

The local managing partner(s) would implement and manage the administrative and operational activities listed in Section 2.5 and Appendix B. The managing partner(s) would implement many of these activities, including those that may require permits or environmental review under NEPA or CEQA or authorization by Reclamation or CCWD. This alternative addresses certain public comments requesting no further substantive change in management direction or intensity be made at Contra Loma. The No Action Alternative provides the appropriate basis by which all other alternatives can be compared. It meets all the primary goals of the Contra Loma RMP except for provision of enhanced or new recreational uses and facilities.

2.7 Management Actions for Enhanced Recreation and Facilities (Alternative 2)

2.7.1 Objective

The objective of this alternative is to enhance current recreational uses and facilities at Contra Loma to fulfill the evolving needs of the public who recreate at Contra Loma and to implement several basic infrastructure improvements while minimizing changes to Contra Loma's recreation setting and adverse effects on natural resources.

2.7.2 Description

Under this alternative, the management direction would be shifted toward enhancement of current recreational uses and facilities. This alternative includes management actions to enhance, replace, or upgrade existing recreational uses and facilities and installation of new facilities to expand or complement existing uses and facilities. Examples include upgrades to restrooms, the swim lagoon, fishing piers, the trail system, the boat launch, and administrative buildings. Examples also include new facilities such as additional restrooms, sewer lines, picnic sites, parking areas, and habitat restoration activities. Alternative 2 involves no major expansion of recreational facilities. This alternative also includes boundary adjustments between the Regional Park and the Community Park.

2.7.3 Management Actions

Infrastructure Improvements at Contra Loma Regional Park

Restrooms The restrooms at the Regional Park office and the restrooms and showers near the swim lagoon are connected to the City's sewer and wastewater treatment system. The remaining restrooms are portable chemical toilets. According to EBRPD staff, the chemical toilets are not sufficient for the current level of use. Under this alternative the portable restroom facilities would be upgraded to permanent restrooms and additional restrooms would be built to accommodate user demand.

MA 26: The existing portable chemical toilets may be replaced with permanent restrooms served by vault systems, septic tanks that are periodically pumped, or the City's sewer system. Additional restrooms may be built to accommodate existing and future user needs. New permanent restroom facilities may be built near the fishing dock on the northwest shore of the reservoir and near the parking lot on the east shore. All of the new restroom facilities would be ADA-compliant. Leach fields will not be allowed.

MA 27: New or upgraded sewer lines may be built to connect future permanent restrooms to the City's sewer and wastewater system.

Buildings and Structures This alternative would allow for expansion or renovation of some existing buildings and structures, and construction of new facilities for the purpose of improving Regional Park operations. One new facility would be a residence for park staff to replace the former park residence that was converted to a police substation for the current local managing partner.

MA 28: The existing park offices, the police substation, the secondary storage yard, and the buildings near the swim lagoon may be expanded or renovated to better provide for public service and safety.

MA 29: Structures and facilities for classes, including swim and safety lessons, may be built near the swim lagoon.

MA 30: A new park residence may be built near the park office to replace the former park residence that was converted to a police substation for the current local managing partner.

MA 31: The gravel/overflow parking area may be expanded and some existing gravel parking areas may be paved.

MA 32: A fueling station and fuel storage tank may be built in or near the service yard and materials storage area located 500 feet west of the park office. The fueling station would be used for Regional Park vehicles and equipment and for public safety officers. Only staff trained to safely use the station would be allowed to operate it, thereby reducing the potential for spills caused by improper use. This facility must be designed with fuel containment devices to protect public health and safety and to prevent any spilled fuel from reaching the natural ground surface (i.e., soil), entering the reservoir, impairing surface water or groundwater quality, or creating an environmental hazard. This facility must also be designed and operated in a manner that minimizes its impact on air quality. This facility may only be built and operated in compliance with applicable federal and federally-mandated laws, regulations, and permits. As a condition of Reclamation's approval of this facility, the local managing partner(s) will ensure that fire, public safety, spill prevention, and decommissioning plans are prepared or amended to address operation and eventual decommissioning of this facility.

Other Infrastructure

This alternative would include other infrastructure improvements at the Regional Park.

MA 33: A radio communication tower may be built to improve communications for the local managing partner(s) and public service providers. This tower must be sited and designed in a manner that minimizes impacts to the Regional Park's aesthetic character.

MA 34: Water infrastructure (e.g., water lines, spigots, pumps, troughs) may be built to support new, expanded, or renovated facilities and livestock grazing.

MA 35: A storm water retention basin may be built to improve the quality of water carried by the Regional Park's storm drain system before it reaches the reservoir.

MA 36: Future improvements at the Regional Park must comply with ADA accessibility requirements. The local managing partner(s) may implement an ADA facility retrofit program that includes replacing, retrofitting, and restructuring many of the park facilities to meet current ADA requirements. Some improvements would include ground-disturbing activities, such as installation of ADA-compliant water fountains, picnic facilities, and restrooms.

MA 37: Call boxes and/or security cameras may be installed in the Regional Park if needed for public safety and to protect Regional Park property.

MA 38: New donation boxes for walk-in users may be installed at key entry locations.

Recreational Facilities and Opportunities at Contra Loma Regional Park

Swim Lagoon This alternative would include some improvements and operational changes at the swim lagoon to improve public safety and enjoyment.

MA 39: A "safe swim" area or splash pad may be built for small children and other physical improvements could be made to the swim lagoon to accommodate public needs. Expansion of the pumping and filtration facility may also be required.

MA 40: More shade structures may be built on the swim lagoon lawn. The new structures would likely be similar to the existing 15'x 15' umbrella-shaped structures that are cemented into the ground.

MA 41: Benches may be added to the swim lagoon area.

Fishing and Boating The reservoir currently has two fishing docks, one on the south shore and one on the west shore. The fishing docks and the boat launch dock are nearing the end of their designed lifecycle and require repair or reconstruction. The fishing docks float on the reservoir and are unusable (and closed) during large reservoir drawdowns either because the access ramps become too steep for safe passage or because the docks are resting directly on the sloped, exposed lakebed. When the fishing docks are unusable some anglers choose to fish from the boat launch dock, which can cause congestion on the boat dock and interfere with boater access. Also, fishing from the boat dock could pose safety issues for boaters who are using the dock to launch and are not paying attention to nearby anglers casting fish hooks and lures. This alternative would enhance fishing access at the reservoir. Boating is also a popular activity. This alternative includes several improvements at the boat launch area to enhance boating access.

MA 42: Existing fishing docks may be modified or reconstructed to allow safe, continuous fishing use during reservoir drawdowns, and aging fishing docks may be replaced.

MA 43: More fishing docks may be added if needed to accommodate increased demand. Possible locations include the south shore near the boat launch and the east shore which currently has no fishing docks.

MA 44: Several improvements may be implemented at the boat launch area to enhance boating and fishing access. The improvements may include reconfiguring and repaving the parking lot, reconstructing the boat ramp, replacing the existing boat dock with a new articulated dock, building a new ADA-compliant picnic site, rehabilitating the existing ADA-compliant fishing pier, installing concrete trails, replacing the existing drinking fountains, and installing additional landscaping. Some of the new or rehabilitated docks may require new pilings.

MA 45: Fish stocking may be increased from current levels as needed to meet demand.

Trail System The trail system within the Regional Park includes about 0.75 mile of paved trails along the east and south shores of the reservoir and the trails across the dam and along the west shore have a gravel surface. This alternative would include paving the gravel sections of the shoreline trail system to provide all-season surfaces along the entire loop. This alternative would also enhance signage along the trail system.

MA 46: Unpaved portions of the East Shore Trail, the West Shore Trail, and the trail across the dam may be improved to provide paved surfaces along the entire shoreline loop.

MA 47: Additional signs may be posted along the trail system that provide trail names, distances, and direction information.

Other Recreation Many individual and group picnic sites are located along the south shore of the reservoir. All sites include picnic tables and trash cans, and some sites include barbeque grills and water faucets. The picnic sites are very popular on summer and holiday weekends. This alternative would provide additional picnic sites as needed.

MA 48: Additional picnic sites may be constructed where useful and appropriate to meet demand. Potential locations include the south shore of the reservoir where most day use occurs and the east shore, which has parking lots and restrooms but no picnic sites. Additional turf may also be planted if sufficient irrigation water is available.

Placement of New Permanent Facilities

CCWD has expressed interest in a future increase of the reservoir operating level from the current level of 205 feet to the spillway elevation of 211 feet. Some Regional Park facilities are currently located between the 205-foot elevation and the 211-foot elevation. This alternative would include a management action encouraging the managing partner for the Regional Park to minimize the placement of new facilities below the 211 elevation to avoid having to replace such facilities should Reclamation authorize a higher reservoir operating level in the future.

MA 49: The managing partner for the Regional Park is encouraged to minimize placement of new facilities below the 211 elevation (i.e., the spillway elevation) within the watershed of the reservoir to avoid having to replace such facilities should Reclamation authorize a higher reservoir operating level in the future.

Recreational Facilities and Opportunities at Antioch Community Park

Sports Fields The Community Park has five sports fields, as shown on Figure 1-3. The three multi-use sports fields in the western half of the park are used for softball, baseball, football, soccer, and kickball. The southernmost of these fields (labeled as sports field 3 on Figure 1-3) is located adjacent to an intermittent stream and riparian zone. Some members of the public have stated that the field sometimes develops wet, saturated surface conditions that inhibit its utility. This alternative would improve the drainage of sports field 3, if necessary, to enhance its utility during wet conditions.

MA 50: Drainage for the southernmost sports field in the western half of the Community Park (sports field 3 on Figure 1-3) may be improved in a manner that increases its utility during wet conditions but that minimizes effects on the adjacent riparian habitat caused by placement of fill, removal of vegetation, transport of chemicals and fertilizers, or changes in hydrology.

Boundary Adjustments between Contra Loma Regional Park and Antioch Community Park

The boundary line between the Regional Park and the Community Park would be adjusted to improve land and resource management by the local managing partner(s). Under this alternative, an 8.4-acre portion of the Community Park would be managed as part of the Regional Park. This area is located in the southwest corner of the Community Park, near the reservoir and the Regional Park's recreational facilities (Figure 2-1). This area supports a large stand of valley foothill riparian habitat but includes no recreational facilities. Due to its lack of recreational facilities and its proximity to the Regional Park, this land is better suited for inclusion in the Regional Park.

In addition, 6.6 acres of land at the northeast corner of the Regional Park would no longer be included in the Regional Park (Figure 2-1). A 2.7-acre portion of this land is owned by the U.S. Government and is part of Contra Loma. Due to its distance from the Regional Park's office and recreational facilities, this land is better suited for inclusion in the Community Park than the Regional Park. Therefore, this area would be managed as part of the Community Park instead of the Regional Park. The remaining 3.9 acres of this land is owned by the City and had previously been leased to EBRPD by the City for Regional Park use. Because this 3.9-acre parcel is owned by the City, it is not part of Contra Loma and is not subject to this RMP. The City has the discretion to decide whether to manage its 3.9-acre parcel as part of the Community Park.

MA 51: The boundary line between the Regional Park and the Community Park may be adjusted as shown in Figure 2-1. Approximately 8.4 acres of land in the southwest corner of the Community Park may be managed as part of the Regional Park. This area is currently fenced on the south, east, and west sides. The local managing partner(s) for the Regional Park may install exclusionary fencing along the north side of this 8.4-acre area to protect the riparian habitat within the area from inadvertent trampling by the public. The local managing partner(s) for the Regional Park may also begin grazing livestock on approximately 3 acres of annual grassland in this area for fire suppression after receiving Reclamation's approval of a grazing management plan. If livestock are grazed in this area, the local managing partner(s) for the Regional Park would install and maintain exclusionary fencing around the riparian habitat and a protective buffer of annual grassland. In addition, 2.7 acres of land in the northeast corner of Contra Loma may be managed as part of the Community Park instead of the Regional Park (Figure 2-1). This area would no longer be grazed if included in the Community Park.

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Figure 2-1
Possible Community/Regional Park Boundary Change (Enhanced Recreation and Facilities Alternative)

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Natural Resource Management and Protection

MA 52: The local managing partner(s) for the Regional Park may continue to implement habitat restoration and improvement activities such as quail habitat enhancement projects and installation of bat houses and avian nest boxes. The local managing partner(s) for the Regional Park will monitor avian boxes to ensure that the boxes do not enable the spread of exotic invasive avian species such as starlings.

MA 53: All future improvements should be consistent with laws and regulations that govern the protection of natural, cultural, and paleontological resources within Contra Loma.

MA 54: All future improvements within the Regional Park will be consistent with future habitat restoration projects.

MA 55: When specific construction activities are proposed, the local managing partner(s) will conduct a focused assessment of the activity's impact on water quality. If required by Federal regulations, the local managing partner(s) proposing a construction activity will submit a plan that identifies the sources of sediment and other pollutants on site and ensures the reduction of such pollutants in stormwater discharged from the construction site. The plan will provide descriptions of best management practices (BMPs) selected to control erosion, sediment discharge, turbidity, and other pollutant sources during construction. If needed, appropriate BMPs would be implemented prior to construction and would be continued through the duration of construction activities. The plan may include the following methods for protecting water quality:

- Limit site disturbance such as clearing, grubbing, and grading to between April 15 and October 15, unless special authorization is provided by Reclamation.
- Prohibit heavy construction equipment from operating within 100 feet of the reservoir or any creek during periods when soils are saturated from rain.
- Implement temporary measures for controlling seasonal runoff and stormwater flows from the construction area, including all staging areas and any other area where site disturbance will occur during construction.
- Use temporary erosion control measures (such as silt fences, staked straw bales, and temporary revegetation) in disturbed areas, and ensure no disturbed surfaces are left without erosion control measures in place during the rainy season.
- Retain sediment on site by a system of sediment basins, traps, or other appropriate measures.

- Develop a spill prevention and countermeasure plan to identify proper storage, collection, and disposal measures for potential pollutants (such as fuel, fertilizers, pesticides, etc.) used on site.

- Implement soil conservation practices to reduce erosion from storm water runoff, and retain existing vegetation where possible.

- Control surface water runoff by directing flowing water away from surface waters and by reducing runoff velocity.

- Store and treat topsoil removed during construction as an important resource, and place berms around topsoil stockpiles to prevent runoff during storm events.

- Establish fuel and vehicle maintenance areas away from all surface water features and design these areas to control runoff.

- Revegetate disturbed areas after completion of construction activities.

MA 56: When specific construction activities are proposed that involve new ground disturbance in the portion of the Regional Park underlain by Cierbo Sandstone (i.e., the southernmost portion of Contra Loma), the local managing partner(s) will prepare a plan describing the measures they will implement to manage any paleontological resources encountered during construction. The plan will be submitted to Reclamation for review and approval. The plan will describe measures for evaluating the importance of the resource, performing recovery excavations, museum curation, preparation of a report documenting the find, and/or development of public outreach or educational materials or displays. These measures outlined in the plan would only be implemented to the extent warranted by the importance of the resource.

Operations and Maintenance

MA 57: The local managing partner(s) will be responsible for operations and maintenance of any new recreation or infrastructure improvements that they implement. All proposals submitted to Reclamation by the managing partner(s) for new improvements will clearly describe the activities needed to operate and maintain the improvements.

2.8 Management Actions for Alternative 3: Expanded Recreation and Facilities (Preferred Alternative)

2.8.1 Objective

The objective of this alternative is to expand recreational uses and facilities to accommodate increasing demand, especially for additional all-weather sports fields.

2.8.2 Description

Under this alternative, the management direction would be shifted toward expansion of recreational uses and facilities. This alternative includes the management actions listed under Alternative 2 (Enhanced Recreation and Facilities) and provides additional management actions to expand existing recreational uses and facilities and to install new facilities that expand recreational opportunities. Examples include construction of a fishermen's shelter, a playground structure, a disc golf course, new multi-use sports fields, and expansion of the swim lagoon and the trail system. Other examples include planting of shade trees, installation of shade structures and solar panels, and fish habitat improvements to increase fish populations. This alternative may also include overnight group camping.

2.8.3 Management Actions

Recreational Facilities and Opportunities at Contra Loma Regional Park

Swim lagoon The swim lagoon is a very popular facility during the warm weather months. This alternative would allow for expansion of the swim lagoon if needed to accommodate a sufficient increase in future demand.

MA 58: The size and capacity of the swim lagoon may be expanded if needed to accommodate increased future demand.

Fishing Fishing continues to be a very popular recreational activity at the reservoir. The LUDP anticipated future development of a fishermen’s shelter in an unidentified location along the south shore, but the shelter has not yet been built. This alternative would include construction of a fishermen's shelter along the south or east shore and would improve fish habitat to increase fish populations.

MA 59: A fishermen's shelter may be constructed along the south or east shore.

MA 60: Fish habitat may be created or modified if desirable to increase fish populations.

Trail System A trail system provides access to most areas of the Regional Park and connections with other trail systems outside Contra Loma. Horses may be ridden on most trails within the Regional Park. Bicycles are allowed on many trails, but are not currently allowed to be ridden on many narrow (i.e., single track) trails and trails that are marked "No Bicycles." Trees provide shade to a very small percentage of the trail system. This alternative would increase mountain biking opportunities within the Regional Park and increase shade along some trails. This alternative would also include a new fitness course with outdoor exercise stations built along the shoreline trail loop.

MA 61: The number and length of trails and the number of loop trail opportunities available for mountain biking may be increased by constructing new trails open to bicycles and/or by allowing bicycles access to portions of the trail system that are not currently open to bicycles.

MA 62: New multi-use trail connectors may be built in several locations.

MA 63: Shade trees may be planted along some trail segments if desirable and if sufficient irrigation is available. Trees planted along trails outside the landscaped areas will be endemic native species. The local managing partner(s) for the Regional Park is encouraged to plant native trees along trails in the landscaped areas of the Regional Park (i.e., south shore), but may plant species similar to the existing ornamental trees.

MA 64: A new fitness course may be established by installing outdoor exercise stations with stationary equipment and signage along the shoreline trail loop.

Other Recreation This alternative includes management actions that recognize other recreational opportunities at the Regional Park. The temperature at Contra Loma can be quite hot in the summer. Trees and structures only offer shade in some areas of the Regional Park, primarily in the developed recreational areas along the south side of the reservoir. The Regional Park does not have playground structures, although structures are provided at the Community Park. No disc golf courses are located near Contra Loma; the nearest course is located in Moraga, 32 miles away. No camping facilities are available at the Regional Park and overnight camping is not currently allowed in the park. This alternative would increase the amount of shade available to park users, provide a playground structure at the Regional Park, provide a disc golf course, and allow overnight group camping subject to event-specific authorization, oversight, and regulation.

MA 65: Shade trees may be planted and shade structures may be installed to support recreational uses and to provide shade in parking and picnic areas.

MA 66: A playground structure may be built in the developed recreational areas along the south side of the reservoir.

MA 67: Overnight group camping may be allowed on a discretionary basis as part of the current day camp programs or other special events. Group camping will require event-specific authorization, oversight, and regulation by the Regional Park's local managing partner to ensure protection of the park's natural resources and facilities. No campground facilities may be built, although some modification of existing day use facilities might be needed to serve group campers. Modifications may include installation of additional picnic tables, wash basins, and electrical outlets.

MA 68: A disc golf course may be built in a suitable location that minimizes conflicts with other park uses. Potential locations may include the gently rolling land east of the reservoir, gently sloping land near the southwest corner of the reservoir, and the southeast portion of the Regional Park directly north of Frederickson Lane.

Recreational Facilities and Opportunities at Antioch Community Park

Sports Fields The Community Park has five sports fields. The three multi-use sports fields in the western half of the park are used for softball, baseball, football, soccer, and kickball. The two sports fields in the eastern half of the Community Park are used primarily for soccer, but are also

used for baseball, softball, football, rugby, and outdoor volleyball. League sports including soccer, softball, football, and kickball are popular activities at the Community Park. This alternative would include two new lighted sports fields south of the two existing soccer fields if needed to accommodate demand and would increase parking capacity if needed to meet additional demand.

MA 69: Additional multi-use sports fields may be built directly south of the two existing sports fields on the east side of the Community Park. The sports fields would have floodlights to allow evening use. The additional fields would require expansion of the Community Park boundaries south into the Regional Park by approximately 15 acres. The expansion would also require adjustment of the boundaries between the two parks (see Figure 2-2) by future managing partner(s). If the adjustment is made, the existing grazing fence would also be relocated to follow the adjusted boundary line and lands currently in the Regional Park would no longer be grazed. Also, a portion of the Regional Park trail (Old Ranch Loop Trail) that currently follows the south side of the boundary line between the two parks would be relocated to follow the adjusted boundary line.

MA 70: If additional multi-use sports fields are built, additional parking capacity may be developed if needed to accommodate increased parking demand.

Other Recreation This alternative includes management actions that recognize other recreational opportunities at the Community Park. This alternative would expand the trail system and create a botanical garden.

MA 71: The Community Park trail system may be expanded to include new trails and to improve interconnection between trail systems.

MA 72: A botanical garden may be created within the Community Park. Possible locations may include the undeveloped land north of the eastern sports fields or the undeveloped land in the southwestern portion of the park.

Interpretive Opportunities Contra Loma's history and natural resources provide opportunities for interpretation and education. This alternative would increase interpretive signage and programs.

MA 73: Interpretive signage and/or kiosks may be built and programs may be provided that offer visitors educational experiences intended to instill or enhance their appreciation of the region's natural and cultural resources. Informational walks and presentations may be provided by volunteer docents. Interpretive opportunities could also focus on historic areas within Contra Loma.

Infrastructure Improvements at Contra Loma Regional Park

Solar Panels This alternative would allow the managing partner(s) for the Regional Park to install solar panels on shade structures or buildings to supplement the park's energy needs, including the energy needed to power the water pumps for the swim lagoon.

MA 74: Solar panels may be installed on parking or picnic area shade structures and on buildings to supplement the Regional Park's energy needs, including the energy needed to power the water pumps for the swim lagoon.

Irrigation Water This alternative would allow additional reservoir water to be purchased from CCWD if available.

MA 75: Some future facility improvements such as the planting of additional shade trees could increase demand for irrigation water by about 50 acre-feet per year. If additional reservoir water is needed for irrigation, the local managing partner(s) would need to purchase the water from CCWD if the requested water is available. CCWD would be responsible for review and approval of the request for additional water.

2.9 Alternatives Considered but Eliminated from Detailed Analysis

The following alternatives were eliminated from detailed analysis because they did not meet the purpose and need for the RMP or were outside of the technical, legal, or policy constraints of developing a land use plan for public land resources and uses.

2.9.1 Exclusive Use

The concessions management policy (LND 04-02) of the Reclamation Manual Policy and Directives and Standards requires new, renewed, or modified management agreements and concession contracts to include clauses that prohibit exclusive use. For this reason, alternatives and general management options proposing exclusive use for profit or benefit of a private entity were not considered. This includes operation of part or all of Contra Loma as a private reservoir or private recreation area.

2.9.2 Management for Only One Authorized Purpose

Alternatives and general management options proposing maximum development, production, or protection of one use or resource at the expense of other uses and resources were not considered. Reclamation is subject to the Congressional mandate that "in investigating and planning any Federal…water resource project, full consideration shall be given to the opportunities, if any, which the project affords for outdoor recreation and for fish and wildlife enhancement" (PL 89-72, 79 Stat. 213-218).

2.9.3 Reduction or Elimination of Existing Recreational Uses from Contra Loma

Alternatives reducing or eliminating existing recreation uses would not meet the purpose and need for the proposed project. Currently, resource conditions do not warrant reduction or elimination of any particular recreational use. Therefore, none of the alternatives include reduction or elimination of these existing uses.

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Figure 2-2
Possible Sports Field Expansion (Expanded Recreation and Facilities Alternative)

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2.9.4 Reservoir Operations and Maintenance

Alternatives addressing water or power operations or water service contracts are not considered, because such actions are outside the scope of the RMP and would be covered under separate actions and environmental review. Contra Loma Reservoir is operated and managed by CCWD under contract to Reclamation and is a component of Reclamation's CVP. Management of the land surrounding the reservoir is secondary to operation of the CVP and is required to support Reclamation's core mission of delivering water and generating power.

2.9.5 Specific Management Actions Eliminated from Detailed Analysis

Most of the management actions suggested by the public were included in one or more of the alternatives. However, some management actions suggested by the public were not included in any of the alternatives and have been eliminated from detailed analysis.

One public commenter suggested removing the swim lagoon to restore the character of Contra Loma to a more natural state. The swim lagoon was constructed at great financial expense for the purpose of protecting the reservoir's water quality from human-borne viruses and pathogens while serving a public recreation need. Removing the swim lagoon would require substantial additional financial expenditure, and the public would cease to benefit from the expenditure invested to build the lagoon. Also, the swim lagoon is a very popular facility during the hot summer months. As stated in Section 2.9.3 above, alternatives reducing or eliminating existing recreation uses would not meet the purpose and need for the proposed project. Therefore, this suggested management action has been eliminated from further consideration.

Some commenters suggested controlling or removing vegetation within the reservoir and along the shoreline to improve fishing access. Much of this vegetation, however, provides rearing habitat for fish or provides important habitat for wildlife. These suggested management actions would not be consistent with the primary goals of the Contra Loma RMP of protecting and enhancing natural resources. Therefore, this suggested management action has been eliminated from further consideration. It should be noted, however, that several management actions that would enhance fishing access are included in the RMP.

Another commenter suggested enforcement of self-pay entrance fees. The local managing partner for the Regional Park currently has the authority to enforce self-pay entrance fees for vehicles. With respect to walk-ins, it would be impractical to enforce payment of self-pay fees because once in the park, walk-in visitors are indistinguishable from visitors who have arrived in vehicles and paid for entry. Therefore, this suggested management action is not considered.

One public commenter suggested better coordination for advertising of public events at Contra Loma and another provided suggestions about the types of products that should be available for purchase at the snack bar. Another commenter suggested that smoking should be prohibited within the fenced swim lagoon area and that smoking areas should be designated outside the fence and down-wind from swimmers. Other commenters suggested that the local managing partners for the Regional Park consider increasing the presence of multi-lingual staff during high use periods to assist non-English speaking park users. While these suggestions may have merit, they are not directly related to resource management and fall outside the scope and purpose of an RMP. These management actions would remain within the purview of the responsible local managing partner(s) to implement if they choose to.

Chapter 3. Affected Environment

3.1 Introduction

This section describes the affected environment of Contra Loma at a level of detail commensurate with the programmatic/planning nature of this RMP. Subsequent project-level environmental compliance documents may need to be prepared by Reclamation or the managing partner(s) in the future to address environmental resources that may be affected by management actions and projects carried out under the selected RMP alternative. This chapter describes resources and features that could be affected under any of the alternatives. Some resources such as climate are described for the purpose of context, although project-related impacts to these resources, regardless of the selected project alternative, would be minor.

Much of the data used to describe the environmental setting of Contra Loma was collected using a GIS format. Figures are used to show Contra Loma's layout, including features, facilities, and infrastructure, as well as areas of sensitive resources (e.g., vegetation communities) and potential hazards (e.g., geological faults). The discussion and figures in this chapter, and the impact analyses presented in Chapter 4, are intended to serve as a guide to future development plans within the planning horizon by identifying potential environmental constraints.

3.2 Land Use and Management

3.2.1 Current Uses and Activities

Current uses at Contra Loma include recreational uses, grazing, operations and maintenance, and reservoir management. EBRPD has constructed recreational facilities on the south side of the reservoir to support the various recreational opportunities offered at Contra Loma and has developed trails throughout the area for hiking, biking, and equestrian uses. The City has developed community facilities on the land it manages to support soccer, baseball, picnicking, and other sports and community activities. Recreational uses are allowed in most areas of Contra Loma, with the exception of the Reclamation Zone north of the dam. Group activities, such as parties, performances, special events, or similar gatherings, are allowed with a special use permit from EBRPD.

EBRPD's park office is located south of, and adjacent to, the swim lagoon. The office adjoins the buildings housing the showers and changing rooms. The park office building also includes the corporation yard where EBRPD stores vehicles and maintenance equipment. The corporation yard is enclosed on all sides by cinder block walls and by the office building, except for a 16-foot wide driveway on the south side of the yard. A storm drain system provides drainage for the corporation yard; this system drains to the reservoir. The EBRPD police substation is located in the former park residence building approximately 250 feet southwest of the park office. There is currently no park residence at Contra Loma. A service yard and materials storage area is located 500 feet west of the park office.

Grazing is allowed on the 454 acres of rolling grasslands surrounding the reservoir in accordance with the current grazing license. Grazing is used for fire suppression in order to protect the recreational facilities and nearby residential areas. The grazing license allows for a livestock carrying capacity of 389 animal unit months (i.e., the amount of grazing forage needed for one mature cow and nursing calf per month) for the grazed land (Figure 1-2). Livestock grazing is currently rotated between multiple enclosures, and cattle are not allowed near the reservoir in order to protect water quality. EBRPD grazes livestock on about 60 percent (about 68,000 acres) of its regional parklands, including its Black Diamond Mines Regional Preserve adjacent to Contra Loma. Grazing and pasture are important land uses in Contra Costa County. In 2000, 168,890 acres of the County were in pasture and range land, which includes land used for grazing of large farm animals and dry farming of grains for feed (Contra Costa County 2005).

Contra Loma is located entirely within the City and has been designated by the City's General Plan as open space (City of Antioch 2003a) as it serves as a transitional area between the developed portions of the City and extensive open space to the southwest. Contra Loma is surrounded by residential uses to the north and south, the City golf course to the east, residential uses along the eastern half of the southern boundary, open space along the western half of the southern boundary, and open space and undeveloped land to the west (Figure 3-1).

The City owns the adjacent 201-acre parcel to the east of Contra Loma that comprises the majority of the golf course (i.e., excluding the 5.7 acres of land leased to the City by Reclamation). The golf course includes 18 holes, a driving range and practice area, a pro shop, and a clubhouse with dining and beverage facilities.

EBRPD owns the open space lands to the south and west and manages them as part of the 5,300-acre Black Diamond Mines Regional Preserve. The preserve provides recreational opportunities and preserves a portion of the area's history relating to Native American uses, ranching, as well as coal and sand mining. A portion of land directly west of Contra Loma is privately-owned. The City's general plan land use designation for the privately-owned land is Estate Residential and the City has zoned the land as Planned Development District.

3.2.2 Land Ownership and Management in Contra Loma

The U.S. Government owns Contra Loma, which consists of the 80-acre reservoir and approximately 661 acres of land surrounding the reservoir (Figure 3-1). Reclamation is the Federal agency charged with administering Contra Loma. EBRPD, the City, and CCWD are responsible for managing Contra Loma in accordance with each agency's management agreement, license, or contract.

CCWD has been operating and maintaining the reservoir for domestic water supply under contract with Reclamation since 1967. On September 18, 1972, Reclamation and EBRPD entered into a management agreement transferring responsibility from Reclamation to EBRPD for the development, construction, administration, operation, and maintenance of public recreation, recreation facilities, and other uses within Contra Loma, including the water surface area of the reservoir but excluding 20 acres directly north of the dam known as the Reclamation Zone. This agreement clarifies that the rights of EBRPD under this agreement are subordinate to the rights of the United States relating to the use of the lands and water areas for water regulation and other project purposes. Reclamation and its contractor CCWD retained responsibility for the

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Figure 3-1
Land Ownership and Management

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Reclamation Zone and management authority for the reservoir for purposes of its operation and use of CVP water supplies. According to the current management agreement with Reclamation, EBRPD has the authority to issue special use permits, licenses, and concession contracts to other entities as well as the responsibility to manage and maintain recreational facilities and uses at Contra Loma. The City operates and manages the Community Park in the northeastern portion of Contra Loma under a license agreement granted by EBRPD.

In 1981, 5.7 acres of land on the eastern side of Contra Loma adjacent to the City's Lone Tree Golf Course was removed from EBRPD's management area and has been leased to the City for golf course. The lease expired in 2011; however, Reclamation and the City are pursuing issuance of a new license in order to allow continued use of the land for golf. Although, this land is owned by the U.S. Government, it is not part of the Contra Loma Recreation Area and is, therefore, not covered in this RMP/EIS. Issuance of a new license to the City will require separate environmental analysis and approval from Reclamation. In conjunction with this lease of land to the City in 1981, EBRPD agreed to accept the use of a 3.9-acre City-owned parcel adjacent to the northeast corner of the Recreation Area (Figure 3-1). The lease between the City and EBRPD for the 3.9 acres of City-owned land also expired in 2011. Because this 3.9-acre parcel is owned by the City, it is not part of Contra Loma, and future use of this area will be determined by the City.

In 1985, EBRPD transferred management of approximately 47 acres of Contra Loma to the City under a license agreement that allowed the creation of the Community Park. The license agreement was amended in 1990 and it has been extended through December 31, 2013. Pursuant to this license agreement, management and maintenance of the Community Park is the responsibility of the City.

3.2.3 Land Uses and Zones

Reclamation uses WALROS as a management tool for classifying water and land use zones in terms of recreational experience. The primary goal of WALROS is to provide planners and managers with a framework and procedure for making better decisions in order to conserve a spectrum of high-quality and diverse water- and land-based recreation opportunities. In 2009, the WALROS system replaced its predecessor, WROS, which placed more emphasis on water-based recreation than land-based recreation.

In October 2008, Reclamation identified two WROS classifications for Contra Loma Reservoir. The southern half of the reservoir is classified as S4 and the northern half of the reservoir is classified as RD6 (Figure 1-2). The S4 zone is influenced by the developed recreation areas, high visitor use, and corresponding managerial presence along the southern shore. Facilities along the south shore include the swim lagoon, picnic areas, concessions, boat launch, parking lots, and Regional Park administrative facilities. The RD6 zone receives less use and has fewer facilities than the S4 zone, and is less developed than the S4 zone (Bureau of Reclamation and California Department of Parks and Recreation 2008). These zones are similar, though not identical, to the S and RD zones under the WALROS system. The 2008 WROS inventory did not identify classifications for the land portions of Contra Loma.

As the managing partner, EBRPD prepared a park-specific LUDP for Contra Loma to define allowed uses, describe the desired park character, provide guidance for future development and

use of the Regional Park, describe access and circulation, and designate areas for development or preservation (East Bay Regional Park District 1975a). The LUDP established a natural environment unit and recreation clusters in Contra Loma based on the anticipated and desired uses of each area (East Bay Regional Park District 1975a). The natural environment unit and recreation clusters encompass the 80-acre reservoir and all of the surrounding land except for the 20-acre Reclamation Zone, which encompasses the dam and its pumping facilities. The Reclamation Zone is reserved for use by Reclamation and CCWD.

The natural environment unit was designated to protect natural resources and provide more passive recreational opportunities with minimal development (East Bay Regional Park District 1975a). This unit encompasses the steeper hillsides and the majority of the reservoir surface and shoreline. This unit offers hiking trails, scenic views, fishing, and informal picnicking. Some of this unit is used for livestock grazing.

The recreation clusters were designated in Contra Loma to focus recreational activities and facility development within specified areas that are most conducive to recreation, such as those areas that have ease of access, are generally flat, and are close to water or other facilities (East Bay Regional Park District 1975a). The following four use areas were designated within the recreation clusters: the beach-marina cluster on the south shore of Contra Loma Reservoir, the day camp cluster in the northeast portion of Contra Loma (where the current Community Park is), the picnic meadow cluster to the east of the reservoir, and the equestrian facility or special use area in the southeast corner. These areas include the lands south, east, and northeast of the reservoir and in the southeast portion of Contra Loma adjacent to residential development.

3.3 Recreation

The Contra Loma Recreation Area was opened to the public in 1968 with limited recreational development. Currently, recreation at Contra Loma is available within the Contra Loma Regional Park and the Community Park managed by EBRPD and the City, respectively.

3.3.1 Contra Loma Regional Park

EBRPD classifies Contra Loma as a regional park because of its outstanding natural features and its outdoor recreational opportunities for public enjoyment and education (East Bay Regional Park District 1975a).

EBRPD operates the Regional Park to provide outdoor recreational and educational opportunities, while managing the park's natural and cultural resources. Recreational activities at the park include picnicking, fishing, boating, windsurfing, kayaking, canoeing, swimming, hiking, bicycling, horseback riding, and wildlife viewing. The Regional Park is open to the public daily from 5:00 a.m. to 10:00 p.m., although the park's vehicle entrance gate hours vary throughout the year. EBRPD collects fees for parking, dogs, swimming, boat inspection and launching, windsurfing, and fishing. Visitation has increased annually in recent years, as shown in Table 3-1.

Table 3-1. Annual Visitation to Contra Loma Regional Park (2005–2010)

Year	Visitors
2005	123,147
2006	124,122
2007	133,629
2008	145,556
2009	141,986
2010	147,395

Source: Rivoire, pers. comm. 2010; Bondurant, pers. comm. 2011a

The Regional Park contains various facilities that support the recreational uses offered at the park, such as trails, picnic tables, a large swimming pool (i.e., "swim lagoon"), food concession, parking areas, fishing docks, and a boat launch, as well as facilities for managing the land, such as fencing, access gates, and roads. EBRPD has offices, maintenance equipment and facilities, law enforcement vehicles, and a radio communication system onsite. The Regional Park has potable (drinking) water, restrooms and showers, portable chemical toilets, electricity, and telephones. Many, but not all, of the recreational facilities are ADA-compliant. The Regional Park has wheelchair accessible drinking water, parking, and restrooms. The shaded picnic areas near the swim lagoon are wheelchair accessible, and the swim lagoon has an accessible pool lift.

Most of the developed recreational facilities are located along the south side of the reservoir, which corresponds with the beach-marina recreational cluster identified in EBRPD's LUDP. A large manicured lawn with planted shade trees covers much of this area. Developed facilities in this area include picnic sites, the swim lagoon, the boat launch, a fishing dock, a fish cleaning station, restrooms, showers, changing rooms, drinking fountains, a food concession, an equestrian staging area, and several trails. Most of the parking areas are also located here (Figure 1-2).

Contra Loma Reservoir provides recreational fishing opportunities for children and adult anglers of varying skill levels. Annual visitation data suggest that angler use has been increasing and will continue to increase. The reservoir supports 14 species of fish, including eight species of game fish. EBRPD and the California Department of Fish and Wildlife (CDFW) stock rainbow trout and channel catfish in the reservoir. The reservoir also supports self-sustaining populations of largemouth bass, crappie, redear sunfish, and bluegill, which are also popular with anglers. A state fishing license and an EBRPD Fishing Access Permit are required for all anglers 16 years and older. Additional details about the reservoir's fishery are provided in Section 3.11 (Fisheries).

To protect the reservoir's domestic water supply from pathogens such as *Cryptosporidium*, the Department of Health Services (DOHS) (predecessor to California Department of Public Health [CDPH]) issued a compliance order to CCWD in 1999 requiring CCWD to either cease body contact activities in the reservoir or discontinue using the reservoir for drinking water supply. In response to this order, CCWD and EBRPD built the swim lagoon along the south side of the reservoir in 2001 (Figure 1-2) and swimming is no longer allowed in the reservoir. The swim lagoon is separated from the reservoir, ensuring that water from the lagoon does not enter the

reservoir. The lagoon has a concrete bottom; water is recirculated through filters and is disinfected and treated before it is returned to the lagoon, similar to a large swimming pool. The swim lagoon is surrounded on three sides by a manicured lawn, and four permanent umbrellas installed in the lawn provide shade. The swim lagoon and an adjacent lawn area are surrounded by a fence. The swim lagoon is staffed with life guards when it is open (seasonally from May through September) with varying hours throughout the season. Swim lagoon entrance fees are collected in addition to park entrance fees. Showers, changing rooms, picnic tables, and a food concession stand are available adjacent to the lagoon outside the fence. Concession stand hours are the same as swimming hours.

Windsurfing and limited boating are allowed on the reservoir. Body contact with the reservoir is highly restricted to protect the reservoir's domestic water supply from pathogens. To minimize body contact with the water, windsurfers must shower before entering the water and wear wet suits. Visitors may launch small boats (up to 17 feet long). To protect water quality, only electric motors are allowed; gasoline-powered engines are prohibited. Kayaks and canoes are allowed on the reservoir; however, paddlers using self-bailing kayaks must shower before launching and wear wet suits while boating. To protect against potential infestations of invasive zebra and quagga mussels, all boats are inspected by trained EBRPD staff prior to launching. All boats and aquatic gear must be dry prior to entering the reservoir.

A trail network within the Regional Park provides hiking, bicycling, and equestrian access to most areas of the park, as well as connections to the Community Park and other nearby trail systems (Figure 1-2). The trail system includes 0.75 mile of paved trails along the east and south shores of the reservoir. These paved trails provide access to the gravel-surfaced West Shore Trail, which is wheelchair accessible when trail conditions are favorable with respect to mud and the quality of the gravel surface. The West Shore Trail has a gravel surface. Several trails on the south side of the Regional Park connect with the trail system in EBRPD's Black Diamond Mines Regional Preserve, which provides connections to Mt. Diablo and other parks and trails within the EBRPD system.

The East Shore Trail and other trails on the north side of the Regional Park provide access to the Community Park, the Delta De Anza Regional Trail (also known as the Contra Costa Canal Trail), and the Mokelumne Trail. Trails in the northwest portion of the park provide access to adjacent residential communities. Bicycles may be ridden on designated trails and on fire or service roads, unless otherwise posted. Bicycles are not permitted in areas posted "No Bicycles," or on narrow (e.g., single track) hiking or narrow equestrian trails. Horses may be ridden on most trails within the Regional Park. An equestrian staging area with a hitching post, a horse watering trough, picnic tables, and a large gravel parking lot for trailers is located near the south shore of the reservoir.

Dogs are allowed in the Regional Park provided they are leashed and under control while in developed areas and areas posted with signs requiring use of leashes. Dogs are allowed off-leash in open space and undeveloped areas of the Regional Park.

Alcoholic beverages are not allowed in the Regional Park.

Special events and programs are allowed in the Regional Park with prior authorization from EBRPD. Running meets and day-camp programs, sometimes including swimming lessons and a junior lifeguard program, are held at the Regional Park. No camping facilities are provided, and overnight camping in the park is prohibited.

3.3.2 Antioch Community Park

The Community Park currently receives approximately 50,000 visitors annually. The most popular activities at the park involve use of the sports fields for softball, soccer, football, league sports and tournaments. Other popular activities include picnicking, walking, jogging, and bicycling.

The Community Park includes various facilities that support the recreational uses offered at the park, such as barbeque pits, picnic areas, restrooms, multi-use sports fields, a children's play area, youth play area, horseshoes, trails, and parking areas, as well as management facilities such as fencing, access gates, and driveways (Figure 1-3). Many, but not all, of the recreational facilities are in compliance with ADA. The Community Park has potable (drinking) water, restrooms, and electricity.

Most facilities are located in the western half of the Community Park. The driveway entrance at the intersection of James Donlon Boulevard and Blythe Drive is the primary access point to the Community Park. Facilities in this location include the main parking lot with approximately 230 spaces, a large group picnic area known as the Jensen Family Picnic Grove, individual picnic tables, barbeque pits, three multi-use sports fields (fields 1, 2, and 3; see Figure 1-3) with flood lights, children's and youth play areas, and restrooms. A paved trail from the western end of the parking lot leads to the Regional Park.

The eastern half of the Community Park includes two sports fields (fields 4 and 5), a second parking lot with approximately 230 spaces, and open space areas. An unpaved trail from the eastern end of the parking lot leads to the Regional Park. The Contra Costa Canal and the adjacent Delta De Anza Regional Trail run along the entire northern boundary of the Community Park.

The Community Park has a total of five sports fields. The three multi-use sports fields in the western half of the park (fields 1, 2, and 3) have softball diamonds, dugouts, bleachers, water fountains, nearby restrooms, and flood lights for nighttime use. These fields are used for softball, baseball, football, soccer, and kickball. The two sports fields in the eastern half of the Community Park (fields 4 and 5) are used primarily for soccer, but are also used for baseball, softball, football, rugby, and outdoor volleyball. The City has recently improved these fields by replacing the grass surface with synthetic turf, installing furnishings, perimeter fencing, concrete paving, an electrical/storage building, sports field lighting, perimeter irrigation and landscaping, drainage structures, and pavement. With the installation of lights, these fields are now used at night.

Sports fields 1, 2, and 3 develop muddy conditions during the rainy season that can render them temporarily unusable. To protect the turf and public safety, the City does not allow the fields to be used when wet.

3.4 Visitor Access and Circulation

3.4.1 General Access

Contra Loma is located in Antioch in northeastern Contra Costa County near the junction of State Route (SR) 4 and SR 160 (Figure 1-1). SR 4 is located approximately 1.5 miles north of Contra Loma and is the primary freeway serving the recreation area. SR 4 connects with Interstate (I-) 680 15 miles west of Antioch, providing access to and from other parts of the San Francisco Bay Area. East of Antioch, SR 4 passes through the City of Brentwood, providing access to and from the San Joaquin Valley. From Antioch, SR 160 heads north toward Rio Vista. Lone Tree Way and Contra Loma Boulevard are the primary surface streets connecting SR 4 to Contra Loma. Lone Tree Way also provides access to Contra Loma from Brentwood.

Vehicle access to the Regional Park is from Contra Loma Boulevard on the south side of the park. Frederickson Lane provides vehicle access to Contra Loma Boulevard from Golf Course Road (a major collector road) and several other streets providing access from Lone Tree Way (Figure 3-2). Vehicle access to the Community Park is from James Donlon Boulevard, which runs along the northern boundary of Contra Loma. James Donlon Boulevard is a four-lane street that provides access to Contra Loma Boulevard and Lone Tree Way. Lone Tree Way and James Donlon Boulevard are primary arterial streets. The section of Contra Loma Boulevard between SR 4 and James Donlon Boulevard is also an arterial street. Pedestrians and bicyclists may also reach Contra Loma via the Delta De Anza Trail, which connects to the Mokelumne Trail.

Within the City, peak hour congestion at freeway intersections and other major local intersections that serve the freeway system or local employment centers generally occurs during weekday mornings and afternoons (City of Antioch 2003a).

The Bay Area Rapid Transit District (BART) provides commuter rail service throughout much of the San Francisco Bay Area. The nearest BART station to Contra Loma is the Pittsburg/Bay Point station located 7 miles west of Antioch. Tri Delta Transit provides bus service to Antioch and nearby cities. Tri Delta Transit has several routes serving the Contra Loma area; however, most of these routes are commuter routes limited to weekdays. Tri Delta Transit has one weekend route that provides service to Contra Loma and the BART station. The nearest bus stop to Contra Loma is located at the intersection of Contra Loma Boulevard and James Donlon Boulevard, about a third of a mile from the Community Park entrance.

3.4.2 Contra Loma Regional Park

Visitor access to the Regional Park is by car, foot, bicycle, or horseback. Car access is from the southern park entrance and pedestrian access is through one of several pedestrian entrances (Figure 3-2). Two pedestrian entrances provide access to the Regional Park from the Community Park. A paved trail leading from the west side of the Community Park provides access to the Regional Park at the eastern end of Contra Loma Dam. An unpaved trail provides access from the eastern end of the Community Park to the northeast corner of the Regional Park. Three other pedestrian entrances are located on the northwest side of the Regional Park, and provide access to adjacent residential areas. All of these pedestrian entrances have gates that prohibit vehicle access. Visitors may also access the southern portion of the Regional Park by hiking, bicycling, or riding on horseback on one of several trails leading from the adjacent Black Diamond Mines Regional Preserve.

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North State Resources, Inc.

Figure 3-2
Roads and Access

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Circulation within the Regional Park is provided by the park's road and trail network. Immediately north of the entry kiosk the entrance road splits in three directions. The boat launch and a parking area are located approximately 500 feet north of the intersection. The road to the east leads to the east shore of the reservoir and the road to the west leads to the south shore of the reservoir (Figure 3-2).

The half-mile-long park road that leads to the east shore of the reservoir has a gravel surface. This road provides access to two parking lots, the east shore, and the trail system in the eastern portion of the Regional Park. The trails east of the reservoir include Old Ranch Loop, Swale Trail, and East Shore Trail. These trails provide access to areas north and east of the reservoir, including the Community Park, the Contra Loma Dam, and the east shore of the reservoir.

The road that leads west from the entry kiosk provides access to the south shore recreation areas. Parking is available in three lots and the equestrian staging area. Some parking lots are paved, and others have a gravel surface. The visitor road ends at the western parking lot near the park office. Several service roads for EBRPD staff continue west, providing access to the park office, corporation yard, police substation, and storage area. These service roads also serve as walking trails.

A network of trails provides access to the southern, western, and northwestern areas of the Regional Park, and connects with trails to the to the east shore (Figure 3-2). These trails include the West Shore, Stewartville, Ridge, Lake View, and Old Homestead Loop trails. The West Shore Trail runs along the west shore of the reservoir and provides access to the west shore fishing dock and the dam. Stewartville Trail runs along the park entrance road south shore of the reservoir.

The Ridge and Lake View trails provide access to the ridges south and west of the reservoir with views of the reservoir and beyond. An unnamed paved trail runs along the south shore of the reservoir from the entry kiosk to the swim lagoon, and provides wheelchair access to the swim lagoon, park office, several picnic areas, restrooms, and the south shore fishing dock.

The Regional Park has a parking capacity of 1,093 vehicles. Visitation is generally highest on weekends and holidays from Memorial Day weekend through Labor Day. Parking shortages are rare and typically only occur on hot weekend days once or twice every couple of years (Bondurant, pers. comm. 2011a).

3.4.3 Antioch Community Park

The primary access point to the Community Park is the driveway entrance at the intersection of James Donlon Boulevard and Blythe Drive. Vehicles entering the Community Park here may park in the main parking lot, which has approximately 230 spaces. The parking lot provides access to the Jensen Family Picnic Grove, picnic tables, barbeque pits, play areas, restrooms, and sports fields 1, 2, and 3. A paved trail from the western end of the parking lot leads to the Regional Park (Figure 3-2). A second vehicle entrance and another parking lot are located on James Donlon Boulevard at the northeast corner of the Community Park. This parking lot has approximately 230 spaces and provides access to sports fields 4 and 5. An unpaved trail from the eastern end of the parking lot leads to the Regional Park. Several paved trails provide internal

access within the Community Park. The Delta De Anza Regional Trail runs along the entire northern boundary of the Community Park.

3.5 Utilities

Public utilities at Contra Loma include water service, wastewater service, solid waste disposal, electricity, and telephone and radio service. Information was obtained from staff of the EBRPD and the City, and from the EBRPD Master Plan and the City's General Plan.

3.5.1 Water Service

Water service at Contra Loma is provided by the City via a long-term contractual agreement with CCWD for up to 125,000 acre-feet of CVP water per year. Drinking water is available at eight locations in the Regional Park; most of these locations are near the swim lagoon, park office, concession stand, and boat launch area (Figure 3-3). A watering station for horses is also provided at the equestrian staging area near the Lake View Trail between the boat launch area and main parking lot. EBRPD irrigates the cattle grazing and landscaped portions of the Regional Park from an allocation of up to 100 acre-feet per year of water from the reservoir (Rivoire, pers. comm. 2010; Miller, pers. comm. 2011).

At the Community Park, the City provides potable water to two restrooms, the concession building/snack bar, one community picnic area, and five individual picnic areas. Irrigation water is used over most of the park, which has turf, low ground cover, and approximately 100 mature trees. The Community Park experiences heaviest use of both potable and irrigation water during the peak visitor season, May through October (City of Antioch Recreation Department 2010).

3.5.2 Wastewater Service

The Regional Park has eight restroom facilities. These facilities are cleaned and visually inspected daily by park staff. The restrooms at the park office and the shower facility near the swim lagoon are connected to the City's sewer service through a lift station; although EBRPD drawings do not show the connection, EBRPD believes it may be in the area of Grimsby Drive (Stoneham, pers. comm. 2011). The other six restrooms are chemical toilets that are visually inspected daily and pumped biweekly by EBRPD. EBRPD has stated that the existing chemical toilets are not sufficient for the current level of use (Rivoire, pers. comm. 2010).

All wastewater service at the Community Park is handled by the Delta Diablo Sanitation District (DDSD) which includes two restrooms and the concession building/snack bar (City of Antioch Recreation Department 2010).

3.5.3 Solid Waste Disposal

Allied Waste provides solid waste collection, disposal, recycling, and yard waste services to the City, including Contra Loma (City of Antioch 2003b). Trash bins and recycling bins are distributed throughout Contra Loma. The park staff gathers the trash and deposits it in one main dumpster, which is emptied by Allied Waste.

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North State Resources, Inc.

Figure 3-3
Utilities

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3.5.4 Electricity

Electric service is provided by Pacific Gas and Electric (PG&E) to the office, the kiosk, the police substation, the boat ramp, and several irrigation pumps throughout the recreation area (Miller, pers. comm. 2011). No electric outlets are available at picnic sites. The Regional Park's monthly electrical usage ranges from approximately 25,610 to 70,579 kilowatt hours per month. PG&E also provide electrical service to the Community Park, but the City receives a combined electrical bill for all City properties, so electrical usage at the Community Park is difficult to determine. Separate electrical service is provided by PG&E to the dam.

No natural gas service is provided to Contra Loma.

3.5.5 Telephone and Radio

Telephone service is provided by AT&T to the park office, police substation, and entry kiosk (via microwave connection to the office phone system). Public telephones are available at the park office/concession area.

Radio communication is used by public safety personnel and other staff, and communication problems have been noted (Rivoire, pers. comm. 2010).

3.6 Public Health and Safety

This section addresses existing conditions and management policies regarding public health and safety at Contra Loma. Specific topics addressed are fire protection, police service, boating and swimming safety, natural hazards, and general public safety. Safety issues related to wildland fires, dam failure, and hazardous materials are described in Section 3.16 (Hazards), and safety issues related to seismicity and other potential geologic hazards are described in Section 3.12 (Geologic and Soils Resources).

3.6.1 Fire Protection

Since 1963, the EBRPD Fire Department has provided fire protection and emergency medical services to visitors of the East Bay regional parks under the authority of California Public Resources Code Section 5561.6. The fire department is responsible for providing fire protection in Contra Loma. Strategies include fire abatement and suppression, comprehensive fire prevention programs, fire investigation services, delivery of pre-hospital emergency medical care, and emergency medical transportation (East Bay Regional Park District 2011a). The department has local mutual aid agreements with Contra Costa and Alameda counties and the California Department of Forestry and Fire Protection (Cal Fire) and is a party to the Statewide Master Mutual Aid Program.

In general, EBRPD lands are predominately classified as State Responsibility Areas for fire protection. Contra Loma, like several other EBRPD parks, is located within a Local Responsibility Area, meaning that the Contra Costa County Fire Protection District (CCCFPD), which is the local fire protection district, has the legal responsibility to provide fire protection in the Regional Park. The EBRPD's role is to provide a strong secondary wildland fire response in support of the local fire protection district. EBRPD maintains a Type 4 engine (designed for wildland fires) at Contra Loma Station 8, located at the west end of Frederickson Lane in

Antioch. The station is usually unstaffed, but when nearby fires or extreme fire danger conditions occur, three firefighters are stationed there.

EBRPD provides fire suppression, prevention, emergency medical services, rescue, and initial hazardous materials response to incidents within the parks. From 2006 to 2008, EBRPD responded to the Regional Park for five fires and 51 emergency medical incidents. Compared with other EBRPD parks, this is a low rate of fire occurrence and a high rate of medical responses (Bondurant, pers. comm. 2011a). EBRPD's Wildfire Hazard Reduction and Resource Management Plan does not apply directly to Contra Loma, as this park was outside the study area of the plan. However, EBRPD uses the state-of-the-art fuels treatment methods (including grazing and mowing), mitigation measures, and BMPs outlined in the plan at Contra Loma (East Bay Regional Park District 1996). More information about wildfire protection and prevention is provided in Section 3.16 (Hazards).

Emergency response time standards vary by the level of urbanization of a service area, with faster target response times for urbanized areas (Burr Consulting 2009). National Fire Protection Association guidelines call for career fire departments to respond within 6 minutes 90 percent of the time. The response time guideline established by the California Emergency Medical Services Authority for emergency medical calls is 5 minutes in urban areas, 15 minutes in suburban or rural areas, and as quickly as possible in wilderness areas. EBRPD responds to all incidents as quickly as possible. In 2007, EBRPD's 90th percentile response time was 18 minutes and its median response time for all calls was 12 minutes. Although EBRPD met response time guidelines for suburban or rural areas in most instances, it did not meet the guidelines 90 percent of the time due to the remote locations of many incidents.

According to Contra Costa Local Agency Formation Commission, EBRPD fire stations have significant deficiencies, as many are merely unstaffed storage sheds for equipment (Burr Consulting 2009). Rather than undertaking major improvements to the old stations, EBRPD prefers to construct new stations and demolish the older stations. This is due in part because none of the existing fire stations have sleeping quarters, and EBRPD is often requested to perform overnight fire-watches by Cal Fire.

The CCCFPD provides fire suppression, paramedic emergency medical services, technical rescue, water rescue, and fire prevention and investigation services to much of the County (Contra Costa County Fire Protection District 2010). The CCCFPD operates 30 fire stations and responds to approximately 45,000 incidents annually. CCCFPD's service area includes the City, including Contra Loma. The nearest fire stations to Contra Loma are Station 83 at 2717 Gentrytown Drive, approximately 1.5 miles north of Contra Loma, and Station 82 on Bluerock Drive between Lonetree Way and Boulder Drive, approximately 1.25 miles east of Contra Loma (City of Antioch 2003b).

3.6.2 Police Service

EBRPD operates an independent Public Safety Division that patrols its entire regional park system, including Contra Loma. At the height of the summer season, the Public Safety Division is staffed by approximately 500 personnel, with 67 sworn police officers who derive their authority under California Penal Code Section 830.1. In addition, the division employs 195 seasonal lifeguards, 175 members in Volunteer Trail Safety Patrols, and 48 firefighters (see "Fire

Protection" above). Specialized units include the Air Support Unit, Marine Patrol, Equestrian Patrols, K-9 Unit, Special Enforcement Unit, Investigations Unit, and a 24-hour 9-1-1 Communications Center.

Contra Loma is located in Beat 2 of the EBRPD Police Department (East Bay Regional Park District 2010a). A substation of the EBRPD Public Safety Division is located within the Regional Park in the former park residence (East Bay Regional Park District 2011b). EBRPD public safety officers regularly patrol EBRPD parklands. In addition, the park is patrolled by helicopter as part of EBRPD's routine park management program. Initial response and reporting of incidents is generally provided by park rangers performing routine maintenance and safety patrols, although members of the public sometimes report incidents directly to the Antioch police or the CCCFPD. The Volunteer Trail Safety Patrol supports the EBRPD staff. Patrol members educate park visitors about EBRPD resources, programs, facilities, and rules. They operate in an observe-and-report role, working to foster positive relationships among user groups. Volunteers also assist with other related services within the parks.

The Antioch Police Department provides crime prevention and law enforcement services within the City's boundaries, including backup services to Contra Loma (City of Antioch 2003a). Operating from a central station at 300 L Street, the Antioch Police Department maintains a combination of professional sworn officers, non-sworn positions, and volunteer positions. The City is divided into six geographical areas, or beats. Beat 3 encompasses the western and southwestern portions of the City, including Contra Loma (City of Antioch 2003b). Police calls are categorized by the City's Police Department under the following priorities:

- Priority 1 designates crimes in progress or life-threatening situations.
- Priority 2 designates calls that demand immediate attention, but are not crimes in progress or life threatening situations.
- Priority 3 designates those calls that do not require immediate response and can be dealt with as soon as is practical.

In 2000, response times in Beat 3 were 7:02 minutes for Priority 1 calls; 11:27 minutes for Priority 2 calls; and 27:30 minutes for Priority 3 calls (City of Antioch 2003b). As of July 2011, the police department reports that the Community Park has been the site of three grand thefts, but no automobile thefts or personal crimes (City of Antioch 2011a).

3.6.3 Boating and Swimming

Water-related recreation at the Contra Loma Reservoir is managed by EBRPD and is open year-round for anglers and boats up to 17 feet long. CCWD operates the reservoir for domestic water supply. CDPH prohibits body contact recreation in water supply reservoirs. To comply with this prohibition, in June 2002 EBRPD placed the following restrictions on activities permitted in the reservoir (Contra Costa Water District 2009):

- No body contact swimming is allowed in the main reservoir. Swimming may only be done in the swim lagoon.

- Kayaking (with a self-bailing bilge) and windsurfing are allowed only after an individual has showered at the installed outdoor shower. Wetsuits must be worn by windsurfers and float tubers.

- Recreational boating is only allowed for boats powered by electric motors, sails, or paddles and oars. No gasoline-powered engines are allowed.

The swim lagoon is separated from the reservoir by a concrete-lined earthen berm that has a built-in synthetic liner. The lagoon water is circulated through a drainage and pumping system, which includes an on-site treatment plant; and the water is chlorinated using sodium hypochlorite. Wastewater from the treatment plant is discharged to the sanitary sewer. The lagoon water does not mix with the water in the main body of the reservoir at any time.

For safety reasons, swimming is permitted in the swim lagoon only when a lifeguard is on duty. The lagoon is open daily during summer and on weekends during April, May, and September (East Bay Regional Park District 2008).

In 2009, there were 956 boaters recorded at Contra Loma Reservoir, and in 2010, there were 911. Many more people go to Contra Loma to swim than to use boats, with more than 57,000 swimmers recorded in 2010. Table 3-2 provides a summary of lifeguard activity at the swim lagoon from 2006 to 2010.

Table 3-2. Lifeguard Activity at the Contra Loma Swim Lagoon (2006–2010)

Activity	2006	2007	2008	2009	2010
Attendance	56,586	59,325	60,955	53,394	57,319
Rescues	11	15	7	11	14
Missing Person	21	6	11	6	6
First Aid (minor)	287	305	220	139	135
First aid (major)	1	10	2	7	3

Source: Bondurant, pers. comm. 2011b

3.6.4 Natural Hazards

Hiking trails can bring the public into contact with wildlife and natural pests, including snakes, ticks, and mosquitoes.

EBRPD has prepared a public information pamphlet on the various types of snakes that are present on its properties (East Bay Regional Park District 2005). The pamphlet emphasizes how to avoid snakes, their value to the ecosystem, and emergency procedures in case of snakebite.

3.6.5 General Public Safety

Even though CCWD manages and operates Contra Loma Reservoir, Reclamation maintains ultimate jurisdiction over the reservoir as a water supply facility of the CVP. The 20-acre Reclamation Zone north of the dam is reserved for operation and maintenance of the facility. Access to this area is restricted to authorized personnel only.

The City Office of Emergency Services provides disaster preparedness information and training to City residents (City of Antioch 2011b). The City maintains a community emergency disaster warning system using television and radio to address the full range of potential emergencies, including earthquakes, severe winter storms, wildland fires, and hazardous materials events.

Contra Loma contains paved and unpaved hiking, bicycling, and equestrian trails. EBRPD strongly encourages all bicycle riders to wear helmets while using trails.

Dogs are allowed off leash in open spaces and undeveloped areas of the Regional Park; these areas must be at least 100 yards from developed areas or separated by fences. Dogs on leashes are allowed in parking lots, picnic sites, lawns, and other developed areas. However, dogs are not permitted at the swim lagoon or on the beach, in wetlands or marshes, or in designated nature study areas (East Bay Regional Park District 2011c).

3.7 Hydrology

Contra Loma Recreation Area generally drains to the north from the foothills of the Diablo Range toward the Sacramento-San Joaquin Delta (Delta). About 350 acres of the 741-acre recreation area drains to Contra Loma Reservoir and the remainder drains to the municipal reservoir east of Contra Loma, the Contra Costa Canal, or the City's storm drain system.

3.7.1 Contra Loma Reservoir

Contra Loma Dam is 107 feet high, and its crest is 30 feet wide and 1,050 feet long. Contra Loma Reservoir is classified as an off-stream reservoir, which means that its water is primarily supplied from a source other than direct surface runoff. The reservoir is impounded by Contra Loma Dam and by two dikes along its eastern shore (Contra Costa Water District 2009). The majority of the reservoir's water originates in the Delta and is made available under Contract No. 175r-3401A-LTR1 between Reclamation and CCWD. Water for the reservoir is diverted from the Delta at the Rock Slough and Old River intake sites, and is then conveyed by the Contra Costa Canal to Contra Loma where it is pumped uphill from the canal to the reservoir. The pumping plant is located near the toe of the dam and uses three pumps that can deliver a combined maximum of up to 21.16 cubic feet per second of water to the reservoir.

The reservoir also catches a small amount of surface runoff from the Oil Canyon watershed, which drains a portion of the Diablo Range to the southeast of Contra Loma. Runoff from Oil Canyon comingles with the water pumped from the Contra Costa Canal and is used by CCWD. Water that flows over the spillway during unusual storm events goes into the City's storm drain system and eventually drains to the Delta.

The reservoir's total watershed is about 680 acres; about 350 acres of which are within the Regional Park. Most of remaining acres are located in EBRPD's Black Diamond Mines Regional Preserve located adjacent to the southern boundary of Contra Loma (Figure 3-4). The portion of the reservoir's watershed that lies within the recreation area is roughly bound by the rolling hills to the west and south, and by the Regional Park's main entrance road. The Community Park does not drain to the reservoir and, therefore, is not located within its watershed.

Soils within the reservoir's watershed are made up primarily of clays, and its land cover is characterized by grass, brush, and some tree cover. These conditions indicate a good potential for surface runoff; however, the watershed's relatively small area limits the amount of precipitation that is captured.

In order to quantify the amount of surface runoff captured by the reservoir's contributing watershed, an approximate hydraulic model was developed using the Soil Conservation Service (SCS) method outlined in *Urban Hydrology for Small Watersheds* (States Department of Agriculture 1986) in conjunction with the Army Corps of Engineers' (Corps) Hydraulic Modeling Software (HEC-HMS). This method estimates surface runoff using a number of parameters, including watershed area, watershed length, slope, soil type(s), and rainfall.

The SCS method assigns an empirical parameter called the SCS Curve Number to each hydrologic soil group to help predict the surface runoff associated with the soil type. The soil type in this watershed consists mostly of the Altamont-Fontana complex underneath lightly grazed open pasture and grasslands, resulting in an average curve number of 71 (Department of Agriculture 1986).

In general, hydraulic modeling is used to predict the amount of surface runoff for 10-, 20-, 50-, and 100-year storm events so that downstream facilities can be designed to accommodate those flow regimes. Because the reservoir's watershed is relatively small and the only downstream facility is the reservoir, the hydraulic model was designed to estimate only the total monthly runoff based on average monthly precipitation for the City (Figure 3-5). The following worst-case scenario assumptions were built into the reservoir watershed model: the soil within the watershed is assumed to be saturated before the rainfall event and the average monthly rainfall is distributed on a continuous basis throughout the entire month. These assumptions tend to produce a higher estimate of the total runoff volumes, and actual runoff volumes may be lower depending on existing conditions.

The results from the HEC-HMS model are illustrated in Figure 3-6. As shown, the Contra Loma Reservoir receives nearly all of its surface runoff from November through March. The total yearly amount of runoff is only about 106.5 acre-feet, which is equal to about 4 percent of the reservoir's total storage capacity. The contributing watershed area within the recreation area boundary accounts for approximately 51 percent of the total watershed area. Because the soil types within the recreation area are generally similar to one another, it is reasonable to assume that about 51 percent of the total surface runoff volume is generated within the recreation area boundary. Based on this assumption, runoff from within the recreation area equals about 2 percent of the reservoir's total storage capacity.

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Figure 3-4
Drainage

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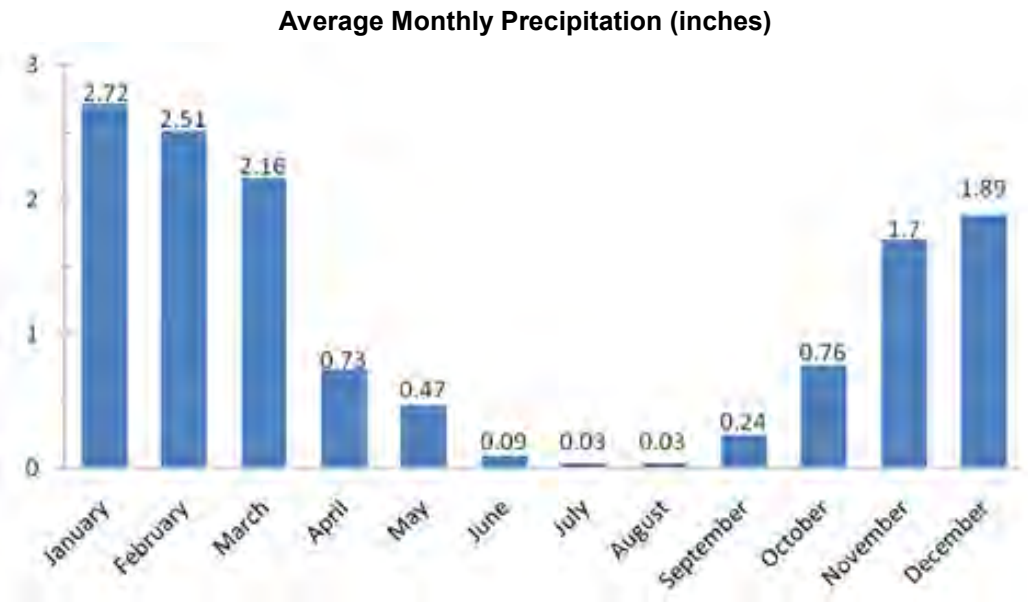


Figure 3-5. Average Monthly Precipitation for Antioch, CA

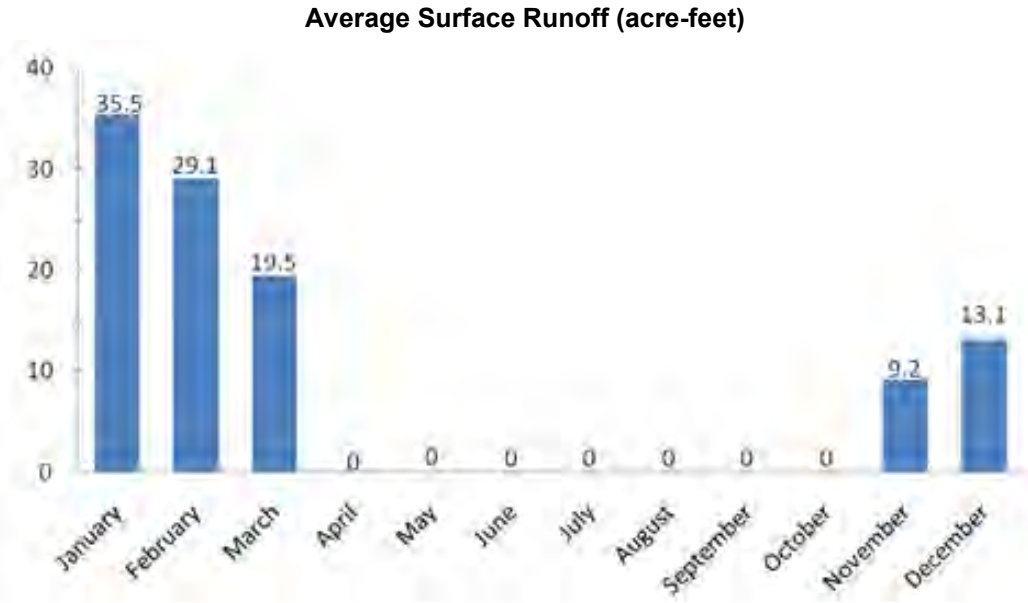


Figure 3-6. Average Monthly Surface Runoff into Contra Loma Reservoir

3.7.2 Other Drainages

About 350 acres of the 741-acre recreation area drains to the Contra Loma Reservoir, and the remainder drains elsewhere. Approximately 95 acres in the southeast corner of the recreation area drain to an unnamed creek that parallels Frederickson Lane and which then flows into the municipal reservoir (Figure 3-4). Another 89 acres on the east side of the recreation area drain east overland toward the municipal reservoir. Approximately 160 acres in the northeast corner of the recreation area (including the Community Park) drain northward toward the Contra Costa Canal. Some of this water may be pumped into Contra Loma Reservoir, and the rest flows westward toward other CCWD facilities. Approximately 33 acres in the northwest portion of the recreation area drain to the northwest toward the adjacent neighborhood, where flows join the City's storm drain system. Approximately 14 acres drain west toward an unnamed creek that flows northward to the City's storm drain system.

3.7.3 Reservoir Operations

Contra Loma Reservoir has a maximum capacity of 2,627 acre-feet at a maximum stage height of 211 feet (i.e., the spillway elevation). The reservoir surface area is 115 acres at the spillway elevation (Contra Costa Water District 2009). Under typical operating conditions, reservoir storage ranges between approximately 690 and 2,000 acre-feet, depending on supply needs and hydrologic conditions (Contra Costa Water District 2009). From 2005 to 2009 the dam was operated at stage elevations between 190.80 feet and 205.70 feet (1,179 acre-feet and 2,152 acre-feet, respectively), with an average monthly stage elevation of 202.19 feet (1,887 acre-feet). As shown in Figure 3-7, stage elevations during that period varied widely during the rainy season (November to March) but typically remained at an elevation of around 204 feet during dry months (Contra Costa Water District, unpublished data).

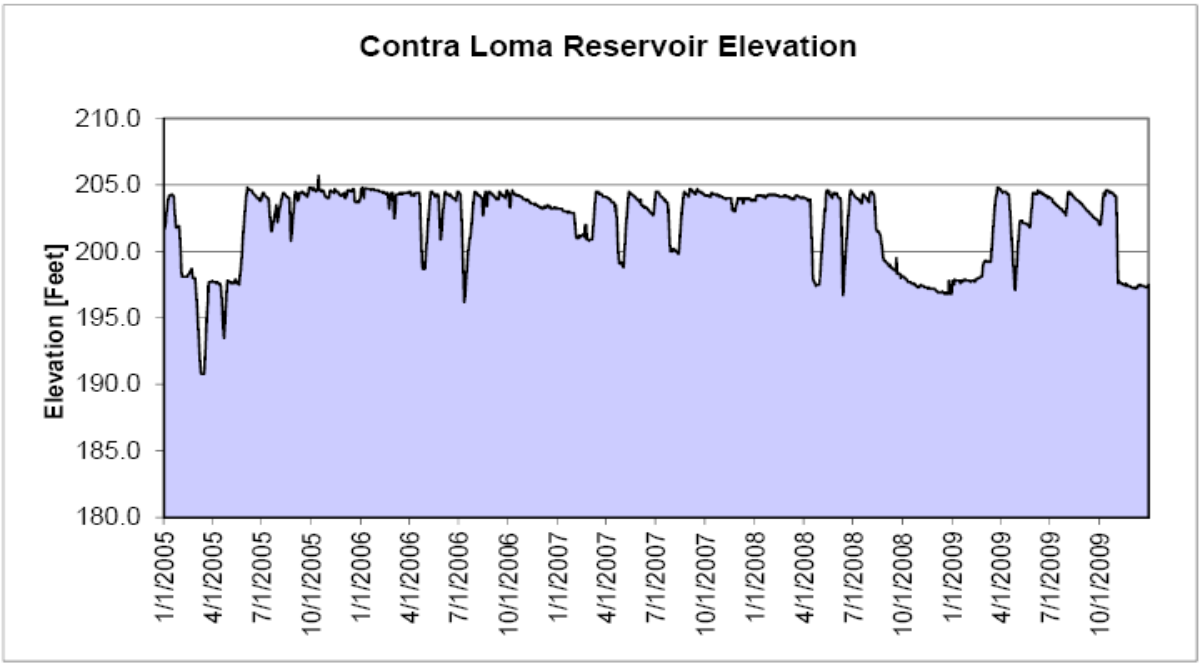


Figure 3-7. Reservoir Elevation Changes (2005-2009)

Because Contra Loma Reservoir is not a principal water storage reservoir, the dam is not actively managed on a daily basis. Figure 3-7 is a graphical representaion of the average yearly changes in reservoir level from 2005 through 2009. As shown in Figure 3-8, reservoir storage did not change on 46 percent of the days during this period. On days when storage was adjusted, the most common daily stage differential was about 0.1 feet. This increment equates to between 5 and 8 acre-feet of water exchange per day (depending on stage height), with 8 acre-feet being the statistical mode (Contra Costa Water District, unpublished data).

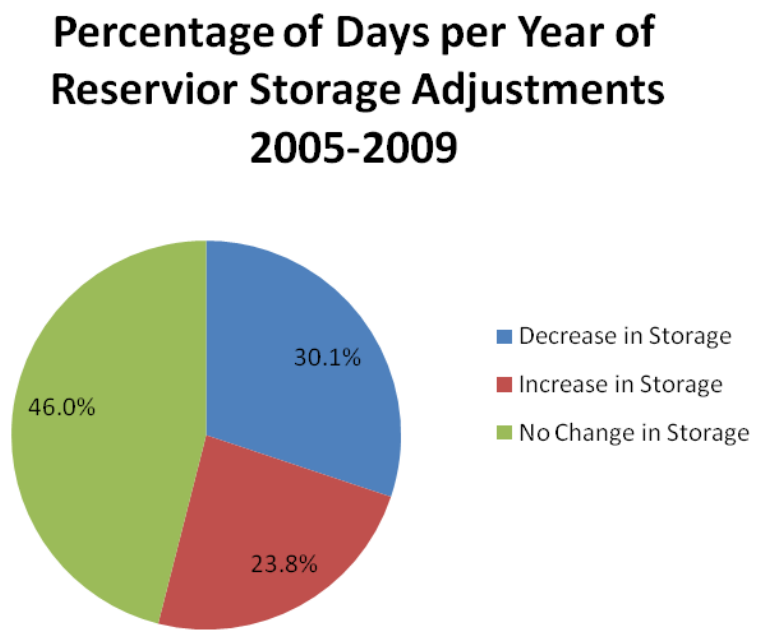


Figure 3-8. Graphical representation of the numbers of days per year (as a percent) that Contra Loma Reservoir undergoes an operational change in storage.

The amount of water stored in the reservoir decreases more often than it increases, which indicates that the water is released from the reservoir more often than it is pumped in (Figure 3-8). However, Figures 3-9 and 3-10 show that reservoir releases occur at lower rates (typically at 8 acre-feet per day) when compared with storage additions (typically between 9 and 39 acre-feet per day) (Contra Costa Water District, unpublished data).

From 2005 through 2009, most operational activity occurred during the months of April and May, with reservoir storage decreasing in April by an average of 341.80 acre-feet and reservoir storage increasing in May by an average of 356.80 acre-feet. During this period, the range of the elevation change in the reservoir in April and May averaged 4.79 and 5.06 feet, respectively. For all other months, total monthly storage increases averaged 52.40 acre-feet while monthly decreases averaged 49.77 acre-feet (Contra Costa Water District, unpublished data).

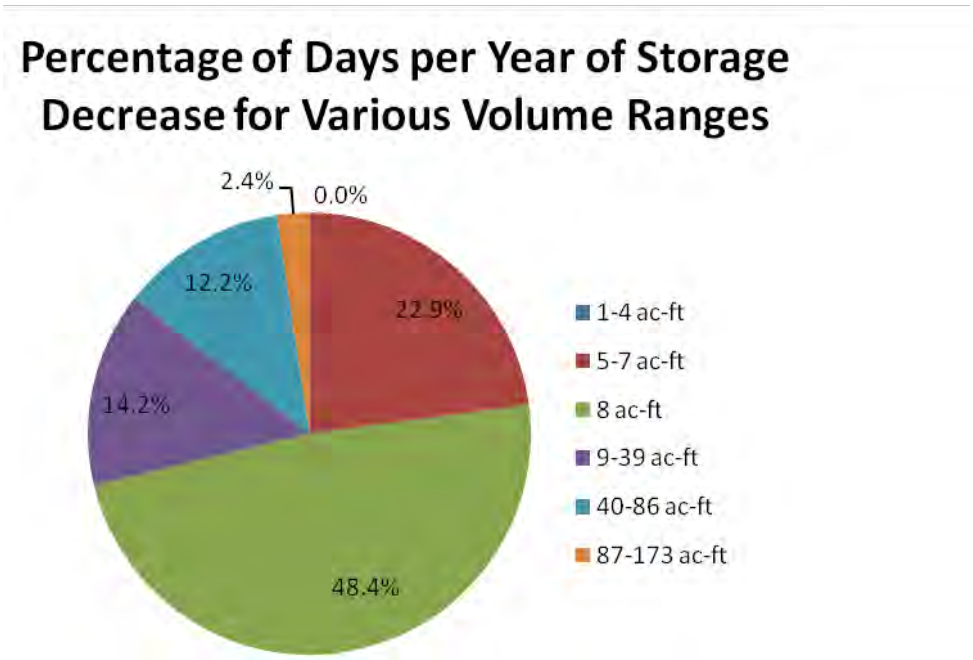


Figure 3-9. Graphical representation of the numbers of days per year (as a percent) Contra Loma Dam decreases reservoir storage volume at various volume ranges.

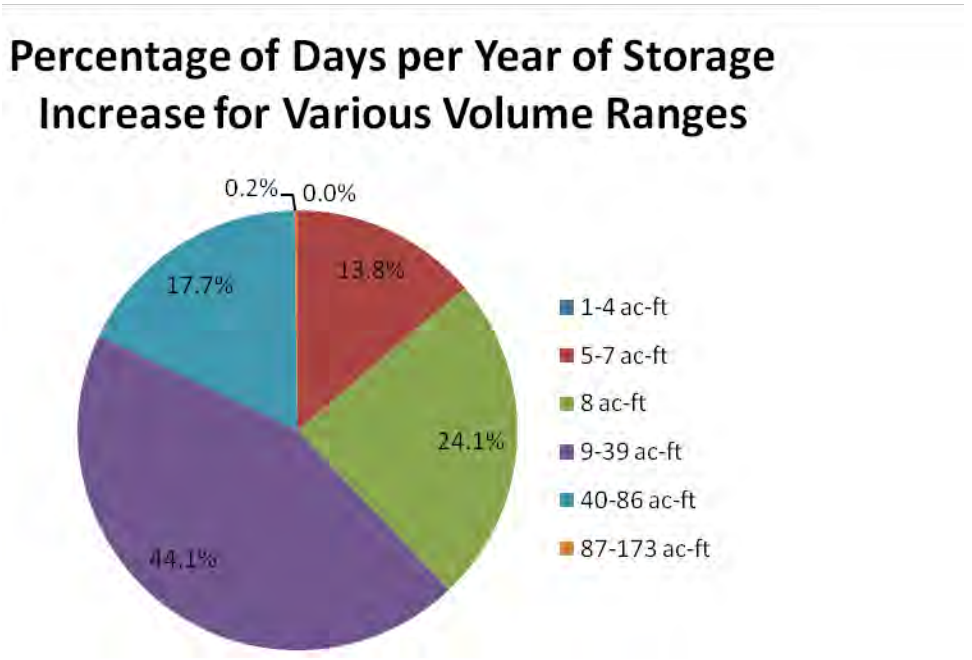


Figure 3-10. Graphical representation of the number of days per year (as a percent) Contra Loma Dam increases reservoir storage volume at various volume ranges.

3.8 Water Quality

Water quality in Contra Loma Reservoir is heavily influenced by the primary source of its water: the Delta. Water for the reservoir is diverted from the Delta at the Rock Slough and Old River intake sites and is then conveyed by the Contra Costa Canal to Contra Loma, where it is pumped uphill from the canal to the reservoir. The canal also periodically conveys water returned from Contra Loma Reservoir and other CCWD system storage reservoirs during periods when those reservoirs are at full storage capacity.

3.8.1 Potential Sources of Contamination within the Reservoir Watershed

The watershed that drains into the reservoir is about 680 acres. About 350 acres of the reservoir's watershed are within the Regional Park, and most of the remaining area is located in EBRPD's Black Diamond Mines Regional Preserve, which is located adjacent to the southern boundary of Contra Loma. The Community Park does not drain to the reservoir and, therefore, does not contribute contaminants to the reservoir. Several land uses, activities, and natural sources within the reservoir's watershed have the potential to affect the quality of the reservoir water.

Recreational activity in the Regional Park has the potential to affect reservoir water quality, although EBRPD and CCWD manage recreation in a manner that protects water quality. As described previously, body contact with the reservoir is highly restricted to protect the reservoir's domestic water supply from human-borne pathogens and viruses. The swim lagoon is hydrologically separated from the reservoir, thereby ensuring that lagoon water does not enter the reservoir; however, overflow of the swim lagoon could temporarily compromise water quality within the reservoir if its treatment system fails, although the likelihood of failure and resulting contamination is remote.

To further minimize body contact with the reservoir, windsurfers must shower before entering the water and wear wet suits. Kayaks and canoes are allowed on the reservoir, but paddlers using self-bailing kayaks must shower before launching and wear wet suits while boating. No gasoline-powered engines are allowed on the reservoir to prevent contamination from petroleum products and exhaust byproducts. All boats are inspected by trained staff prior to launching in order to protect the reservoir against infestation by non-native quagga mussels (*Dreissena rostriformis bugensis*) and zebra mussels (*Dreissena polymorpha*), collectively referred to as dreissenids. No wet boats or gear are allowed on the reservoir.

Equestrian activities and dog walking have the potential to introduce animal waste into the reservoir through surface runoff; however, plastic waste bags are provided in various locations and dog owners are encouraged to dispose of dog waste in garbage cans. In addition, hiking, biking, and equestrian activities can cause small amounts of localized erosion, and the resulting sediment can be transported to the reservoir by surface runoff.

Cattle grazing is allowed on 454 acres of grasslands surrounding the reservoir in accordance with the grazing license issued by EBRPD for the purpose of fire suppression (Figure 1-2). Most of the grazing in the recreation area is within the reservoir's watershed. Grazing within the watershed also occurs in the Black Diamond Mines Regional Preserve, which is located upstream from Contra Loma. Cattle grazing can impair water quality not only through transport of feces from surface runoff, but also through the process of cattle-induced erosion and

subsequent transport of sediment. Within Contra Loma, grazing is rotated between multiple enclosures, and cattle are not allowed near the reservoir itself to protect water quality; however, one small ephemeral stream flows through the southern part of the grazed area into the reservoir. This ephemeral stream could transport fecal matter and sediment directly into the reservoir.

The restrooms and showers at the park office near the swim lagoon are connected to the City's sewer service. Chemical toilets are also located in various parts of the Regional Park to supplement the permanent facilities. All restroom facilities are inspected and maintained at regular intervals by EBRPD staff or contractors. Restrooms and portable toilets that are properly used and maintained represent a very limited potential source of biological contamination to the reservoir. However, improper use, plumbing system failure, or accidental spills or overflow of portable toilets could cause contamination.

The fish cleaning facility located adjacent to the boat launch area of the marina often contaminates the reservoir due to improper disposal of fish cleaning waste. EBRPD has proposed relocating the fish cleaning facility away from the reservoir to prevent this from occurring. Reclamation is currently preparing separate environmental documentation for this project.

Other potential sources of contamination include chemical and sediment runoff from roads and parking lots, animal waste from local and transient wildlife, litter, potential spills or runoff from portable chemical toilets, human waste deposited outside of a designated restroom, and natural erosion and sedimentation processes.

3.8.2 Water Quality Protection

Section 303 of the Federal Clean Water Act requires states to adopt water quality standards that designate uses of navigable waters and associated water quality standards. The California Water Code (Section 13240) requires preparation and adoption of water quality control plans (i.e., basin plans). Basin plans are implemented by each Regional Water Quality Control Board (RWQCB). Basin plans consist of a designation or establishment of beneficial uses to be protected for the waters within a specified area, water quality objectives to protect those uses, and an implementation program needed for achieving the objectives. Basin plans identify both numeric and narrative water quality objectives that apply to all surface waters in the basin. Delta waters and the Contra Loma Reservoir are covered in the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins prepared by the Central Valley RWQCB (Central Valley Regional Water Quality Control Board 2009). This basin plan covers all of the Sacramento and San Joaquin River basins. Beneficial uses of the Contra Loma Reservoir include municipal and domestic drinking water supply, recreation, warm freshwater habitat, and wildlife habitat.

Drinking water quality is regulated at the Federal, state, and local levels. The Safe Drinking Water Act (SDWA) is the main Federal law that ensures the quality of drinking water in the U.S. The SDWA authorizes the Environmental Protection Agency (EPA) to set national health-based standards for drinking water to protect against both naturally occurring and man-made contaminants that may be found in drinking water. The EPA also oversees the states, localities, and water suppliers who implement these standards. States are given primary enforcement responsibility for public water systems in their state if they meet certain requirements.

In California, Title 22 of the California Code of Regulations (CCR) sets numeric primary and secondary drinking water standards to protect public health. California's standards meet or exceed the standards set forth in the Federal SDWA. The CDPH oversees water quality regulations for public water systems through its Drinking Water Program. In addition to Title 22 drinking water standards, Section 115825(b) of the California Health and Safety Code prohibits recreational body contact with reservoirs that store water for domestic use. Much of CCWD's water quality monitoring at the Contra Loma Reservoir is performed to ensure compliance with Title 22 provisions.

Title 22 provides primary drinking water standards, called maximum contaminant levels (MCLs), for 92 contaminants. Numerical MCLs are provided for 90 of these contaminants, and treatment techniques are provided for the two contaminants for which MCLs are not feasible. These primary contaminants include inorganic chemicals such as aluminum, antimony, and arsenic; radionuclides such as uranium and radium; volatile organic chemicals such as benzene and carbon tetrachloride; non-volatile synthetic organic chemicals such as chlordane; and disinfection byproducts such as bromate. Title 22 also includes secondary MCLs for 16 contaminants such as copper and iron as well as physical attributes such as color and odor.

The EPA developed the Long Term 2 Enhanced Surface Water Treatment Rule to provide additional protection for drinking water from disease-causing microorganisms sometimes found in surface water sources. These microorganisms include water-borne pathogens such as *Cryptosporidium* and *Giardia* that can cause diarrhea, vomiting, or stomach cramps as well as other health risks. *Cryptosporidium* is a significant concern in drinking water because it may contaminate surface waters used as drinking water sources, it is resistant to chlorine and other disinfectants, and it has caused waterborne disease outbreaks in other public water systems. Consuming water with *Cryptosporidium* can cause gastrointestinal illness that may be severe in people with weakened immune systems such as infants and the elderly and may be fatal in people with severely compromised immune systems such as cancer and Acquired Immune Deficiency Syndrome patients. Other pathogens of concern regulated by EPA and CDPH include *Escherichia coli* (E. coli) and other coliform bacteria.

Dreissenids represent another type of hazard to public drinking water systems. Once established, these non-native mussels can clog water intake and delivery pipes and other infrastructure, requiring costly maintenance and repairs to drinking water systems. These mussels also adhere to boats and pilings, foul recreational beaches, compete with native mussels, disrupt natural food webs, and bioaccumulate toxins. Quagga and zebra mussels were first detected in the Great Lakes in the late 1980s and have since spread unchecked throughout much of the eastern U.S. In January 2007, the first population of dreissenid mussels in the western U.S. was discovered in Lake Mead, and they have recently been found in several California reservoirs.

The Contra Loma Reservoir supports populations of Asiatic clam (*Corbicula fluminea*), a freshwater species native to Asia. Asiatic clams live in many reservoirs, lakes, rivers, and canals in California, including the Delta. The clam is also found throughout much of the U.S. (Geological Survey 2011). These clams burrow in reservoir sediments. Certain short-term water quality conditions can occasionally cause large clam die-offs, causing the clam shells to release the dead clam bodies, which float to the surface. These die-offs can affect water quality and create unpleasant odors (Contra Costa Water District 2010a). Asiatic clams have been known to

clog water intake and delivery pipes and other infrastructure in reservoirs, thereby increasing operating costs (Geological Survey 2011).

3.8.3 Water Quality Monitoring Programs

CCWD has instituted several water quality monitoring programs in support of regulatory compliance and for operations and maintenance of its water system infrastructure (Contra Costa Water District 2010b). CCWD monitors water quality in the reservoir for Title 22 primary and secondary drinking water standards and to meet the requirements of Compliance Order No. 02-04-97CO-007 (as amended) pertaining to microbiological (e.g., *Cryptosporidium*, *E. coli*, *Giardia*) water quality in the reservoir after completion of the swim lagoon. This order was issued to CCWD by the DOHS (predecessor to CDPH).

Physical analysis and water quality testing for inorganic pollutants and synthetic and volatile organic chemicals occurs annually in October. Testing for asbestos is performed every 9 years, with the next sampling event scheduled for 2017. Radiochemistry testing is performed every 3 years, usually during the first week of January. Microbiology testing is performed monthly. CCWD also tests the reservoir water for physical parameters such as temperature, pH, and dissolved oxygen; phytoplankton; quagga and zebra mussels; non-native aquatic plant species; and stratification.

CCWD's water quality testing indicates that chemical and biological contamination of the reservoir rarely occurs. Between 2006 and 2010, CCWD sampled and tested for 194 different water quality analytes, including microbes. Only two of the non-microbial analytes had at least one sample that was equal to or exceeded its MCL (Contra Costa Water District 2010c). These analytes are color and iron, and both are derived from natural sources within the reservoir watershed as shown in Table 3-3.

Table 3-3. Analytes in Contra Loma Reservoir with at Least One Sampling Result Equal to or Greater Than the Designated MCL (2006–2010)

Analyte (source)	Reporting Unit	MCL Level	Maximum	Minimum	Median	Total Samples	Samples ≥MCL (as %)
Secondary Standards							
Color (naturally occurring organic materials)	Color Unit	15	20	15	20	5	5 (100%)
Iron (natural deposits)	µg/L	300	1100	100	205	58	17 (29%)

Source: Contra Costa Water District 2010c
Notes: µg = microgram, L = liter

Every month, CCWD tests for biological pathogens by sampling reservoir water in two locations: near the dam and near the swim lagoon in the vicinity of the former swimming beach. This testing helps monitor the effectiveness of the swim lagoon at controlling human introduction of microbial pathogens into the reservoir. CCWD tests for *E. coli*, fecal coliform bacteria, nonsheen bacteria, and total coliform at the former beach. *E. coli* is an indicator of possible fecal contamination. Fecal coliform are specific to warm-blooded animals, and serve as indicators of human waste contamination. Total coliform includes bacteria found not only in

mammal waste, but also in soils. CCWD tests for these pathogens as well as *Cryptosporidium* and *Giardia* at the dam.

CCWD testing data show that pathogens in the reservoir are generally well below standards most of the time. However, total coliform levels have often exceeded standards and *E. coli* and fecal coliform have occasionally exceeded standards (Contra Costa Water District 2010c). As shown in Table 3-4, *E. coli* and fecal coliform exceeded standards in at least one sample each from both the dam and the former beach sites; however, median count values for *E. coli* and fecal coliform remained low, indicating that microbial levels for these pathogens remain low most of the time. It is also important to note that the median and maximum levels for these pathogens at the dam were equal to or higher than those at the former beach, suggesting that Delta water, which enters the reservoir at the dam, is the primary source of these pathogens.

Table 3-4. Microbiological Water Quality Results for Contra Loma Reservoir (2006-2010)

Analyte	Reporting Location	Reporting Unit	Standard	Median	Maximum	Total Samples	Samples ≥Standard (as %)
Giardia lamblia	Dam	cysts/L	1	<0.1	<0.1	60	0 (0%)
Cryptosporidium	Dam	oocysts/L	1	<0.1	<0.1	60	0 (0%)
Total coliform	Dam	cfu/100 ml	1000	785	39,000	90	53 (59%)
Total coliform	Former beach			505	33,000	60	23 (38%)
E. coli	Dam	cfu/100 ml	200	6.5	920	70	2 (3%)
E. coli	Former beach			3	920	40	5 (12%)
Fecal coliform	Dam	200 cfu/100ml (5 samples for 30 day period)	200	7.5	270	24	1 (4%)
Fecal coliform	Former beach			5.5	220	24	1 (4%)

Source: Source: Contra Costa Water District 2010c
Notes: cfu = colony forming units, ml = milliliter, L = liter

Approximately 38 percent of the samples collected at the former beach and 59 percent of the samples collected at the dam contained total coliform levels above the standard. Importantly, the median and maximum levels for total coliform were higher at the dam than the former beach, again suggesting that Delta water is the primary source of these bacteria. Although total coliform levels are not a direct indicator of microbial contamination, increased counts may indicate fecal sources of contamination. *Giardia* and *Cryptosporidium* counts were well below standards at the dam and do not appear to cause water quality problems for the reservoir.

CCWD monitoring has not identified any adult quagga or zebra mussels or veligers (the free-floating larval form of dreissenids) in Contra Loma reservoir (Contra Costa Water District 2010c).

3.9 Vegetation

Contra Loma Recreation Area is designated by the EBRPD as an open space area with developed recreation occurring in limited areas. As a result, vegetation at Contra Loma has been retained in or restored to its natural state to the extent feasible for an area that has been cultivated, grazed, or inhabited by Euro-Americans since the mid-1800s.

3.9.1 Vegetation Communities Assessment

The vegetation communities described in this section are classified based on the habitat descriptions provided in *A Guide to Wildlife Habitats of California* (Mayer and Laudenslayer Jr. 1988), which is a component of the California Wildlife Habitat Relationship (CWHR) System (California Department of Fish and Game 2011) used by CDFW. The CWHR habitat types present within Contra Loma include annual grassland, blue oak woodland, valley foothill riparian, fresh emergent wetland, riverine, lacustrine, urban, and barren. Field reconnaissance surveys of the study area were conducted by Reclamation's consultant North State Resources, Inc. (NSR) on October 20 and 22, 2010 by walking meandering transects that covered all habitats. Observations were made at each distinct habitat unit and the dominant plant species were recorded. Any areas that appeared suitable for special-status species were noted. Potentially significant features were also documented with photographs (Appendix F.1). On March 30, 2011, NSR conducted a focused botanical survey for stinkbells (*Fritillaria agrestis*), a plant classified by the California Native Plant Society (CNPS) as California Rare Plant Rank (RPR) 4.2, uncommon in California. The locations of stinkbells occurrences were mapped using a Trimble Pathfinder Pro XH GPS capable of sub-foot accuracy.

The descriptions and locations of aquatic, wetland, and riparian habitats are based on the reconnaissance-level surveys performed in October 2010, which did not include a formal delineation of these features or a determination of their Corps jurisdictional status. The habitat assessment is intended to provide a general description of the types of wetland and aquatic features at Contra Loma, including intermittent streams, seasonal wetlands, fresh emergent wetlands, riparian habitat, and open water. The jurisdictional boundaries and wetland classifications of the aquatic features at Contra Loma are subject to refinement if or when a formal delineation is performed.

Each of the habitats at Contra Loma is described below; Figure 3-11 illustrates the location and areal extent of these habitats and Table 3-5 provides acreages and percentages for all habitats at Contra Loma.

3.9.2 Upland Habitats

There are five upland habitats present at Contra Loma: annual grassland, valley foothill riparian, blue oak woodland, urban, and barren.

Annual Grassland Annual grassland is the dominant habitat at Contra Loma, covering 73 percent of the study area. The annual grassland at Contra Loma has historically been grazed and is composed primarily of non-native grasses and forbs. Dominant grasses and forbs include smooth brome (*Bromus hordeaceus*), slender wild oats (*Avena barbata*), Italian rye grass (*Lolium multiflorum*), yellow star thistle (*Centaurea solstitialis*), white-stem filaree (*Erodium moschatum*), and mouse-ear chickweed (*Cerastium glomeratum*).

Table 3-5. Habitat Composition at Contra Loma Reservoir and Recreation Area

Habitat	Acreage in Study Area (acres)	Percentage of Study Area (percent)
Upland		
Annual grassland	541	73.0
Valley foothill riparian	8	1.1
Urban	48	6.5
Barren	37	5.0
Upland Total	**634**	**85.6**
Blue Oak Woodland	**13**	**1.8**
Wetland and Aquatic		
Riverine	4	0.5
Fresh emergent wetland	8	1.1
Lacustrine	68	9.2
Wetland and Aquatic Total	**80**	**10.9**
Restoration Area	**14**	**1.9**
TOTAL – ALL HABITATS	**741**	**100**

Five very large valley oak trees (*Quercus lobata*) are present within the annual grassland habitat near the northeast corner of Contra Loma. These trees are very old (estimated between 50 and 150 years of age) and are important for their habitat value and acorn production. They may also be historically, culturally, and visually important to the community. The locations of these trees are shown in Figure 3-11.

Valley Foothill Riparian The valley foothill riparian habitat covers a little more than 1 percent of Contra Loma, and is primarily present along the intermittent stream corridors downslope from the Contra Loma and Antioch Municipal reservoirs near the northern boundary of the recreation area. Narrow fringes of valley foothill riparian habitat also occur along portions of the Contra Loma Reservoir shoreline. These areas are prone to periodic saturation or inundation from precipitation, high reservoir levels, irrigation runoff from the sports fields and landscaped areas, or possibly from seepage from Antioch Municipal Reservoir.

The valley foothill riparian habitat is composed mostly of large valley oaks, cottonwoods (*Populus fremontii*), and red willows (*Salix laevigata*), with an understory of Himalayan blackberry (*Rubus discolor*), poison oak (*Toxicodendron diversilobum*), and mulefat (*Baccharis salicifolia*). The narrow band of riparian habitat along the Contra Loma Reservoir is primarily composed of willows (*Salix* spp.) and mulefat.

Blue Oak Woodland Blue oak (*Quercus douglasii*) woodland occurs on the north-facing slope of a hillside in the southwest corner of Contra Loma (Figure 3-11). Blue oak is the dominant tree species in this scattered woodland. Interior live oak (*Q. wislizenii*) is a minor component of this habitat, and the understory is an extension of the surrounding annual grassland. The blue oak woodland within Contra Loma, which covers approximately 1.8 percent of the study area, is

contiguous with blue oak woodland that is scattered along the hillslopes to the west and south towards Mount Diablo.

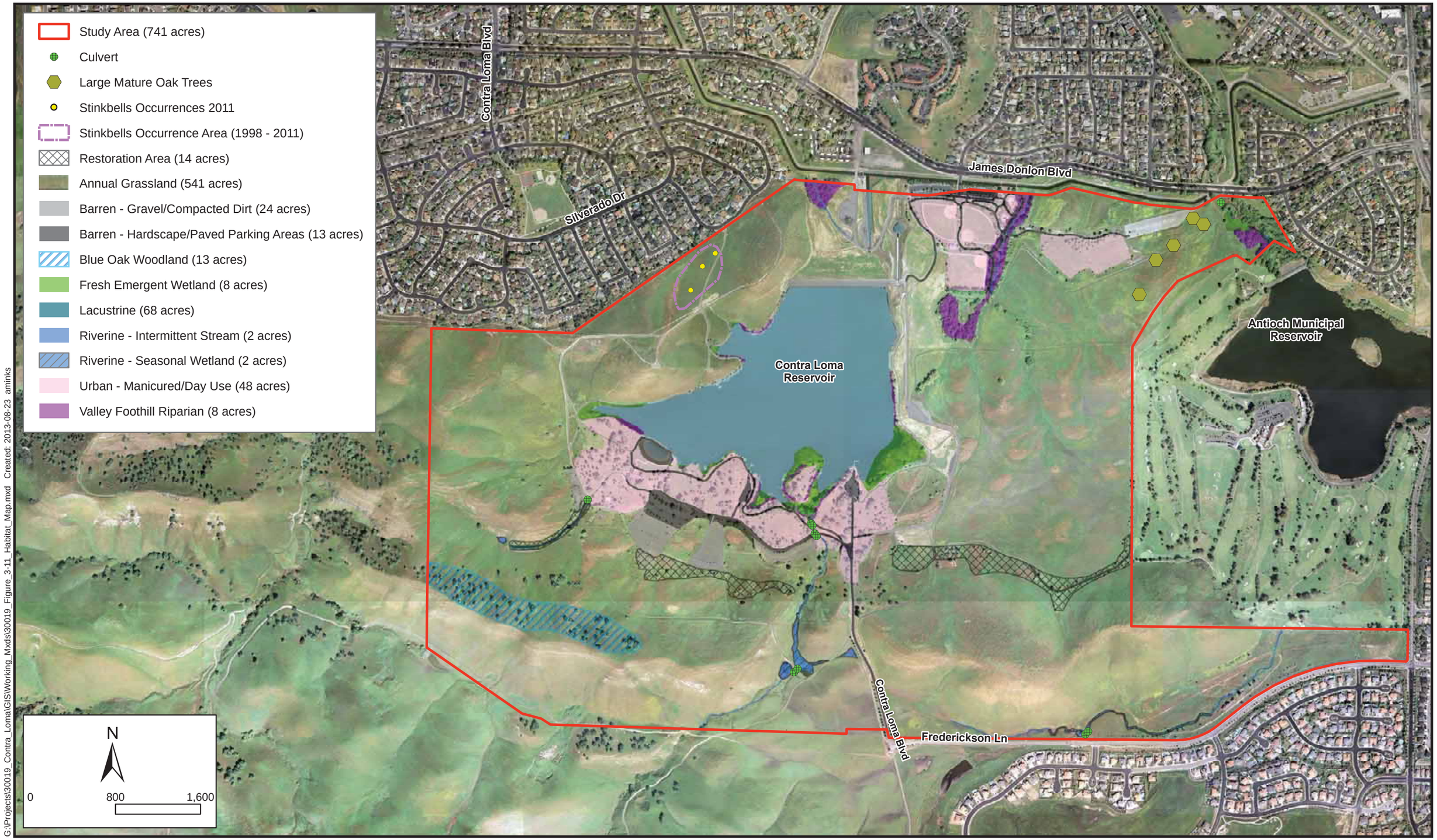
Urban About 6.5 percent of the recreation area is classified as urban. Vegetation communities found in urban settings vary widely and are typically characterized by areas where the native vegetation has been mostly or entirely cleared for residential, commercial, industrial, transportation, or recreational uses. Urban vegetation communities are usually composed of irrigated lawns, ornamental plantings, and trees that have been retained from the original habitat, or planted for landscaping or shade.

The CWHR categorizes urban habitat into five different vegetation structure types: tree grove, street strip, shade tree/lawn, lawn, and shrub cover. Tree groves are often located in urban parks, green belts, and cemeteries. Urban tree groves may vary in tree height, spacing, crown shape, and understory conditions, but generally have a continuous canopy. Street strip vegetation is located along roadsides and typically includes a ground cover of grass. Shade tree/lawn areas are characteristic residential and recreational landscapes and often mimic the appearance of natural savannas. Lawns are composed of a variety of grasses that are continuous and are maintained at a uniform height, irrigated, and fertilized. Shrub cover refers to areas that are commonly landscaped and maintained with hedges, as typically found in commercial districts.

The five types of urban vegetation structure often occur in various combinations, creating habitat complexity, which can be more valuable to wildlife than any one individual unit (California Department of Fish and Game 2011).

At Contra Loma, the urban habitat includes four of the five vegetation structure types: tree grove, street strip, shade tree/lawn, and lawn. All of these vegetation structure types are shown collectively as urban habitat in Figure 3-11. The urban habitat is most prevalent in the picnic areas and sports fields. Native trees that occur within the urban area at Contra Loma include Oregon ash (*Fraxinus latifolia*), black walnut (*Juglans californica* var. *hindsii*), Fremont cottonwood, blue oak, valley oak, and interior live oak. Non-native landscaping trees include fig (*Ficus* sp.) and eucalyptus (*Eucalyptus* sp.) associated with a historic residence.

Barren Barren habitat is defined by a relative absence of vegetation. Any vegetation community with less than 2 percent total herbaceous vegetation cover and less than 10 percent cover by tree or shrub species is considered barren. Contra Loma is approximately 5 percent barren. Barren area can include both urban and ruderal (i.e., disturbed or weedy) settings where the vegetation is sparse, as defined by the percent cover criteria. Two types of barren areas are defined within Contra Loma (Figure 3-11): gravel/compacted dirt, such as that found in gravel and dirt roads and parking areas, and hardscape, such as that found in paved roads and paved parking areas.



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North State Resources, Inc.

Contra Loma Reservoir RMP/EIS

Figure 3-11
Habitat Map

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3.9.3 Wetland and Aquatic Communities

Three wetland and aquatic habitats occur within Contra Loma: riverine, fresh emergent wetland, and lacustrine. These communities cover approximately 11 percent of the study area, and the location and areal extent of these habitats is shown in Figure 3-11.

Riverine The riverine habitat is typically associated with a linear body of water flowing in a channel with a defined bed and bank. These linear water bodies can flow perennially, intermittently, or ephemerally, depending on water input.

- Perennial streams have flowing water year-round during a typical year, and the water table is located above the streambed for most of the year. Groundwater is the primary source of water for stream flow. Runoff from rainfall is a supplemental source of water.

- Intermittent streams have flowing water during certain times of the year, when groundwater provides water for stream flow. During dry periods, intermittent streams may not have flowing water. Runoff from rainfall is a supplemental source of water.

- Ephemeral streams depend on precipitation, so they typically only flow during and after rain or other precipitation. Ephemeral streambeds are located above the water table year-round. Groundwater is not an important source of water for ephemeral streams.

Riverine habitat commonly includes hydrophytic (water-loving) vegetation, which can either grow from the stream bottom or along the banks. This vegetation can be sparse when water volume and movement are substantial or can be dense in slower moving waterways where plants can root themselves easily.

A small amount (0.5 percent) of the riverine community within Contra Loma consists of intermittent streams. Portions of these streams have sufficient water flow and scour to discourage the colonization of hydrophytic plants. Flatter stream sections have slow-moving water, which allows water to collect and saturate the soil while promoting the growth of seasonal wetland plants in and along the margins of these drainages. While still classified as a riverine habitat, these areas also exhibit characteristics of seasonal wetland habitat. Both the steeper and the flatter portions of these streams are mapped as riverine in Figure 3-11, with the areas that are more channelized and lacking vegetation sub-classified as intermittent streams and the areas where seasonal ponding occurs sub-classified as seasonal wetlands. Common wetland plants in the riverine habitat include ryegrass (*Lolium* spp.), curly dock (*Rumex crispus*), hyssop loosestrife (*Lythrum hyssopifolium*), Baltic rush (*Juncus balticus*), flowering quillwort (*Lilaea scilloides*), cattails (*Typha* spp.), dallisgrass (*Paspalum dilatatum*), nutsedge (*Cyperus eragrostis*), and cocklebur (*Xanthium* spp.).

Fresh Emergent Wetland The fresh emergent wetland habitat is typically associated with a year-round water source. This habitat is typically dominated by plant species that are erect, rooted, herbaceous, and hydrophytic, and that are adapted to conditions of prolonged inundation. Common plant species present in this vegetative community include perennial wetland species such as cattails and tules (*Scirpus* spp.). In some cases, fresh emergent wetlands can occur in areas with less frequent inundation where they can often support a wider variety of water-tolerant plants. Within Contra Loma, dense fresh emergent wetland vegetation is located along several

sections of the reservoir's southern shoreline. These areas support abundant cattails and tules, as well as several willow species. In the northeast corner of Contra Loma, there is an area that is frequently saturated and that supports fresh emergent wetland vegetation. This wetland is similar in composition to those found around the reservoir shoreline and is composed primarily of cattails, rushes (*Juncus* spp.), tules, and poison hemlock (*Conium maculatum*). Approximately 8 acres of fresh emergent wetland are found in the Contra Loma Recreation Area.

Lacustrine. The lacustrine habitat is characterized by open water that is too deep for emergent vegetation to become established. In Contra Loma, the plant-free portion of the reservoir is lacustrine habitat, and covers approximately 9.2 percent of the area. Eurasian watermilfoil (*Myriophyllum spicatum*) is a non-native aquatic plant which grows along some portions of the reservoir shoreline. Mats of watermilfoil can inhibit recreational use by entangling boat propellers and fishing lines.

Restoration Area. Several vegetation restoration areas are treated as inclusions within the annual grassland habitat (Figure 3-11). These areas are locations where EBRPD has endeavored to cultivate native plants and/or create quail habitat. Native trees and shrubs have been planted just south of the gravel/dirt parking areas on the south side of the reservoir. EBRPD has also placed brush piles adjacent to portions of the restoration area to provide shade and cover for quails. Another plant restoration area has been designated along the intermittent stream located near the southwest corner of the reservoir. At this location, the stream has been fenced off with wire mesh to protect the young plants from damage caused by herbivores such as cows and deer. Typical restoration plantings include young saplings of ash (*Fraxinus* sp.), willow, and oaks. The restoration plantings are treated as inclusions in the annual grassland habitat since they are not yet well established and provide minimal cover.

3.9.4 Special-Status Plant Species

This section discusses special-status plant species that occur in the region and describes the potential for these plants to occur within Contra Loma. For the purpose of this evaluation, special-status plant species include plants that are (1) listed as threatened or endangered under the California Endangered Species Act or the Federal Endangered Species Act; (2) designated as rare by CDFW; (3) state or Federal candidate or proposed species for listing as threatened or endangered; (4) listed by the CNPS as having a California RPR of 1A, 1B, 2A, 2B, or 3; or other special status conveyed by CNPS.

A list of special-status plant species considered in this assessment was compiled by obtaining an official species list from the U.S. Fish and Wildlife Service (USFWS) Sacramento Office for the *Antioch South, California* U.S. Geological Survey (USGS) quadrangle (Fish and Wildlife Service 2013) (Appendix F.2); performing queries for records contained within the California Natural Diversity Database (CNDDB) for the *Antioch South, California* USGS quadrangle (California Department of Fish and Wildlife 2013a) (Appendix F.3.1) and the CNPS on-line inventory for the *Antioch South, California* USGS quadrangle and eight surrounding quadrangles (California Native Plant Society 2013) (Appendix F.4); by reviewing botanical literature for the region; and by reviewing existing programmatic documents relating to the use and operation of Contra Loma. These efforts identified 59 special-status plant species known to occur in the vicinity of Contra Loma. These plant species were then reviewed to determine the potential for each species to occur within Contra Loma based on the presence or absence of suitable habitat.

EBRPD botanist Wilde Legard was also consulted as part of the review process as he has surveyed and monitored the habitats at Contra Loma for over 13 years (Legard, pers. comm. 2011).

No Federally listed or state-listed plants were determined to have the potential to occur within Contra Loma (Appendix F.5); however, the following five special-status plants were determined to have a low potential to occur within Contra Loma:

- big tarplant (*Blepharizonia plumosa*) (RPR 1B.1);
- round-leaved filaree (*California macrophylla*) (RPR 1B.1);
- Mt. Diablo fairy lantern (*Calochortus pulchellus*) (RPR 1B.2);
- Diablo helianthella (*Helianthella castanea*) (RPR 1B.2); and
- San Antonio Hills monardella (*Monardella antonina* ssp. *antonina*) (RPR 3).

Contra Loma is surrounded by a heavily urbanized community, and professional and lay botanists visit the park regularly. The East Bay Chapter of CNPS has maintained a database of regionally occurring rare plants in Alameda and Contra Costa counties since the 1980s (Lake 2010). The five plant species listed above have been reported during the last 20 years within a few miles of Contra Loma at sites containing habitats that are generally similar to those found within Contra Loma (California Department of Fish and Game 2011); however, the potential for these plants to occur within Contra Loma is considered low because none of these plants have ever been documented as occurring at Contra Loma (California Department of Fish and Game 2011; Legard, pers. comm. 2011). The general habitat requirements of these five plants are listed in Appendix F.5, and these plants are not discussed further in this document.

Only one special-status plant, stinkbells, is known to occur at Contra Loma, and this species has been monitored by EBRPD since 1998 (Legard, pers. comm. 2011). Stinkbells is designated as RPR 4.2 and is ranked as fairly threatened in California (California Native Plant Society 2013). Although a RPR of 4.2 would not typically result in a plant designation of “special status,” the East Bay CNPS has designated stinkbells as an A-ranked rare and unusual plant in Alameda and Contra Costa counties (Lake 2010), hence it is considered a “special status” plant in the RMP/EIS.

Stinkbells is a perennial wildflower that is endemic to California. It grows primarily in grasslands on areas of clay soil. The inflorescence is borne on an erect stem less than 2 feet tall and has several nodding flowers. Stinkbells flower between March and June and have an unpleasant odor. Known threats to this species include development and grazing. On the March 30, 2011 reconnaissance survey, 19 individual stinkbells were observed within three distinct clumps. All are within the area of the mapped populations that have been monitored by EBRPD since 1998 (Figure 3-11). The reported stinkbells population at Contra Loma has averaged about 200 individuals; the apparent decline in 2011 may be caused by more grazing than occurred in 2010 (Legard, pers. comm. 2011).

3.9.5 Invasive Plant Species

Invasive plant species can threaten or disrupt native species and vegetation communities by altering nutrient cycles, increasing fire hazard (including intensity and severity), and altering hydrologic cycles; creating changes in sediment deposition and erosion; dominating habitats and displacing native species; hybridizing with native species; and promoting non-native animal species (Bossard et al. 2000). Invasive plants, once introduced into an area, spread without assistance and can alter the native vegetation community or habitat they have invaded.

For the purposes of this evaluation, invasive plant species are defined as vascular plant species that are (1) rated as an A, B, C, or Q species by the California Department of Food and Agriculture (CDFA) (California Department of Food and Agriculture 2007); and/or (2) rated as a High, Moderate, or Limited for invasive properties by the California Invasive Plant Council (Cal-IPC), which maintains a list of invasive plants that threaten California's wildlands (California Invasive Plant Council 2006). Plants rated by the CDFA as A, B, or C are pests of known economic or environmental detriment. Plants rated as A are either not known to be established in California or are present in a limited distribution that allows for the possibility of eradication or successful containment. Plants rated as B, if present in California, are of limited distribution. Plants rated as C, if present in California, are usually widespread. Plants rated as Q are suspected to be of economic or environmental detriment, but their status is uncertain because of incomplete identification or inadequate information.

Reconnaissance surveys conducted in 2010 and 2011 identified 23 invasive and/or noxious non-native plant species occurring at Contra Loma. None of these plants are listed as noxious weeds in accordance with Section 2814 of the Federal Noxious Weed Act of 1974; however, they are rated as noxious or invasive by either the CDFA or Cal-IPC. The native status of all plants observed at Contra Loma, including CDFA and Cal-IPC noxious weed ratings where appropriate, included in Appendix F.6. Noxious weed species that were observed or that are known to occur at Contra Loma during surveys in 2010 and 2011 are listed in Table 3-6.

Table 3-6. Noxious Weed Species Observed or Known to Occur at Contra Loma

Common Name (Scientific Name)	Cal-IPC1	CDFA2	Observed3	Known to Occur4
slender wild-oat (*Avena barbata*)	Moderate	n/a	X	X
wild oat (*Avena fatua*)	Moderate	n/a	—	X
black mustard (*Brassica nigra*)	Moderate	n/a	X	X
ripgut brome (*Bromus diandrus*)	Moderate	n/a	X	—
soft brome (*Bromus hordeaceus*)	Limited	n/a	—	X
red brome (*Bromus madritensis* ssp. *rubens*)	High	n/a	X	—
Italian plumeless thistle (*Carduus pycnocephalus*)	Moderate	C	—	X
yellow star-thistle (*Centaurea solstitialis*)	High	C	X	X
bull thistle (*Cirsium vulgare*)	Moderate	n/a	X	X
poison hemlock (*Conium maculatum*)	Moderate	n/a	X	—
Bermuda grass (*Cynodon dactylon*)	Moderate	n/a	—	X
tall fescue (*Festuca arundinacea*)	Moderate	n/a	—	X
barley (*Hordeum murinum*)	Moderate	n/a	—	X

Table 3-6. Noxious Weed Species Observed or Known to Occur at Contra Loma

Common Name (Scientific Name)	Cal-IPC1	CDFA2	Observed3	Known to Occur4
Italian ryegrass (*Lolium multiflorum*)	Moderate	n/a	X	X
hyssop loosestrife (*Lythrum hyssopifolium*)	Limited	n/a	X	—
alkali mallow (*Malvella leprosa*)	N/A	C	—	X
California burclover (*Medicago polymorpha*)	Limited	n/a	—	X
Eurasian milfoil (*Myriophyllum spicatum*)	High	n/a	X	—
bristly ox-tongue (*Picris echioides*)	Limited	n/a	—	X
radish (*Raphanus sativus*)	Limited	n/a	—	X
Himalayan blackberry (*Rubus discolor*)	High	n/a	X	—
milk thistle (*Silybum marianum*)	Limited	n/a	X	X
puncture vine (*Tribulus terrestris*)	N/A	C	—	X

Sources: [1] California Invasive Plant Inventory (Cal-IPC 2006)
[2] Encycloweedia (California Department of Food and Agriculture 2007)
[3] Observed by NSR biologist in 2010 or 2011
[4] Wild Plants of Contra Loma Regional Park (East Bay Regional Park District 2003)
Notes: Plants rated as C, if present in California, are usually widespread.

3.10 Wildlife

Contra Loma is designated by the EBRPD as an open space habitat area (East Bay Regional Park District 1996) with some focused areas designated for developed recreation. As a result, past management of Contra Loma has been focused on protection of native vegetation communities and the wildlife species that use them, as well as on active and passive recreation.

3.10.1 Habitat Assessment

As discussed in Section 3.9 (Vegetation), vegetation community types and wildlife habitats described in this section are classified based on the descriptions provided in *A Guide to Wildlife Habitats of California* (Mayer and Laudenslayer Jr. 1988), which is a component of the CWHR System (California Department of Fish and Game 2011) used by CDFW.

The criteria used for the CWHR query included vegetation community type and geographic area. All vegetation community stages were included, and no community elements were excluded. The query results provide a general index of predicted wildlife species occurrences within the vegetation communities that are present in Contra Loma, which are discussed in detail below. Table 3-5 in Section 3.9 identifies the various vegetation community types and subtypes present at Contra Loma. There is significant overlap in the species expected to occur in some of these vegetation communities because of their close proximity to each other. For this reason, the precise acreage and percentage of area classified in each vegetation community type is less meaningful for the evaluation of wildlife species that may occur in the area.

Field reconnaissance surveys of the study area were conducted by NSR on October 20 and 22, 2010. The entire area was walked, and field maps were used to gain bearings and aid in classifying habitat types. Observations were made at each distinct habitat unit, and animal

species present were recorded. A list of animal species observed within the study area is attached as Appendix F.7. Any habitats able to support special-status species were noted on field maps and documented with photographs. Any wildlife observed was photographed (when possible) to document resident species.

Upland Vegetation Communities

Five upland vegetation communities are present at Contra Loma: annual grassland, valley foothill riparian, blue oak woodland, urban, and barren. Wildlife species found within each of these vegetation communities is described below. Figure 3-11 illustrates the location and areal extent of the corresponding vegetation community types within Contra Loma.

Annual Grassland. Characteristic wildlife species found in annual grasslands include reptiles such as western fence lizard (*Sceloporus occidentalis*), common garter snake (*Thamnophis sirtalis*), and western rattlesnake (*Crotalis viridis*); mammals such as black-tailed jackrabbit (*Lepus californicus*), California ground squirrel (*Spermophilus beecheyi*), Botta's pocket gopher (*Thomomys bottae*), western harvest mouse (*Reithrodontomys megalotis*), California vole (*Microtus californicus*), American badger (*Taxidea taxus*), mule deer (*Odocoileus hemionus*), and coyote (*Canis latrans*); and birds such as burrowing owl (*Athene cunicularia*), horned lark (*Eremophila alpestris*), and western meadowlark (*Sturnella neglecta*). Annual grassland also provides important foraging habitat for turkey vulture (*Cathartes aura*), northern harrier (*Circus cyaneus*), American kestrel (*Falco sparverius*), white-tailed kite (*Elanus leucurus*), and red-tailed hawk (*Buteo jamaicensis*). Wildlife species observed in the annual grassland at Contra Loma during the reconnaissance-level surveys included numerous coyotes and ground squirrels as well as several avian species including turkey vulture, red-tailed hawk, American kestrel, Brewer's blackbird (*Euphagus cyanocephalus*), and mourning dove (*Zenaida macroura*). Approximately 30 cattle were observed in the southwest quadrant of the study area during the surveys.

Valley Foothill Riparian. Valley foothill riparian vegetation communities provide habitat for a wide diversity of wildlife. The presence of water associated with this upland vegetative community attracts numerous mammals, birds, amphibians, and reptiles. Common mammals found in this cover type include mule deer, raccoon (*Procyon lotor*), coyote, striped skunk (*Mephitis mephitis*), deer mouse (*Peromyscus maniculatus*), harvest mouse, and dusky-footed woodrat (*Neotoma fuscipes*). Numerous birds are also typically found in this cover type, including yellow warbler (*Dendroica petechia*), northern flicker (*Colaptes auratus*), white-tailed kite, Cooper's hawk (*Accipiter cooperii*), red-shouldered hawk (*Buteo lineatus*), song sparrow (*Melospiza melodia*), and black-headed grosbeak (*Pheucticus melanocephalus*). Some amphibians and reptiles found in riparian areas include red-legged frog (*Rana draytonii*), Pacific tree frog (*Pseudacris regilla*), sharp-tailed snake (*Contia tenuis*), California alligator lizard (*Elgaria multicarinata multicarinata*), and common garter snake. Wildlife species observed in the riparian vegetation community at Contra Loma during the reconnaissance-level surveys included northern flicker, red-shouldered hawk, song sparrow, black phoebe (*Sayornis nigricans*), and European starling (*Sturnus vulgaris*).

Blue Oak Woodland. Blue oak woodlands produce acorns which are eaten by a variety of species, including acorn woodpeckers (*Melanerpes formicivorus*), western scrub-jays (*Aphelocoma californica*) and mule deer. Snags and trees containing cavities occur here,

providing nesting habitat for birds such as the western bluebird (*Sialia mexicana*), tree swallow (*Tachycineta bicolor*), and northern flicker, as well as potential roost sites for bats. Raptors, including the red-tailed hawk, American kestrel, and great horned owl (*Bubo virginianus*), may also nest in these woodlands. Coyote and gray fox (*Urocyon cinereoargenteus*) may forage here, and wildlife species dominant in annual grassland habitat (see above) flourish beneath the oak canopy. Wildlife species observed in the blue oak woodland vegetation community at Contra Loma during the reconnaissance-level survey included mule deer, western scrub-jay, northern flicker, red-tailed hawk, and western fence lizard.

Urban. Urban land cover, which at Contra Loma consists largely of landscaped areas surrounding the developed park facilities, can provide habitat for several mammal, reptile, and amphibian species and can provide nest, cover, and forage areas for several bird species. Common bird species in urban areas are the house finch (*Carpodacus mexicanus*), northern flicker, rock dove (*Columba livia*), American crow (*Corvus brachyrhynchos*), dark-eyed junco (*Junco hyemalis*), Brewer's blackbird, house sparrow (*Passer domesticus*), bushtit (*Psaltriparus minimus*), European starling, mourning dove, western scrub-jay, and mockingbird (*Mimus polyglottos*). Common mammals using urban habitat include raccoon, opossum (*Didelphis virginiana*), striped skunk, black-tailed jackrabbit, ground squirrel, and cottontail rabbit (*Sylvilagus audubonii*). Some amphibians and reptiles expected in urban areas would be the California slender salamander (*Batrachoseps attenuates*), Pacific tree frog, alligator lizard, gopher snake (*Pituophis catenifer*), and western fence lizard. Wildlife species observed in the urban areas at Contra Loma during the reconnaissance-level survey included numerous ground squirrels and domesticated waterfowl (ducks and geese), cottontail rabbit and black-tailed jackrabbit, as well as several avian species including western scrub-jay, American robin (*Turdus migratorius*), and Brewer's blackbird.

Barren. Within Contra Loma there are two types of barren land cover: hardscape, which includes roadways and paved parking areas; and gravel/compacted dirt, which includes dirt roads and trails, as well as some unpaved parking areas. These areas provide minimal habitat value for animals in Contra Loma. In some cases, mammals such as ground squirrels can use the gravel and compacted dirt substrates found along roads, trails, and parking lots to help create burrows. The compacted soils associated with these areas allow for stable burrow walls that tend to hold their shape effectively. Ground squirrels can burrow under the adjacent hardscape areas, such as roadways and paved parking areas, which provide additional burrow stability and protection from predators. Sometimes special-status species such as western burrowing owl and San Joaquin kit fox (*Vulpes macrotis mutica*) use abandoned ground squirrel burrows at these locations for breeding purposes. Wildlife species observed in the barren areas during the reconnaissance-level survey at Contra Loma included a grey fox and numerous ground squirrels along the edges of the barren habitat. Several bird species were observed flying overhead or perching in trees along the edges of the barren habitat. Some of the birds observed were white-tailed kite, red-tailed hawk, turkey vulture, and western scrub-jay.

Aquatic Vegetative Communities

Wildlife species that occur in aquatic habitats typically depend on water for all their life processes or significant portions of their life cycles. Three aquatic vegetative communities are present in Contra Loma: riverine, fresh emergent wetland, and lacustrine.

Riverine. Like the riparian and wetland vegetation communities, riverine habitat is important because it provides essential habitat for certain terrestrial and aquatic species. When water is present, many of the animal species that occur in the fresh emergent wetland and riparian vegetative communities can be found in the riverine habitat. In addition, amphibians such as Pacific tree frog, western toad (*Bufo boreas*), and California tiger salamander (*Ambystoma californiense*) and passerine birds such as Brewer's blackbird, red-winged blackbird (*Agelaius phoeniceus*), and brown-headed cowbird (*Molothrus ater*) may be present. During the dry season, a variety of small mammals use riverine areas, including deer mouse, California vole, and long-tailed weasel (*Mustela frenata*). Raptors such as white-tailed kite, northern harrier, and red-tailed hawk may also forage in this habitat. Wildlife species observed in the riverine habitat at Contra Loma during the reconnaissance-level surveys included northern flicker, song sparrow, black phoebe, and mourning dove.

Fresh Emergent Wetland. The fresh emergent wetland vegetation community is important for a wide variety of wildlife species. Representative water birds that forage and rest in permanent wetlands include great blue heron (*Ardea herodias*), great egret (*Ardea alba*), mallard (*Anas platyrhynchos*), American coot (*Fulica americana*), common merganser (*Mergus merganser*), and double-crested cormorant (*Phalacrocorax auritus*). Amphibians and reptiles in this habitat type include bullfrog (*Rana catesbeiana*), red-eared slider (*Chrysemys scripta elegans*), garter snake, possibly western pond turtle (*Emys marmorata*) and red-legged frog. Some of the wildlife species observed at Contra Loma in the fresh emergent wetland habitat during the reconnaissance-level survey were mallard, Canada goose (*Branta canadensis*), western grebe (*Aechmophorus occidentalis*), American coot, red-winged blackbird, great egret, and great blue heron.

Lacustrine. Amphibians such as California red-legged frog and bullfrog and reptiles such as western pond turtle and garter snake can use the lacustrine habitat of the reservoir for foraging. Reservoirs provide important habitat for various ducks, including mallard, green-winged teal (*Anas caroliniensis*), cinnamon teal (*Anas cyanoptera*), gadwall (*Anas strepera*), American wigeon (*Anas americana*), and American coot. Shore and wading birds, including double-crested cormorant, great blue heron, great egret, and several gull (*Laridae* spp.), species can also be found in reservoirs. Wildlife species observed in the lacustrine habitat during the reconnaissance-level survey at Contra Loma included double-crested cormorant, Canada goose, western grebe, and common merganser.

Twenty fish species, including eight species of sport fish, are known to be present in Contra Loma Reservoir. Many of these species were introduced into the reservoir from the Contra Costa Canal, which gets its water from the Delta. Primary species found in the reservoir during spring surveys from 2002 through 2011 are largemouth bass (*Micropterus salmoides*), bluegill (*Lepomis macrochirus*), black crappie (*Pomoxis nigromaculatus*), threadfin shad (*Dorosoma petenense*), redear sunfish (*Lepomis microlophus*), channel catfish (*Ictalurus punctatus*), white catfish (*Ameiurus catus*), and rainbow trout (*Oncorhynchus mykiss*). See Section 3.11 (Fisheries) for an expanded discussion of the reservoir fishery.

3.10.2 Special-Status Wildlife Species

For the purposes of this evaluation, special-status wildlife species include those that are (1) designated as threatened or endangered by the state or Federal governments (i.e., "listed

species"); (2) proposed for state or Federal listing as threatened or endangered; (3) candidates for state or Federal listing as threatened or endangered; and/or (4) identified by CDFW as species of special concern and/or California fully protected species.

A list of special-status wildlife species considered in this assessment was compiled by obtaining an official species list from the USFWS Sacramento Office for the *Antioch South, California* USGS 7.5-minute quadrangle (Fish and Wildlife Service 2013) (Appendix F.2); performing queries for records contained in the CNDDB for the *Antioch South, California* USGS 7.5-minute quadrangle (California Department of Fish and Wildlife 2013a; Appendix F.3.1) and the area within a 5-mile radius of Contra Loma (Appendix F.3.2); reviewing biological literature applicable to the Contra Loma region; and reviewing existing programmatic documents relating to the use and operation of Contra Loma. These efforts identified a total of 29 special-status animal species known to occur in the vicinity of Contra Loma. Accordingly, these species were reviewed in depth as part of this assessment to determine the potential for each species to occur within Contra Loma based on the presence or absence of suitable habitat. Based on a review of the habitat requirements, 14 special-status wildlife species have the potential to occur in Contra Loma (Table 3-7). A brief description of the geographic range, habitat requirements, and status for each of these species is provided in the table and a more detailed description of each of these species is provided below.

In addition, an analysis was made of bird species which are subject to the Federal Migratory Bird Treaty Act of 1918 (MBTA, 16 U.S. Code [USC] 703-711) that may be present. Birds protected by the MBTA which are known to be present and may also breed at Contra Loma include great egret, mallard, American coot, great blue heron, double-crested cormorant, Canada goose, western grebe, common merganser, northern flicker, song sparrow, black phoebe, mourning dove, western burrowing owl, white-tailed kite, American kestrel, red-tailed hawk, red-shouldered hawk, turkey vulture, western scrub-jay, American robin, red-winged blackbird, Brewer's blackbird and various gull species. Many other bird species protected by the MBTA may be present at Contra Loma periodically; however, site surveys or other documented sources have not confirmed the presence of these other species.

Table 3-7. Special-Status Species Potentially Occurring at Contra Loma

Species (Scientific Name/ Common Name)	Status		Habitat Description	Potential Occurrence at Contra Loma	Nearest Recorded Occurrence
	Federal[1]	State[2]			
Amphibians					
Ambystoma californiense California tiger salamander	FT	ST	Quiet water in ponds, vernal pools, seasonal wetlands, and streams are used for breeding. Adults emerge from their subterranean burrows for only a few weeks a year during the late winter and early spring after heavy rains. Suitable upland habitat includes woodland and grassland.	**Yes.** The wetlands that pond seasonally along intermittent streams south of the reservoir provide potential breeding habitat. Suitable upland refuges, especially ground squirrel burrows, are present in the annual grassland adjacent to these wet areas.	Several CNDDB occurrences are documented along the southern boundary of Contra Loma.
Rana draytonii California red-legged frog	FT	CSC	Marshes, slow parts of streams, lakes, reservoirs, ponds, and other permanent sources of deep water with dense, shrubby or emergent riparian vegetation; requires 11 to 20 weeks of permanent water for larval development. When not breeding, the red-legged frog may be found in damp wooded areas typically adjacent to waterways or seasonal ponds.	**Yes.** The fresh emergent wetlands within Contra Loma Reservoir provide the necessary habitat components for breeding; however, the presence of sport fish and bull frogs within the reservoir (predators to red-legged frog) make successful breeding less likely.	Nearest occurrence is within Black Diamond Mines Regional Preserve south and west of Contra Loma.
Reptiles					
Emys marmorata Western pond turtle	—	CSC	Permanent or nearly permanent water in a wide variety of habitats; requires basking sites; upland nest sites may be found up to 0.25 mile from water.	**Yes.** Potential habitat is present in Contra Loma Reservoir. Suitable habitat for the western pond turtle may occur in Contra Loma Reservoir and within the seasonal ponds along several of the intermittent streams south of the reservoir.	Western pond turtle occurrences are recorded in similar habitats throughout Contra Costa County and surrounding counties.

Table 3-7. Special-Status Species Potentially Occurring at Contra Loma

Species (Scientific Name/ Common Name)	Status		Habitat Description	Potential Occurrence at Contra Loma	Nearest Recorded Occurrence
	Federal[1]	State[2]			
Masticophis lateralis euryxanthus Alameda whipsnake	FT	ST	Northern coastal scrub and chaparral communities, especially when they occur adjacent to ungrazed grassland or oak woodland savanna where rodent populations are high. Rodents are not considered prime prey, but their burrows are favorite retreat areas for this snake. Grasslands are also considered an important habitat component because of their foraging value, and some female whipsnakes have been identified laying eggs in grassy fields. Rock outcrops are considered especially important hunting habitat for this snake. The western fence lizard is the primary prey species and prime habitats have high populations of this lizard. Inhabits south-facing slopes and ravines where shrubs form a vegetative mosaic with oak trees and grasses.	**Yes.** Coastal scrub or chaparral communities are not present in Contra Loma; however ungrazed grasslands with high rodent populations and burrows do occur. Rock outcroppings also occur in Contra Loma, and western fence lizards were abundant during site visits. The grassland areas of Contra Loma could provide habitat for the snake, especially the south-facing slopes along the southern portion of the study area.	Twenty-four CNDDB occurrences are documented within 5 miles of the study area. These occurrences support the likelihood that whipsnakes occur in the study area.
Birds					
Circus cyaneus Northern harrier	—	CSC	Marshlands, grasslands, meadows, and desert sinks. Mostly found in flat or hummocky open areas. Nesting occurs on the ground in these habitats.	**Yes.** Potential nesting and foraging habitat is present in the grasslands and fresh emergent wetlands throughout Contra Loma.	Northern harrier occurs in habitats similar to Contra Loma in Contra Costa County.

Table 3-7. Special-Status Species Potentially Occurring at Contra Loma

Species (Scientific Name/ Common Name)	Status		Habitat Description	Potential Occurrence at Contra Loma	Nearest Recorded Occurrence
	Federal[1]	State[2]			
Elanus leucurus White-tailed kite	—	SFP	Open grasslands, meadows, or marshes for foraging. Nesting and perching often occurs in isolated, dense-topped trees near foraging areas.	**Yes.** Potential foraging habitat is present in the grasslands, fresh emergent wetlands, and riverine habitat throughout Contra Loma. Several large, dense-topped trees within the Contra Loma study area could be used as nesting locations.	Observed onsite during the survey.
Agelaius tricolor Tricolored blackbird	—	CSC	Requires open water, preferably emergent wetland for nesting, but will also nest in thickets of willow and other shrubs. Forages in grassland and cropland areas with insect prey.	**Yes.** Potential nesting habitat is present in the fresh emergent wetlands along the reservoir shoreline. Foraging habitat is present in the grassland habitat surrounding the reservoir.	Tricolored blackbird occurs in habitats similar to Contra Loma in Contra Costa County.
Lanius ludovicianus Loggerhead shrike	—	CSC	Open habitats with sparse shrubs and trees that contain perches for scanning. Fairly dense shrubs and brush are needed for nesting.	**Yes.** Potential foraging areas are present within the annual grassland and riverine habitat of Contra Loma. Moderate-quality nesting habitat occurs in some of the trees and shrubs associated with the riparian areas adjacent to the grassland habitat.	Loggerhead shrike occurs in habitats similar to Contra Loma in Contra Costa County.
Athene cunicularia hypugaea Western burrowing owl	—	CSC	Open, dry, nearly level grassland, prairie, and desert floor with low-growing vegetation. Subterranean nester that generally uses existing mammal burrows, most notably those of the California ground squirrel.	**Yes.** Potential nesting and foraging habitat occurs throughout Contra Loma within the grassland habitat. Numerous ground squirrel holes were observed throughout Contra Loma that could be used as nesting sites.	There are 31 known CNDDB occurrences for this species within 5 miles of Contra Loma. This species is highly likely to occur within the study area.
Asio flammeus Short-eared owl	—	CSC	Freshwater and saltwater marsh areas, lowland meadows, and irrigated fields; tall grass and tules used for daytime cover; nests on dry ground concealed by vegetation.	**Yes.** Potential habitat is present in the fresh emergent wetlands around the reservoir.	Short-eared owl occurs in habitats similar to Contra Loma in Contra Costa County.

Table 3-7. Special-Status Species Potentially Occurring at Contra Loma

Species (Scientific Name/ Common Name)	Status		Habitat Description	Potential Occurrence at Contra Loma	Nearest Recorded Occurrence
	Federal[1]	State[2]			
Mammals					
Vulpes macrotis mutica San Joaquin kit fox	FE	ST	Annual grasslands or grassy open stages with scattered shrubby vegetation; need loose-textured sandy soils for burrowing and a suitable prey base.	**Yes.** Potential foraging and denning habitat is available in grassland areas of Contra Loma. Numerous ground squirrels observed in the study area would provide a good prey base. The presence of many coyotes within Contra Loma greatly reduces the likelihood of San Joaquin kit fox breeding within the study area, as coyotes are very aggressive to foxes.	A CNDDB occurrence for this species is documented within Contra Loma.
Taxidea taxus American badger	—	CSC	Herbaceous, shrub, and open stages of most upland habitats with dry, friable soils. May reuse old burrows or dig new ones for dens.	**Yes.** Potential habitat and an abundant ground squirrel prey base are available in the grasslands of Contra Loma.	There are three recent CNDDB occurrences documented for this species within 5 miles of Contra Loma. It is likely that this species occurs within Contra Loma.
Antrozous pallidus Pallid bat	—	CSC	Open, dry habitats. Roosts in caves, crevices, mines, hollow trees, and buildings.	**Yes.** Potential foraging habitat present throughout Contra Loma. Roosting habitat could include park facilities and buildings or rock outcrops in the hills west of the reservoir.	Pallid bat occurs in habitats similar to Contra Loma in Contra Costa County.
Corynorhinus townsendii Townsend's big-eared bat	—	CSC	Humid coastal regions of northern and central California. Roosting occurs in limestone caves, lava tubes, mines, or buildings where they cling to open areas, hanging from walls or ceilings.	**Yes.** Potential foraging habitat is present throughout Contra Loma. Roosting habitat could include park facilities and buildings.	Townsend's big-eared bat occurs in habitats similar to Contra Loma in Contra Costa County.

Notes: Federal status[1]: September 2011
FE = Listed as endangered under the Endangered Species Act
FT = Listed as threatened under the Endangered Species Act

State status[2]: January 2011
ST = Listed as threatened under the California Endangered Species Act
CSC = Species of special concern as identified by the CDFW
SFP = Fully Protected by the California Department of Fish and Game

San Joaquin kit fox. San Joaquin kit fox is Federally listed as endangered and state listed as threatened. San Joaquin kit fox is associated with open habitats such as arid grasslands, alkali sinks, and open woodlands of the San Joaquin Valley and the surrounding foothills. San Joaquin kit fox typically forages in grassland areas. Kit fox is usually associated with loosely textured soils that are suitable for excavating dens; badgers and coyotes sometimes initiate the excavation. Dens are typically dug on relatively level slopes, suggesting a preference for deep, friable (easily crumbled) soils. Den entrances are typically 5 to 10 inches in diameter, with 3- to 6-foot ramps of excavated soil. The distribution of San Joaquin kit fox populations is thought to be related to the availability of denning sites, particularly natal denning sites, which are often moved several times throughout the season. Artificial features such as culverts and roadbeds are occasionally used for dens. San Joaquin kit fox prey includes ground squirrels, black-tailed jackrabbit, kangaroo rats, and insects.

Potential foraging and denning habitat is abundant within the annual grassland areas of Contra Loma. The soil is friable, allowing foxes to excavate dens, and there are numerous ground squirrel populations upon which to prey. Ten occurrences of San Joaquin kit fox have been documented by CNDDB within 10 miles of the study area and one occurrence has been recorded within Contra Loma. Most of the records are from the early 1990s while the most recent occurrence was in Contra Loma in 1995 (California Department of Fish and Wildlife 2013a). This record shows that two individuals were observed near the south end of the reservoir near a small drainage in the annual grassland.

Although the habitat at Contra Loma appears viable for use by San Joaquin kit fox, the presence of many resident coyotes in the area greatly reduces the site's suitability for this species. Coyotes are very aggressive towards foxes. For this reason, San Joaquin kit fox is unlikely to breed within the study area. If the species is present in Contra Loma, it is most likely to be transitory, as no natal dens have been found at Contra Loma. Neither San Joaquin kit fox nor sign of kit fox dens, scat, or tracks were observed during the reconnaissance-level surveys.

California tiger salamander. California tiger salamander is both Federally listed and state listed as threatened. California tiger salamanders inhabit grasslands and oak savannas in the valleys and low hills of central and coastal California. Habitat conversion has eliminated the species from much of its former range (Shaffer et al. 1993; Fisher and Shaffer 1996). Adults spend most of their lives underground, typically in the burrows of ground squirrels and other burrowing animals. During winter rains between November and March, adults emerge from underground retreats to feed, court, and breed. Adults migrate up to one mile from burrows to breeding sites. Eggs are deposited in seasonal ponds and hatch into larvae. The ponds must contain water for a minimum of eight weeks to hatch and for metamorphs to leave pools, although it can take considerably longer for larvae to complete their development (Fish and Wildlife Service 2004). Following transformation, juvenile salamanders seek refuge underground where they remain until the next winter rains.

Potential salamander habitat at Contra Loma occurs in intermittent stream corridors with areas of seasonal ponding. Most of these locations are along the southern half of the study area. Specifically, the intermittent stream near the northeast corner of the study area and areas just beyond the southern boundary of the study area contain optimal seasonally wet conditions and are located near adjacent upland grassland habitat with abundant burrows for adult salamanders.

Several CNDDB occurrences document California tiger salamander observations along these particular waterways. There are 26 CNDDB records within 5 miles of the study area (California Department of Fish and Wildlife 2013a).

California red-legged frog. California red-legged frog is Federally listed as threatened and is classified by CDFW as a California species of special concern. This amphibian species inhabits quiet pools in streams, marshes, and ponds. This species is typically found near breeding sites, which include coastal lagoons, marshes, springs, permanent and semi-permanent natural ponds, and ponded and backwater portions of streams, as well as artificial impoundments, such as stock, irrigation and siltation ponds. Sufficient pond depth (at least 3 feet) and shoreline cover are both critical habitat components because they provide a means of escape from predators. Eggs are typically attached to emergent vegetation in permanent pools. Aestivation habitat, which is required for periods of dormancy, can be up to 300 feet from a stream corridor or pond and includes natural features such as boulders, rocks, trees, shrubs, and logs.

Potential habitat at Contra Loma may occur in the intermittent stream corridors where pools remain inundated long enough for frog metamorphosis to occur. Contra Loma Reservoir contains all of the habitat requirements necessary for successful breeding as well; however, the reservoir contains a large population of predatory fish and amphibian species that would make it very difficult for red-legged frog tadpoles to reach adulthood. Sport fish such as bass, green sunfish (*Lepomis cyanellu*), bluegill, and catfish can decimate tadpole populations. Similarly, the bullfrogs at Contra Loma Reservoir can prey heavily on young frogs. This intense predation typically prevents red-legged frogs from co-existing with species such as bullfrogs and sport fish. No CNDDB occurrences of red-legged frog are documented within the study area; however, there are 19 recorded occurrences within 5 miles of the study area, the closest being near and within the Black Diamond Mines Regional Preserve, south and west of Contra Loma (California Department of Fish and Wildlife 2013a).

Alameda whipsnake. Alameda whipsnake *(Masticophis lateralis euryxanthus)* is both Federally listed and state listed as threatened. This snake inhabits chaparral and scrub habitats within Alameda, Contra Costa, and possibly western San Joaquin and northern Santa Clara counties. The Alameda whipsnake typically prefers shrub communities, but is also found in adjacent habitats such as grasslands and oak savanna. These snakes are good climbers that can escape into shrubs or trees. They also seek shelter in rock piles, outcrops, or small mammal burrows (Stebbins 1985). This fast-moving, diurnal snake hunts primarily small lizards, especially the western fence lizard, but will also eat frogs, snakes, and birds. Its home range is typically 5 to 21.5 acres in size and can overlap home ranges of many other individuals.

Although coastal scrub or chaparral communities are not present in Contra Loma, the annual grasslands present in the study area contain numerous small mammal burrows in which the snake could take refuge. Additionally, western fence lizards were abundant during site visits, indicating a robust prey base for the snake. For these reasons, the annual grassland areas within the study area could provide adequate habitat for the snake. Twenty-four CNDDB occurrences are documented within 5 miles of the study area (California Department of Fish and Wildlife 2013a). These occurrences support the likelihood that whipsnakes occur in the study area.

White-tailed kite. White-tailed kite is a state-designated fully protected raptor, and is also on the list of birds protected under the MBTA. It breeds between February and October, and feeds on rodents, small reptiles, and large insects in such habitats as fresh emergent wetlands, annual grasslands, pastures, and ruderal vegetation. Unlike other raptors, kites often roost, and occasionally nest, communally; therefore, disturbance of a relatively small roost or nesting area could affect a large number of birds. Kites tend to nest in large, dense-topped, isolated trees near suitable foraging habitat.

The annual grassland, riverine, and fresh emergent wetland habitats within the study area provide ample foraging ground for this species. Several large, dense-topped trees within the Contra Loma study area could be used as nesting locations. There are abundant small mammals, reptiles, and insects within the study area. Although there are no CNDDB records within the study area, there are two CNDDB records within 5 miles of the study area. White-tailed kites were observed within the study area during the reconnaissance surveys (California Department of Fish and Wildlife 2013a).

Western pond turtle. Western pond turtle is listed as a California species of special concern and is found in the quiet waters of ponds, marshes, creeks, and irrigation ditches. This species requires basking sites such as partially submerged logs, rocks, mats of floating vegetation, or open mud banks. When water temperatures are low and air temperatures are warmer than water temperatures, it frequently basks on logs or other objects out of the water. When air temperatures become too warm, western pond turtles water-bask by lying in the warmer surface water layer with their heads out of the water. In colder areas, the hibernation period is passed underwater in the soft mud on the bottom of the lake or waterway. Mating typically occurs in late April or early May but may occur year-round. Nests are located in upland areas up to 0.25 miles from the aquatic site. Hatchling turtles are thought to emerge from the nest and move to aquatic habitats in the spring.

Suitable habitat for the western pond turtle may occur in Contra Loma Reservoir and within the seasonal ponds along several of the intermittent streams south of the reservoir. Two CNDDB occurrences are documented within 5 miles of the study area (California Department of Fish and Wildlife 2013a).

Northern harrier. Northern harrier (*Circus cyaneus*) is a California species of special concern, and is also on the list of birds protected under the MBTA. This species is found across most of North America. In California, the northern harrier is found in grasslands, marshes, and other open habitats throughout the state. Nests are built on the ground in areas where long grasses or marsh plants provide cover and protection. Harriers hunt for a variety of prey, including rodents, birds, frogs, reptiles, and insects, by flying low and slow in a traversing manner, and using both sight and sound to detect prey items.

Potential nesting and foraging habitat is present in the annual grasslands and fresh emergent wetlands of Contra Loma. No CNDDB occurrences of this species are recorded within 5 miles of the study area (California Department of Fish and Wildlife 2013a).

Tricolored blackbird. Tricolored blackbird (*Agelaius tricolor*) is a California species of special concern, and is also on the list of birds protected under the MBTA. It is endemic to the Central

Valley and coastal valleys of California. This species is highly gregarious, forming large flocks in both breeding and non-breeding seasons. Nests are built near or over water and occasionally in agricultural fields. Recently, tricolored blackbirds have displayed increased tendencies toward nesting in patches of blackberry, willows, mustard, thistles, nettles, and even grasses.

The fresh emergent wetland habitat along the margins of Contra Loma Reservoir may provide suitable habitat for this species. Foraging habitat is present in the grassland habitat surrounding the reservoir. No CNDDB occurrences of this species are recorded within 5 miles of the study area (California Department of Fish and Wildlife 2013a).

Loggerhead Shrike. Loggerhead shrike (*Lanius ludovicianus*) is a California species of special concern, and is also on the list of birds protected under the MBTA. Loggerhead shrike is a common resident in lowlands and foothills throughout California, and prefers open habitats with scattered shrubs, trees, posts, fences, utility lines, or other perches. The greatest density of this species occurs in open-canopied valley foothill hardwood, valley foothill hardwood-conifer, valley foothill riparian, pinyon-juniper, juniper, desert riparian, and Joshua tree habitats. Loggerhead shrikes build well-concealed nests on stable branches in shrubs or trees with dense foliage. The diet of the loggerhead shrike includes small birds, mammals, amphibians, reptiles, fish, carrion, large insects, and various invertebrates. This species forages from a perch that is at least 2 feet above the ground, but is often much higher. Loggerhead shrikes frequently cache prey on thorns, sharp twigs, and wire barbs, or in the forks of branches. The breeding season for loggerhead shrike is from March to August.

Suitable foraging areas are present within the annual grassland and riverine habitat of the study area. Moderate-quality nesting habitat occurs in some of the trees and shrubs associated with the riparian areas adjacent to the grassland habitat. No CNDDB occurrences of this species are recorded within 5 miles of the study area (California Department of Fish and Wildlife 2013a).

Western Burrowing Owl. Western burrowing owl is a California species of special concern, and is also on the list of birds protected under the MBTA. Burrowing owls are year-round residents in generally flat, open, dry grasslands, pastures, deserts, and shrub lands and in grasses, forbs, and open shrub stages of pinyon-juniper and ponderosa pine habitats. In North America they range from the western Canadian provinces south through southern Mexico. They typically use the burrows of ground squirrels and other small mammals for nesting and cover, but may also use artificial structures such as roadside embankments, levees, and berms. They can exhibit a high degree of site fidelity, often reusing burrows year after year. Occupancy of suitable burrowing owl habitat can be verified at a site by observation of a pair of burrowing owls during their breeding season or, alternatively, by the presence of molted feathers, cast pellets (regurgitated masses of bone, fur, and other indigestible material), prey remains, eggshell fragments, or excrement at or near a burrow.

Suitable habitat for foraging and nesting occurs within the annual grasslands of the study area. Numerous burrows in which the owls could nest occur throughout the grassland areas, with higher concentrations in the southern half of the study area. There are 31 known CNDDB occurrences for this species within 5 miles of Contra Loma (California Department of Fish and Wildlife 2013a). Due to the presence of suitable habitat for foraging and nesting, this species is highly likely to occur within the study area.

Short-eared owl. Short-eared owl (*Asio flammeus*) is a California species of special concern, and is also on the list of birds protected under the MBTA. In California, short-eared owls nest at only a few of their former breeding locations, and in northwestern California they breed only in coastal areas where conditions are prime. The short-eared owl is a ground nester and lives in open country, including grasslands, wet meadows, and cleared forests. Current threats to short-eared owls include the decline and degradation of marsh and tall grassland habitats resulting from grazing pressure.

Potential nesting and foraging habitat is present in the annual grasslands and fresh emergent wetlands throughout Contra Loma, although nesting is more likely to occur closer to coastal areas. No CNDDB occurrences of this species are recorded within 5 miles of the study area (California Department of Fish and Wildlife 2013a).

American badger. American badger is a California species of special concern. Badgers are highly specialized fossorial (adapted for burrowing or digging) mammals found throughout almost all of California. They are found in a range of habitats that contain friable soils and relatively open ground, where they dig in pursuit of prey and to create dens for cover and raising of young. Badgers are carnivorous and prey primarily on rodents, including ground squirrels.

Potential habitat occurs within the annual grasslands present in the study area. Soils in these areas are friable and numerous ground squirrels are present throughout the grassland areas. There are three recent CNDDB occurrences documented for this species within 5 miles of Contra Loma, generally occurring south of the study area (California Department of Fish and Wildlife 2013a). It is likely that this species occurs within the study area boundaries.

Pallid bat. Pallid bat (*Antrozous pallidus*) is a California species of special concern. The pallid bat is a locally common species in low elevations of California and occurs throughout most of the state. This species occupies a wide variety of habitats, including grasslands, shrublands, woodlands, and forests from sea level up into montane, mixed conifer forests. Pallid bat is most common in open, dry habitats with rocky areas for roosting. This species is a year-round resident throughout most of its range. Day roosts include caves, crevices, mines, and occasionally hollow trees and buildings. This species is very sensitive to disturbance of roost sites.

The pallid bat could use any of the vegetative communities present within the study area as foraging habitat. Roosting habitat could include park facilities and buildings, rock outcrops in the hills west of the reservoir, and possibly a few hollow tree cavities observed in some of the riparian areas near the northeast corner of the study area. No CNDDB occurrences of this species are recorded within 5 miles of the study area California Department of Fish and Wildlife 2013a).

Townsend's big-eared bat. Townsend's big-eared bat (*Corynorhinus townsendii*) is a California species of special concern. It ranges throughout western North America from British Columbia to the central Mexican highlands. Recent information suggests that this species is declining throughout the west. Townsend's big-eared bat is typically a cave-dwelling species; however, this species is also found in human-made structures such as old mine workings and buildings. Unlike many species that take refuge in crevices, this species only roosts in the open, hanging from walls and ceilings, where it is relatively easily detected, but is also particularly

vulnerable to disturbance (Pierson and Rainey 1998). Maternity roosts and winter hibernacula are restricted to caves, old mines, buildings, and rock ledges.

Suitable foraging habitat is present throughout Contra Loma in any of the vegetative communities present within the study area. Suitable roosting habitat is limited in the study area, but could include some of the park facilities and buildings. No caves are present in the study area. No CNDDB occurrences of this species are recorded within 5 miles of the study area (California Department of Fish and Wildlife 2013a).

3.11 Fisheries

3.11.1 Recreational Fishery

Contra Loma Reservoir is a popular recreational fishing destination. Recreational fishing is allowed all around the reservoir except for the immediate area of the dam and spillway. As described previously, a state fishing license and an EBRPD Fishing Access Permit are required for all anglers 16 and older. Pedestrian access to the reservoir is provided by a network of trails, and anglers may fish from shore, from two floating fishing docks (Figure 1-2), or from boats. There is one boat launch and anglers may launch boats of up to 17 feet provided they pay the boat launch fee and pass a required boat inspection for aquatic invasive species. No gasoline-powered engines are allowed on the reservoir, but electric motors are permitted. Anglers may also use float tubes, but each angler must possess a life jacket and must wear waders or a wetsuit to limit body contact. There is a fish cleaning station at the boat launch facility; however, EBRPD is currently working on relocating this facility further away from the reservoir within the same area as described in Section 3.8.1 (Water Quality). Park hours are set by EBRPD and adjust seasonally to daylight hours. Park curfew is from 10:00 p.m. to 5:00 a.m., however, unauthorized nighttime fishing sometimes occurs.

Because the fishing docks float, their elevations vary with the reservoir level. When the reservoir level is sufficiently low, the angle of the ramps leading from the shore down to the docks becomes too steep for safe passage, and the docks are closed. Sometimes the reservoir level is so low that the docks cannot float and they rest on the sloping shoreline. Anglers sometimes fish from the floating boat dock adjacent to the boat launch, especially when the fishing docks are closed.

CCWD currently has a draft macrophyte (aquatic plants visible with the naked eye) management plan for Contra Loma Reservoir. The goals of this plan are to (1) control problem macrophyte beds in order to ensure boat access, and (2) control non-native plant species in the reservoir. Routine procedures to monitor macrophyte development include annual GPS surveys that document types of species present as well as the approximate location, coverage, and growth of existing macrophyte beds. Control of macrophytes has been limited to herbicide applications to non-native species and specific tule beds along the shoreline (Contra Costa Water District undated). Short-term treatment have included spot treatment with Sonar® to control non-natives and spot treatment with Rodeo® to control tules. No long-term treatment procedures have been developed for Contra Loma Reservoir.

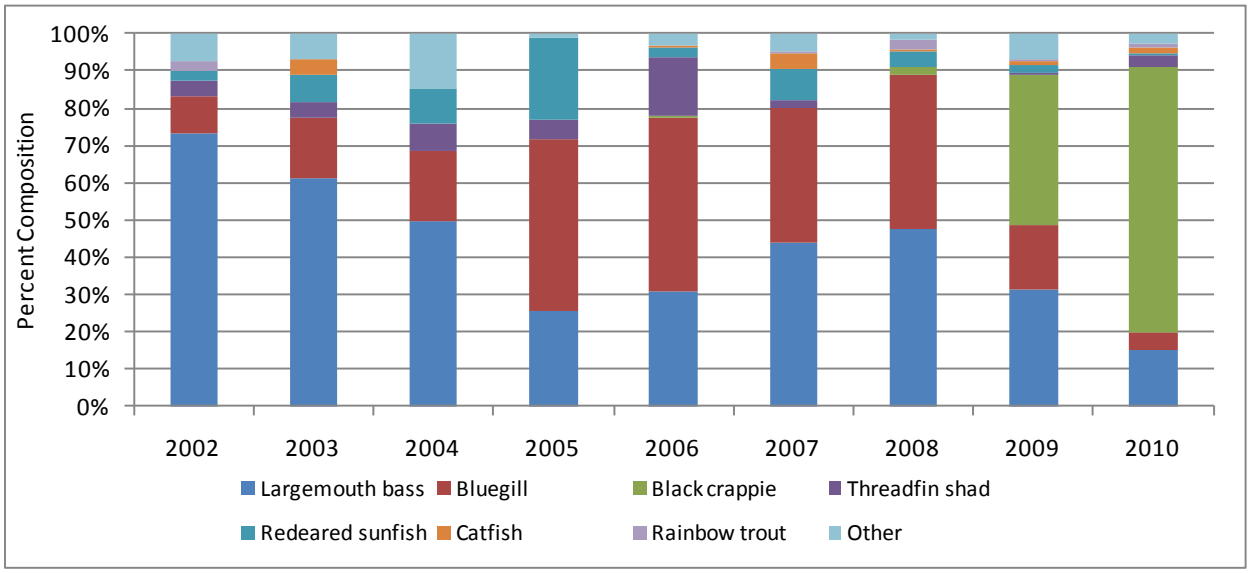
3.11.2 Fisheries Resources

There are currently 20 known fish species, including eight species of game fish, in Contra Loma Reservoir (Table 3-8). Primary species found in the reservoir during spring surveys from 2002 through 2011 were largemouth bass, bluegill, black crappie, threadfin shad, redear sunfish, channel catfish, white catfish, and rainbow trout (Figure 3-12). Other species include bigscale logperch, common carp, Sacramento blackfish, warmouth, green sunfish, white crappie, goldfish, prickly sculpin, and inland silversides (Alexander, pers. comm. 2011). Many of these species occur in small numbers and/or are not self-sustaining in the reservoir.

Table 3-8. Fish Species Occurring in Contra Loma Reservoir

Family	Common Name	Scientific Name
Acipenseridae	White sturgeon	*Acipenser transmontanus*
Atherinopsidae	Inland silverside	*Menidia beryllina*
Centrarchidae	Bluegill	*Lepomis macrochirus*
	Green sunfish	*Lepomis cyanellus*
	Largemouth bass	*Micropterus salmoides*
	Redear sunfish	*Lepomis microlophus*
	Black crappie	*Pomoxis nigromaculatus*
	White crappie	*Pomoxis annularis*
	Warmouth	*Lepomis gulosus*
Clupeidae	Threadfin shad	*Dorosoma petenense*
Cyprinidae	Common carp	*Cyprinus carpio*
	Goldfish	*Carassius auratus*
	Sacramento blackfish	*Orthodon microlepidotus*
Cottidae	Prickly sculpin	*Cottus asper*
Ictaluridae	Channel catfish	*Ictalurus punctatus*
	White catfish	*Ameiurus catus*
Moronidae	Striped Bass	*Morone saxatilis*
Percidae	Bigscale logperch	*Percina macrolepida*
Poeciliidae	Mosquitofish	*Gambusia affinis*
Salmonidae	Rainbow trout	*Oncorhynchus mykiss*

Many of the fish species present have been unintentionally introduced from the Delta via the Contra Costa Canal. The recently completed Rock Slough Fish Screen Project at the head of Contra Costa Canal was constructed to prevent the entrainment of Federally protected species such as Delta smelt at the Rock Slough Intake of the Contra Costa Canal. The new screen also minimizes fish entrainment and significantly reduces the potential for fish introductions into Contra Loma Reservoir from the Contra Costa Canal.



Source: Alexander, pers.comm. 2011.

Figure 3-12. Relative fish species composition of Contra Loma Reservoir, spring 2002-2010 during spring surveys conducted between 2002 and 2010.

The most popular game fish in Contra Loma Reservoir is rainbow trout. However, since the reservoir does not provide habitat suitable for self-sustaining, year-round coldwater fish, trout are stocked as part of a mostly seasonal put-and-take sport fishery. This species is planted and caught by anglers when the water is relatively cool (less than 72° Fahrenheit [°F]) from mid-September to mid-June. Hatchery-produced catchable trout are stocked annually through funds derived from EBRPD fishing access permits and to a lesser extent by the CDFW. EBRPD plants rainbow trout that average 1 pound each and the CDFW plants trout that average 1/2 pound each. The stocking records for rainbow trout are provided in Table 3-9.

Although the reservoir is managed as a put-and-take fishery, there is some limited survival and growth as evidenced by the 17.6-pound lake-record rainbow trout caught in April of 2001. Unlike warm water game fish in the reservoir, the rainbow trout fishery is not limited by reservoir operations. The limiting factors for the coldwater fishery are stocking rates and angler harvest. Rainbow trout stocking rates for Contra Loma Reservoir have fluctuated between 10,500 and 17,406 pounds/year over the past ten years, and have had an average stocking rate of 13,950 pounds.

Table 3-9. Stocking Records for Contra Loma Reservoir between 2000 and 2010

Year	Channel Catfish (pounds)[a]			Rainbow Trout (pounds)		
	EBRPD	CDFW	Total	EBRPD	CDFW	Total
2000	3,500	1,500	5,000	7,000	9,200	16,200
2001	1,000	500	1,500	5,500	5,000	10,500
2002	3,750	500	4,250	7,347	6,000	13,347
2003	4,250	1,000	5,250	10,906	6,500	17,406
2004	4,025	500	4,525	7,750	5,500	13,250
2005	5,287	0	5,287	10,250	3,500	13,750
2006	3,005	1,000	4,005	9,750	2,550	12,300
2007	3,962	0	3,962	11,050	1,500	12,550
2008	3,500	0	3,500	8,750	4,000	12,750
2009	3,500	0	3,500	10,649	3,500	14,149
2010	3,050	0	3,050	13,265	4,000	17,265

Source: Source: Alexander, pers. Comm. 2011

Notes: [a]EBRPD trout plants average 1 fish/pound and the CDFW trout plants average 2 fish/pound. Catfish size varies slightly, but is on average 1 fish/pound.

Contra Loma Reservoir supports the highest largemouth bass densities of any EBRPD reservoir (Alexander, pers. comm. 2011). Mark-recapture studies have been conducted annually by EBRPD since 2007 (Figure 3-12) using the Lincoln-Peterson Index estimation method. In the near-shore habitat of the reservoir between 2007 and 2011, the average estimated number of largemouth bass greater than 11 inches in total length has been 662, and has fluctuated from a maximum of 1,235 in 2007 to a minimum of 158 in 2010 (Figure 3-13). Based on the available data, the largemouth bass abundance in Contra Loma Reservoir fluctuates widely; however, during the five available years of data, the population has declined (Figure 3-13). Additionally, the percent composition of bluegill and black crappie has increased during this time period (Figure 3-12). The observed decline of largemouth bass could be a function of numerous factors including, but not limited to, a decrease in successful spawning and recruitment, increased angler harvest, increased competition and/or predation by other fish species (including bluegill and black crappie), or sampling variation.

Based on the maximum fork lengths of largemouth bass captured during annual electrofishing surveys between 2001 and 2011 (Figure 3-14), the average and maximum size of fish has remained relatively stable, with the average bass measuring 9.5 inches with larger fish up to 24 inches (Alexander, pers. comm. 2011). The recent increase in average largemouth bass size indicates that there may be fewer young fish in the population which suggests there has been less successful reproduction or survival over the past few years (assuming equal sampling effort and standardization year-to-year). The maximum size of largemouth bass sampled in the reservoir has increased from 1.9 pounds in 1999 to 12.9 pounds in 2008. The current record largemouth bass is 13.1 pounds and was caught by an angler in 2006.

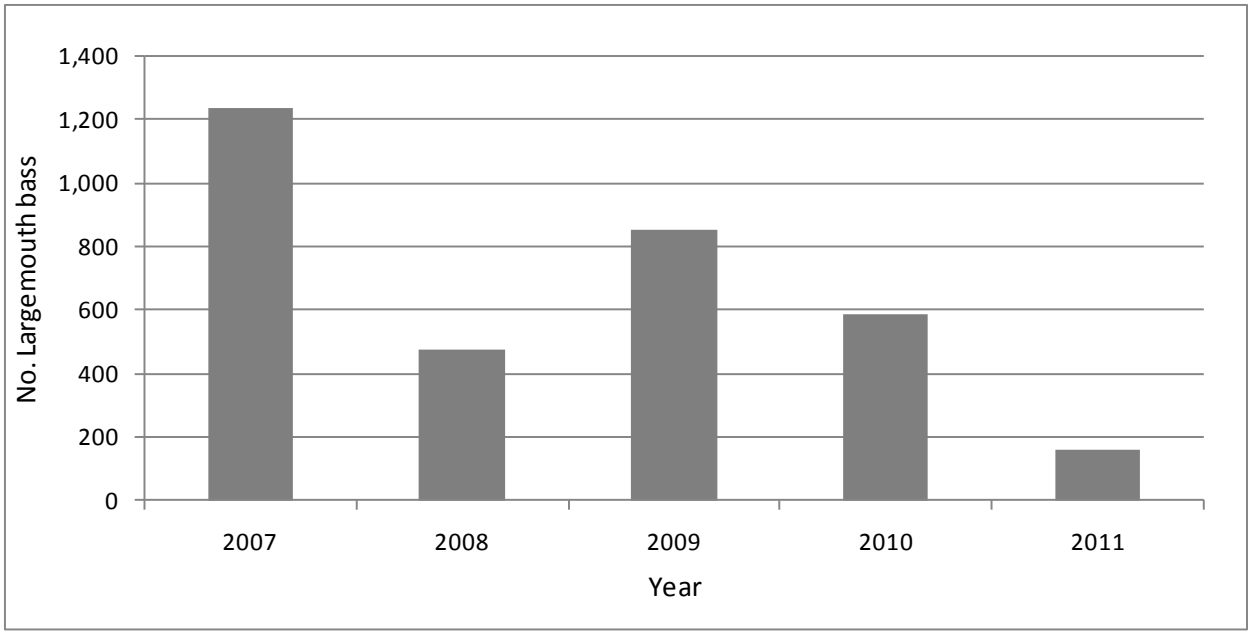


Figure 3-13. Estimated largemouth bass population using Lincoln-Peterson Index method at Contra Loma Reservoir, 2007-2011. (Source: Alexander, pers. Comm. 2011)

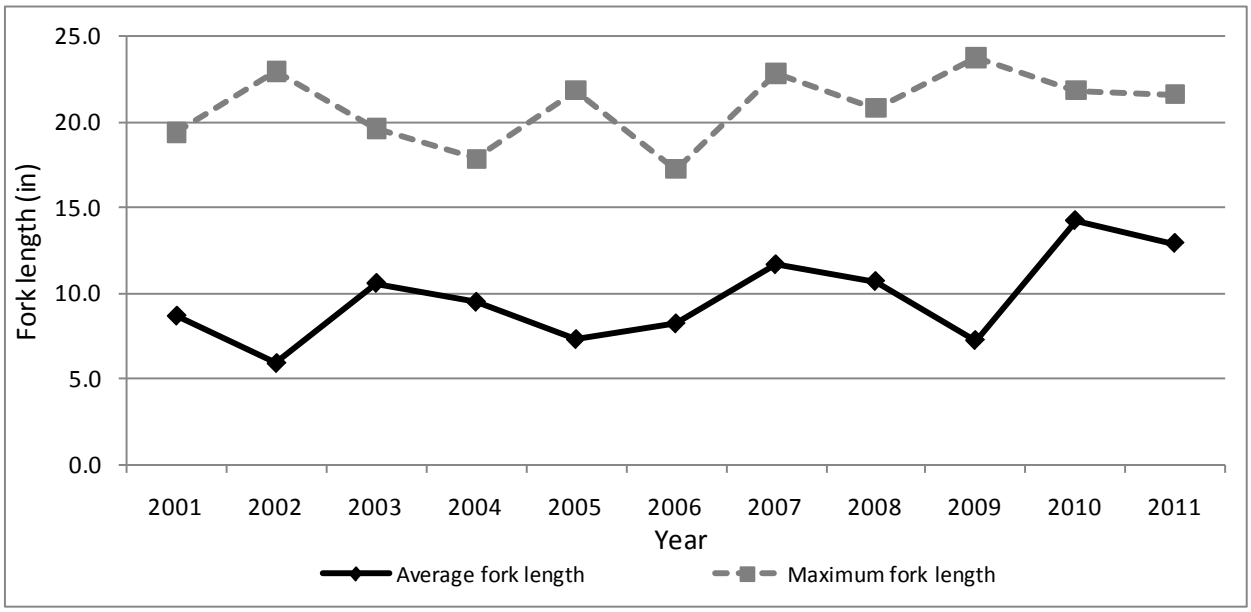


Figure 3-14. Average and maximum fork lengths of largemouth bass captured during annual electrofishing surveys on Contra Loma Reservoir, 2001-2011. (Source: Alexander, pers. comm. 2011)

The reservoir's self-sustaining population of largemouth bass is very popular with a segment of the sport fishing public but is not augmented by planting; therefore, the reproduction and growth of this species of game fish is very important in maintaining a successful fishery. Because the largemouth bass fishery is self-sustaining and is more susceptible to overharvest, EBRPD has

recommended that all bass be released after catching. Largemouth bass and sunfish (such as black crappie and bluegill) spawn during the spring when water temperatures begin to warm. Typically, in this region of California, the prime spawning months for bass and sunfish occurs from late March through early June. Following hatching and initial care by the adults, fry are attracted to the habitat-rich near shore area of the south and west shoreline of the reservoir. These areas are dominated by emergent vegetation such as bulrush and cattail, as well as submerged vegetation such as watermilfoil and pond weed (*Elodea* spp.) that provide a source of food and protective cover.

EBRPD has identified seasonal reservoir fluctuations as a limiting factor for the largemouth bass fishery. EBRPD and CCWD currently have a verbal agreement to limit reservoir fluctuations during the critical spawning period for largemouth bass and other warm water fish; however, water supply and reservoir operation and management take precedence over management for recreation, including fisheries (Alexander, pers. comm. 2011). The magnitude of the reservoir level increases (within 4 to 6 feet) is not expected to be particularly problematic for warm water fish in Contra Loma Reservoir because the change is not likely to be sufficient to reduce water temperatures to less than suitable levels for egg development or to cause nest abandonment. Conversely, daily reservoir decreases of up to 1.6 feet, particularly for several consecutive days, could cause nest abandonment by adult bass, which, in turn, could leave spawning nests susceptible to predation from other fishes, particularly the bluegill and redear sunfish that are abundant in this reservoir. Under extreme drawdown conditions, nests can be left out of the water to desiccate and a substantial portion of that year's reproductive capacity can be lost. Limiting abrupt and/or large decreases in reservoir elevation during the spring and early summer spawning period is one way to minimize risks to largemouth bass spawning success and to ensure a healthy self-sustaining population. Because reservoir operation is outside the scope of the RMP, reservoir level fluctuations would continue with or without the RMP.

Because sunfish typically spawn in the relatively shallow littoral (shoreline) areas of the reservoir, their reproductive success can also be affected by large water fluctuations during the critical months of April and May. As with largemouth bass, large abrupt or sustained fluctuations can disrupt spawning by taking the spawning nests out of the suitable depth and temperature ranges and placing them in water that is too shallow, too deep, or not the right temperature for proper egg maturation. However, based on annual surveys the existing reservoir operations appear to allow for successful reproduction and recruitment to the sunfish population. Black crappie are also a popular warm water game fish in the reservoir. They have similar life cycle, habitat, and cover requirements as largemouth bass and are also susceptible to breeding disruptions caused by changes in the water level. Even so, it is characteristic for this species to exhibit substantial population fluctuations.

Black crappie abundance has increased in recent years (Figure 3-12), and many large (>9 inch) fish have been captured during annual electrofishing surveys and by anglers. The average black crappie captured during electrofishing surveys between 2009 and 2011 has been 8 to 10 inches and the maximum size black crappie capture was 15 inches (Alexander, pers. comm. 2011). The current lake record is 4.1 pounds.

Striped bass also provide a trophy fishery for anglers targeting this species. Before the recent completion of the Rock Slough Fish Screen Project, striped bass had been pumped into the

reservoir from the Delta. Striped bass within the reservoir have grown to large sizes by preying on planted trout and other resident fish species. Striped bass numbers are relatively low (Figure 3-12), but the potential for hooking a large specimen creates a very popular fishery. The current lake record for striped bass is 40 pounds. The Rock Slough Fish Screen will minimize further introduction of striped bass to the reservoir.

Channel catfish are planted and caught during the warm summer months from June through mid-September. The planted channel catfish average 1 pound each, but larger catfish are also planted. The catfish sport fishery is intended to supplement angling opportunities during the warm summer months when conditions are less conducive for trout and is managed as a put-and-take fishery. The average size and number of catfish stocked into the reservoir between 2000 and 2010 are provided in Table 3-9. On average, 3,984 pounds of channel catfish are stocked annually. Stocking rates have remained relatively stable over the past 10 years (Table 3-9) and many of the planted channel catfish remain in the reservoir and grow to large sizes. The current lake record is 26.4 pounds. Neither catfish species (channel or white) has been documented to naturally reproduce in the reservoir; therefore, the primary factors likely limiting the abundance and growth of catfish in Contra Loma are annual stocking rates and angler harvest. However, no data are currently available on the harvest rate of catfish.

According to a plaque posted at a Contra Loma information kiosk, a 58-inch white sturgeon was caught by an angler at the reservoir in 2003; however, annual electro-fish surveys have not found sturgeon.

Since approximately 1996, Contra Loma Reservoir has provided recreational fishing opportunities in the form of fishing derbies for the public. These derbies are intended to attract children with special needs, senior citizens, and children from the surrounding area. New anglers are invited to participate through the EBRPD's Parks Express Program and through the Delta Striped Bass Association's annual "Learn to Fish" day. In October 2009, over the duration of these annual events, 147 special-needs children, 87 seniors, and over 528 local children experienced a special day of trout fishing. These annual fishing events attract more new anglers each year and are an important component of the recreational opportunities at Contra Loma Recreation Area.

Fishing regulations for Contra Loma Reservoir are set in part by the State Fish and Game Commission. Current fishing harvest regulations are provided in Table 3-10. As described above, EBRPD encourages, but doesn't require, anglers to practice catch and release with largemouth bass and catfish.

Table 3-10. Current Limits on Fish Harvest from Contra Loma Reservoir

Fish Species	Size Limit	Number per day
Trout	No limit	5
Catfish	No limit	5
Largemouth bass[1]	12-inch minimum	5
Striped bass	18-inch minimum	2
Crappie, bluegill, and sunfish	No limit	25

Source: East Bay Regional Park District 2010c

[1] Largemouth bass is a species of black bass.

3.11.3 Special-Status Fish Species

For the purposes of evaluation, special-status fish species include those that are: 1) designated as threatened or endangered by the state or Federal government ("listed species"); or 2) proposed for state or Federal listing as threatened or endangered; and/or 3) candidates for state or Federal listing as threatened or endangered; and/or 4) identified by the CDFW as species of special concern and/or California fully protected species. A list of special-status fish species considered for analysis in this section was compiled through obtaining an official species list from the USFWS Sacramento Office (Fish and Wildlife Service 2013), informal discussions with the CDFW and USFWS, and reviewing biological literature applicable to the study area (Table 3-11).

The Delta provides suitable habitat for many of the species listed in Table 3-11, and because the reservoir's water source is the Delta, fish species could have been carried into the reservoir via the Contra Costa Canal. To date no special-status fish species have been captured or identified in the reservoir. Furthermore, special-status species that might have made it in to the reservoir are not likely to have survived due to a lack of suitable habitat that would support most of these species. In addition, any new entrainment of fish, including special-status species, is highly unlikely with the installation of the new Rock Slough Fish Screen at the intake pump station for the Contra Costa Canal. The screen size was designed to be more restrictive than the National Marine Fisheries Service criteria (i.e., 3/32 inch or 2.25 millimeters) in order to protect larval Delta smelt and would, therefore, protect the smallest and most vulnerable special-status fish from entrainment.

Table 3-11. Special-Status Fish Species with Potential to Occur in the Contra Loma Recreation Area

Common Name/ Scientific Name	Status[1] (Federal/ State)	General Habitat Description	Potentially Suitable Habitat?	Nearest Recorded Occurrence
Delta smelt *(Hypomesus transpacificus)*	T/E	Inhabit the Sacramento-San Joaquin Delta estuary in open, shallow waters.	**No.** Suitable habitat for this species does not occur in Contra Loma Reservoir. Contra Loma is not part of designated critical habitat for this species.	Delta smelt are present in the Sacramento-San Joaquin Delta.
Longfin smelt *(Spirinchus thaleichthys)*	—/T	Inhabit the Sacramento-San Joaquin Delta estuary in open, shallow waters.	**No.** Suitable habitat for this species does not occur in Contra Loma Reservoir.	Longfin smelt are present in the Sacramento-San Joaquin Delta.

Table 3-11. Special-Status Fish Species with Potential to Occur in the Contra Loma Recreation Area

Common Name/ Scientific Name	Status[1] (Federal/ State)	General Habitat Description	Potentially Suitable Habitat?	Nearest Recorded Occurrence
Steelhead, California Central Valley Distinct Population Segment (DPS) *(Oncorhynchus mykiss)*	T/—	Spawn and rear in the upper Sacramento and San Joaquin rivers and their tributaries.	**No.** Suitable habitat for this species does not occur in Contra Loma Reservoir. Contra Loma is not part of an existing tributary system that supports this species and it is not part of designated critical habitat for this species.	Central Valley DPS steelhead are present in the Sacramento-San Joaquin Delta.
Central Valley spring-run Evolutionarily Significant Unit (ESU) Chinook salmon *(Oncorhynchus tshawytscha)*	T/T	Spawn and rear in the upper Sacramento and San Joaquin rivers and their tributaries.	**No.** Suitable habitat for this species does not occur in Contra Loma Reservoir. Contra Loma is not part of an existing tributary system that supports this species and it is not part of designated critical habitat for this species.	Central Valley spring-run Chinook salmon are present in the Sacramento-San Joaquin Delta.
Sacramento River winter-run ESU Chinook salmon *(Oncorhynchus tshawytscha)*	E/E	Spawn and rear in the upper Sacramento and San Joaquin rivers and their tributaries.	**No.** Suitable habitat for this species does not occur in Contra Loma Reservoir. Contra Loma is not part of an existing tributary system that supports this species and it is not part of designated critical habitat for this species.	Sacramento River winter-run Chinook salmon are present in the Sacramento-San Joaquin Delta.
Green sturgeon *(Acipenser medirostris)*	T/—	Require streams, rivers, and estuarine habitat as well as marine waters during their life cycle	**No.** Suitable habitat for this species does not occur in Contra Loma Reservoir.	Green sturgeon are present in the Sacramento-San Joaquin Delta.
Sacramento splittail *(Pogonichthys macrolepidotus)*	—/SSC	Inhabit rocky and sandy pools of rivers and lakes. Tolerant of brackish water.	**No.** Marginally suitable habitat occurs in Contra Loma Reservoir, but this species is not present.	Sacramento splittail are present in the Sacramento-San Joaquin Delta.
Sacramento perch *(Archoplites interruptus)*	—/SSC	Inhabit sloughs, slow-moving rivers, and lakes, but now mostly reservoirs and farm ponds.	**No.** Significantly limited within their native range. Most abundant where other centrarchids are absent.	Major localities containing perch in the 1990's included Calaveras Reservoir, Lake Anza, Jewel Lake and gravel pit ponds (Alameda Creek near Niles).

Table 3-11. Special-Status Fish Species with Potential to Occur in the Contra Loma Recreation Area

Common Name/ Scientific Name	Status[1] (Federal/ State)	General Habitat Description	Potentially Suitable Habitat?	Nearest Recorded Occurrence
Hardhead *(Mylopharodon conocephalus)*	—/SSC	Inhabit quiet, deep pools of large, warm, clear streams over rocks or sand.	**No.** Marginally suitable habitat occurs in Contra Loma Reservoir, but this species is not present.	Hardhead are present in the Sacramento-San Joaquin Delta.
Pacific lamprey *(Entosphenus tridentatus)*	—/SSC	Spawn in freshwater rivers and streams. Inhabit marine waters during their life cycle.	**No.** Suitable habitat for this species does not occur in Contra Loma Reservoir.	Pacific lamprey are present in the Sacramento-San Joaquin Delta.
River lamprey *(Lampetra ayresii)*	—/SSC	Spawn in freshwater rivers and streams. Inhabit marine waters during their life cycle.	**No.** Suitable habitat for this species does not occur in Contra Loma Reservoir.	River lamprey are present in the Sacramento-San Joaquin Delta.

[1]Status Notes: E = Endangered; T = Threatened; SSC = CDFW species of special concern.

3.12 Geologic and Soil Resources

3.12.1 Geology

The geology of the Contra Loma area consists of terrestrial and marine Eocene- to Pliocene-(Tertiary) aged sandstone with lesser amounts of siltstone, conglomerate, and shale (Graymer et al. 1994). Minor amounts of igneous rocks are also present.

Contra Loma is located in the Diablo Range, which is part of the larger Coast Ranges of California. Rocks of both marine and terrestrial origin are present in the Contra Loma area. Most of the rocks that currently form the Coast Ranges were originally oceanic crust and overlying marine sediments of the Pacific Plate. Tectonic forces, which are still active in the region, have subducted (moved underneath) and translated (slid) the Pacific Plate under and against the margin of the North American Plate. This tectonic activity synchronously accreted and uplifted oceanic crust and marine sediments from the Pacific Plate to the western margin of North America.

Concurrently, subduction of the Pacific Plate also formed land masses in the Pacific Ocean near the western margin of North America, either through accumulation of sediment or from the formation of volcanoes. In the ocean trenches where the Pacific Plate was subducted under the North American Plate, large blocks of oceanic crust were broken off while material from both plates was scraped off into these trenches. Continued deposition and uplift brought these rocks above the surface of the ocean, eventually forming discrete land masses offshore of the North American coast. In addition, subduction of the Pacific Plate formed volcanoes that jutted out of the ocean near these trenches. Tectonic activity eventually carried these landforms and their detritus towards the North American Plate and accreted the rocks to the western margin of the

North American Plate. The accretion of the oceanic crust, overlying sediments, and terrestrial deposits formed the geology of Contra Loma and its vicinity.

Geologic units in the project vicinity trend west to east and appear as relatively narrow bands of generally less than 1,000 feet in thickness on the Earth's surface (Figure 3-15). Therefore, many geologic units are present near Contra Loma (Table 3-12). Contra Loma Reservoir is flanked by hills that are composed of the Tulare Formation, a poorly consolidated assemblage of siltstone, sandstone, and conglomerate. The bases of the surrounding hills and adjacent flat-lying areas are mostly composed of younger Quaternary-aged surface deposits derived from alluvial deposits and the detritus of the surrounding terrain. The Lawlor Tuff occupies a narrow band that extends from the western margin of the reservoir to the western boundary of the Contra Loma Recreation Area. The higher elevations of Contra Loma south of the reservoir are mainly composed of the Neroly and Cierbo Sandstone units, with a minor amount of Kirker Tuff exposed near the southern boundary.

3.12.2 Seismicity and Faults

The San Francisco Bay Area is a seismically active area with numerous well-known active fault complexes, including the San Andreas, Hayward, and Mt. Diablo fault complexes. The Alquist-Priolo Earthquake Fault Zoning Act was passed in 1972. It requires the California State Geologist to define earthquake fault zones, and was designed to mitigate the hazards that earthquakes pose to structures and human life (California Public Resources Code 2009). Fault zones are established based on the presence of a fault that is traceable and that has exhibited displacement in the last 11,000 years.

There are no active fault zones identified by the State of California within the Contra Loma Recreation Area, but several active fault zones exist within 17 miles of Contra Loma (Figure 3-15 – see inset). Three suspected inactive faults (Figure 3-15) were mapped within Contra Loma by Reclamation and the Corps between 1962 and 1966 (East Bay Regional Park District 1975b). However, published maps and geospatial data from the USGS or the California Geologic Survey (CGS) do not show these suspected faults. A series of pre-Quaternary-aged faults have been identified approximately 2 miles south of Contra Loma near the southern boundary of Black Diamond Mines Regional Preserve, but they indicate no evidence of displacement in the last 11,000 years.

Because there are active fault zones within 17 miles of Contra Loma, the recreation area may experience severe ground shaking and moderate to heavy damage from a nearby earthquake. The CGS has produced estimates of peak ground acceleration (PGA) values for every given point in California. PGA is a measure of earthquake acceleration on the ground and is measured in units of gravity (g); a value of 1.0 is equal to the force of gravity at the Earth's surface. In general, an area with a PGA of 0.001 g will experience shaking that can be felt by people and an area with a PGA of 0.50 g will experience very strong shaking that well-designed buildings and structures can withstand. PGA values for Contra Loma range between 0.40 g for firm rock and 0.44 g for alluvium (California Geological Survey 2011), which indicates the area has the potential to experience severe shaking and moderate to heavy damage to some buildings and structures. However, well-designed buildings and structures should be able to withstand the expected level of shaking.

Table 3-12. Geologic Units Underlying Contra Loma

Map Unit	Geologic Age	Formation	Description
Qu	Holocene-Pleistocene (Quaternary)	Surface deposits	Surface deposits. Erosional detritus from erosion of surrounding features.
Ttu	Pliocene	Tulare Formation	Poorly consolidated, non-marine grey to maroon siltstone, sandstone, and conglomerate as well as minor amounts of tuff.
Tl	Pliocene	Lawlor Tuff	Non-marine, pumiceous, andesitic tuff.
Tn	Miocene	Neroly Sandstone	Blue, volcanic-rich, cross-bedded sandstone and conglomerate; mostly non-marine. Minor tuff deposits.
Tns	Miocene	Neroly Sandstone, with minor siltstone	Local siltstone member.
Tc	Miocene	Cierbo Sandstone	Blue, volcanic-rich sandstone with abundant marine fossils.
Tks	Oligocene	Kirker Tuff	Pumiceous white tuff, minor tuffaceous sandstone, conglomerate, and siltstone. Also mapped as Tkt.
Tmku	Eocene	Markley Formation, upper member	Bedded sandstone, siltstone, and claystone.
Tsu	Eocene	Sidney Flat Shale upper part, Markley Formation, upper member	Black shale with minor siltstone and sandstone.
Tsl	Eocene	Sidney Flat Shale lower part, Markley Formation, upper member	Interbedded shale and sandstone.
Tmkl	Eocene	Markley Formation, lower member	Thin-bedded to massive sandstone, with minor siltstone and mudstone.
Tlu	Eocene	Markley Formation, lower member, upper bed	Upper siltstone bed.
Tll	Eocene	Markley Formation, lower member, lower bed	Lower siltstone bed.
Tnv	Eocene	Nortonville Shale	Brown to grayish-green mudstone and claystone with minor siltstone and sandstone; marine.
Td	Eocene	Domingene Formation	Locally divided into 2 members: Tdu Brown sandstone with minor mudstone and conglomerate. Tdl Lower member. Siltstone and claystone with minor sandstone and basal conglomerate.
Tmd	Paleocene	Meganos Formation, sandstone member	Medium-grained, light gray to bluish-gray sandstone with carbonaceous laminations; pebble conglomerate present locally at base.
Tmc	Paleocene	Meganos Formation, shale member	Bluish-gray shale with sandstone interbeds.

Source: Graymer et al. 1994

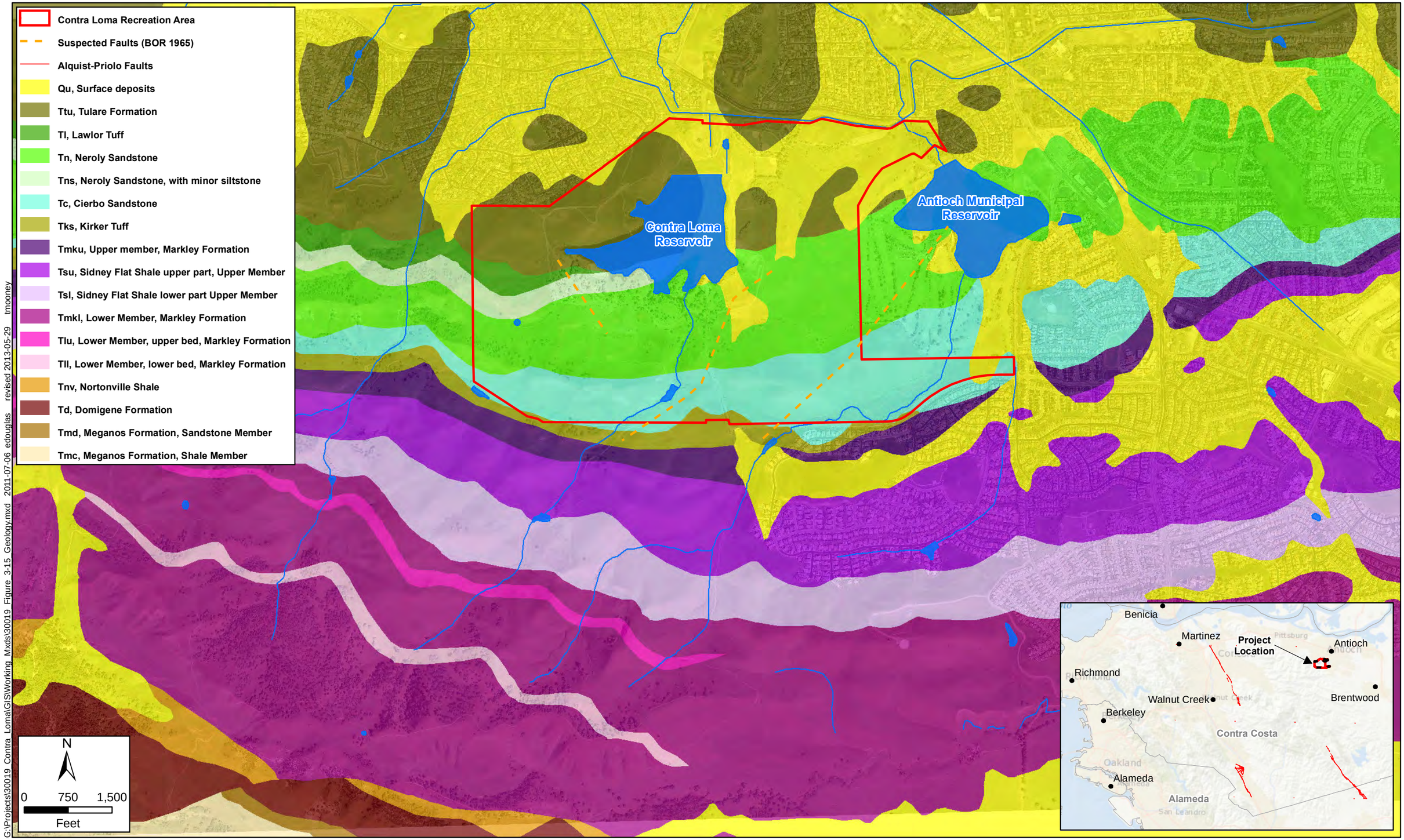


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Figure 3-15
Geology and Faults

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3.12.3 Mineral Resources

There are currently no mineral development activities in or adjacent to Contra Loma. Some areas in EBRPD's adjacent Black Diamond Mines Regional Preserve were previously mined for coal, sandstone, and shale. From the 1860s through the turn of the last century, five coal mining towns thrived in the Black Diamond area: Nortonville, Somersville, Stewartville, West Hartley, and Judsonville. As the location of California's largest coal mining operation, nearly four million tons of coal ("black diamonds") were removed from the earth in the Black Diamond area. After coal mining ceased, underground mining for sand began near the deserted Nortonville and Somersville townsites in the 1920s. The Somersville mine supplied sand used in glass and the Nortonville mine supplied casting sand used in foundries. When sand mining ceased in 1949, more than 1.8 million tons of sand had been removed from the mines (East Bay Regional Park District 2011d).

3.12.4 Soils

The soils that cover Contra Loma and adjacent areas are weathering products derived from the underlying or upslope geologic units, and, as a result, the composition and the properties of soils vary within the area. A majority of the soils within Contra Loma are clay-rich soils that have slow infiltration rates and high runoff potential (Figure 3-16 and Table 3-13).

Clay soils in the area exhibit low permeability when compacted, and many of the soils have a relatively high shrink and swell potential (East Bay Regional Park District 1975b). The clay soils are fairly erodible when disturbed, but soils with higher sand and silt content have an even higher potential for erosion when disturbed.

Soil depth to bedrock generally varies by slope grade; soils on steep slopes are generally shallower than soils on gentle slopes. Within Contra Loma, approximately 70 percent of the land has slopes of less than 10 percent and 85 percent of the land has slopes of less than 25 percent. Slopes under 25 percent generally contain soils that are deep (> 40 inches) to moderately deep (20 to 40 inches), and slopes greater than 25 percent generally contain soils that are moderately deep (20 to 40 inches) to shallow (< 20 inches). The shallowest soil in the area is the Millsholm Loam, which is located near the southwest boundary of Contra Loma, while the deepest soil is the Capay Clay, which is located near the northeast boundary.

Table 3-13. Soil Units and Properties within Contra Loma Regional Park*

Map Unit	Map Unit Name	Slope Range %	Soil Depth (in) [1]	Drainage Class[2]	Hydrologic Soil Type [2]	% Sand	% Silt	% Clay	Soil Erodibility (K-factor)
AbD	Altamont Clay	9-15	48	Well Drained	D	22	28	50	.20
AbE	Altamont Clay	15-30	48	Well Drained	D	22	28	50	.20
AcF	Altamont-Fontana Complex[3]	30-50	48/22	Well Drained	D/B	22/18	28/51	50/31	20/37
CaC	Capay Clay	2-9	>72	Moderately Well Drained	D	22	28	50	
CkB	Cropley Clay	2-5	>60	Moderately Well Drained	D	22	28	50	

Table 3-13. Soil Units and Properties within Contra Loma Regional Park*

Map Unit	Map Unit Name	Slope Range %	Soil Depth (in) [1]	Drainage Class[2]	Hydrologic Soil Type [2]	% Sand	% Silt	% Clay	Soil Erodibility (K-factor)
DdD	Diablo Clay	9-15	42	Well Drained	D	22	28	50	.20
Ld	Lodo-Rock Outcrop Complex[3]	35-55	18/NA	Somewhat Excessively Drained	D/NA	35/ NA	34/ NA	31/ NA	.20
MeG	Millsholm Loam	50-75	12	Well Drained	D	39	37	24	.20
Pb	Pescadero Clay Loam	0-2	>66	Poorly Drained	D	35	34	31	.28
RbC	Rincon Clay Loam	2-9	>60	Well Drained	C	35	34	31	.28
W	W	0	NA	NA	NA	NA	NA	NA	NA

Notes: *Soil extent and properties were identified and characterized using the Department of Agriculture's Natural Resource Conservation Service Web Soil Survey Database (Natural Resources Conservation Service 2011)

[1] –Maximum depth to bedrock

[2]- Properties of each soil in the complex listed in order by name and separated by a slash mark ("/").

3.12.5 Landslides

Landslides include earthflows, slumps, and translational slides. Landslides and related areas of instability have been mapped within the Contra Loma Recreation Area and adjacent EBRPD lands (Wentworth et al. 1997). Future landslides are most likely to occur within and around places where landslides have previously occurred. One area of unstable terrain is mapped within the eastern half of the Contra Loma Recreation Area (Figure 3-16). The steeper upland terrain of the EBRPD lands contains numerous areas of mapped landslide activity and associated areas of instability. Landslides can occur in response to changes in water content, earthquake shaking, or removal of downslope support. Landslides in the type of terrain that is typically found in the Contra Loma area tend to be shallow and slow moving, and pose minimal threat to public safety. Landslides can, however, deform the ground surface and damage infrastructure.

3.13 Climate and Air Quality

3.13.1 Climate

The climate in the Bay Area is characterized by dry summers and moderately wet winters, with 75 percent of the average annual rainfall occurring in winter. Precipitation amounts can vary greatly, sometimes within short distances. Annual rainfall can range from less than 16 inches in valley areas to 40 inches in mountainous areas (City of Antioch 2003b). In Antioch, the monthly average precipitation ranges from 0.02 inch (July) to 2.76 inches (January), with an annual average total of 13.09 inches. No snowfall has been recorded for the period from March 1, 1955 to June 30, 2000 (City of Antioch 2003b).

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Figure 3-16
Soils at Contra Loma Reservoir and Recreation Area

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During the summer months (June, July, and August) the Bay Area experiences little precipitation and winds tend to blow onshore from the north and northwest. Pollution potential is higher during the summer months due to strong northwesterly winds (City of Antioch 2003b). During summer months, the California coast and coastal cities often experience fog and stratus clouds due to heavy condensation.

For the period from March 1, 1955 to June 30, 2000, average high temperatures in Antioch ranged from 53.6°F (January) to 90.9°F (July). The annual average maximum was 73.3°F. During this period, monthly average minimum temperatures ranged from 36.7°F (January) to 57.1°F (July). The annual average minimum was 47.6°F.

Summertime temperatures in the Bay Area are greatly influenced by differential heating between land and water surfaces. Land areas heat and cool more quickly than water areas. This difference often creates a large-scale temperature gradient between the coast and the Central Valley. Small-scale local gradients are also produced near shorelines. On summer afternoons, coastal temperatures can be 35 degrees cooler than inland temperatures. In the winter, the daytime temperature contrast between coastal and inland areas is usually small but the nighttime temperature variation is large, with warmer nighttime temperatures near the coast and cooler nighttime temperatures further inland (City of Antioch 2003b).

Antioch is located on the south side of the Carquinez Strait, the only sea-level gap in the Coast Ranges of California. Strong, persistent winds usually flow westward through the Carquinez Strait. Wind speeds are generally highest in spring and summer and lowest in fall and winter. During the spring and summer, the daily wind speed variation is greatest, with wind speeds peaking in the late afternoon. During fall and winter, wind speeds and directions are more variable (City of Antioch 2003b).

3.13.2 Air Quality

The Bay Area Air Quality Management District (BAAQMD) operates a network of 28 air monitoring stations that measure air quality levels in the Bay Area. The stations nearest to Contra Loma are located in Concord (14 miles to the west) and Bethel Island (9 miles to the east). The Bay Area is in non-attainment for Federal 8-hour ozone standards and for particulate matter (PM) smaller than 2.5 micrometers (PM2.5) (EPA 2014). The county was classified as attainment for PM10 in July 2014.

Ozone is harmful to public health when it occurs at high concentrations near ground level where it can be inhaled. Ozone can damage the tissues of the respiratory tract and lungs. High concentrations can irritate the nose, throat, and respiratory system, and constrict the airways. Ozone can also aggravate other respiratory conditions and can have negative cardiovascular effects.

Ozone is not emitted directly into the air by a source such as a vehicle, but is formed through a complex series of chemical reactions involving other compounds that are directly emitted. These directly emitted pollutants (also known as ozone precursors) include reactive organic gases (ROGs) and nitrogen oxides (NOx). The principal sources of ROGs and NOx are the combustion of fuels and the evaporation of solvents, paints, and fuels. The main sources of ozone precursors in the Bay Area are motor vehicles; evaporation of solvents, fuels, and other petroleum products;

and combustion at industrial and other facilities (Bay Area Air Quality Management District 2010). Ozone levels are usually highest on hot, windless summer afternoons, especially in inland valleys.

The time period required for ozone formation allows the reacting compounds to spread over a large area, producing a regional pollution problem. Ozone problems are the cumulative result of regional development patterns rather than the result of a few significant emission sources. Depending on meteorological conditions, ozone precursors can be transported well away from the source area before ozone concentrations peak.

PM can consist of many types of particles, including chemical elements such as carbon and metals; compounds such as nitrates, sulfates, and organics; or complex mixtures such as diesel exhaust, wood smoke, and geological dust. Acute and chronic health effects associated with high particulate levels include the aggravation of chronic respiratory diseases; heart and lung disease; and coughing, bronchitis, and respiratory illnesses in children. According to the BAAQMD, fine PM may be the air pollutant that is most harmful to public health in the Bay Area. Additional effects of PM include reduced visibility and soiling of buildings. PM may also influence climate change. Sources of PM include combustion of fossil fuels, wood and agricultural burning, and geological dust, which includes construction dust, road dust, and windblown dust (Bay Area Air Quality Management District 2010).

The strong, persistent winds in Antioch reduce the atmospheric potential for localized air pollution. These winds dilute pollutants and transport them to surrounding regions. Pollutants generated or carried through Antioch by the wind are often carried eastward into the Sacramento and San Joaquin valleys. Likewise, pollutants generated in other portions of the Bay Area to the west are transported to Antioch (City of Antioch 2003b).

Ozone precursors (ROG and NOx) are generated within Contra Loma by fossil fuel combustion from motorized vehicle and maintenance equipment use and by evaporation of solvents, fuels, and other petroleum products used for construction and maintenance activities. PM sources within Contra Loma include fossil fuel combustion, dust generated by construction and maintenance activities, and windblown dust. Ozone precursors and PM are also generated by vehicles traveling to and from Contra Loma.

Some types of land uses are considered more sensitive to air pollution than others. Sensitive receptors are facilities that house or attract children, the elderly, people with illnesses, or others who are especially sensitive to the effects of air pollutants. Examples of sensitive receptors include hospitals, schools, convalescent facilities, and residential areas. Parks such as Contra Loma may also be considered sensitive receptors because they attract children and are used for aerobic recreation activities. Sensitive receptors in the vicinity of Contra Loma include nearby residential areas.

Particulate air pollutants, from both naturally occurring and human sources, have been monitored by the BAAQMD at several monitoring stations near Contra Loma, but not within or adjacent to Contra Loma (Bay Area Air Quality Management District 2013). Monthly average levels of PM10 (particulates 10 microns and less in size) at the Concord monitoring station in 2012 were 12.6 micrograms per cubic meter (ug-3). In 2012, the maximum 24-hour PM10 level at Concord

was 35 ug-3. In 2012, the monthly average PM10 level at Bethel Island was 14.1 ug-3, with a maximum 24-hour of PM10 level of 52 ug-3. BAAQMD's Concord station monitored a monthly average PM2.5 level of 6.5 ug-3 in 2012 and a maximum 24-hour PM2.5 level of 32.2 ug-3. California maximum 24-hour standards for PM10 were exceeded on one day in 2012 at Bethel Island but were not exceeded at Concord. California and National annual standards for PM10 were not exceeded at either station, nor were California or National PM2.5 standards exceeded at Concord. BAAQMD does not maintain any stations to monitor particulates closer to Contra Loma than these stations, and does not monitor PM2.5 at Bethel Island.

3.13.3 Climate Change

Various gases in the earth's atmosphere, classified as atmospheric greenhouse gases (GHG), play a critical role in determining the earth's surface temperature. Prominent GHGs include carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, chlorofluorocarbons, and sulfur hexafluoride. Human-generated emissions of GHGs which exceed natural ambient concentrations are responsible for intensifying the earth's natural greenhouse effect and have led to a trend of unnatural warming of the Earth's climate, known as global climate change or global warming (Ahrens 2003).

Evidence for historic warming of the Earth's climate system, including Earth's near-surface air and ocean temperatures, is now considered to be unequivocal, with global surface temperature having increased approximately 1.33°F over the last 100 years. Future global climate change trends and implications for the U.S. are projected to include:

- An increase in global average temperature between 2 and 11°F over the next 100 years;
- More frequent and longer warm weather extremes across North America;
- A decrease in mean annual precipitation in the southwestern U.S. but an increase over the rest of the continent;
- Widespread increases in extreme precipitation, with greater risks of not only flooding from intense precipitation, but also droughts from greater temporal variability in precipitation;
- Sea level rise from 7 to 23 inches by the end of this century; and
- Reduced snowpack in the western mountains, more winter flooding, and reduced summer flows that would adversely affect the supply of water resources (Intergovernmental Panel on Climate Change 2007).

In the Bay Area, climate change is expected to increase the number of high heat days and wildfires, which would likely exacerbate air pollution in the Bay Area and hinder efforts to attain air quality standards for ozone and PM (Bay Area Air Quality Management District 2010).

Unlike criteria air pollutants, such as ozone and PM, which are pollutants of regional and local concern, GHGs are global pollutants; consequently, climate change is a global problem. In the Bay Area, transportation and commercial and industrial sources generate the most GHG

emissions, accounting for about 70 percent of the Bay Area's GHG emissions. Of these sources, passenger vehicles are the largest, generating about 27 percent of the Bay Area's GHGs. Electricity generated for Bay Area utilities, including electricity imported from outside the Bay Area, accounts for about 16 percent of the GHGs generated by the Bay Area (Bay Area Air Quality Management District 2010). GHG sources attributable to Contra Loma's land uses and activities include passenger vehicle trips, electricity use, fossil fuel combustion from motorized vehicles and maintenance equipment, and livestock use.

The City's baseline community wide GHG emissions inventory was completed in February 2008 as part of the City of Antioch Municipal Climate Action Plan, with a grant from the International Council for Local Environmental Initiatives (City of Antioch 2011c). The inventory reveals that for the year 2005, the City released 308,954 metric tons of CO2 (MTCO2e) in 2005 and, if steps are not taken to achieve reductions, the City is projected to emit 75,000 more MTCO2e in 2020. The City's total community-wide GHG emissions in 2005 are equivalent to the emissions generated by 60,000 passenger vehicles.

3.14 Noise

Transportation noise is the most dominant source of noise in the City, followed by noise generated from other routine activities and equipment use. The overall amount of traffic has less influence on road noise levels than vehicle speed and the number of trucks (City of Antioch 2003b).

Contra Loma's noise environment is consistent with its suburban/semi-rural setting. Contra Loma is surrounded by residential areas to the north and southeast, a golf course to the east, and open space to the west and southwest. These land uses typically do not generate substantial volumes of noise. James Donlon Boulevard runs along the northern boundary of the Community Park and is the dominant off-site noise source. Noise from James Donlon Boulevard is more noticeable from the Community Park than from the Regional Park. Distance and intervening topography greatly reduce the level of road noise that is audible from most areas of the Regional Park. Frederickson Lane generates transportation noise that is audible in the southeast portion of the Regional Park; however, similar to James Donlon Boulevard, distance and intervening topography greatly reduce the level of road noise that is audible from most areas of the Regional Park. Aircraft overflights are an intermittent contributor to overall background noise levels as there are no major airports near Antioch.

Noise generated within Contra Loma includes vehicle and mechanical equipment noise, maintenance activities, human voices, sports whistles, wildlife and livestock sounds, splashing water, and gate sounds. Noise from vehicles and mechanical equipment includes motors, closing doors and trunks, and tire squeal. Noise from maintenance activities can include equipment and vehicle noise, trash can handling, mowing, and other activities. Human voices in the area usually range from typical conversations to cheers, shouting, and crowd noise associated with sports league play. Noise generated by sports league play at the Community Park includes vehicle noise, sports whistles, and human voices. Sports league play represents a prominent source of noise generated within Contra Loma. Boating is restricted to electric and human-powered vessels; therefore, boat noise is not a substantial noise source within Contra Loma.

The highest noise levels at Contra Loma are located near James Donlon Road and other locations with a high concentration of human and mechanical activity. These locations include the Community Park sports fields and parking lots, the high-use recreation areas along the south shore of the reservoir, parking areas, and trash collection areas. Noise levels generated by recreational land uses and activities vary depending on the timing and intensity of use and activity. Most recreational activity, including sports league play, occurs during evenings and weekends, whereas maintenance activities are typically performed during the day. The intensity of various types of recreational activities also varies seasonally.

Sensitive noise receptors include residences, schools, hospitals, and places of worship. The only sensitive noise receptors within ¼ mile of Contra Loma are the residences to the north and southeast. The nearest residences to the Community Park are north of the park on the opposite side of James Donlon Boulevard. These single-family residences are located 400 feet from sports fields 1 through 3 in the western portion of the Community Park, 500 feet from sports fields 4 and 5, and 200 feet from the parking lots. On the east side of the Community Park, single-family residences are located 1,400 feet from sports fields 4 and 5 and 700 feet from the eastern parking lot. Multi-family residences are located several hundred feet northwest of the Community Park.

The nearest residences to the Regional Park are the single-family residences directly adjacent to the northwest boundary of the park and those backing up to Frederickson Lane on the southeast side of the Regional Park. Visitor use in the northwest and southeast portions of the Regional Park near these residences is primarily limited to hiking, which is a relatively quiet activity that does not generate substantial noise. The residential areas within ¼ mile of Contra Loma have already been completely built-out. Therefore, no new residences are expected to be built in the vicinity of Contra Loma. Neither EBRPD nor the City has received noise complaints from nearby residents.

3.15 Visual Resources

3.15.1 Visual Character of Contra Loma

The visual setting of the Contra Loma Recreation Area is consistent with its location and character as a regional and community park on the northern edge of the Diablo Range. Views from any given location may include rolling grassland, oak woodland, hills and ridges, the reservoir surface, riparian and wetland habitat, the swim lagoon, park buildings, sports fields, picnic areas, roads, parking areas, and nearby suburban land uses (see Photographs 1 through 12 and Figure 3-17).

The primary visual elements of the recreation area include rolling hills and ridges supporting grassland with scattered oaks, grass-covered valleys, the reservoir surface, and the landscaped recreation facilities along the south side of the reservoir and within the Community Park. The dam is not a primary element of views from most locations in Contra Loma. The dam face can be seen from some areas of the Community Park near the dam; but for most of Contra Loma, views of the dam only include a narrow portion of the rocked dam crest rising above the reservoir water.

The primary visual features located outside Contra Loma and visible from within Contra Loma are the grass- and tree-covered foothills of Mt. Diablo to the south and west, and the landscaping, buildings, and structures of the suburban areas of Antioch to the northwest, north, east, and southeast.

3.15.2 Views From within Contra Loma

Views from within Contra Loma also vary depending on the viewer's location. Views from locations on or near the reservoir can include the reservoir surface and shoreline, fishing docks, the boat launch, landscaped picnic areas, the swim lagoon, restrooms, shower facilities, the food concession area, and the EBRPD office. Distant views can also include hills, ridges, and suburban land uses near Contra Loma (see Photographs 1 through 6 and Figure 3-17).

Views from within the Community Park can include sports fields, play grounds, picnic areas, parking lots, trails, and restrooms located within the park. Distant views can also include portions of the Regional Park, and nearby hills, ridges, and suburban land uses. The dam face may also be seen from some locations in the northwesternmost portion of the Community Park (see Photographs 7 through 9 and Figure 3-17).

Views to the north and east from the ridge tops along the southern and western margins of Contra Loma include the reservoir and dam, the landscaped facilities along the southern shoreline of the reservoir, grassland, and distant views of Antioch and the Delta beyond. Views to the south and west from these ridges include distant views of suburban land uses and the grass- and tree-covered foothills of the Diablo Range (see Photographs 10 and 11 and Figure 3-17).

3.15.3 Views of Contra Loma from Offsite Locations

Views of Contra Loma from offsite vary depending on the viewer's location. Views from the north include the grass-covered face of Contra Loma Dam, the dam facilities, and the landscaping, sports fields, and parking lots of the Community Park. Elevated views of Contra Loma from the north also include the grassy ridges south and west of the reservoir (see Photograph 12 and Figure 3-17). Views from the east, such as from Lone Tree Golf Course or nearby residences, can include rolling grassland, ridges, landscaping, and sports fields. Views from the south and west are limited to the grassy ridges that line Contra Loma's southern and western margins, although very distant views of other portions of Contra Loma may be available from higher elevation viewpoints on the flanks of Mt. Diablo.

Nighttime views of the Community Park are generally dark, except when the sports fields in the western half of the park are illuminated for night time use. Nighttime views of the Regional Park from offsite locations are generally dark, because nighttime lighting is very limited and nighttime activity is minimal.

Photograph 1. View southwest across the reservoir toward the swim lagoon, picnic areas, and distant ridgelines.

Photograph 2. View north across the reservoir toward the dam with a fishing dock in the foreground. Suburban land uses are visible in the distance.

Photograph 3. View east along the reservoir's southern shoreline within the picnic area east of the swim lagoon.

Photograph 4. View northeast across the swim lagoon and reservoir toward the dam. Steam from an exhaust stack is visible in the distance.

Photograph 5. View northeast along the reservoir's southern shoreline toward the boat launch. Wetland and riparian vegetation is visible.

Photograph 6. Picnic, restroom, and shower facilities adjacent to the swim lagoon.

Photograph 7. View north across Antioch Community Park multi-use sports fields with residences in the distance.

Photograph 8. Soccer field in Antioch Community Park.

Photograph 9. Playground in Antioch Community Park.

Photograph 10. View northeast from the Lake View Trail across the reservoir and dam with distant views of Antioch and the Delta.

Photograph 11. View southeast from the southern ridgeline with distant views of suburban land uses and rolling foothills of the Diablo Range.

Photograph 12. View south from offsite. Antioch Community Park is on the left, Contra Loma Dam is on the right, and the Diablo Range foothills are in the distance.

G:\Projects\30019 Contra Loma\GIS\Working Mxds\30019 Figure 3-17 Photo Locations.mxd Created: 2011-10-13 edouglas revised 2013-05-29 tmooney

North State Resources, Inc.

Figure 3-17
Photo Locations

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3.16 Hazards

3.16.1 Hazardous Materials

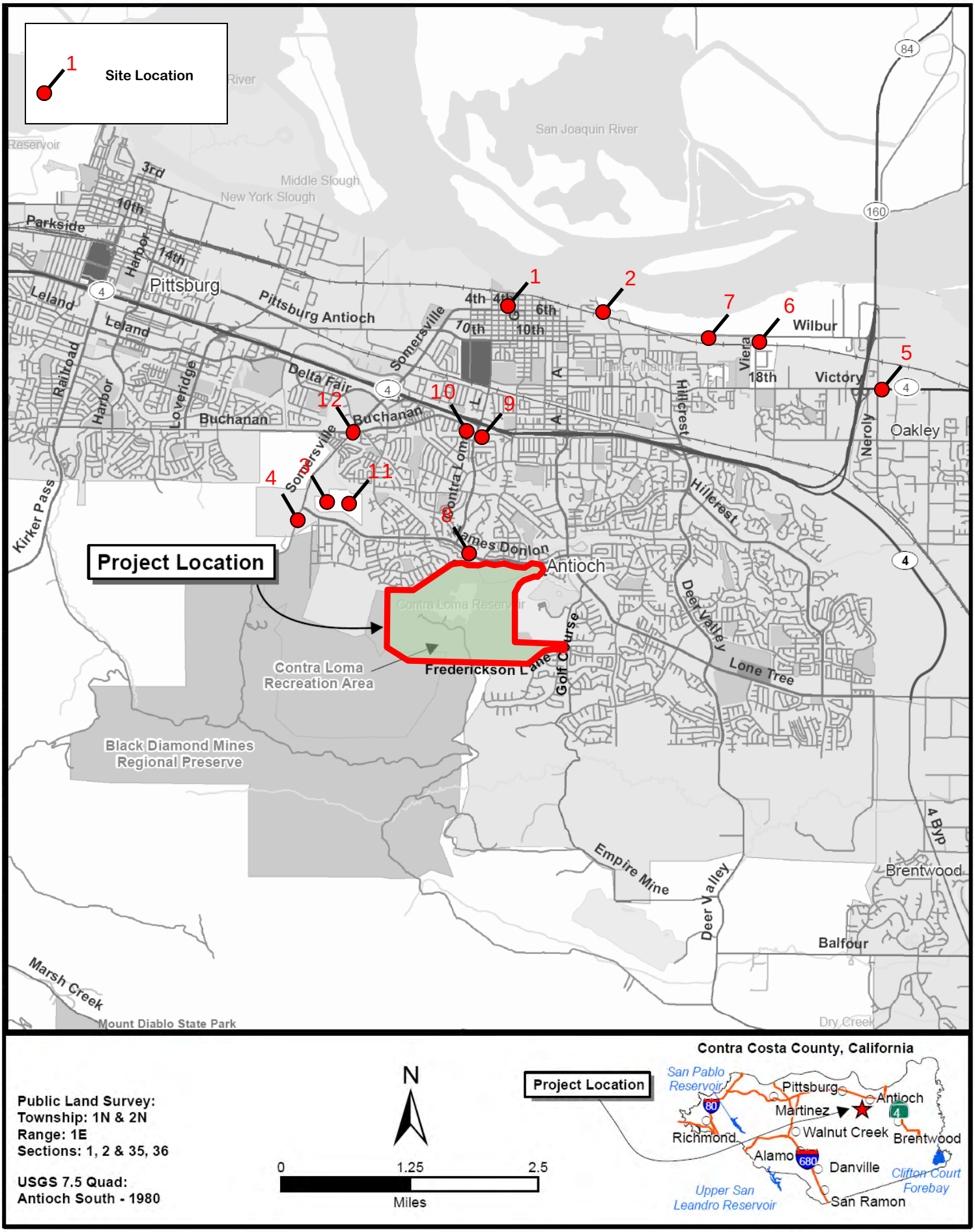
Superfund is the Federal government's program to clean up the nation's hazardous waste sites. Table 3-14 lists the three active and five archived hazardous waste sites that are located in the City. The site locations are shown on Figure 3-18. Active sites are sites at which site assessment, removal, remediation, enforcement, cost recovery, or oversight activities are being planned or conducted under the Federal Superfund program; the archive designation indicates that the site is of no further interest under the Superfund program. None of the eight sites in the City are on the National Priorities List. The nearest active site to Contra Loma is the GBF, Inc. dump site, one mile northwest of Contra Loma (U. S. Environmental Protection Agency 2011).

Table 3-14. Summary of Hazardous Waste Sites Recorded in Antioch, California

Site Name/ EPA ID	Site Number (see Figure 3-18)	Status	Location	Approximate Distance from Contra Loma
Antioch Radiator Exchange/ CAD982488942	1	Active	908 West 2nd Street, Antioch, CA 94509	3 miles north of Contra Loma
Fulton Shipyard/ CAD009151762	2	Active	307 Fulton Shipyard Road, Antioch, CA 94509	3 miles north of Contra Loma
GBF, Inc., Dump/ CAD980498562	3	Active	Along James Donlon Boulevard, Antioch, CA 94509	1 mile northwest of Contra Loma
Abandoned Drum - Antioch/ CAD981621956	—	Archived	Antioch, CA 94509	Unknown
Antioch Disposal Site/ CAD980496855	4	Archived	Paso Corto and Somersville roads , Antioch, CA 94509	1 mile northwest of Contra Loma
E. I. Dupont de Nemours & Company, Inc./ CAD009151671	5	Archived	Wilbur Avenue at Bridgehead Road, Antioch, CA 94509	4 miles northeast of Contra Loma
Gaylord Container Corporation East Plant/ CAD009148180	6	Archived	Wilbur Avenue at Viera Avenue, Antioch, CA 94509	4 miles northeast of Contra Loma
PG&E Contra Costa Power Plant/ CAT080011489	7	Archived	Wilbur Avenue, Antioch, CA 94509	4 miles northeast of Contra Loma

Source: U. S. Environmental Protection Agency 2011

GeoTracker is the SWRCB's data management system for managing sites that affect groundwater, especially those that require groundwater cleanup, such as Underground Storage Tanks (USTs), Department of Defense, and Site Cleanup Programs, as well as permitted facilities such as operating USTs and land disposal sites. GeoTracker lists five open cleanup cases within two miles of Contra Loma, as shown in Table 3-15. The site locations are shown on Figure 3-18. The nearest site is the City's Yard property located less than 100 feet north of the Contra Loma Recreation Area boundary (State Water Resources Control Board 2011).



North State Resources, Inc.

Figure 3-18
Hazardous Waste and Groundwater Cleanup Sites

Table 3-15. Open Groundwater Cleanup Sites Recorded within 2 miles of the Contra Loma Reservoir and Recreation Area

Site Name/ GeoTracker ID	Site Number (see Figure 3-18)	Cleanup Status	Location	Approximate Distance from Contra Loma
Antioch Yard Property/ SLT5S0383079	8	Open - Site Assessment	James Donlon Boulevard and Tabora Drive, Antioch, CA 94509	Less than 100 feet north of Contra Loma
Tosco - Facility #5963/ T0601300770	9	Open - Site Assessment	2701 Contra Loma Boulevard, Antioch, CA 94509	1.5 miles north of Contra Loma
Former Exxon 7-3615/ T0601300756	10	Open - Remediation	2610 Contra Loma Boulevard, Antioch, CA 94509	1.5 miles north of Contra Loma
Antioch Landfill/ L10003214546	11	Open	Somersville Road, Antioch, CA 94509	1 mile northwest of Contra Loma
PG&E Antioch Service Yard	12	Open - Site Assessment	Somersville and Buchanan roads, Antioch, CA 94509	2 miles north of Contra Loma

Source: State Water Resources Control Board 2011

Storage and handling of hazardous materials within the Regional Park is limited to relatively small quantities of fertilizers, pesticides, fuels, oils, solvents, and other chemicals used by EBRPD for routine operation and maintenance activities. EBRPD employs safe storage and handling practices in compliance with the standards of the Occupational Safety and Health Administration, the California Division of Occupational Safety and Health, and the County. The City does not store hazardous materials at the Community Park. During a recent three-year analysis period, EBRPD fire personnel responded to two hazardous materials incidents at the Regional Park. EBRPD considers Contra Loma to have a moderate rate of hazardous materials occurrence compared to its other parks (East Bay Regional Park District 2010a).

3.16.2 Dam Failure

Contra Loma Reservoir is located above the City. In 1983, Reclamation's Division of Dam Safety conducted a safety analysis of the reservoir and determined that "safe performance of the dam can be expected under all anticipated loading conditions, including the maximum credible earthquake and probable maximum flood events" (City of Antioch 2003a). The overall safety classification of the dam is registered as satisfactory (City of Antioch 2003a). The risk from dam failure to Contra Loma visitors and to the City is low.

In the unlikely event of dam failure, the path of inundation is expected to generally follow the West Antioch Creek drainage northward from the dam to the San Joaquin River. The inundation area would be approximately ¾ mile wide and the anticipated maximum depth would range from 19 feet directly north of the dam to 7 feet at the San Joaquin River near the City's downtown area (City of Antioch 2003a).

3.16.3 Wildland Fires

Wildland fires can occur in many parts of California, including the Bay Area. Contra Loma is within the City and, thus is not under the jurisdiction of Cal Fire. Although lands adjacent to the City limits and surrounding Contra Loma have been mapped by Cal Fire as being Very High Fire

Hazard Severity zones, fire hazard severity in Contra Loma itself has not been mapped. Because Contra Loma is located within the City, it has been designated by Cal Fire as being a Local Responsibility Area, meaning that local fire protection agencies (e.g., City and/or County rather than Cal Fire) are directly responsible for fire suppression (California Department of Forestry and Fire Protection 2009). As discussed in Section 3.6 (Public Health and Safety), EBRPD and the CCCFPD are responsible for fire management in Contra Loma. During the three-year period from 2006 through 2008, EBRPD responded to five fires at the Regional Park, which represents a slightly above-average occurrence of wildland fires when compared to other EBRPD parks (East Bay Regional Park District 2010a).

3.17 Cultural Resources

3.17.1 Cultural Setting

Prehistoric human occupation of California stretches back over 12,000 years to the late Pleistocene Era (Moratto 1984). Evidence of the earliest known occupation of the Contra Loma region and San Francisco Bay Area was found during archaeological investigations at Los Vaqueros Reservoir, located approximately 11 miles southeast of Contra Loma. The excavations there revealed prehistoric occupation of the East Bay Area from approximately 8,000 years before the present day (BP) to the historic period as late as 200 BP (Milliken et al. 2007). Native peoples engaged in their traditional lifeways until the ethnographic and early historic period just prior to sustained contact with Euro-American groups. The Contra Loma region is situated in an area formerly occupied by the Karkin Costanoan (Ohlone) and Bay Miwok (Milliken et al. 2007). Some of the earliest accounts of the ethnographic Costanoans date to the 1760s when Spain was expanding its empire through exploratory expeditions and the establishment of the mission system in the coastal and inland regions of southern and central California.

Supported by Spanish and later Mexican governments and private individuals the main economic pursuits in the Contra Loma area during the 19th century consisted of farming, ranching, and dairying. Several homestead patents in the vicinity of the Area of Potential Effects (APE) were awarded in the 1870s and were occupied by individuals and families engaged in the agricultural industry (Hulaniski 1917). At the same time farms and ranches were being established in the Contra Loma area, the discovery of large deposits of coal in the nearby “Black Diamond” area further spurred agricultural and industrial activity in the Contra Loma region. Mining towns such as Nortonville, Somersville, Stewartville, West Hartley, and Judsonville were important centers from the 1860s through the last years of the 19th century. Although coal mining did not occur within the boundaries of the APE, transportation routes such as wagon roads and railroads passed through the area and connected the mines with Antioch and the larger Bay Area markets.

Following the decline of the coal mining industry in the region, agricultural and ranching pursuits continued to thrive and formed the basis of the regional economy throughout much of the 20th century. In order to support these industries, provide water to the drier southern regions of California, reduce seasonal flooding, and foster continued development in the state, the CVP was established and constructed between the 1930s and 1960s. Part of this state-wide system, one of the largest public works projects in the U.S., is the Delta Division which includes the Contra Loma Dam and Reservoir located within the APE. Contra Loma Dam was completed in 1967 and the reservoir serves as an off-stream water storage facility for the Contra Costa Canal

(also a CVP component; Stene 1994). Completed prior to the full adoption of Section 106 of the National Historic Preservation Act, no cultural resources investigations were conducted before the dam and reservoir were built.

3.17.2 Study Methodology

Research into cultural resources issues consisted of several avenues of investigation. These included, but were not necessarily restricted to, archival research conducted through the Northwest Information Center of the California Historical Resources Information System, and reviews of additional sources such as the USGS Historic Topographic Map Collection, the National Register of Historic Places (NRHP), the California Register of Historical Resources, the Contra Costa Historical Society, and documents curated by Reclamation. Research also consisted of Native American community outreach, and a reconnaissance field survey intended to verify the presence and integrity of cultural resources previously identified within and adjacent to the APE .

3.17.3 Identified Cultural Resources

Archival research and a reconnaissance field survey resulted in the identification of prehistoric and historic-era cultural resources within Contra Loma. The survey also updated existing information on one prehistoric site (CA-CCo-572) and examined its surrounding vicinity for potentially undocumented components or other unrecorded cultural resources.

This research revealed that 10 cultural resources investigations have been conducted within Contra Loma. These studies resulted in the archaeological survey of approximately 170 acres within Contra Loma (approximately 23 percent of Contra Loma lands including the 80 surface acres of the reservoir) and surveys of about 3.8 miles of roadways and trails within Contra Loma. These studies, along with historic mapping, Reclamation documents, and other sources, indicates that 12 prehistoric and historic-era sites and features have been identified within or immediately adjacent to Contra Loma. These sites represent early Native American use of the landscape and historic-era activities such as ranching, transportation, and water storage and conveyance in and around Contra Loma. Additional sites, features, and artifacts associated with prehistoric and historic-era activities may be present in un-surveyed portions of the APE.

Prehistoric Sites

CA-CCo-572. This site is located within the APE and was originally documented in 2008. A 2011 reconnaissance survey noted the presence of three isolated prehistoric artifacts not documented in the original 1988 records for this site. These artifacts were discovered over 45 meters away from the site and consisted of a single flake to the northwest and a core fragment and single flake to the southeast of the site. These artifacts were of the same lithic material as all the artifacts located on the site: a dark gray to off-white to reddish-yellow cryptocrystalline silicate. Bedrock outcrops are visible on the site surface suggesting shallow soil development.

The site record for CA-CCo-572 was updated following the field survey. The condition of the previously recorded portions of this site appears to be unchanged from the initial recording and no indications of midden soils or subsurface deposits were noted. This site has not been assessed as to NRHP listing eligibility.

CA-CCo-385. This site is located adjacent to but outside of the APE. The site consists of prehistoric and historic-era components situated on a hill approximately 200 meters east of the Community Park boundary and north of the Antioch Municipal Reservoir. It is likely that these sites have been destroyed by the development of the surrounding residential neighborhood. CA-CCo-385 was a possible midden with fire-affected rock; quartzite, chalcedony, basalt, and petrified wood debitage; and sandstone and basalt groundstone tools. The site also had a historic component containing an abandoned cattle watering trough, square nails, ceramics, and redwood posts. This site was located in a swale that contained an active spring but is now covered and possibly destroyed entirely by houses and the intersection of Dunes and Andrews Way. This site was not revisited at the time of the 2011 survey and has not been assessed for NRHP listing eligibility.

CA-CCo-386. This site, which contains both prehistoric and historic-era artifacts, is located adjacent to but outside of the APE and was documented in the immediate vicinity of CA-CCo-385. A possible midden with fire-affected rock, chert debitage, and sandstone groundstone tools were recorded along with a historic-era component consisting of a fig tree, metal, ceramics, and an unspecified trash scatter. As with CA-CCo-385, this site appears to have been destroyed by residential and roadway construction. Both this site and CA-CCo-385 were situated within lands included in the 1872 Sale-Cash Entry land patent of Benjamin Hockabout (Bureau of Land Management, General Land Office 1872). The 1879 Contra Costa County tax roll listed Dr. Samuel Adams as the landowner. This site was not revisited at the time of the 2011 survey and has not been assessed for NRHP listing eligibility.

Ranching and Agricultural Sites

Structure Location. A structure (possibly a windmill) noted on the 1898 Mount Diablo USGS quadrangle (and later maps) within the APE was not relocated. The mapped location of the structure is currently covered in thick cattails and riparian vegetation along the reservoir shore and covered in thick grasses on the small hill between the reservoir and the road. Although the heavy vegetation could be obscuring at least some remains of the windmill, dam and reservoir construction more than likely destroyed any traces of this structure. This site has not been assessed for NRHP listing eligibility.

Ranch Complex Location. The *1989 Contra Loma Regional Park Land Use Development Plan Amendment and Environmental Impact Report/Environmental Assessment (EIR/EA): Antioch Community Park at Contra Loma* (City of Antioch and Bureau of Reclamation 1989) discusses the presence of an old ranch complex in the APE where the Community Park is now located. The EIR/EA includes a discussion of integrating the remnant almond orchard, ornamental eucalyptus trees, and various non-native shrubs into the park infrastructure. The EIR/EA also includes a map that indicates the presence of an old stock pond and the former location of the ranch house. However, there is no indication that the historic-era ranch was formally documented through the California Historic Resource Information System and no evidence of this ranch complex was noted during the 2011 reconnaissance survey. This site has not been assessed for NRHP listing eligibility.

Historic-era Building Location. An unidentified building or other structure is depicted on 1898 and 1916 USGS maps of Contra Loma and the surrounding area. This location is presently under the Contra Loma Reservoir. Any traces of this location were almost certainly destroyed or at

least inundated by the construction of the reservoir in the 1960s. Because the site could not be visited and has almost certainly been destroyed, it has not been assessed for NRHP listing eligibility.

Historic Transportation Routes

Empire Railroad. A segment of the old Empire Railroad alignment cut through the southeastern-most portion of the APE. The feature was related to the Empire Company which was founded in 1876 by George Hawxhurst and John C. Rouse to mine the rich coal veins in the Black Diamond area. Initially, the company transported coal by wagon teams to the coal wharf at Antioch about six miles to the north. The company built the narrow gauge Empire Railroad in 1877 to improve the transport of coal to Antioch and from there to the broader Bay Area markets. The Empire Company ceased operations in 1902 and presumably abandoned their rail line at that time.

This feature has not been recorded as a cultural resource and an examination of the general area of the APE within which the rail alignment would have extended did not reveal any traces of its presence. According to USGS mapping, the Empire Railroad line appears to have been partially realigned and repurposed sometime between 1941 and 1947. The 1941 USGS Mount Diablo quadrangle shows the alignment as a railroad and following the same route as noted on the 1898 Mount Diablo quadrangle map. However, according to the 1947 USGS Mount Diablo quadrangle, the line had been straightened and shifted slightly to the east to conform to the USGS map section line. Around this time the alignment appears to have been converted to a surface road. Due to its realignment and re-purposing, and the lack of any physical evidence for its presence, this feature does not retain any physical integrity or integrity of setting. This site has not been assessed for NRHP listing eligibility.

Oil Canyon Road. An early 20th century alignment of Oil Canyon Road appears to exist within the APE to the south of the reservoir. It extends due south from the boat launch at the south side of the reservoir to the edge of Contra Loma as a paved road. The alignment continues to the south and outside Contra Loma as a graveled access/ranch road onto private undeveloped land and was noted during the field survey. The portion of the road alignment appears to have been destroyed or at least inundated by the construction of the Contra Loma Dam and Reservoir. This site has not been assessed for NRHP listing eligibility.

James Donlon Boulevard. Located along the northern boundary of the APE, this east-west trending road was first documented on the 1898 Mount Diablo USGS topographic quadrangle map. This roadway did not constitute a major route but was merely a local access route throughout much of the 20th century. By the latter half of the 20th century the road was expanded and ultimately named James Donlon Boulevard presumably in honor of James D. Donlon who served as Mayor of the City of Antioch and as a councilman for many years in the late 19th century (Contra Costa County Community Development Department Historic Resources Inventory 2010). This site has not been assessed for NRHP listing eligibility.

Water Conveyance and Storage Sites

Contra Loma Dam and Reservoir. The Contra Loma Dam and Reservoir are components of the Delta Division of the CVP and constitute an off-stream water storage site for the Contra Costa Canal. The dam, an earth fill structure, was completed in 1967 and has a structural height of 107 feet and a crest length of 1,050 feet. The reservoir measures approximately 80 acres in surface

area and retains 2,100 acre-feet of water. The dam and reservoir are owned by the U.S. Government. CCWD has been operating and maintaining the reservoir, under contract with Reclamation since 1967, as a regulating reservoir for peak or short-term municipal water supplies for CCWD customers, and also for emergency storage and as a backup water supply.

The Contra Loma Dam and Reservoir is an important element in the Delta Division of the CVP system. Even though the facility is of fairly recent construction it will reach the minimum age of 50 years per the NRHP criteria during implementation of the Contra Loma Recreation Area Resource Management Plan. CVP dams such as Contra Loma may be eligible under Criterion A if they are demonstrably associated with the agricultural development of the state or region, played a determining role in the history of the CVP or the Bureau of Reclamation, or created key storage reservoirs associated with the CVP. Reclamation considers and treats the CVP as eligible under Criterion A for its national and local economic contribution to the development of California. Therefore, the dam may be determined eligible for NRHP listing as a contributing property to the CVP (Perry, pers. comm. 2014).

P-07-002695-Contra Costa Canal. The Contra Costa Canal, which forms the northern border of APE, was constructed by Reclamation and is part of the larger CVP. The canal is 47 miles long and supplies water along its length from the headgates at Rock Slough in the Delta to the City of Martinez. Construction on the canal began in 1937 and was completed in 1951. The Canal was determined eligible for listing on the NRHP, through consensus with the California State Historic Preservation Officer dated March 9, 2005, due to its association with the CVP and the development of agriculture and irrigation in California.

Antioch Municipal Reservoir. The Municipal Reservoir was created in the late 1920s to serve the citizens of the City of Antioch, is not associated in any with the Contra Loma Dam/Reservoir, and is not situated within or immediately adjacent to the APE. The reservoir was constructed solely to provide water to the City of Antioch. It was not part of a larger system such as the CVP and consequently did not contribute to the broader patterns of water acquisition, conveyance, and distribution. This site has not been assessed for NRHP listing eligibility. The reservoir is situated to the east and outside of the APE and would not be affected by any projects within Contra Loma.

Current Condition of the APE

A 2011 reconnaissance survey and archival research indicate that large portions of the APE have been subjected to intensive developments that would have disturbed or destroyed identified and presently undocumented cultural resources. These developments consist of the Contra Loma Dam/Reservoir, recreational facilities and infrastructure associated with the Regional Park, which are situated primarily along the south side of the Reservoir. This developed area, including the 80 acres covered by the reservoir, consists of approximately 149.3 acres. Additional recreational features and construction related to the Community Park in the northeast section of the APE have disturbed an additional approximately 36.8 acres. In total, approximately 25 percent of the APE has been disturbed by dam/reservoir and recreation-associated developments. Although many of the individual developments within the APE possess limited footprints (e.g. roads, trails, boat launch, restrooms, etc.), collectively they have affected a fairly large area and have reduced the potential for additional discoveries in those areas in both surface and subsurface contexts. Small intact sites, isolated artifacts, or sparse scatters of archaeological

materials may still exist in these developed areas. However, in general, any larger or potentially significant (per NRHP criteria) cultural resources in these areas likely would have been destroyed or at least damaged by construction activities.

In addition, portions of the APE (approximately 170.62 acres [about 23 percent]) have been subjected to surface archaeological surveys including those conducted in 2011 for this EIS. The 2011 surveys resulted in the identification of only three cultural resources; CA-CCo-572, Contra Loma Dam/Reservoir, and the Contra Costa Canal which is situated outside but immediately adjacent to the northern edge of the APE. However, it is important to note that some of these studies were conducted prior to the development of present-day survey and research methodologies and may not meet today's requirements for identification efforts.

3.18 Socioeconomics and Environmental Justice

3.18.1 Population

Table 3-17 presents population figures for California, the County, and the City. Between 2000 and 2010, the population of all of these areas increased. The rates of population growth in the County (10.6 percent) and the City (13.1 percent) were higher than the state average of 10 percent (California Department of Finance 2011a).

Table 3-17. Population Estimates for California, Contra Costa County, and Antioch

Location	2000	2010	% Change 2000-2010
California	33,871,653	37,253,956	10.0%
Contra Costa County	948,816	1,049,025	10.6%
Antioch	90,532	102,372	13.1%

Source: California Department of Finance 2011a

The County is among the state's most populous counties. Major factors contributing to the County's population growth over the past two decades include close proximity to major employment centers in San Francisco and Oakland; development of new employment centers in the I-680 corridor and the Livermore/Pleasanton area; the availability of rapid transit; and relatively affordable housing prices compared with other parts of the Bay Area. During the 1990s, the County's population growth was strongest in the eastern portion of the County, particularly in Antioch, Brentwood, and Oakley. Over the coming decade, much of the County's population growth is expected to occur in the eastern portion of the County in and around Antioch and in San Ramon (Contra Costa County 2005).

Population growth in the City over the past two decades can be largely attributed to the expansion of employment centers in the Concord/Walnut Creek and Livermore/Pleasanton areas, combined with an increasing lack of affordability in locations closer to the major Bay Area employment centers. The City's large supply of vacant land, attractive physical setting, and accessibility to the SR 4 freeway has attracted large numbers of people to the City (City of Antioch 2003a).

Table 3-18 shows projected growth from 2010 to 2030 (approximately 20 years from present) for California and the County, and Table 3-19 shows projected growth from 2010 to 2025 (approximately 15 years from present) for the City. From 2010 to 2030, the populations of California and the County are projected to grow by 32.2 percent and 35.6 percent, respectively, with average annual increases of 1.6 percent and 1.8 percent, respectively. These projections indicate that the County's population will increase at a slightly higher rate than that of the state (California Department of Finance 2011b). From 2010 to 2025, the population of the City is expected to grow by 16 percent, with an average annual increase of 0.8 percent. This projection shows that the City is expected to grow at about half the rate of California and the County (City of Antioch 2003a).

Table 3-18. State and County Population Projections 2010–2030

Location	2010	2030	Change 2010-2030	% Change 2010-2030	Annual % Change
California	37,253,956	49,240,891	11,986,935	32.2%	1.6%
Contra Costa County	1,049,025	1,422,840	373,815	35.6%	1.8%

Source: California Department of Finance 2011b

Table 3-19. Antioch Population Projections 2010–2025

Location	2010	2025	Change 2010-2025	% Change 2010-2025	Annual % Change
Antioch	102,372	118,800	16,428	16.0%	0.8%

Source: City of Antioch 2003a

3.18.2 Housing

Table 3-20 presents housing data for California, the County, and the City. Between 2000 and 2010, the total number of housing units and the number of occupied units in the County and the City increased by more than the state average of 12 percent for total and 9.3 percent for occupied. The City experienced a higher increase than the state and the County in both total housing and occupied housing with 15.7 percent and 9.9 percent, respectively. These data support the fact that the City experienced higher growth rates than the rest of the County during that time period. Table 3-20 also shows that the City experienced a greater decrease in occupancy rates (5 percent) than either the state or the County. In other words, the City experienced a greater percent increase in vacancy rates than both the state and the County between 2000 and 2010. The City's 2010 housing occupancy rate (92.5 percent) remains a bit higher than the state's rate of 91.9 percent and lower than the County's rate of 93.8 percent (California Department of Finance 2011c).

Table 3-20. Housing Occupancy Estimates

Location	Total Housing Units			Occupied Housing Units			Occupancy Rate		
	2000	2010	% Change 2000-2010	2000	2010	% Change 2000-2010	2000	2010	% Change 2000-2010
California	12,214,549	13,680,081	12.0%	11,502,870	12,577,498	9.3%	94.2%	91.9%	-2.4%
Contra Costa County	354,577	400,263	12.9%	344,129	375,364	9.1%	97.1%	93.8%	-3.4%
Antioch	30,116	34,849	15.7%	29,338	32,252	9.9%	97.4%	92.5%	-5.0%

Source: California Department of Finance 2011c

As shown in Table 3-21, the median housing values in the City are lower than those in the County and the state, and County home values are higher than those in the state and the City. Between 2000 and 2009, housing values in the City and the County increased by less than the state average. During that period, the median home value in the City increased from $195,300 to $256,500 (31.3 percent), the median home value in the County increased from $253,800 to $424,500 (67.3 percent), and the median home value in the state increased from $211,500 to $384,200 (81.7 percent) (Bureau of Reclamation 2007; City-Data.com 2011).

Table 3-21. Median Housing Value

Location	2000 Median (dollars)	2009 Median (dollars)	% Change 2000-2009
California	211,500	384,200	81.7%
Contra Costa County	253,800	424,500	67.3%
Antioch	195,300	256,500	31.3%

Sources: Reclamation 2007; City-Data.com 2011

3.18.3 Employment and Income

Total number of people employed in the County in 2010 was 343,412 (Census Bureau 2010a). The leading occupational categories include managerial/professional and sales/technical/administrative. Major industries in the County include petroleum refining, telecommunications, retail and financial services, steel manufacturing, prefabricated metals, chemicals, electronic equipment, paper products, and food processing. Over the period between 2000 and 2020, the three largest job growth centers in the County have been, and are projected to be, San Ramon, Concord, and Richmond. Antioch, San Ramon, and Brentwood are expected to experience the largest growth in retail employment (Contra Costa County 2005). The countywide average wage paid per job in 2005 was $51,416 (California Department of Finance 2011d).

In 2000, the Census reported the City's total civilian labor force to be 43,893; total employment was 41,598. Most of the City's employed residents have sales or office-based jobs, and many of these are located outside the City. Other occupations held by City residents include service industry, construction, and production/transportation jobs. By 2025, service industry jobs are expected to comprise around half of the job opportunities within the City (City of Antioch 2003a).

3.18.4 Expenditures for Fishing and Wildlife Viewing

Fishing and wildlife viewing bring visitors and visitor expenditures to recreation areas, such as Contra Loma, and their surrounding regions. Fishing permits and licenses also generate revenues for the issuing government agencies. In 2011 in California, $2.3 billion was spent on fishing recreation, of which $1.6 billion was for trip-related expenditures, $577 million was for equipment purchases, and $71 million was for the purchase of other items, such as magazines, membership dues, licenses, permits, stamps, and land leasing and ownership. The average expenditure per angler was $1,333 and the average angler trip expenditure per day was $68. The average expenditure per wildlife watching participant was $533 per day with an average trip expenditure of $65 (Fish and Wildlife Service and Census Bureau 2013). In California, in 2012, sales generated by sport fishing licenses totaled $56,959,464 (California Department of Fish and Wildlife 2013b).

3.18.5 Environmental Justice

In order to comply with Executive Order 12898, Federal Actions to Address Environmental Justice in Minority and Low-Income Populations, data was compiled concerning the ethnic composition and income and poverty levels of the state, the County, and the City. Table 3-22 shows that in 2000, the percentage of non-Hispanic minorities throughout the state was 40.5 percent, and people of Hispanic ethnicity were 32.4 percent of the state's population. By 2010, the percentage of non-Hispanic minorities throughout the state had increased to 42.4 percent and people of Hispanic ethnicity had increased to 37.6 percent of the state's population. During that period, the percentage of people of white ethnicity in the state's population decreased from 59.5 percent to 57.6 percent. People of Hispanic ethnicity represent the largest minority in California (California Department of Finance 2011e).

Table 3-23 shows that in 2000, the percentage of non-Hispanic minorities in the County was 34.5 percent, and people of Hispanic ethnicity were 17.7 percent of the County's population. By 2010, the percentage of non-Hispanic minorities in the County had increased to 41.4 percent and people of Hispanic ethnicity had increased to comprise 24.4 percent of the County's population. During that period, the percentage of white ethnicity in the County's population decreased from 65.5 percent to 58.6 percent. Similar to California, people of Hispanic ethnicity represent the largest minority in the County (California Department of Finance 2011e).

Table 3-24 shows that in 2000, the percentage of non-Hispanic minorities in the City was 34.7 percent, and people of Hispanic ethnicity were 22.1 percent of the City's population. By 2010, the percentage of non-Hispanic minorities in the City had increased to 51.1 percent and people of Hispanic ethnicity had increased to comprise 31.7 percent of the City's population.

During that period, the percentage of white ethnicity in the City's population decreased from 65.3 percent to 48.9 percent. People of Hispanic ethnicity represent the largest minority in the City, but represent a smaller percentage of the City population than they do in the County or throughout the state. Non-Hispanic minorities, however, comprise a substantially higher percentage of the City's population than they do in the County or the state (California Department of Finance 2011e).

The Census Bureau uses a set of income thresholds that vary by family size and composition to determine which families are living in poverty. If a family's total income is less than its

threshold, then that family, and every individual in it, is considered to be living in poverty. Poverty thresholds do not vary geographically, but they are updated annually for inflation using the Consumer Price Index. For individuals who do not live with family members, their own income is compared with the appropriate threshold. According to the Census Bureau, the 2010 poverty threshold is $11,344 for an individual under 65 years of age and $22,113 for a family of four with two minor children (Census Bureau 2010b). Table 3-25 shows estimated median household income and poverty levels for the County, the City, and the state. According to the Census Bureau, the percentage of the populations of the County and City at income levels below the poverty threshold was lower than the state average of 13.2 percent, with 8.6 and 12.5 percent, respectively. The median household income for the County ($93,400) is higher than the state ($77,596), whereas the median household income for the City ($57,714) is lower than the state (Census Bureau 2009; Fannie Mae 2011).

Table 3-22. Population Ethnicity Estimates for California

Year	Population/ Percent	White	Hispanic[1]	Asian	Black or African American	Native American	Pacific Islander	Other Race	Multi-Race	% Non-white (excluding Hispanic)	Total
2000	Population	20,170,059	10,966,556	3,697,513	2,263,882	333,346	116,961	5,682,241	1,607,646		33,871,648
	Percent	59.5%	32.4%	10.9%	6.7%	1.0%	0.3%	16.8%	4.7%	40.5%	
2010	Population	21,453,934	14,013,719	4,861,007	2,299,072	362,801	144,386	6,317,372	1,815,384		37,253,956
	Percent	57.6%	37.6%	13.0%	6.2%	1.0%	0.4%	17.0%	4.9%	42.4%	

Source: California Department of Finance 2011e

Notes: [1]"Hispanic" ethnicity population estimates are accounted for within the estimates for the other ethnicities, but are shown here separately for informational purposes.

Table 3-23. Population Ethnicity Estimates for Contra Costa County

Year	Population/ Percent	White	Hispanic[1]	Asian	Black or African American	Native American	Pacific Islander	Other Race	Multi-Race	% Non-white (excluding Hispanic)	Total
2000	Population	621,490	167,776	103,993	88,813	5,830	3,466	76,510	48,714		948,816
	Percent	65.5%	17.7%	11.0%	9.4%	0.6%	0.4%	8.1%	5.1%	34.5%	
2010	Population	614,512	255,560	151,469	97,161	6,122	4,845	112,691	62,225		1,049,025
	Percent	58.6%	24.4%	14.4%	9.3%	0.6%	0.5%	10.7%	5.9%	41.4%	

Source: California Department of Finance 2011e

Notes: [1]"Hispanic" ethnicity population estimates are accounted for within the estimates for the other ethnicities, but are shown here separately for informational purposes.

Table 3-24. Population Ethnicity Estimates for Antioch

Year	Population/Percent	White	Hispanic[1]	Asian	Black or African American	Native American	Pacific Islander	Other Race	Multi-Race	% Non-white (excluding Hispanic)	Total
2000	Population	59,148	20,024	6,697	8,824	843	360	8,352	6,308		90,532
	Percent	65.3%	22.1%	7.4%	9.7%	0.9%	0.4%	9.2%	7.0%	34.7%	
2010	Population	50,083	32,436	10,709	17,667	887	817	14,310	7,899		102,372
	Percent	48.9%	31.7%	10.5%	17.3%	0.9%	0.8%	14.0%	7.7%	51.1%	

Source: California Department of Finance 2011e

Notes: [1]"Hispanic" ethnicity population estimates are accounted for within the estimates for the other ethnicities, but are shown here separately for informational purposes.

Table 3-25. Median Family Income and Poverty

Location	Median Household Income (Family of 4)	Number in Poverty[1]	Percent in Poverty[1]
California	$77,596[1]	4,694,423	13.2%
Contra Costa County	$93,400[2]	86,720	8.6%
Antioch	$57,747[2]	12,336	12.5%

Sources: City-Data.com 2011; Census Bureau 2010b; Census Bureau 2009; Fannie Mae 2011

Notes: [1] 2009 data; [2] 2010-2011 data

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Chapter 4. Environmental Consequences

4.1 Introduction

4.1.1 Overview of the Impact Analysis

The Contra Loma RMP is a programmatic, planning-level document that provides management direction at a broad scale and is not intended to provide project-level detail of future management actions or projects. For this reason, the EIS evaluates the environmental impacts of each RMP alternative in a programmatic manner. Future actions carried out under the purview of the RMP beyond the programmatic analysis presented in the EIS would be subject to project-level NEPA analysis and compliance.

The Environmental Consequences chapter evaluates the environmental impacts that would result from implementing each of the alternatives. The chapter is organized in sections by resource topic. Each resource section begins with a brief description of the resources addressed within the section and the types of activities that could affect the resource, followed by a list of assumptions upon which the analysis is based. The impacts of activities common to all of the alternatives are then discussed, followed by a discussion of impacts unique to each alternative. Where appropriate and if feasible, the EIS then describes mitigation measures that would avoid and/or minimize impacts to the resource.

4.1.2 Cumulative Effects

Cumulative effects are discussed at the end of each resource. Cumulative effects are defined as the direct and indirect effects of a proposed alternative's incremental impacts when they are added to other past, present, and reasonably foreseeable actions, regardless of who carries out the action (40 CFR, Part 14 1508.7). Guidance for implementing NEPA requires that Federal agencies specify the time frame and geographic boundaries within which they evaluate potential cumulative effects of an action and the specific past, present, and reasonably foreseeable projects that will be analyzed. Effects of past actions and activities on resources are manifested in the current condition of the affected resources, as described in Chapter 3 (Affected Environment) for resources on Reclamation-administered lands.

Public documents and data prepared by Federal, state, and local government agencies are the primary information sources for past, present, and reasonably foreseeable future actions and for identifying reasonable trends in resource conditions and land uses. Actions undertaken by private persons and entities are assumed to be captured in the information made available by such agencies. Actions included in the cumulative impact analysis do not affect all resources equally: some resources would be affected by several or all of the described activities, while others would be affected very little or not at all. The actions that make up the cumulative effect scenario were analyzed in conjunction with the effects of each alternative to determine if they would have any additive or interactive effects on a particular resource.

The cumulative impact analysis provided in this EIS is general because decisions about other actions in the vicinity of Contra Loma would be made by various public and private entities, and the location, timing, and magnitude of these actions are not well known at this time. The actions and trends with the highest potential to cumulatively affect the resources discussed in this EIS include:

- Improvements at Contra Loma that may be implemented concurrent with preparation of the RMP (i.e., improvements to sports fields 4 and 5 and the boat launch area upgrades to the restroom and fish cleaning station).

- Reclamation's issuance of a new license to the City to allow continued use of 5.7 acres of land on the eastern side of Contra Loma for golf course use.

- Buildout of the City, the County, and other nearby cities in accordance with their adopted general plans. The City and County general plans are described below.

Antioch General Plan

The City's General Plan EIR was prepared in 2003 and the City's General Plan was adopted in 2003. The planning horizon for the General Plan is 25 years (i.e., 2003-2028). According to the General Plan EIR:

- The City has a relatively large amount of open land available for future development. Approximately 38 percent of the land within the City (6,383 acres) and nearly 46 percent of the land within the unincorporated portion of the General Plan study area (2,240 acres) were vacant in 2003.

- General Plan build out would result in construction of about 52,000 new dwelling units.

- Between 2010 and 2025, the City's population is expected to increase by 15 percent, an increase of 15,900 people.

- General Plan build out would result in more daily vehicular trips within the Planning Area, non-peak hour travel will increase in relation to peak hour traffic, and the "peak hour" of traffic will lengthen over several hours. However, the transportation policies in the General Plan would be very effective in maintaining acceptable levels of service on the City's roads and highways (City of Antioch 2003b).

Contra Costa County General Plan

The County's General Plan was adopted in 2005. The planning horizon for the General Plan is 15 years (i.e., 2005-2020; Contra Costa County 2005). The General Plan Housing Element was updated in 2009 (Contra Costa County 2009). According to the General Plan:

- The County's population is expected to grow by almost 19 percent from 2000 to 2020, an increase of 179,984 people (Contra Costa County 2005).

- Much of the future growth in the County is planned for the Pittsburg-Antioch-Oakley areas of East Contra Costa County (Contra Costa County 2005).

- In 2000, County residents generated approximately 2 million vehicle trips per day; by 2020, County residents will generate approximately 2.8 million trips per day (Contra Costa County 2005).

According to the Housing Element Update:

- The County's population is projected to grow by almost 9 percent from 2010 to 2020, an increase of 95,100 people. The population in the unincorporated areas of East Contra Costa County is expected to grow by almost 20 percent from 2000 to 2020, an increase of 9,569 people (Contra Costa County 2009).

Other Cities in Northeastern Contra Costa County

In addition to Antioch, several other cities are located in the northeastern portion of the County. These cities include Pittsburg, Brentwood, Oakley, Martinez, Clayton, Concord, and Walnut Creek. Each of these cities has its own general plan, and the population of each city is expected to continue growing in the future. The increased population growth within these cities would increase the amount of land converted to urban uses and the number of vehicles travelling on regional roadways. The growth estimates for population and traffic are included in the estimates presented above for the County.

4.1.3 Issues Considered But Eliminated from Further Study

Indian Trust Assets

As a Federal land management agency, Reclamation is responsible for identifying and considering potential impacts of its plans, projects, programs, or activities on Indian Trust Assets (ITA). ITA are legal interests in property held in trust by the U.S. for Indian Tribes or individuals. As the nearest ITA to the Action area is the Lytton Rancheria, located in San Pablo, California, approximately 28 miles west of Contra Loma, none of the alternatives have the potential to affect ITA.

Indian Sacred Sites

As a Federal land management agency, Reclamation is required to accommodate access to and ceremonial use of Indian sacred sites on Federal lands by Indian religious practitioners and to avoid adversely affecting the physical integrity of such sacred sites. Sacred sites are defined in Executive Order 13007 (May 24, 1996) as "any specific, discrete, narrowly delineated location on Federal land that is identified by an Indian tribe, or Indian individual determined to be an appropriately authoritative representative of an Indian religion, as sacred by virtue of its established religious significance to, or ceremonial use by, an Indian religion; provided that the tribe or appropriately authoritative representative of an Indian religion has informed the agency of the existence of such a site."

On June 23, 2010, Reclamation's archaeological consultant requested a Sacred Lands File search and list of appropriate Native American representatives and tribal organizations from the NAHC. The NAHC responded on July 19, 2010 and indicated that no culturally significant sites or properties were known to exist within or near the APE. In 2010 and 2013, Reclamation and its consultant performed outreach to the Native American contacts listed with the NAHC. No responses have been received. Because no Indian Sacred Sites appear to be located within Contra

Loma and the alternatives would not limit access to and ceremonial use of Indian sacred sites by Indian religious practitioners, or significantly adversely affect the physical integrity of such sacred sites, no impacts to Indian sacred sites would occur.

Paleontological Resources

As a Federal land management agency, Reclamation is responsible for managing and protecting paleontological resources on the Federal land under its management (PL 111-011). The geology of the Contra Loma region consists of terrestrial and marine Eocene- to Pliocene- (Tertiary) aged sandstone with lesser amounts of siltstone, conglomerate, and shale (Graymer et al. 1994). Of the geologic formations underlying Contra Loma, Cierbo Sandstone is the only formation that is known to contain abundant paleontological resources, or more specifically marine fossils. Cierbo Sandstone runs beneath the southernmost portion of Contra Loma, forming the east-west trending ridge that runs along the southern boundary of the Regional Park (Figure 3-15).

No known paleontological resources have been identified in Contra Loma (Bondurant, pers. comm. 2013). Due to the relatively steep topography in this area, few new improvements would be built atop the Cierbo Sandstone formation. Exceptions may include a new communications tower (both action alternatives) and portions of a disc golf course (Expanded Recreation and Facilities Alternative). For these reasons, the likelihood of encountering paleontological resources that provide new information about the history of life on earth is very low. The two action alternatives would include Management Action 56, which is intended to manage and protect any important paleontological resources encountered during construction activities in the portion of the Regional Park underlain by Cierbo Sandstone. This measure would ensure that impacts on paleontological resources are minor.

4.2 Land Use

4.2.1 Types of Impacts

Land uses at Contra Loma include recreation, grazing, operations and maintenance, administration, and reservoir management. This section assesses the potential impacts of the RMP alternatives on land use compatibility with existing uses within Contra Loma. Because the RMP neither includes nor defines specific projects, the analysis in this section is qualitative.

Potential impacts to land use could result from three general types of activities:

- Human Use
- Livestock Grazing
- Facility Improvements

4.2.2 Assumptions

The land use impact analysis is based on the following assumptions:

- Reclamation would only provide project-specific authorization for activities, including construction and operation of new facilities that have undergone appropriate environmental review.

- The proposed management actions would comply with applicable laws and regulations governing public utilities.
- No land use changes would occur that do not meet RMP goals.

4.2.3 Impacts Common to All Alternatives

Human Use

Recreational use of Contra Loma would continue under all of the RMP alternatives. Currently, only occasional minor conflicts arise between user groups. Such activities are likely to increase, heightening the potential for conflicts between uses. Impacts on land use would be dependent on the availability and suitability of a particular facility to accommodate the proposed use; the density of recreational use; and potential impacts imposed on natural resources, the setting, and other user groups. The managing partner(s) would be expected to continue to manage recreational use of Contra Loma's recreational facilities in a manner that minimizes land use conflicts. Therefore, no additional land use effects would be expected from implementation of the action alternatives when compared to the current low levels of conflict expected under the No Action Alternative.

Under all of the RMP alternatives, the Regional Park would continue to be used by the public for recreational activities. The existing Regional Park trail system would continue to be operated, managed, and maintained for activities such as hiking, biking, wildlife viewing, and equestrian uses. Although various user groups (i.e., hikers, bicyclists, equestrians) utilize many of the same trails, trail users are often widely dispersed and the different user groups have not come into serious conflict in the past. If conflicts were to occur, they would likely be infrequent, isolated incidents of relatively minor nature. Increased use of the Regional Park trail system by differing user groups would slightly increase the potential for conflict.

4.2.4 Impacts Specific to the No Action Alternative

Human Use

The impacts would be the same as those addressed in Section 4.2.3.

Livestock Grazing

Livestock grazing performed for fire suppression now occurs on 454 acres of grasslands within the Regional Park, and grazing would likely continue under the No Action Alternative. Under this alternative, no change in the acreage, location, or intensity of grazing is expected to occur although grazing could decline depending on need. Grazing would be implemented according to a grazing management plan that would be prepared specifically for Contra Loma by the managing partner(s) and would require Reclamation approval. Although the potential exists for recreational activities such as biking or hiking to conflict with grazing, these activities already occur alongside grazing and any future conflicts are expected to be minor.

4.2.5 Impacts Specific to the Enhanced Recreation and Facilities Alternative

Human Use

In addition to the impacts addressed in Section 4.2.3, this alternative would include more enhanced recreation opportunities than the No Action Alternative, which could incrementally

increase visitor use. Currently, only occasional minor conflicts arise between user groups. An incremental increase in visitor use would proportionally increase the potential for conflicts among user groups, but would not preclude any class of recreational uses that are currently allowed at Contra Loma. Under this alternative, increased visitor use would only have a minor impact on land use.

Livestock Grazing

In addition to the impacts caused by livestock grazing under the No Action Alternative, adjustment of the boundary lines between the Regional Park and Community Park under this alternative could result in an overall increase of approximately 0.3 acre of grazing in Contra Loma. Under this alternative, approximately 8.4 acres of land currently located within the southwest corner of the Community Park could be placed within the Regional Park by future local managing partner(s). This adjustment would result in introduction of grazing for fire suppression on approximately 3 acres of land that previously had not been grazed with the remainder being fenced off to protect riparian vegetation (Figure 2-1). In addition, the adjustment of 2.7 acres of land in the northeast corner of Contra Loma from the Regional Park to the Community Park would result in cessation of grazing within this area. This slight increase would not substantially increase the intensity of grazing, nor would it substantially increase the potential for recreational activities such as biking or hiking to conflict with grazing. These activities already occur alongside grazing and future conflicts, if any, are expected to be minor. Increased grazing under this alternative would only have a minor impact on current land uses.

Facility Improvements

This alternative may include new, expanded, or renovated facilities at the Regional Park to enhance recreation and improve operations that would not occur under the No Action Alternative. Examples include a new park residence, classroom facilities near the swim lagoon, improvements to the park office and police substation, a new fueling station, a radio communications tower, new restrooms, additional picnic sites, enhanced fishing and boating facilities, expanded parking areas, a storm water retention basin, and a “safe swim” area or splash pad at the swim lagoon. These facilities are expected to be designed and located in order to promote compatibility with existing land uses. For example, the classroom and the “safe swim” area or splash pad would be located near the swim lagoon and would be designed to support and complement use of the swim lagoon. Improvements to the boat launch area would be designed to enhance boating and fishing access and may include a new fishing pier separate from the boat dock, thereby reducing conflicts between anglers and boaters using the existing launch ramp. New fishing docks would reduce conflicts by dispersing anglers. New restrooms and picnic sites would be located where they would best accommodate demand. In addition, the new park residence, fueling station, and radio communications tower would be situated where they would be most useful and functional. Future managing partner(s) would be expected to place all new facilities where they would be compatible with nearby land uses, thereby minimizing the intensity of any land use conflicts. Therefore, land use impacts from construction and operation of the new, expanded, or renovated facilities are expected to be minor.

When specific facilities are designed and sited, a site-specific environmental analysis would be conducted that would include a more focused assessment of the activity’s impact on land use. At that time, more clearly defined land use impacts may be identified. If substantial land use

impacts were to be identified, the proposed project would be modified, if possible, to reduce these impacts.

4.2.6 Impacts Specific to the Expanded Recreation and Facilities Alternative

Human Use

In addition to the impacts addressed in the previous Section 4.2.5 and those expected for the No Action Alternative, this alternative may include overnight camping as part of the Regional Park's current day camp programs and other special events. Existing day use facilities may be modified to accommodate group campers; however, no new camping facilities would be built. Because overnight camping would not coincide with daytime recreational activities, potential conflicts with existing land uses in the park are not anticipated. Under this alternative, increased visitor use would only have a minor impact on land use.

Livestock Grazing

This alternative may include the expansion of the Community Park into approximately 15 acres of the Regional Park (see Figure 2-2). Should this occur, the boundaries between the parks would be adjusted by the local managing partner(s) and current grazing of this area would cease. In conjunction with the potential boundary change between the parks described in Section 4.2.5 (see Figure 2-1), this expansion would result in a net reduction of grazing in Contra Loma by 14.7 acres. Compared to the No Action Alternative, this would reduce grazing within Contra Loma by about 3 percent, which is not expected to cause grazing to be uneconomical at Contra Loma.

Grazing could present conflicts with a new disc golf course that might be built at the Regional Park under this alternative because some areas within the course may require clearing of grass and herbaceous vegetation within currently grazed areas to improve visibility for disc golfers. This could reduce the amount of vegetation available for consumption by livestock. Also, livestock waste could present a nuisance to players. After implementation of BMPs including optimized disc golf course siting, construction of a disc golf course would lead to only occasional conflicts between land uses, including grazing. Therefore, this adverse effect would be minor. This effect would not occur under the No Action Alternative.

Facility Improvements

This alternative would include construction of new or expanded recreational facilities in addition to those that would be built under the Enhanced Recreation and Facilities Alternative. Expanded recreational facilities proposed for the Regional Park under this alternative may include expansion of the swim lagoon, a new angler's shelter, a playground structure, a disc golf course, new trails, and a fitness course. These facility improvements and their effects on land use would not occur under the No Action Alternative. The managing partner(s) would be expected to design and locate these facilities where they would be compatible with nearby land uses.

The swim lagoon is one of the principal attractions at the Regional Park. A swim lagoon expansion project would be designed to support and complement existing use of the swim lagoon, and would therefore be compatible with the lagoon and nearby recreational facilities. An angler's shelter and a playground structure may be built along the south or east shore of the reservoir in locations that would accommodate demand. These facilities would also be

compatible with nearby recreational uses. Swim lagoon improvements would have no effect on land use because the adjacent recreational uses are compatible with these improvements. Designing and locating these facility improvements where they would be compatible with nearby land uses would minimize the intensity of any land use conflicts.

This alternative may include construction of new trails that would be open to bicycles and/or may allow bicycles on portions of trails that are not currently open to bicycles. Expansion of the bicycle-accessible trail system could conflict with livestock grazing or with other trail users such as hikers or equestrians. Expansion of the bicycle-accessible trail system would follow BMPs such as installation of additional signage and optimizing of trail alignment to improve visibility. This alternative may include establishment of a new fitness course by installing outdoor exercise stations with stationary equipment and signage along the shoreline trail loop. Use of the shoreline trail loop would likely increase with establishment of the fitness course; however, the use of exercise equipment located near the trail would be consistent with existing trail use and is not expected to create conflicts with other trail users. Conflicts among trail user groups and between trail and grazing uses are currently minor and relatively infrequent. The managing partner(s) would be expected to continue to manage recreational use of Contra Loma's recreational facilities in a manner that minimizes land use conflicts. Therefore, no additional land use effects would be expected from these activities.

This alternative may include a new disc golf course at the Regional Park that would be built in a suitable location so as to minimize conflicts with other park uses; however, such conflicts might not be completely avoided. If the course is not properly designed and located, errant golf discs (similar to Frisbees) could interfere with the enjoyment of other park users. Therefore, a disc golf course would be best suited to areas of the Regional Park that receive less visitation and use. As discussed previously, grazing could also present conflicts with a disc golf course because some areas within the course may require clearing of grass and herbaceous vegetation to improve visibility and because livestock waste could present a nuisance to players. After implementation of BMPs including optimized disc golf course siting, construction of a disc golf course would lead to only occasional conflicts between land uses. Therefore, this adverse effect would be minor.

This alternative may include the addition of two new sports fields within the Community Park south of the two existing sports fields, and increased parking capacity if needed to serve the new sports fields. This management action would require expansion of the Community Park boundaries south into the Regional Park and an adjustment of the boundary between the two parks (see Figure 2-1). The proposed area for the new sports fields is currently undeveloped but is grazed by livestock. Livestock would be excluded from the expanded Community Park area; therefore, no land use conflict between grazing and recreation would result from this alternative because grazing would be excluded from the sport fields' area. The effect of constructing the new sports fields would neither increase nor decrease the land use conflicts at Contra Loma.

When specific facilities are designed and sited, a site-specific environmental analysis would be conducted that would include a more focused assessment of the activity's impact on land use. At that time, more clearly defined land use impacts may be identified. If substantial land use impacts were to be identified, the proposed project would be modified, if possible, to reduce

these impacts. Therefore any land use impacts related to installation of new facilities would be minimized and would only result in minor adverse effects.

4.2.7 Cumulative Impacts

Increased Visitation and Concurrent Improvements

Regional Park visitation increased by 20 percent (24,248 visitors) during the six-year period from 2005 through 2010. Visitation to Contra Loma is expected to continue to increase under all of the alternatives. More visitation is expected under the two action alternatives than the No Action Alternative, because the action alternatives would include enhanced or expanded facilities that would attract more visitors than the No Action Alternative.

A substantial portion of the expected future visitor increase would be attributable to the projected population increase expected to occur within the northeastern portion of the County from buildout of the City and County general plans. The City's population is expected to increase by 15 percent (15,900 people) between 2010 and 2025 (City of Antioch 2003b). The County's population is expected to increase by 9 percent (95,100 people) between 2010 and 2020 and the population in the unincorporated areas of East Contra Costa County is expected to grow by almost 20 percent from 2000 to 2020, an increase of 9,569 people (Contra Costa County 2009).

The improvements to sports fields 4 and 5 and the boat launch area upgrades would increase visitation to Contra Loma. However, neither these improvements nor issuance of a license to the City for continued use of the 5.7 acres of land east of the Regional Park for golf course use would involve land use changes.

Human Use

The presence of additional visitors to the park would increase the potential for conflicts between various activities. Given the ability of the current managing partner(s) to manage recreational use of Contra Loma's recreational facilities in a manner that minimizes land use conflicts, the intensity of the projected cumulative increase in visitation is expected to cause minor adverse cumulative impacts on land use. Because more visitation is expected under the two action alternatives than the No Action Alternative, the intensity of this effect is expected to be greater under the action alternatives than the No Action Alternative.

Livestock Grazing

Although the potential exists for recreational activities such as biking or hiking to conflict with grazing, these activities already occur alongside grazing and any future conflicts caused by the cumulative increase in visitation are expected to be minor. The intensity of this effect would be greater under the two action alternatives than the No Action Alternative because visitation would be higher under the action alternatives.

Facility Improvements

No land use changes would result from the improvements to sports fields 4 and 5, the boat launch area upgrades, or issuance of a license to the City for continued use of the 5.7 acres of land east of the Regional Park for golf course use. These actions represent a continuation of existing uses, although some of these actions would include facility upgrades. Because these actions do not involve land use changes, there would be no change in their compatibility with

existing land uses (i.e., the land uses under the No Action Alternative). They would also not change the intensity of the minor adverse land use effects attributable to construction of new facilities under the two action alternatives.

4.2.8 Mitigation Measures

No need for mitigation has been identified.

4.3 Recreation

4.3.1 Type of Impacts

The effects of the RMP alternatives on recreation at Contra Loma would vary depending on the type and location of the recreational activity. Because recreation is a complex and integral part of the RMP, some impacts on recreation are assessed according to the effect that RMP alternative management actions may have on four general categories of recreation found at Contra Loma: General Recreation (administration, management), Land-Based Recreation, Water-Based Recreation (swimming, fishing, and boating), and Interpretive Services (public education, programs, public perception). Because the RMP neither includes nor defines specific projects, the analysis in this section is qualitative.

As described in sections 2.2.4 and 3.2.1, two distinct management zones based on the WROS system have been identified for Contra Loma Reservoir. The southern half of the reservoir is managed as WROS Class S4 while the northern half is managed as WROS Class RD6 (see Figure 1-2). The attributes that differentiate these WROS management zones have a direct effect on the type of recreational opportunities and the visitor's recreational experience. The S and RD zones under the WROS system are similar, though not identical, to the S and RD zones under the WALROS system. The 2008 WROS inventory did not identify classifications for the land portions of Contra Loma. Because Contra Loma has not been re-inventoried under the WALROS system, each RMP alternative is analyzed below for consistency with the reservoir's existing WROS classifications.

The RMP does not address dam and reservoir operations, other than to describe activities included in the Expanded Recreation Facilities Alternative to manage the reservoir in a manner that supports and improves recreational fishing and habitat enhancement/restoration along the shoreline. Responsibilities for dam and reservoir operations are subject to a separate contract agreement between Reclamation and CCWD and are therefore outside the scope of the Contra Loma RMP.

Potential impacts to recreation could result from five general types of activities:

- Facility Management
- Facility Maintenance
- Resource Management
- Livestock Grazing
- Facility Improvements

4.3.2 Assumptions

The recreation impact analysis is based on the following assumptions:

- Reclamation would only provide project-specific authorization for activities, including construction and operation of new facilities that have undergone appropriate environmental review.
- Visitation to Contra Loma and use of the Regional Park and Community Park recreation facilities would continue to increase.
- None of the RMP alternatives include adjustments to the WROS classification zones. Therefore, management actions included in the RMP alternatives are intended to be consistent with the existing WROS classifications.
- No land use changes would occur that do not meet RMP goals.

4.3.3 Impacts Common to All Alternatives

Facility Management

General Recreation Included in all of the RMP alternatives are actions that would support a diverse range of recreational opportunities within the Regional Park and the Community Park. Management actions include regulation of park uses, opening and closing of park gates for daily operations, concessionaire administration, issuance of special use permits, and implementation of a reservation system for use of the Community Park's sports fields. These management actions would be similar to the management activities currently being implemented by the managing partners (see Sections 3.2 and 3.3) and, therefore, would have no impact on recreation.

The managing partner(s) or other organizations may continue to provide public recreation programs at the Regional Park, such as low-income youth swim programs, Girl Scout and Boy Scout events, fundraiser events, and environmental and outdoor educational programs. These management actions would be similar to the management actions currently being implemented by the managing partners (see Sections 3.2 and 3.3). In addition, management regulations pertaining to recreation programs would continue to minimize user conflicts. Currently, a small potential currently exists for conflicts between group recreational activities and the recreational experience of other park visitors. Continuation of these management actions would not increase the potential for such conflicts. Therefore, these management actions would have no impact on recreation.

Under the RMP alternatives, user fees would continue to be collected at the Regional Park. Parking, day use, and special event fees contribute to the ability of the managing partner(s) to provide safe and desirable recreation opportunities. The collection of fees also provides a means to account for the number of users and monitor recreational preferences at the Regional Park. Fees can also deter some would-be park visitors who cannot afford fees or do not wish to pay fees. It is assumed however, that those visitors choosing to pay a fee to participate in a particular recreational activity do so because they find equitable value in the quality of the recreational experience available at the park. By serving as a limiting factor to visitation, fee payment may reduce the number of user conflicts and increase the level of satisfaction enjoyed by those

choosing to pay fees; however, those who cannot afford the fees could be prevented from participating in recreational activities available at the Regional Park. Fees are charged at the Community Park for group activities where reservation of a specific part of the park may be desired (e.g., picnic sites, sports fields). Otherwise, use of the Community Park by individuals is not subject to day use fees. Fee collection would be a continuation of an existing management activity (see Section 3.3) and, therefore, would have no impact on recreation.

Land-based Recreation Under all of the RMP alternatives, a diverse range of land-based recreational opportunities would continue to attract large numbers of users to the Regional Park and the Community Park. It is anticipated that the upward growth trend in the region would result in the increased use and demand for land-based recreational opportunities at Contra Loma. Under all RMP alternatives, the Regional Park trail system would continue to be operated, managed, and maintained for dispersed recreational activities such as hiking, biking, and equestrian uses, while the areas of concentrated recreation such as the day use areas adjacent to the WROS S4 zone on the reservoir's south side and the Community Park sports fields would continue to be operated, managed, and maintained at levels that would provide visitors with a positive recreation experience. Similarly, wildlife viewing, artistic pursuits (e.g., painting, photography), and other passive forms of recreation would not be affected because there would be no significant changes to existing management activities. Therefore, continued recreation management and administration would have an inconsequential impact on land-based recreation.

Picnicking, team sports play, and other activities supported by developed recreation facilities at the Regional Park and the Community Park would continue under all of the RMP alternatives. Continuation of these activities would have no impact on other forms of land-based recreation.

Water-based Recreation Water-based recreation opportunities including swimming in the lagoon, boating, and fishing—both on the water and from the shoreline of the reservoir—would continue to be allowed under all of the RMP alternatives. Consistent with existing conditions, use of the reservoir for recreational activities would be carefully managed by the managing partner(s) to protect water quality (see Section 3.3). The WROS classifications for the reservoir would continue to guide management actions related to recreation in and around the reservoir. The types of water-based recreation allowed at the reservoir would remain the same under all alternatives. Prohibition of gasoline-powered engines and swimming within the reservoir would continue. These prohibitions would continue to be enforced to protect water quality and to minimize the potential for conflicts between visitors using the reservoir for fishing, kayaking, or windsurfing and those who visit to Contra Loma to swim. Therefore, continuation of these activities would have no effect on water quality or conflicts between water-based recreationists.

Under all RMP alternatives, recreational fishing would continue to be allowed at the reservoir. Fish populations would be managed to maximize angler success and recreational experience. Fish planting, fish monitoring, angler permit sales, and public education would be some of the management activities used to maintain the reservoir's fish populations and satisfy user demand. The managing partner(s) for the Regional Park would also continue to enforce regulations against unauthorized fishing (i.e., poaching). Continued recreation management would have no impact on water-based recreation.

The managing partner(s) for the Regional Park would continue to implement measures to prevent mussel infestation and/or the introduction of other invasive aquatic pest species in the reservoir. Public education, pre-launch boat inspections by trained staff, and prohibitions against wet boats or gear entering the reservoir would be continued under all of the RMP alternatives (see Section 3.3). While such actions by the managing partner(s) may require an added level of intensive management (i.e., personnel to enforce measures) to respond to visitation increases, the intensity of these actions would be consistent with present conditions and, thus would have no impact on water-based recreation.

Interpretive Services Under the RMP alternatives, the managing partner(s) would continue to provide opportunities for public education and interpretation of natural and cultural resources. Interpretive opportunities are valuable tools for increasing visitor appreciation of Contra Loma's resources. Continued provision of interpretive opportunities would be consistent with existing conditions (see Section 3.3) and, thus would have no impact on recreation.

Facility Maintenance

Under all of the RMP alternatives, provision and maintenance of public facilities and infrastructure would continue to be performed by the managing partner(s) at a level suitable to ensure that visitors have a safe and positive recreation experience and to encourage continued use of Contra Loma. Regular maintenance benefits users by preserving the quality of park facilities, although maintenance activities can temporarily restrict or impair public use and access to certain recreational facilities.

Visitor recreational use of Contra Loma is expected to increase under all of the RMP alternatives, consistent with the visitation trend over the past few years. Increased visitation would incrementally increase the need for routine maintenance activities which could incrementally increase the frequency of temporary restriction or impairment of public use and recreation access. However, this change would be negligible, resulting in a minor impact on recreation. In addition, the local managing partner(s) would implement BMPs to notify visitors through signage or other means about areas closed for construction. Facility maintenance would have no impact on the WROS reservoir classifications, because it would not change land uses.

Resource Management

Under the RMP alternatives, the managing partner(s) would continue to operate Contra Loma in a manner that is consistent with Federal and state laws and regulations that govern the protection of natural and cultural resources within Contra Loma. The local managing partner(s) for the Regional Park may also develop programs to protect special-status species likely to occur at the park. The public could be restricted from certain areas of Contra Loma if necessary to avoid sensitive natural or cultural resources. Such restrictions could impair recreational activities within those areas. However, most recreational activity occurs within Contra Loma's developed recreation areas, which have little potential to support special-status species or for cultural resources to be present. Therefore, such restrictions would not substantially impair recreational activities within Contra Loma. Resource management activities would have a minor impact on recreation.

Livestock Grazing

Livestock grazing would likely continue in the Regional Park under all of the RMP alternatives. Grazing would be implemented according to a grazing management plan that would be prepared specifically for Contra Loma by the managing partner(s) and approved by Reclamation. Although the potential exists for recreational activities such as biking or hiking to conflict with grazing, these activities already occur alongside grazing and any future conflicts are expected to be minor.

4.3.4 Impacts Specific to the No Action Alternative

Facility Management

The impacts would be the same as those addressed in Section 4.3.3.

Facility Maintenance

The impacts would be the same as those addressed in Section 4.3.3.

Resource Management

The impacts would be the same as those addressed in Section 4.3.3.

Livestock Grazing

The impacts would be the same as those addressed in Section 4.3.3.

4.3.5 Impacts Specific to the Enhanced Recreation and Facilities Alternative

Facility Management

The impacts would be the same as those for the No Action Alternative and as discussed in Section 4.3.3.

Facility Maintenance

In addition to the impacts expected under the No Action Alternative and as addressed in Section 4.3.3, this alternative would include new facilities to enhance recreational opportunities. These facilities would not be built under the No Action Alternative. The new facilities would increase the need for routine maintenance activities which could increase the frequency of temporary restriction or impairment of public use and recreation access. Also, because this alternative would include more enhanced recreation opportunities than the No Action Alternative, it could result in more visitor use and require incrementally more maintenance. Therefore, this alternative could result in more frequent occurrences of temporary restriction or impairment of public use and recreation access than the No Action Alternative. However, this change would be negligible, resulting in a minor adverse effect on recreation. Also, the local managing partner(s) would implement BMPs to notify visitors about areas closed for maintenance further reducing the effect.

Resource Management

In addition to the impacts expected under the No Action Alternative and as addressed in Section 4.3.3, this alternative may increase habitat restoration and improvement through construction of additional quail habitat enhancement projects and installation of additional bat houses and avian nest boxes. Recreation could be affected if these actions require recreation restrictions in areas where these actions would occur in order to prevent adverse impacts on habitat restoration and

improvement activities. However, the areas needed for these restoration projects would be relatively small within the context of Contra Loma, and they would generally be located in areas that do not receive heavy recreational use. Therefore, restrictions caused by habitat restoration and improvement activities would have a minor adverse effect on recreation.

Livestock Grazing

In addition to the impacts expected under the No Action Alternative and as addressed in Section 4.3.3, this alternative may include new water infrastructure (e.g., pumps, water lines, troughs) to support grazing. Installation of the new infrastructure could temporarily inhibit recreation in certain locations during construction. Because such restrictions would be of short duration and would be located in discrete areas, and because the managing partner(s) would be expected to carry out the improvements in a manner that minimizes conflicts with recreation, the intensity of the effect on recreation from grazing facility improvements would be minor. These improvements would not substantially affect recreation.

Under this alternative, livestock would be grazed within a portion of the 8.4 acres of land currently within the Community Park that may be managed as part of the Regional Park. This would not occur under the No Action Alternative. Because no trails or recreational facilities are located within the potential new grazing area, it likely receives little use. Therefore, no conflicts between grazing and recreation are expected to occur under this alternative.

Facility Improvements

This alternative would include several new facility improvements in various locations throughout Contra Loma that would not occur under the No Action Alternative. Long-term changes in visitor use patterns could occur as new facilities become identified by visitors as more preferable and draw visitors away from the older facilities.

General Recreation Under this alternative, improvements would be made to existing administrative buildings and recreational facilities. These improvements would enhance Regional Park operations, public services, and public safety. This alternative requires the managing partner(s) to design future improvements to comply with ADA accessibility requirements. This alternative would also include an ADA facility retrofit program that involves replacing, retrofitting, and restructuring many of the park facilities to meet current ADA standards. During construction, recreationists may be temporarily excluded from some areas; however, the short duration of any such exclusion would minimize the intensity of its effect on recreation resulting in a minor, short-term impact. Enhancement and expansion of existing facilities and accessibility improvements, however, would have a long-term beneficial impact on recreation that would not occur under the No Action Alternative.

Land-based Recreation Under this alternative the East Shore Trail, the West Shore Trail, and the trail across the dam would be improved by paving the surfaces along the entire reservoir shoreline loop. Improvements to the trail surfaces that compose the shoreline loop would not result in any changes in WROS classifications or adversely affect land-based recreational opportunities adjacent to the reservoir. Trail improvements along the reservoir shoreline would have a long-term beneficial impact on recreation by making more trails accessible to a variety of visitors, including the disabled and elderly. During construction, recreationists may be temporarily excluded from some areas; however, the short duration of any such exclusion would

minimize the intensity of its effect on recreation resulting in a minor, short-term impact. Also, the local managing partner(s) would notify the public about temporary closures. These impacts would not occur under the No Action Alternative.

This alternative includes the potential to construct additional individual and group picnic sites in the vicinity of the Regional Park's south or east shore recreational clusters. The exact location of the new picnic sites would be chosen based on usefulness and public demand. The new picnic sites would be located within an existing recreational cluster where some supporting infrastructure is already in place, especially along the south shore. Because these improvements would be consistent with the experience descriptions for the WROS S and RD zones, they would not affect the reservoir's WROS classifications. These improvements would have a long-term beneficial impact on recreation by increasing the availability of picnic facilities. During construction, recreationists may be temporarily excluded from some areas; however, the short duration of any such exclusion would minimize the intensity of its effect on recreation resulting in a minor, short-term impact. Also, the local managing partner(s) would notify the public about temporary closures. These impacts would not occur under the No Action Alternative.

Water-based Recreation This alternative may include renovations to the buildings near the swim lagoon within the WROS S4 zone. A "safe swim" or splash pad specifically for small children may also be constructed at the swim lagoon. Because these improvements would be consistent with the experience description for the WROS S zone, they would not affect the reservoir's WROS classifications. These improvements would have a long-term beneficial impact on recreation by enhancing recreational opportunities at or near the swim lagoon. During construction, recreationists may be temporarily excluded from some areas; however, the short duration of any such exclusion would minimize the intensity of its effect on recreation resulting in a minor, short-term impact. Also, the local managing partner(s) would notify the public about temporary closures. These impacts would not occur under the No Action Alternative.

4.3.6 Impacts Specific to the Expanded Recreation and Facilities Alternative

Facility Management

The impacts would be the same as those for the No Action Alternative and as discussed in Section 4.3.3.

Facility Maintenance

In addition to the impacts expected under the No Action Alternative and as addressed in Section 4.3.3, this alternative would include more recreation and infrastructure facilities than the other two alternatives, which could require more maintenance than the other alternatives. Also, because this alternative would include more expanded recreation opportunities than the other two alternatives, it could result in more visitor use and require incrementally more maintenance than the other alternatives. Therefore, this alternative could result in more frequent occurrences of temporary restriction or impairment of public use and recreation access. However, this change would be negligible, resulting in a minor adverse effect on recreation. Also, the local managing partner(s) would implement BMPs to notify visitors about areas closed for maintenance further reducing the effect.

Resource Management

The impacts would be the same as those addressed in Section 4.3.5.

Livestock Grazing

In addition to the impacts caused by livestock grazing addressed in Section 4.3.5, grazing could present conflicts with use of the disc golf course that might be built under this alternative because livestock waste could present a nuisance to players. After implementation of BMPs including optimized disc golf course siting, grazing would lead to only occasional conflicts with disc golfers. Therefore, this adverse effect would be minor. This impact would not occur under the No Action Alternative.

This alternative may include the expansion of the Community Park into approximately 15 acres of the Regional Park. Should this occur, the boundaries between the parks would be adjusted by the local managing partner(s) and current grazing of this area would cease, thereby avoiding any conflict between livestock and users of the new sports fields. Grazing would have no effect on use of the new sports fields.

Facility Improvements

General Recreation The impacts would be the same as those addressed in Section 4.3.5.

Land-based Recreation This alternative would include the impacts addressed in Section 4.3.5, but would also include impacts from facility improvements that would not occur under the other two alternatives.

The swim lagoon is one of the principal attractions at the Regional Park's south shore recreation cluster and may be expanded to accommodate increased future demand. Its expansion would not likely result in permanent conflicts with adjacent recreational land uses, such as picnic sites or the shoreline trail system, because these facilities would be considered during project design and because they could be relocated if necessary to accommodate the swim lagoon expansion. During construction, however, some areas near the swim lagoon may be temporarily unavailable for use. However, the short duration of any such exclusion would minimize the intensity of its effect on recreation resulting in a minor, short-term impact. Also, the local managing partner(s) would notify the public about temporary closures.

This alternative may include the addition of two new sports fields in the Community Park south of sports fields 4 and 5 and increased parking capacity, if needed. This management action would require expansion of the Community Park boundary southward into the Regional Park and a resulting adjustment of the boundary between the two parks (see Figure 2-1). The area where the new sports fields would be located is currently undeveloped and receives little recreational use, except for a Regional Park trail that follows the existing Community Park boundary. Because this area currently receives little recreational use, and because the existing trail could be rerouted or incorporated into the design of the new sports fields, the addition of two new sports fields would not adversely affect existing recreational uses and would have a long-term beneficial impact on land-based recreation. This area would be unavailable for use during construction, but any adverse effect would be minor considering the temporary nature of the closure and that the area currently receives little use. Also, the local managing partner(s) would

implement BMPs to notify visitors about areas closed for construction further reducing the effect.

This alternative may include construction of new trails that would be open to bicycles and/or allow bicycles on portions of trails that are not currently open to bicycles. Expansion of the bicycle-accessible trail system could conflict with other trail users such as hikers or equestrians. However, trail users are often widely dispersed and the different user groups have not come into serious conflict in the past. If conflicts were to occur, they would likely be infrequent, isolated incidents of relatively minor nature. Increased use of the Regional Park trail system by differing user groups would slightly increase the potential for conflict, but would not substantially affect recreation within the Regional Park adversely. Rather, the overall effect of making more trails available to recreationists would be a beneficial impact. Expansion of the trail system to include new trails and to improve interconnection between trail systems would also be beneficial for recreation and is not likely to conflict with any other user groups. This alternative may also include establishment of a new fitness course by installing outdoor exercise stations with stationary equipment and signage along the shoreline trail loop. This would be beneficial for recreation and, as discussed in Section 4.2.6 above, is not likely to conflict with any other user groups. During construction, recreationists may be temporarily excluded from some areas; however, the short duration of any such exclusion would minimize the intensity of its effect on recreation resulting in a minor, short-term impact. Also, the local managing partner(s) would implement BMPs to notify visitors about areas closed for construction further reducing the effect.

This alternative includes a proposal to build a disc golf course in the Regional Park. Potential locations being considered include undeveloped areas east of the reservoir and in the southeast part of the Regional Park located within the natural environment unit of the Regional Park. Although segments of the Contra Loma trail system pass through or near the areas being considered in the southeast part of the Regional Park, disc golf requires very little infrastructure. As such, development of a disc golf course is unlikely to conflict with other low-impact recreational user groups. Overall, the addition of a disc golf course would have a long-term beneficial impact on land-based recreation due to increased recreational opportunities within Contra Loma. During construction, recreationists may be temporarily excluded from some areas; however, the short duration of any such exclusion would minimize the intensity of its effect on recreation resulting in a minor, short-term impact. Also, the local managing partner(s) would implement BMPs to notify visitors about areas closed for construction further reducing the effect.

This alternative may also include periodic overnight camping as part of the Regional Park's current day camp programs and other special events. Conflicts with other recreational uses are not anticipated because overnight camping would not coincide with other recreational activities. Overnight group camping would create additional recreational opportunities, resulting in a beneficial impact on land-based recreation. No new camping facilities would be built, but some existing day use facilities may be modified to accommodate group campers. During construction, recreationists may be temporarily excluded from some areas; however, the short duration of any such exclusion would minimize the intensity of its effect on recreation resulting in a minor, short-term impact. Also, the local managing partner(s) would implement BMPs to notify visitors about areas closed for construction further reducing the effect.

Other facilities and improvements that may occur under this alternative such as a playground structure in the developed recreational areas along the south side of the reservoir and shade trees to support recreational uses would also have a beneficial impact on land-based recreation.

Water-based Recreation This alternative would include the short-term minor adverse impacts due to construction activities and the long-term beneficial impacts on water-based recreation that were identified for the Enhanced Recreation and Facilities Alternative in Section 4.3.5. This alternative would also include facility improvements that would not occur under the Enhanced Recreation and Facilities Alternative.

Expansion of the swim lagoon to accommodate the anticipated increase in future demand would benefit water-based recreation by improving the quality of the visitor's recreational experience at the Regional Park. This would be a beneficial impact that would be consistent with the experience description for the WROS S zone.

Fishing improvements would include fish habitat and population enhancements, and improvements to the recreational facilities used by anglers. Such management actions would benefit recreational fishing activities. Construction of a fisherman's shelter on the reservoir's south or east shore would enhance recreational fishing and improve the visitor experience. The shelter would be consistent with the experience descriptions for the WROS S and RD zones. There would be no conflicts with other recreational uses as a result of these actions and these actions would result in a beneficial impact to recreation.

Interpretation This alternative may include increased use of interpretive signage and programs to educate the public and improve its interpretation of Contra Loma's history and natural resources. This alternative may also include a botanical garden in the Community Park. Increased interpretive opportunities would have a beneficial impact on recreation. During construction, however, some areas may be temporarily unavailable for use resulting in a temporary and minor impact.

4.3.7 Cumulative Impacts

Increased Visitation and Concurrent Improvements

As discussed previously, visitation to Contra Loma is expected to continue to increase under all of the alternatives with more visitation expected under the two action alternatives than the No Action Alternative. A substantial portion of the expected future visitor increase would be attributable to the projected population increase expected to occur within the northeastern portion of the County from buildout of the City and County general plans.

The improvements to sports fields 4 and 5 and the boat launch area upgrades would increase visitation to Contra Loma. These improvements and issuance of a license to the City for continued use of the 5.7 acres of land east of the Regional Park for golf course use would affect recreation.

Facility Management

None of the RMP alternatives would change the manner in which the managing partner(s) manage Contra Loma for recreation. Nor would such changes be caused by increased visitation

or the concurrent improvements. Therefore, no cumulative impact to facility management would occur under any of the alternatives.

Facility Maintenance

Under all of the alternatives, provision and maintenance of public facilities and infrastructure would be performed by local managing partner(s). As discussed previously, visitation to Contra Loma would increase under all of the alternatives, with more visitation expected under the two action alternatives than the No Action Alternative. A substantial portion of the expected future visitor increase would be attributable to buildout of the City and County general plans. The improvements to sports fields 4 and 5 and the boat launch area upgrades would also increase visitation to Contra Loma.

This increased visitation would incrementally increase the need for routine maintenance activities which could incrementally increase the frequency of temporary restriction or impairment of public use and recreation access. Also, the new or improved recreational facilities that would be built under the two action alternatives would increase the need for routine maintenance activities which could increase the frequency of temporary restriction or impairment of public use and recreation access. Because the two action alternatives would include more recreation opportunities than the No Action Alternative, they could result in more visitor use, require incrementally more maintenance, and increase the frequency of temporary restriction or impairment of public use and recreation access. Under all of the alternatives, however, this increase would be negligible resulting in a minor cumulative adverse effect on recreation. Also, the local managing partner(s) would implement BMPs to notify visitors about areas closed for construction further reducing the effect.

Resource Management

The public could be restricted from certain areas of Contra Loma if necessary to avoid sensitive natural or cultural resources. The habitat restoration and improvement projects that could occur under the two action alternatives could increase the number of locations restricted to visitors. Such restrictions could impair recreational activities within those areas and increased visitation could increase the number of visitors affected by such restrictions. However, most recreational activity occurs within Contra Loma's developed recreation areas, which have little potential to support special-status species or for cultural resources to be present. Therefore, such restrictions would not substantially impair recreational activities within Contra Loma. Resource management activities would have a minor cumulative impact on recreation.

Livestock Grazing

Under all of the alternatives, the potential exists for recreational activities such as biking or hiking to conflict with grazing. Increased visitation to Contra Loma would increase the potential for conflicts between recreation and grazing. The potential for such conflicts would be greater under the two action alternatives than the No Action Alternative, because visitation would be greater. However, recreation activities already occur alongside grazing and any future conflicts are expected to have a minor cumulative impact on recreation.

Facility Improvements

The new or improved recreational facilities that would be built under the two action alternatives would have long-term beneficial impacts on recreation that would not occur under the No Action

Alternative. The improvements to sports fields 4 and 5, the boat launch upgrades, and the renewed lease between Reclamation and the City of the 5.7-acre parcel located outside of Contra Loma for the existing golf course would have a beneficial cumulative impact on recreation in the general area.

4.3.8 Mitigation Measures

No need for mitigation has been identified.

4.4 Visitor Access and Circulation

4.4.1 Type of Impacts

This section assesses the potential impacts of the RMP alternatives on visitor access and circulation. Because the RMP neither includes nor defines specific projects, the analysis in this section is qualitative.

Potential impacts on visitor access and circulation could result from four general types of activities:

- Increased Human Use
- Facility Maintenance and Operation
- Natural and Cultural Resource Management and Protection
- Facility Improvements

4.4.2 Assumptions

The visitor access and circulation impact analysis is based on the following assumptions:

- Reclamation would only provide project-specific authorization for activities, including construction and operation of new facilities that that have undergone appropriate environmental review.
- The proposed management actions would comply with applicable laws and regulations governing visitor access and circulation.
- The demand for facility management at Contra Loma would continue to increase regardless of the selected alternative, and would require an increased level of management to satisfy this demand.
- The managing partner(s) would continue to provide the standard of care necessary to ensure the health and safety of visitors to Contra Loma, as well as protect the natural environment and cultural resources.
- No land use changes would occur that do not meet RMP goals.

4.4.3 Impacts Common to All Alternatives

Increased Human Use

Visitor use of Contra Loma is expected to increase under all of the RMP alternatives, consistent with the visitation trend over the past few years. Increased visitation would result in greater demand for parking within the Regional Park and Community Park, and would increase the number of vehicles using park roads and parking areas for internal circulation and public roads to access Contra Loma. Currently, the internal roads and parking areas accommodate increased visitation on most days, although occasional gate closures to vehicles are necessary when road and parking capacity is reached. Increased visitation could cause vehicle gate closures to occur more frequently or earlier in the day than current conditions. However, the increased frequency of gate closures is expected to be relatively minor. Increased visitation would cause a minor impact on visitor access and circulation within Contra Loma.

Facility Maintenance and Operation

All of the RMP alternatives have been designed to avoid potential land use conflicts to the extent possible. Public motorized vehicles would be confined to existing roads and parking areas within both the Regional Park and the Community Park. Trail system use by private motorized vehicles would continue to be prohibited throughout Contra Loma. The opening and closing of park gates for daily visitor access would be the responsibility of the managing partner(s). The managing partner(s) would continue to maintain and operate publicly accessible roads and parking areas within Contra Loma. If road closure is required during maintenance activities, the closure would be short term and the effect on visitor access and circulation would be minor. Also, the local managing partner(s) would implement BMPs to notify visitors about such closures further reducing the effect.

Trail system maintenance and operation in the Regional Park would continue under all of the RMP alternatives. Hiking, equestrian, and bicycle trail system users could encounter trail sections receiving periodic maintenance activities, such as gravel and rock placement on fire trails to maintain all-weather access for emergency vehicles. The impact on recreational trail access and circulation during maintenance would be temporary and of short duration. If trail closure is required during maintenance activities, the closure would be short term and the effect on visitor access and circulation would be minor. Also, the local managing partner(s) would implement BMPs to notify visitors about such closures further reducing the effect.

Natural and Cultural Resource Management and Protection

All of the alternatives include management actions for protecting and managing natural and cultural resources. Under the RMP alternatives, the local managing partner(s) for the Regional Park would continue to perform periodic biological surveys to inventory and assess special-status plant and wildlife species within the Regional Park. Federal and state regulations and laws governing the protection of special-status plant and animal species may require modification or closure of trails or roads if public access is determined to have an adverse impact on such species. Avoiding or minimizing disturbance of special-status plant communities or special-status wildlife species (individuals or populations) could affect current and proposed visitor access and circulation due to road or trail closures, or could influence future road and trail planning. Cultural resources within Contra Loma would be afforded similar protections.

Known populations of special-status plant or animal species, or cultural resource sites are currently protected by the managing partner(s) as directed by Federal or state regulations. Public access and circulation in the vicinity of currently known biologically or culturally sensitive areas would continue to be managed similar to existing conditions (see Section 3.3) and, thus would incur no new impacts. All future planning improvements in the Regional Park would be consistent with laws and regulations that govern the protection of natural and cultural resources. Therefore, conflicts between a visitor access and circulation planning action and a sensitive resource can be proactively addressed early in the planning process to reduce or avoid conflicts to the extent possible. Natural and cultural resource management and protection could result in a minor impact on visitor access and circulation.

4.4.4 Impacts Specific to the No Action Alternative

Increased Human Use

In addition to the impacts addressed in Section 4.4.3, increased visitation would increase the number of vehicles using public roads to access Contra Loma. This increased traffic would be most noticeable on high-volume days and in the immediate vicinity of Contra Loma. Visitation to the Regional Park is generally highest on weekends and holidays from Memorial Day weekend through Labor Day. The local roads providing access to the park (i.e., James Donlon Boulevard, Lone Tree Way, Contra Loma Boulevard) are classified as major collector roads and primary arterials (i.e., high capacity urban roads) in the local road system. Peak traffic on these roads generally occurs on weekday mornings and afternoons which correspond with peak commuting periods. Increased visitation to the Regional Park would mostly occur on the weekends; therefore, its effect on peak hour traffic would be minimal.

The most popular activities at the Community Park involve use of the sports fields; therefore, increased visitation to the Community Park would mostly occur on weekday evenings from 4:00 to 10:00 p.m. and on Saturdays. Therefore, increased visitation to the Community Park could increase traffic on roads leading to the Community Park during the weekday afternoon peak hour.

Increased vehicle trips to Contra Loma would represent a small proportion of the existing traffic on local roads serving Contra Loma. According to the City's General Plan EIR (prepared in 2003), average daily traffic on James Donlon Boulevard, Lone Tree Way, and Contra Loma Boulevard ranges from 13,490 to 27,760 vehicles and volume-to-capacity ratios for these streets range from 0.53 to 0.82 (City of Antioch 2003b). The Regional and Community parks have a combined parking capacity of about 1,500 spaces. If daily visitation by visitors driving vehicles to Contra Loma increases by 20 percent, vehicle trips would increase by about 600 trips per day (1,500 x 20% x 1 trip each direction [2 trips] = 600) on the busiest days. These additional trips would increase average daily traffic from 2 to 4 percent of the current traffic volumes and would increase volume-to-capacity ratios to a range from 0.55 to 0.84. As of 2003, James Donlon Boulevard, Lone Tree Way, and Contra Loma Boulevards had available remaining capacity of approximately 6,100 to 15,000 vehicles. The increased trips expected under this alternative (i.e., about 600) would be minor in the context of the available capacity of the roads servicing Contra Loma. It appears that these roads would be sufficient to accommodate increased visitation expected under this alternative. Increased human use of Contra Loma, therefore, would cause a minor impact on the capacity of local roads.

Facility Maintenance and Operation
The impacts would be the same as those addressed in Section 4.4.3.

Natural and Cultural Resource Management and Protection
The impacts would be the same as those addressed in Section 4.4.3.

4.4.5 Impacts Specific to the Enhanced Recreation and Facilities Alternative

Increased Human Use
In addition to the impacts addressed in Section 4.4.3, this alternative would include more enhanced recreation opportunities which could result in more visitor use and generate more vehicle trips to Contra Loma. The internal roads and parking areas would be expected to accommodate increased visitation on most days; however, gate closures to vehicles when road and parking capacity is reached could occur more frequently than the No Action Alternative. Impacts to parking capacity caused by increased human use could be alleviated by the management action to expand the gravel/overflow parking areas within the Regional Park. Also, the local managing partner(s) would implement BMPs to notify visitors about gate closures further reducing the effect.

If this alternative were to generate 20 percent more new daily visitors than the No Action Alternative, vehicle trips on the busiest days would increase by about 720 trips per day as compared to existing conditions (600 trips under No Action Alternative x 120% = 720 trips). These additional trips would increase average daily traffic from 3 to 5 percent of the current traffic volumes and would increase volume-to-capacity ratios to a range from 0.56 to 0.84. As of 2003, James Donlon Boulevard, Lone Tree Way, and Contra Loma Boulevards had available remaining capacity of approximately 6,100 to 15,000 vehicles. The increased trips expected under this alternative (i.e., about 720) would be minor in the context of the available capacity of the roads servicing Contra Loma. Similar to the No Action Alternative, it appears that these roads would be sufficient to accommodate the increased visitation expected under this alternative. Increased human use of Contra Loma, therefore, would cause a minor impact on the capacity of local roads. The impacts of increased human use on visitor access and circulation would be minor.

Facility Maintenance and Operation
In addition to the impacts expected under the No Action Alternative and those addressed in Section 4.4.3, this alternative would include new facilities to enhance recreational opportunities. The new facilities would increase the need for routine maintenance activities which could increase the frequency of temporary road or trail closures. Also, because this alternative would include more enhanced recreation opportunities than the No Action Alternative, it could result in more visitor use and require incrementally more maintenance. Therefore, this alternative could result in more frequent occurrences of temporary road or trail closure than the No Action Alternative. If temporary road or trail closure is required during maintenance activities, the closure would be short term and the effect on visitor access and circulation would be minor. Also, the local managing partner(s) would implement BMPs to notify visitors about such closures further reducing the effect.

Natural and Cultural Resource Management and Protection

The impacts would be the same as those expected under the No Action Alternative and those addressed in Section 4.4.3.

Facility Improvements

Under this alternative the East Shore Trail, the West Shore Trail, and the trail across the dam would be improved by paving the surfaces along the entire reservoir shoreline loop. The shoreline loop is open to pedestrian and bicycle traffic. Improvements to the trails that compose the shoreline loop would make the shoreline loop more accessible to a wider range of pedestrian and bicycle traffic, including handicap visitors and other recreationists who may have trouble negotiating unpaved surfaces. Trail improvements along the reservoir shoreline would have a beneficial impact on visitor access and circulation within the Regional Park that would not occur under the No Action Alternative.

This alternative includes the potential to expand or renovate existing buildings or construct new facilities for the purpose of improving Regional Park operations. These facility improvements would not occur under the No Action Alternative. Existing roads and parking areas are anticipated to be sufficient to accommodate any increased vehicle traffic resulting from building and facilities enhancements, although some existing gravel parking areas may be paved and overflow parking at the Regional Park may be expanded, if it becomes necessary to accommodate more vehicles. Facility improvements would not result in permanent impacts on visitor access or circulation. However, temporary road or trail closures, if needed during construction, could result in minor, short-term adverse effects on visitor access and circulation. Also, the local managing partner(s) would implement BMPs to notify visitors about such closures further reducing the effect.

Facility improvements at the Regional Park included in this alternative would comply with ADA accessibility requirements. The local managing partner(s) may implement a management action that would replace, retrofit, or restructure many of the Regional Park facilities to meet current ADA requirements resulting in beneficial impacts that would not occur under the No Action Alternative.

4.4.6 Impacts Specific to the Expanded Recreation and Facilities Alternative

Increased Human Use

In addition to the impacts addressed in Section 4.4.3, this alternative would include more expanded recreation opportunities which could result in more visitor use and generate more vehicle trips to Contra Loma. The internal roads and parking areas would be expected to accommodate increased visitation on most days; however, gate closures to vehicles when road and parking capacity is reached could occur more frequently than the other two alternatives. Similar to the other alternatives, the local roads providing access to Contra Loma would be sufficient to accommodate increased visitation. The effect of increased human use on visitor access and circulation would be minor. Also, the local managing partner(s) would implement BMPs to notify visitors about gate closures further reducing the effect.

If this alternative were to generate 20 percent more new daily visitors than the Enhanced Recreation and Facilities Alternative, vehicle trips would increase by about 864 trips per day on

the busiest days as compared to existing conditions (720 trips under Enhanced Recreation and Facilities Alternative x 120% = 864 trips). These additional trips would increase average daily traffic from 3 to 6 percent of the current traffic volumes and would increase volume-to-capacity ratios to a range from 0.56 to 0.85. As of 2003, James Donlon Boulevard, Lone Tree Way, and Contra Loma Boulevards had available remaining capacity of approximately 6,100 to 15,000 vehicles. The increased trips expected under this alternative (i.e., about 864) would be minor in the context of the available capacity of the roads servicing Contra Loma. Similar to the other two alternatives, it appears that these roads would be sufficient to accommodate the increased visitation expected under this alternative. Increased human use of Contra Loma, therefore, would cause a minor impact on the capacity of local roads. The impacts of increased human use on visitor access and circulation would be minor.

Facility Maintenance and Operation

In addition to the impacts expected under the No Action Alternative and those addressed in Section 4.4.5, this alternative would include new facilities to expand recreational opportunities. The new facilities would increase the need for routine maintenance activities which could increase the frequency of temporary road or trail closures. Also, because this alternative would include more expanded recreation opportunities than the other two alternatives, it could result in more visitor use and require incrementally more maintenance. Therefore, this alternative could result in more frequent occurrences of temporary road or trail closure than the other alternatives. If temporary road or trail closure is required during maintenance activities, the closure would be short term and the effect on visitor access and circulation would be minor. Also, the local managing partner(s) would implement BMPs to notify visitors about such closures further reducing the effect.

Natural and Cultural Resource Management and Protection

The impacts would be the same as those expected under the No Action Alternative and those addressed in Section 4.4.3.

Facility Improvements

This alternative would include construction of new or expanded recreational facilities in addition to those that would be built under the Enhanced Recreation and Facilities Alternative. Expanded recreational facilities proposed under this alternative would also include expansion of the swim lagoon and construction of additional sports fields. The swim lagoon is one of the principal attractions at the Regional Park’s south shore recreation cluster and would be expanded to accommodate increased future demand. The addition of two new sports fields and increased parking capacity (if needed) south of the two existing soccer fields located in the Community Park would attract a substantial number of visitors to the Community Park. Existing roads and parking areas at both the Regional Park and the Community Park are anticipated to be capable of providing an adequate level of service to accommodate increased visitor traffic. Facility improvements would not result in any permanent impacts on visitor access or circulation. However, road or trail closures, if needed during construction, could result in temporary, minor effects on visitor access and circulation that would not occur under the No Action Alternative. Also, the local managing partner(s) would implement BMPs to notify visitors about such closures further reducing the effect.

This alternative may include construction of new trails that would be open to bicycles and/or allow bicycles on portions of trails that are not currently open to bicycles. Expansion of the trail system would improve bicycle, equestrian, and pedestrian access and circulation throughout the Regional Park. In addition, the expansion of the Community Park trails system to include new trails and improve interconnection between trail systems would also improve bicycle and/or pedestrian access and circulation throughout the Community Park. Expanding the trails system in the Regional Park and the Community Park would be beneficial for visitor access and circulation that would not occur under the No Action Alternative.

4.4.7 Cumulative Impacts

Increased Visitation and Concurrent Improvements

As discussed previously, visitation to Contra Loma is expected to continue to increase under all of the alternatives with more visitation expected under the two action alternatives than the No Action Alternative. A substantial portion of the expected future visitor increase would be attributable to the projected population increase expected to occur within the northeastern portion of the County from buildout of the City and County general plans. The improvements to sports fields 4 and 5 and the boat launch area upgrades will increase visitation to Contra Loma. In particular, the installation of flood lights to sports fields 4 and 5 will allow for increased nighttime visitation to the Community Park.

Increased Human Use

Increased visitation would result in greater demand for parking within the Regional Park and Community Park, and would increase the number of vehicles using park roads and parking areas for internal circulation. The internal roads and parking areas would be expected to accommodate increased visitation on most days; however, gate closures to vehicles when road and parking capacity is reached could occur more frequently than current conditions. The cumulative increase in human use of Contra Loma, therefore, would cause a minor impact on visitor access and circulation within Contra Loma under all of the alternatives. However, the management action included in the two action alternatives to expand the gravel/overflow parking areas within the Regional Park could help reduce cumulative impacts to parking capacity caused by increased human use. Also, the local managing partner(s) would implement BMPs to notify visitors about gate closures further reducing the effect.

Increased visitor use of the Regional and Community parks would increase vehicle trips to Contra Loma; regional population growth would also increase traffic volumes on roads near Contra Loma. As discussed previously, the increased traffic would be most noticeable on high-volume days and in the immediate vicinity of Contra Loma. Also, increased vehicle trips (up to about 864 new trips per day) to Contra Loma from implementation of the RMP would represent a small proportion (up to 6 percent) of the existing traffic on local roads serving Contra Loma. The two action alternatives would generate more traffic than the No Action Alternative.

According to the City's General Plan EIR (prepared in 2003), average daily traffic on James Donlon Boulevard, Lone Tree Way, and Contra Loma Boulevard ranges from 13,490 to 27,760 vehicles and volume-to-capacity ratios for these streets range from 0.53 to 0.82. The projected daily traffic on James Donlon Boulevard, Lone Tree Way, and Contra Loma Boulevard after build out of the General Plan would range from 17,000 to 42,700 vehicles and volume-to-

capacity ratios for these streets would range from 0.50 to 0.84 (City of Antioch 2003b). Although the traffic volume would increase over time, expected future roadway improvements envisioned in the General Plan would ensure that the volume-to-capacity ratios for these streets would not exceed their expected range or capacity. Therefore, these roads would be sufficient to accommodate cumulative increases in traffic volume, including those attributable to increased visitation to Contra Loma.

Facility Maintenance and Operation

As previously discussed, hiking, equestrian, and bicycle trail system users could encounter trail sections receiving periodic maintenance activities under all of the alternatives. The cumulative increase in visitation would increase the need for trail maintenance, and could also increase the number of visitors unable to access the sections of trail undergoing maintenance. Under all of the alternatives, if trail closure is required during maintenance activities, the closure would be short term and the cumulative effect on visitor access and circulation would be minor. Also, the local managing partner(s) would implement BMPs to notify visitors about such closures further reducing the effect.

Natural and Cultural Resource Management and Protection

All of the alternatives include management actions for protecting and managing natural and cultural resources. Avoiding or minimizing disturbance of special-status plant communities or special-status wildlife species (individuals or populations) could affect current and proposed visitor access and circulation due to road or trail closures, or could influence future road and trail planning. Cultural resources within Contra Loma would be afforded similar protections. Increased visitation from buildout of the City and County general plans would increase the number of visitors potentially affected by such protective measures.

However, conflicts between a visitor access and circulation planning action and a sensitive resource can be proactively addressed early in the planning process to reduce or avoid conflicts to the extent possible. Natural and cultural resource management and protection could result in a minor cumulative impact on visitor access and circulation.

4.4.8 Mitigation Measures

No need for mitigation has been identified.

4.5 Utilities

4.5.1 Types of Impacts

As described in Section 3.5.1, public utilities within Contra Loma include water service, wastewater service, solid waste disposal, electricity, and telephone and radio service available to personnel and visitors of the Regional Park and the Community Park. All of the RMP alternatives would have an effect on the availability of and demand for utilities. Because the RMP neither includes nor defines specific projects, the analysis in this section is qualitative.

Potential impacts to public utilities could result from four general types of activities:

- Human Use

- Livestock Grazing
- Facility Improvements
- Communications

4.5.2 Assumptions

The public utilities impact analysis is based on the following assumptions:

- Reclamation would only provide project-specific authorization for activities, including construction and operation of new facilities that have undergone appropriate environmental review.
- Neither Reclamation nor its local managing partner(s) are public utilities service providers.
- The proposed management actions would comply with applicable laws and regulations governing public utilities.
- The demand for energy relating to future improvements at Contra Loma cannot be quantified until specific project details are known. Based on current projects, it is expected that regional energy demand will continue to increase regardless of the selected alternative, and an increased level of pro-active facilities management will be required to offset demand.
- The managing partner(s) would uphold their responsibilities to provide the standard of care necessary to ensure that utilities are reasonably available and maintained for the benefit of visitors to Contra Loma. These agencies would provide staff levels commensurate with recreation visitation to ensure implementation of the policies and management actions intended to maintain the level and quality of safety and services expected by visitors to the Regional Park and the Community Park.

4.5.3 Impacts Common to All Alternatives

Human Use

As described previously, visitor use of Contra Loma is expected to increase under all of the RMP alternatives. Increased visitation would increase the demand for publicly available utilities such as restrooms, potable water, electricity, and litter and waste disposal. It is anticipated that the managing partner(s) would provide additional portable chemical toilets if needed to accommodate increased demand. Also, similar to current practices, routine maintenance of public utilities, including litter and waste removal, sewage pumping, and plumbing repairs would be required under all project alternatives to avoid potential public health and safety concerns, ensure adequate service, and protect water quality (see Sections 3.2, 3.5, and 3.8). The anticipated increase in human use and corresponding waste disposal needs would be a minor impact because the managing partner(s) would continue to provide adequate waste disposal services. Increased demand for electricity would be a minor impact as electricity would continue to be provided by PG&E under its current electrical generation capacities.

4.5.4 Impacts Specific to the No Action Alternative

Human Use

The impacts would be the same as those addressed in Section 4.5.3.

4.5.5 Impacts Specific to the Enhanced Recreation and Facilities Alternative

Human Use

This alternative would include facility improvements and renovations that would increase the public's enjoyment and use of the Regional Park and the Community Park. This alternative would likely attract more visitors than the No Action Alternative, thereby increasing demand for utilities. Consequently, this alternative would include utilities infrastructure improvements and renovations. Additional restrooms may be built to accommodate existing and future user needs, while existing portable chemical toilets may be replaced with permanent restrooms served by vault systems, septic tanks, or the City's sewer system. This would be a beneficial impact that would not occur under the No Action Alternative.

The greatest potential for water use occurs during the peak visitor season (May through October). During this peak season, irrigation and potable water use account for the greatest demand for water. Potable water service at Contra Loma is provided by the City via its contractual agreement with CCWD. Additional drinking water fountains and spigots may be installed as a result of this alternative. Extension of City sewer and potable water lines may be needed to accommodate the new infrastructure. This alternative would generate higher water demand than the No Action Alternative; however, the City's water system is expected to have adequate capacity to serve Contra Loma's potable water needs. Therefore, the impact of increased human use on water supply would be minor.

Raw water for irrigation and livestock grazing is derived from the reservoir, with an allocation of up to 100 acre-feet per year. Under this alternative, the volume of water pumped from the reservoir to irrigate the Regional Park might be increased from 100 acre-feet per year to 150 acre-feet per year. This water would be purchased from CCWD if the requested water is available. CCWD would be responsible for reviewing the request for additional water, and would only approve the request if sufficient water is available. Because CCWD would only provide additional water to the Regional Park if it is available, the provision of increased raw water would have a minor impact on water supplies. This impact would not occur under the No Action Alternative.

This alternative would also generate higher demand for other public utilities (i.e., electricity, and litter and waste disposal) than the No Action Alternative. However, this impact would be minor because PG&E would be able to provide electricity to serve the increased demand and because the managing partner(s) would continue to provide adequate litter and waste disposal services.

Livestock Grazing

This alternative could result in 0.3 more acre of grazing area than the No Action Alternative. This slight increase would not substantially increase the amount of water needed for livestock. If additional water for livestock grazing is needed, the water would be purchased from CCWD if it is available. This impact is discussed above (Human Use).

Facility Improvements

This alternative would generate more demand for utilities than the No Action Alternative. Proposed building expansion or renovation of the existing park offices, the police substation, the secondary storage yard, and the buildings near the swim lagoon could increase demand for electricity as well as for wastewater and solid waste disposal. A fueling station and fuel storage tank facility proposed for use by the managing partner(s) could also result in an increased demand for utilities. Infrastructure improvements, including a new radio communication tower and facilities as well as the addition of call boxes and security cameras in the Regional Park, would require electricity to operate. The anticipated increase in wastewater and solid waste disposal needs would be a minor impact because the managing partner(s) would continue to provide adequate waste disposal services. Increased demand for electricity would be a minor impact because PG&E would be expected to have sufficient capacity to serve the increased demand. Reclamation may coordinate with PG&E to identify renewable energy sources to meet the energy demand of park operations and maintenance.

Communications

The new radio communication tower and supporting facilities proposed under this alternative would improve communications at Contra Loma, thereby enhancing public service response and aiding the managing partner(s) and other public service personnel in serving the Regional Park. Therefore, construction of the radio tower would be a beneficial impact that would not occur under the No Action Alternative.

4.5.6 Impacts Specific to the Expanded Recreation and Facilities Alternative

Human Use

This alternative would include facility improvements and renovations beyond those proposed under the other two alternatives. These improvements would further increase the public's enjoyment and use of the Regional Park and the Community Park and would likely attract more visitors than the other alternatives. Similar to the other two alternatives, however, the impacts of increased human use on public utilities would be minor because the City's water system is expected to have adequate capacity to serve Contra Loma's potable water needs, PG&E would be able to provide electricity to serve the increased demand, and the managing partner(s) would continue to provide adequate litter and waste disposal services.

Livestock Grazing

This alternative may include the addition of two new sports fields within the Community Park and expansion of the Community Park boundaries south into the Regional Park. Livestock would be excluded from this area (approximately 15 acres), which is currently grazed. Therefore, this alternative could reduce the amount of grazing area within Contra Loma as compared to the other two alternatives, thereby reducing the amount of water needed for livestock.

Facility Improvements

This alternative would include new facility improvements in addition to those that would be included in the Enhanced Recreation and Facilities Alternative.

Some improvements may be needed to accommodate overnight camping, such as installation of wash basins and electrical outlets. Allowing overnight camping would increase use of potable

water, electricity, and restroom facilities as a result of the change in duration of use by visitors to the park. The expanded swim lagoon would also require some additional electricity to filter the larger volume of water. The increased demand for electricity and water as a result of overnight camping and expansion of the swim lagoon would be a minor impact because the City's water system is expected to have adequate capacity to serve Contra Loma's potable water needs and PG&E would be able to provide electricity to serve the increased demand. This impact would not occur under the No Action Alternative.

Proposed improvements to the recreational facilities at the Community Park include two new lighted sports fields. Power would be provided by PG&E, which already provides electrical power to the Community Park, including the three lighted sports fields, and the Regional Park. This increased demand for electricity would be a minor impact that would not occur under the No Action Alternative.

To help meet the increased demand for energy, this alternative would include installation of solar panels on shade structures or buildings (Management Action 74), which would contribute to renewable energy procurement goals identified by EPA. Energy derived from these solar panels would be used to supplement the park's energy needs, including powering the water pumps at the swim lagoon. This would be a beneficial impact that would decrease dependency on commercial electricity and that would not occur under the No Action Alternative.

Communications

The impacts would be the same as those addressed in Section 4.5.5.

4.5.7 Cumulative Impacts

Increased Visitation and Concurrent Improvements

As discussed previously, visitation to Contra Loma is expected to continue to increase under all of the alternatives with more visitation expected under the two action alternatives than the No Action Alternative. A substantial portion of the expected future visitor increase would be attributable to the projected population increase expected to occur within the northeastern portion of the County from buildout of the City and County general plans. This buildout would also increase regional demand for utilities. The improvements to sports fields 4 and 5 and the boat launch area upgrades will increase visitation to Contra Loma and the new flood lights will increase electrical demand.

Human Use

Increased visitation would increase the demand for publicly available utilities such as restrooms, electricity, and litter and waste disposal. It is anticipated that the managing partner(s) would provide additional portable chemical toilets if needed to accommodate increased demand. Under the two action alternatives, additional restrooms may be built to accommodate existing and future user needs, while existing portable chemical toilets may be replaced with permanent restrooms. The anticipated increase in human use and corresponding sanitary and solid waste disposal needs would result in a minor cumulative impact because the managing partner(s) would continue to provide adequate waste disposal services. Increased demand for electricity would have a cumulative minor impact because PG&E would be expected to have sufficient capacity to serve the increased demand.

Water service at Contra Loma is provided by the City via their contractual agreement with CCWD for CVP water. The cumulative increase in visitation to Contra Loma and regional population growth would increase potable water demand within the City. The City's General Plan EIR estimates that water usage between 2010 and 2020 will increase by 13 percent (2,832 acre-feet per year). The City's General Plan includes policies to ensure that adequate water supply is available for future growth, such as maintaining adequate pumping and storage capacity, ensuring that adequate water supply infrastructure is in place prior to occupancy or development, maintaining existing levels of water service, implementing a residential growth management program development review process for non-residential development to ensure that adequate long-term water supplies are available, and requiring new development to be equipped with drought-tolerant landscaping and water conservation devices. The City's General Plan EIR concludes that these policies will reduce water supply impacts below a level of significance (City of Antioch 2003b). Therefore, the City's water system is expected to have adequate capacity to serve the cumulative increase in potable water needs for Contra Loma and the City. Increased visitation would, therefore, have a minor adverse cumulative impact on water supply.

Wastewater from the Regional Park's permanent restrooms, the showers near the swim lagoon, and the restrooms and concession building/snack bar within the Community Park are collected and conveyed through the City's sewer lines to the DDSD's wastewater treatment plant. As of 2010, the plant was operating at 77 percent of its capacity (Delta Diablo Sanitation District 2013). The cumulative increase in visitation to Contra Loma and projected population growth the DDSD service area (i.e., Antioch, Bay Point, Pittsburg) would increase wastewater demand within the DDSD service area. DDSD is expected to continue to expand its treatment capacity consistent with growth projections and the associated demand increase and the City is expected to continue to expand sewer line capacity to serve increased growth within its service area. Therefore, the DDSD treatment plant and the City's sewer lines are expected to have sufficient capacity to serve the cumulative increase in wastewater generation. Increased visitation would have a minor adverse cumulative impact with respect to wastewater generation and treatment.

Facility Improvements

The two action alternatives would include facility improvements that are not included in the No Action Alternative. These improvements would generate increased demand for utilities. Similar to the cumulative effects described under Human Use above, the increased demand for utilities caused by the facility improvements and increased visitation would have a minor cumulative impact on utilities.

4.5.8 Mitigation Measures

No need for mitigation has been identified.

4.6 Public Health and Safety

4.6.1 Types of Impacts

Public health and safety issues at the Regional Park and the Community Park include fire protection, police service, medical response, boating and swimming safety, natural hazards, and general public safety. Safety issues related to wildland fires, dam failure, and hazardous

materials are described in Section 4.15 (Hazards), and safety issues related to seismicity and other potential geologic hazards are described in Section 4.11 (Geologic and Soil Resources). The RMP does not address health and safety issues related to operation of the dam and reservoir, which is subject to a separate contract between Reclamation and CCWD and is therefore outside the scope of the Contra Loma RMP. Because the RMP neither includes nor defines specific projects, the analysis in this section is qualitative.

Potential impacts to public health and safety could result from seven general types of activities:

- Human Use
- Emergency Preparedness
- Facility Maintenance
- Facility Improvements
- Enhanced Recreational Facilities
- Communications
- Expanded Recreational Facilities

4.6.2 Assumptions

The public health and safety impact analysis is based on the following assumptions:

- Reclamation would only provide project-specific authorization for activities, including construction and operation of new facilities that have undergone appropriate environmental review.
- The proposed management actions would comply with applicable laws and regulations governing public health and safety.
- The managing partner(s) would uphold their responsibilities to provide the standard of care necessary to ensure the health and safety of visitors to Contra Loma. These agencies would provide staff levels commensurate with recreation visitation to ensure implementation of the policies and management actions intended to maintain the level and quality of safety and services expected by visitors to the Regional Park and the Community Park.

4.6.3 Impacts Common to All Alternatives

Human Use

As described previously, visitor use of Contra Loma is expected to increase under all of the RMP alternatives. More visitors would result in the increased use of restrooms and other facilities and infrastructure and would generate more solid and sanitary waste. The current managing partners manage and maintain sanitary services in a manner that protects public health and safety (see Section 3.5). Even with increased visitation, the future managing partner(s) would be expected to manage sanitary services public utilities at levels that would ensure that the RMP's public health

and safety goal is maintained. It is anticipated that under all of the RMP alternatives, the managing partner(s) would provide additional portable chemical toilets if needed and would increase the frequency of solid waste removal and/or provide more waste receptacles, as needed.

Increased human use could also increase the amount of solid waste, discarded food, and other attractants for unwanted pests (such as rodents or wasps), and could increase the potential for accidental fires. However, the local managing partner(s) would implement integrated pest management (IPM) plans to control pests and to reduce fire hazards by mowing and grazing the grassland areas.

Therefore, impacts of increased human use on public health and safety would be minor.

Emergency Preparedness

The current managing partners provide emergency services, including fire, police, and lifeguard services. Increased visitation would potentially increase the demand for emergency services, as well as the number of rescues and assistance responses performed by lifeguards at the swim lagoon and possibly the reservoir. The managing partner(s) would either implement fire and emergency preparedness plans for the Regional Park and the Community Park or would contract the provision of police and fire services to other local agencies. At the Regional Park, continued operation of the existing police substation and fire station as well as continued provision of lifeguard services may be included in the proposed management actions common to all alternatives. Maintenance of the Regional Park trail system would continue to ensure all-weather access for emergency vehicles. Trail system bike patrols may also be included in management actions. Use of existing and expanded emergency and safety services, and the development and implementation of emergency preparedness plans would ensure that increased visitor use of Contra Loma would have no impact on the public health and safety of park users.

The City's Office of Emergency Services maintains a community emergency disaster warning system to notify the public of potential emergencies, including earthquakes, severe winter storms, wildland fires, and hazardous materials events. The RMP would have no impact on the City's emergency disaster warning system.

Facility Maintenance

All of the RMP alternatives include continuation of routine maintenance and repair activities that could affect visitor health and safety, such as the use of mechanized equipment for maintenance and repair activities, and some activities could create temporary hazards such as from open trenches or herbicides application. Increased visitation could incrementally increase the amount of facility maintenance required, thereby incrementally increasing the potential risk to visitors. However, facility maintenance would have a minor adverse impact on public health and safety because the managing partner(s) would be expected to perform maintenance and repair activities in a manner that meets the RMP goal of protecting public health and safety through the pesticide management plan and trail maintenance program.

4.6.4 Impacts Specific to the No Action Alternative

Human Use

The impacts would be the same as those addressed in Section 4.6.3.

Emergency Preparedness
The impacts would be the same as those addressed in Section 4.6.3.

Facility Maintenance
The impacts would be the same as those addressed in Section 4.6.3.

4.6.5 Impacts Specific to the Enhanced Recreation and Facilities Alternative

Human Use
In addition to the impacts addressed in Section 4.6.3, this alternative would include facility improvements and renovations that would increase the public's enjoyment and use of the Regional Park and the Community Park. This alternative would likely attract more visitors than the No Action Alternative, thereby increasing demand for public health and safety services. However, facilities management actions performed by the managing partner(s) would maintain public utilities at levels that would ensure that the RMP's public health and safety goal is maintained. Also, the local managing partner(s) would implement IPM plans to control pests and to reduce fire hazards by mowing and grazing the grassland areas. Therefore, the impacts of increased human use on public health and safety services would be minor.

Emergency Preparedness
The impacts would be the same as those expected under the No Action Alternative and addressed in Section 4.6.3.

Facility Maintenance
This alternative would include more recreation and infrastructure facilities than the No Action Alternative, which could require more maintenance and repair than the No Action Alternative. In addition, because this alternative would include more enhanced recreation opportunities than the No Action Alternative, it could result in more visitor use and require incrementally more maintenance and repairs than the No Action Alternative. Similar to the No Action Alternative, however, facility maintenance would have a minor adverse impact on public health and safety because the managing partner(s) would be expected to perform maintenance and repair activities in a manner that meets the RMP goal of protecting public health and safety.

Facility Improvements
This alternative would include a new fueling station and fuel storage tank for use by park personnel to refuel equipment and vehicles used for Regional Park operations. The new fueling station and fuel storage tank would not be available for public use and would only be operated by trained managing partner staff, thereby minimizing the potential for public contact with the fuel. The facility would be designed with fuel containment devices to protect public health and safety as well as prevent accidental spills from entering the reservoir or contaminating groundwater; therefore, the impact on public health and safety would be minor. This impact would not occur under the No Action Alternative.

This alternative also includes renovations to the existing park offices, police substation, secondary storage yard, and buildings near the swim lagoon. These renovations are intended to better provide for public service and safety by increasing park management efficiency and creating a place for public education activities such as swim and safety lessons. Renovations to

these existing buildings and structures would have a beneficial impact on public health and safety that would not occur under the No Action Alternative.

Under this alternative, the existing portable chemical toilets may be replaced with permanent restrooms and new or upgraded sewer lines may be built to connect future permanent restrooms to the City's sewer and wastewater system. Because the existing restrooms and portable toilets are properly used and maintained, they represent a very limited potential source of biological contamination to the reservoir. These improvements, however, would further reduce the potential for inadvertent spills from the portable restrooms, resulting in a beneficial impact on public health and safety. This impact would not occur under the No Action Alternative.

Enhanced Recreational Facilities

Fishing is a popular recreational activity at the reservoir. During drawdowns, the floating fishing docks often become unusable and unsafe due to the steep angles of the access ramps and/or the steepness of the fishing docks themselves, requiring temporary closure. When this occurs, some anglers choose to fish from the boat dock, which can cause congestion and interfere with boater access. Fishing from the boat dock poses a safety issue to boaters who could be ensnared in fishing line or injured by a fish hook while using the dock. This alternative may include the modification or addition of more fishing docks to provide anglers with safe, continuous fishing opportunities away from the boat dock during reservoir drawdowns. These improvements would be a beneficial impact on public safety that would not occur under the No Action Alternative.

This alternative may include a "safe swim" area or splash pad specifically for small children. This would improve swim safety for small children because it would separate them from older children and adults, thereby reducing the potential for injurious physical contact. This improvement would also reduce the potential for small children without proper swimming skills to venture into deeper water. This improvement would have a beneficial impact on public safety that would not occur under the No Action Alternative.

Communications

A new radio communications tower and supporting facilities would be built under this alternative. Improvements to communications at Contra Loma would enhance emergency response and preparedness as well as aid the managing partner(s) and other public service personnel in the management of the park providing a beneficial impact that would not occur under the No Action Alternative.

Call boxes and/or security cameras may also be installed in the Regional Park. Call boxes would allow visitors to contact public safety officials in case of an emergency. Security cameras could help reduce the potential for unlawful activities (e.g., mugging, assault) that could harm visitors. Installation of these devices would have a beneficial impact on public safety that would not occur under the No Action Alternative.

4.6.6 Impacts Specific to the Expanded Recreation and Facilities Alternative

Human Use

In addition to the impacts expected under the No Action Alternative and addressed in Section 4.6.3, this alternative would include facility improvements and renovations that would increase

the public's enjoyment and use of the Regional Park and the Community Park. This alternative would likely attract more visitors than the other two alternatives, thereby increasing demand for public health and safety services. However, facilities management actions performed by the managing partner(s) would maintain public utilities at levels that would ensure that the RMP's public health and safety goal is maintained. Also, the local managing partner(s) would implement IPM plans to control pests and to reduce fire hazards by mowing and grazing the grassland areas. Therefore, the impacts of increased human use on public health and safety services would be minor.

Emergency Preparedness

The impacts would be the same as those expected under the No Action Alternative and addressed in Section 4.6.3.

Facility Maintenance

This alternative would include more recreation and infrastructure facilities than the other two alternatives, which could require more maintenance and repair than the other two alternatives. In addition, because this alternative would include more expanded recreation opportunities, it could result in more visitor use and require incrementally more maintenance and repairs than the other alternatives. Similar to the other two alternatives, however, facility maintenance would have a minor adverse impact on public health and safety because the managing partner(s) would be expected to perform maintenance and repair activities in a manner that meets the RMP goal of protecting public health and safety.

Facility Improvements

The impacts would be the same as those addressed in Section 4.6.5.

Expanded Recreational Facilities

This alternative would include expanded recreational facilities and opportunities beyond those of the other two alternatives. The expanded trail systems, increased interpretive opportunities, and disc golf course would result in a wider dispersal of park visitors than current conditions and any of the other alternatives, increasing the potential for visitors to encounter natural hazards such as snakes and ticks as well as increasing the likelihood of visitors sustaining injuries in more remote parts of the park. Introducing overnight group camping opportunities to the Regional Park would increase the potential for injury due to reduced visibility during nighttime hours. Also, an expanded swim lagoon would increase the number of people using the lagoon, and could increase the likelihood of water-related accidents. However, the managing partner(s) would ensure that adequate staff and emergency plans are available to effectively accommodate the increased risk to public health and safety related to expanded recreational facilities resulting in a minor impact.

Communications

The impacts would be the same as those addressed in Section 4.6.5.

4.6.7 Cumulative Impacts

Increased Visitation and Concurrent Improvements

As discussed previously, visitation to Contra Loma is expected to continue to increase under all of the alternatives with more visitation expected under the two action alternatives than the No

Action Alternative. A substantial portion of the expected future visitor increase would be attributable to the projected population increase expected to occur within the northeastern portion of the County from buildout of the City and County general plans. The improvements to sports fields 4 and 5 and the boat launch area upgrades will increase visitation to Contra Loma.

Human Use

More visitors would result in the increased use of restrooms and other facilities and infrastructure and would generate more solid and sanitary waste, which could create public health and safety issues. However, facilities management actions performed by the managing partner(s) would maintain public utilities at levels that would ensure that the RMP's public health and safety goal is maintained. It is anticipated that under all of the RMP alternatives, the managing partner(s) would provide additional portable chemical toilets if needed and would increase the frequency of solid waste removal and/or provide more waste receptacles, as needed. Increased human use could also increase the amount of solid waste, discarded food, and other attractants for unwanted pests (such as rodents or wasps), and could increase the potential for accidental fires. However, the local managing partner(s) would continue to implement IPM plans to control pests and to reduce fire hazards by mowing and grazing the grassland areas. Therefore, cumulative impacts of increased human use on public health and safety would be minor.

Emergency Preparedness

The cumulative increase in visitation would potentially increase the demand for emergency services. The two action alternatives would likely result in more demand than the No Action Alternative. Included in all RMP alternatives are management actions that require local managing partner(s) to meet the anticipated increased demand for emergency services, which would include additional demand caused by cumulative increases in visitation. Use of existing and expanded emergency and safety services, and the development and implementation of emergency preparedness plans would ensure that the cumulative increase in visitor use of Contra Loma would have no impact on the public health and safety of park users.

Facility Maintenance

All of the RMP alternatives include continuation of routine maintenance and repair activities that could affect visitor health and safety. The two action alternatives would require more maintenance than the No Action Alternative. A cumulative increase in visitation could incrementally increase the amount of facility maintenance required, thereby incrementally increasing the potential risk to visitors. However, facility maintenance would have a minor cumulative adverse impact on public health and safety because the managing partner(s) would be expected to perform maintenance and repair activities in a manner that meets the RMP goal of protecting public health and safety.

Expanded Recreational Facilities

The Expanded Recreation and Facilities Alternative may include expanded trail systems, increased interpretive opportunities, and disc golf course that would result in a wider dispersal of park visitors than current conditions and any of the other alternatives, increasing the potential for visitors to encounter natural hazards such as snakes and ticks as well as increasing the likelihood of visitors sustaining injuries in more remote parts of the park. Increased visitation would incrementally increase the potential for these effects. However, the managing partner(s) would ensure that adequate staff and emergency plans are available to effectively accommodate the

increased risk to public health and safety related to expanded recreational facilities. This would result in a minor cumulative impact with respect to public health and safety.

4.6.8 Mitigation Measures

No need for mitigation has been identified.

4.7 Water Resources

4.7.1 Types of Impacts

Water resources include groundwater and surface water carried by drainages or stored in the Contra Loma Reservoir. Because the RMP neither includes nor defines specific projects, the analysis in this section is qualitative. Potential impacts to water resources could result from five general types of activities:

- Human Use and Waste Disposal
- Livestock Grazing
- Facility Improvements
- Construction Activities
- Increased Withdrawal of Reservoir Water
- Climate Change

4.7.2 Assumptions

The water resources impact analysis is based on the following assumptions:

- Reclamation would only provide project-specific authorization for activities, including construction and operation of new facilities that have undergone appropriate environmental review.
- The local managing partner(s) would implement BMPs when necessary to protect water resources.
- The proposed management actions would comply with applicable laws and regulations governing water resources.

4.7.3 Impacts Common to All Alternatives

Human Use and Waste Disposal

As described previously, visitor use of Contra Loma is expected to increase under all of the alternatives. Increased visitation would increase the potential for unauthorized human contact with the reservoir, would increase the volume of solid, human, and domestic animal (e.g., dogs and horses) waste generated within the recreation area, would increase trail and road use, and would increase the potential for reservoir infestation by non-native zebra and quagga mussels.

Human-borne pathogens and viruses can affect reservoir water quality through direct bodily contact; however, body contact with the reservoir is highly restricted to protect the reservoir's domestic water supply. These restrictions would continue under all of the alternatives, thereby ensuring that potential adverse impacts to water quality due to bodily contact would be minimal.

Improper disposal of litter and waste can affect reservoir water quality if introduced to the reservoir through wind dispersion or other means. Under all of the alternatives, however, litter and waste reduction programs would continue to be implemented to effectively meet demand. As a result, adverse impacts to water quality related to litter and waste disposal would be minor.

Increased visitation would increase the volume of human sanitary waste generated at Contra Loma. Improper sanitary disposal, plumbing system failure, accidental spills, or overflow of portable toilets can affect reservoir water quality. Under all of the alternatives, however, the restroom facilities would continue to be inspected and maintained at regular intervals, thereby ensuring that adverse impacts to water quality from human sanitary waste would be minor.

Increased visitation would likely increase boating activity, thereby increasing the potential for reservoir infestation by zebra and quagga mussels and other non-native species. Under all of the alternatives, however, the local managing partners(s) would continue to support and complement CCWD's programs to prevent zebra and quagga mussel infestation, thereby ensuring that adverse impacts to water quality from invasive species would be minor.

The public is not allowed to operate gasoline-powered engines on the reservoir to prevent contamination from petroleum products and exhaust byproducts, and none of the RMP alternatives would alter this restriction. Therefore, no impacts to water resources would result from gasoline-powered engines.

Equestrian activities and dog walking have the potential to introduce animal waste into the reservoir through surface runoff. Under all of the alternatives, however, the local managing partner(s) would continue to provide plastic waste bags in various locations and encourage dog owners to dispose of dog waste in garbage cans. Therefore, adverse impacts to water quality from domestic animal waste would be minor.

Hiking, biking, and equestrian activities can cause small amounts of localized erosion, and the resulting sediment can be transported to the reservoir by surface runoff. Chemical runoff from roads, parking lots, and grazing and restoration areas can also be transported to the reservoir by surface runoff. Under all of the alternatives, however, the local managing partner(s) would continue to manage and maintain the facilities in a manner that conforms to invasive plant management and pesticide management plans, as well as ensures proper drainage and erosion controls for chemical runoff. Therefore, adverse impacts to water quality from trail and road use would be minor.

Climate Change

A number of studies have discussed the potential for environmental impacts as a result of climate change. The discussion below addresses potential for climate change on the future environments in the Plan Area and if those changes could affect the implementation of the RMP. Federal and State water planners are concerned about climate change and its potential effects on the state's

water resources. There are many potential ways in which climate change can affect the water resources including changes to precipitation as well as increases in extreme wet and dry conditions, decreased snowpack; variability in annual runoff, sea level rises and ecosystem challenges. The California Department of Water Resources (DWR) is currently addressing the issues of global climate change and the impacts under the public draft of the *California Water Plan Update 2009* released in January 2009. This draft plan looks at emerging effects of climate change on the state's water resources and builds upon the managements strategies laid out in the *California Water Plan Update 2005.* The DWR also released a technical memorandum report called *Progress on Incorporating Climate Change into Management of California's Water Resources* in July 2006. The technical memorandum looked at potential effects in regions in California close to Contra Loma reservoir, thereby providing an idea of what the potential effects on lake levels would be. In addition, the Climate Action Team (CAT) released a biennial report in April 2009 that used updated, comprehensive scientific research to outline environmental and economic climate impacts. The CAT report synthesized 37 research papers written by world-class scientists from prominent universities and research institutions. Based on the finding in the CAT report and the DWR report and technical memorandum, there are three potential climate change effects that could affect water levels at Contra Loma reservoir:

- Changes in precipitation and runoff
- Increased future demand for drinking water and agricultural needs
- Possible effects to the aquatic ecosystem and endangered species

There are direct correlations between decreased snowpack and global climate change laid out in the DWR technical memorandum. However, since the water in Contra Loma reservoir is not the result of snowpack this effect will not be an issue at Contra Loma reservoir.

Reclamation has been tasked with assessing the potential impacts of climate change and how these changes might affect water operations, hydropower, flood control, and fish and wildlife. The Reclamation Mid-Pacific Region is currently coordinating several studies, including the Sacramento and San Joaquin Basins Study (Bureau of Reclamation 2014). The Sacramento and San Joaquin Basins Study is a partnership between Reclamation, State agencies, and regional water districts. The study encompasses the entire Central Valley of California with an area of more than 22,500 square miles from the Tehachapi Range in the south to the Klamath Mountains in the north. The study area includes the three major hydrologic basins of the Central Valley. It will assess potential climate change impacts on the Basins' water supplies and demands and will specifically evaluate potential changes to agriculture and urban water supplies, flood control, hydroelectric power generation, recreation, fisheries, wildlife and wildlife habitats, water quality, and water-dependent ecological systems.

Changes in Precipitation and Runoff

The DWR technical memorandum looked at statewide annual average precipitation from 1890-2002. According to this analysis, Contra Loma reservoir has experienced decreasing precipitation in recent years. It is difficult to predict what the future changes in precipitation at Contra Loma would be, however the data trend suggests that there might be a decrease in precipitation, and therefore a decrease in water levels due to global climate change.

Future Water Demand
A group of researchers at UC Davis as outlined in the CAT report investigated the effect of potential climate-induced reductions in water supply to the agricultural sector. One of their findings is that the lack of water could result in reductions in irrigated crop area contributing to the loss of agricultural lands in the Central Valley. Under the particular climate change scenario investigated, the researchers also found that changes in yields (mostly negative) and changes in water availability could result in gross revenue losses of up to 3 billion dollars by year 2050. The DWR technical memorandum states that the domestic water use typically increases with increasing temperature. The water at Contra Loma reservoir is used for municipal drinking water. Global climate might cause an increase in drinking water demand, thereby possibly affecting the water demand and related reservoir levels at.

Aquatic Ecosystem Changes
The DWR technical memorandum revealed that increased air temperatures as the result of climate change will likely cause increases in water temperatures at California's lakes and waterways. Increased water temperatures might affect the aquatic ecosystem, especially for aquatic species that are sensitive to changes in water temperature. Increases in water temperature might also cause a decrease in dissolved oxygen demand concentrations, which would likely increase production of algae and some aquatic weeds.

4.7.4 Impacts Specific to the No Action Alternative

Human Use and Waste Disposal
The water quality impacts would be the same as those addressed in Section 4.7.3. Because the No Action Alternative would not involve new facilities or land uses, it would have no impact on hydrology.

Livestock Grazing
Livestock grazing can impair water quality not only through transport of feces from surface runoff, but also through the process of livestock-induced erosion and subsequent transport of sediment. Within Contra Loma, grazing is rotated between multiple enclosures and livestock are not allowed near the reservoir to protect water quality. One small ephemeral stream flows through the southern part of the grazed area into the reservoir. This ephemeral stream has a limited potential to transport fecal matter and sediment directly into the reservoir. Grazing would likely continue under all of the alternatives, subject to preparation of a Reclamation-approved grazing management plan by the local managing partner(s). Under this alternative, the acreage, location, and intensity of grazing are not likely to change. Continuation of grazing at current livestock levels would have no impact on water resources beyond the existing limited effects of this activity described above.

4.7.5 Impacts Specific to the Enhanced Recreation and Facilities Alternative

Human Use and Waste Disposal
In addition to the impacts expected under the No Action Alternative and addressed in Section 4.7.3, this alternative would include more enhanced recreation opportunities which could result in more visitor use. Increased visitation would increase the potential for water quality impacts caused by unauthorized human contact with the reservoir; generation and disposal of solid,

human, and domestic animal waste; trail and road use; and introduction of non-native zebra and quagga mussels into the reservoir. As discussed in Section 4.7.3, the proposed management actions would ensure that these impacts are minor.

This alternative would include new infrastructure and facility improvements that could affect water resources. For example, the existing portable chemical toilets may be replaced with permanent restrooms. Because the existing portable toilets are properly used and maintained (see Section 3.5), they represent a very limited potential source of contamination to the reservoir. This improvement, however, would further reduce the potential for inadvertent spills from the portable restrooms, resulting in a beneficial impact on water resources. This impact would not occur under the No Action Alternative.

This alternative may include new, expanded, or renovated buildings and structures to improve operations. Examples include a new park residence, classroom facilities near the swim lagoon, and a radio communication tower. This alternative may also include new or renovated recreational facilities, such as new or reconstructed fishing docks, and improvements at the boat launch area to enhance boating and fishing access. Operation of these improvements would be substantially similar to use of the existing facilities and would result in minor impacts on water resources that would not occur under the No Action Alternative.

This alternative may include a new fueling station and fuel storage tank for Regional Park vehicles and equipment as well as for public safety officers. The managing partner(s) would be required to implement substantial design and operational measures to protect surface water (e.g., reservoir) and groundwater quality. Only staff trained to safely use the station would be allowed to operate it, thereby reducing the potential for spills caused by improper use. The managing partner(s) must design the facility with fuel containment devices to prevent any spilled fuel from reaching the natural ground surface (i.e., soil), entering the reservoir, or otherwise impairing surface water or groundwater quality. This facility may only be built and operated in compliance with applicable federal and federally-mandated laws, regulations, and permits. As a condition of Reclamation's approval of this facility, the local managing partner(s) will ensure that spill prevention and decommissioning plans are prepared or amended to address operation of this facility. By implementing these measures, this facility would have a minor adverse impact on water quality. This impact would not occur under the No Action Alternative.

This alternative may include a new "safe swim" area or splash pad at the swim lagoon for small children and expansion of the pumping and filtration facility to accommodate this additional swim/splash area. Similar to the swim lagoon, these additional swim/splash areas would be hydrologically separated from the reservoir, ensuring that water from the lagoon does not enter the reservoir; therefore, the new swim/splash area would have no impact on water quality.

Livestock Grazing

This alternative could change the locations of some grazing areas and could increase the total grazing area by 0.3 acre. The changes to the grazing areas would not be located within the reservoir's watershed, so grazing in those areas would not affect reservoir water quality. Also, the relatively small increase in grazing acreage would not adversely affect water quality and hydrology beyond the existing effects of this activity. Therefore, livestock grazing would have

no impact on water quality and hydrology beyond the existing effects of this activity. These effects would be similar to the grazing effects under the No Action Alternative.

Facility Improvements

Under this alternative, a storm water retention basin may be built to improve the quality of water carried by the Regional Park's storm drain system before it reaches the reservoir. This would have a beneficial impact on reservoir water quality that would not occur under the No Action Alternative.

Construction Activities

This alternative would include construction of new, expanded, or renovated facilities and supporting infrastructure that would not occur under the No Action Alternative. This alternative may also include drainage improvements to sports field 3. Construction activities and drainage improvements can affect water quality through erosion and sedimentation, a temporary increase in turbidity due to runoff from construction areas, or inadvertent spilling of construction-related chemicals. However, this alternative includes a management action requiring a focused site-specific assessment of any potential impact on water quality when specific construction activities are proposed. If required by Federal regulations, the local managing partner(s) proposing a construction activity would submit a plan that identifies the sources of sediment and other pollutants on site and ensures the reduction of such pollutants in stormwater discharged from the construction site. The plan will provide descriptions of BMPs selected to control erosion, sediment discharge, turbidity, and other pollutant sources during construction. If appropriate needed, BMPs would be implemented prior to construction and would be continued through the duration of construction activities. This management action would ensure that construction activities and drainage improvements would result in minor adverse effects on water quality. These effects would not occur under the No Action Alternative.

4.7.6 Impacts Specific to the Expanded Recreation and Facilities Alternative

Human Use and Waste Disposal

This alternative would include more expanded recreation opportunities than the other two alternatives which could result in more visitor use. Increased visitation would increase the potential for water quality impacts caused by unauthorized human contact with the reservoir; generation and disposal of solid, human, and domestic animal waste; trail and road use; and introduction of non-native zebra and quagga mussels into the reservoir. As discussed in Section 4.7.3, the proposed management actions would ensure that these impacts are minor.

This alternative may include expanding the size and capacity of the swim lagoon. However, the swim lagoon is hydrologically separated from the reservoir, ensuring that water from the lagoon does not enter the reservoir. Because the enlarged portion of the swim lagoon would also be separated from the reservoir, it would have no impact on water quality.

This alternative may introduce overnight group camping to the Regional Park on a discretionary basis as part of the current day camp programs or other special events. Group camping would require event-specific authorization, oversight, and regulation by the Regional Park's local managing partner to ensure protection of the park's facilities and natural resources, including water quality. As with all of the alternatives, body contact with the reservoir would remain

highly restricted to protect the reservoir's domestic water supply. Because camping would be discretionary and would receive oversight from the Regional Park's local managing partner, and because body contact restrictions would continue to be enforced, adverse impacts to water quality from overnight group camping would be minor. These impacts would not occur under the No Action Alternative.

Livestock Grazing

In addition to the changes described in Section 4.7.5, this alternative may include the addition of two new sports fields within the Community Park and expansion of the Community Park boundaries south into the Regional Park. Livestock would be excluded from this area (approximately 15 acres), which is currently grazed. Therefore, this alternative could reduce the amount of grazing area within Contra Loma. This area is not located within the reservoir's watershed, so elimination of grazing in this area would not affect reservoir water quality. Reducing grazing in this area could have a minor beneficial effect on the water quality of receiving waters that would not occur under the No Action Alternative.

Facility Improvements

The impacts would be the same as those addressed in Section 4.7.5.

Construction Activities

This alternative would include construction of new infrastructure and facility improvements in addition to those that would be built under the Enhanced Recreation and Facilities Alternative. Therefore, this alternative would have more potential to adversely affect water resources from construction activities than the other alternatives would. Similar to the Enhanced Recreation and Facilities Alternative, however, this alternative includes a management action requiring a focused site-specific assessment of any potential impact on water quality when specific construction activities are proposed, preparation of a construction stormwater plan, and implementation of water quality BMPs as appropriate. This management action would ensure that construction activities and drainage improvements would result in minor adverse effects on water quality. These effects would not occur under the No Action Alternative.

Increased Withdrawal of Reservoir Water

Under this alternative, the volume of water pumped from the reservoir for irrigation of the Regional Park might be increased from 100 acre-feet per year to 150 acre-feet per year. This water would be purchased from CCWD if the requested water is available.

Because the additional water would be drawn from the reservoir, it would have the same water quality as the reservoir water and therefore, would have no impact on the water quality of the reservoir. CCWD uses the reservoir in combination with other raw water storage supplies to meet peak summer demand. The net reservoir drawdown of 50 acre-feet would be withdrawn from the reservoir gradually over a 3-4 month period of time during the summer irrigation season. It should also be noted that some of the irrigation water not lost to evaporation or evapotranspiration would return to the reservoir via surface flow and subsurface seepage. CCWD would be responsible for reviewing the request for additional water, and would only approve the request if sufficient water is available. Because CCWD would only provide additional water to the Regional Park if it is available and not already allocated for municipal water supply, the

provision of increased raw water would have a minor impact on water supplies that would not occur under the No Action Alternative.

4.7.7 Cumulative Impacts

Increased Visitation, Concurrent Improvements, and Land Use Changes

As discussed previously, visitation to Contra Loma is expected to continue to increase under all of the alternatives with more visitation expected under the two action alternatives than the No Action Alternative. A substantial portion of the expected future visitor increase would be attributable to the projected population increase expected to occur within the northeastern portion of the County from buildout of the City and County general plans. The improvements to sports fields 4 and 5 and the boat launch area upgrades will increase visitation to Contra Loma.

Approximately 38 percent of the land within the City (6,383 acres) and nearly 46 percent of the land within the unincorporated portion of the General Plan study area (2,240 acres) were vacant in 2003. Buildout of the City and County general plans would convert a substantial amount of vacant land to urbanized uses, increasing the potential for water quality impacts.

Human Use and Waste Disposal

Increased visitation would increase the potential for unauthorized human contact with the reservoir, would increase the volume of solid, human, and domestic animal (e.g., dogs and horses) waste generated within the recreation area, would increase trail and road use, and would increase the potential for reservoir infestation by non-native zebra and quagga mussels. The two action alternatives would have greater potential for this effect than the No Action Alternative.

However, body contact restrictions on reservoir use would ensure that potential adverse impacts to water quality due to bodily contact would be minimal, litter and waste reduction programs would continue to be implemented to effectively meet demand, restroom facilities would continue to be inspected and maintained at regular intervals, the local managing partners(s) would continue to support and complement CCWD's programs to prevent zebra and quagga mussel infestation, prohibitions on public use of gasoline-powered engines on the reservoir would continue, the local managing partner(s) would continue to provide plastic waste bags in various locations and encourage dog owners to dispose of dog waste in garbage cans, and the local managing partner(s) would continue to manage and maintain the trail and road system in a manner that maintains proper drainage and controls erosion and chemical runoff. For these reasons, the cumulative effect on water quality from increased human use would be minor.

Facility Improvements and Construction Activities

About 350 acres of the 741-acre recreation area drains to the Contra Loma Reservoir, and the remainder drains elsewhere. The reservoir's total watershed is about 680 acres. About half of its watershed lies within Regional Park and nearly all of the remainder is located in EBRPD's Black Diamond Mines Regional Preserve located adjacent to the southern boundary of Contra Loma. No foreseeable land use changes or other activities are expected to occur within Black Diamond Mines Regional Preserve that would substantially alter the water quality of the reservoir or its watershed. The RMP, therefore, would not contribute to a cumulative impact on the water quality of the reservoir or its watershed.

As discussed above, certain RMP activities could have minor impacts on water quality. Some of those activities would occur within the areas located outside the reservoir's watershed, which drain either toward the municipal reservoir at the golf course, the Contra Costa Canal, or the City storm drain system. Development needed to accommodate project regional population growth could also impair the water quality of the receiving waters. For example, erosion and inadvertent chemical spills from construction activities could pollute these waters. Also, increased urbanization would increase the amount of fertilizers, pesticides, and other pollutants washed into streams by storm events and other means. These related activities could cumulatively affect the water quality of receiving waters.

As discussed above, RMP management actions would protect water quality and ensure that RMP activities result in only minor impacts on water quality. In addition, the City's General Plan includes policies to protect water quality from contaminated runoff. These measures include working with the Contra Costa County Flood Control District to ensure that runoff from new development is adequately handled; requiring new developments to provide erosion and sedimentation control measures to protect water quality; requiring implementation of BMPs in the design of drainage systems to reduce discharge of nonpoint source pollutants originating in streets, parking lots, paved industrial work areas, and open spaces involved with pesticide applications; requiring the implementation of BMPs to minimize erosion and sedimentation resulting from new development; opposing proposals with the potential to increase the salinity of the Delta; and, participating in the Contra Costa Clean Water program to reduce stormwater pollution and protect the water quality of the City's waterways (City of Antioch 2003a). The County's General Plan also includes policies to protect water quality including identification and control of point sources of pollution to protect beneficial uses of water; cooperating with other regulatory agencies to control point and non-point water pollution sources to protect beneficial uses of water; requiring that grading, filling and construction activity near watercourses be conducted in a manner that minimizes impacts from increased runoff, erosion, sedimentation, biochemical degradation, or thermal pollution; preserving watersheds and groundwater recharge areas by avoiding the placement of potential pollution sources in areas with high percolation rates; discouraging runoff of pollutants and siltation into marsh and wetland areas from outfalls serving nearby urban development; encouraging public ownership of lands bordering reservoirs to safeguard water quality; and, taking an active role in reviewing regional, State, and Federal programs that could affect water quality (Contra Costa County 2005).

The RMP management actions to protect water quality, City and County water quality protection policies, and project specific compliance with applicable water quality regulations would ensure that cumulative water quality impacts would be minor.

4.7.8 Mitigation Measures

No need for mitigation has been identified.

4.8 Vegetation

4.8.1 Types of Impacts

Vegetation communities within Contra Loma have been classified according to habitat types defined by the CWHR System (California Department of Fish and Game 2011). These habitat

types include annual grassland, blue oak woodland, valley foothill riparian, fresh emergent wetland, riverine, lacustrine, urban, and barren. Inasmuch as the classification of barren is defined as the absence of vegetation due to hardscape such as paving, sidewalks, curbs, and gravel roads and parking lots, impacts to vegetation within this category are considered inconsequential and no further discussion of impacts to this habitat type is needed. Because the RMP neither includes nor defines specific projects, the analysis in this section is qualitative.

Potential impacts to vegetation resources could result from seven general types of activities:

- Wildland Fire
- Protection or Conservation of Special Status Plant Species
- Human Use at Public Sites and Trails
- Livestock Grazing
- Introduction of Invasive Species
- Construction Related Surface Disturbance (Temporary or Permanent)
- Increased Withdrawal of Reservoir Water

Impacts to vegetation can be direct, as in the case of trampling or removing rooted vegetation as a part of construction activities, or may be indirect, as in the case of introduction of invasive weeds by various vectors.

4.8.2 Assumptions

The vegetation resources impact analysis is based on the following assumptions:

- Reclamation would only provide project-specific authorization for activities, including construction and operation of new facilities that have undergone appropriate environmental review.
- The proposed management actions would comply with applicable laws and regulations governing protection of special-status plants and upland and wetland plant communities.
- Reclamation and the managing partner(s) would continue to manage, protect, and restore Contra Loma's vegetation resources in a manner consistent with current management trends as articulated in existing management and policy documents and ordinances.
- The local managing partner(s) would implement BMPs to protect vegetation from chemical spills or other storm-water runoff pollutants.

4.8.3 Impacts Common to All Alternatives

Wildland Fire

Wildland fire can have temporary negative impacts on annual grasslands, especially native bunchgrasses and special status plants. However, wildland fire was commonly employed by Native Americans in the coastal prairies of California to enhance wildlife habitat. California's

native coastal prairies have adapted to this historic occasional fire regime. Thus, occasional grassland fire does not necessarily lead to lasting negative impacts on native grasslands. In Contra Loma, occasional grassland fires may have a beneficial impact by controlling certain noxious weeds, most notably star thistle.

The risk of catastrophic wildland fire in Contra Loma is low because existing wildland fire management facilities provided by the CCCFPD are maintained at high response levels near Contra Loma, with 2 stations located within 1.5 miles. The current local managing partner for the Regional Park also provides backup fire suppression with satellite stations and a wildland fire truck located at the southern park boundary. Included in all RMP alternatives are management actions that require the local managing partner(s) to meet the anticipated demand for fire suppression services. The managing partner(s) would either implement fire preparedness plans for the Regional Park and the Community Park or would contract the provision of police and fire services to other local agencies. Wildland fire risk is further reduced because the management actions common to all alternatives would include periodic mowing and livestock grazing of the grassland areas to reduce fire hazard. Vegetation fire risk within the developed areas of Contra Loma is very low due to the scarcity of dry vegetation and the predominance of landscaped or wetland vegetation types.

Under all management alternatives, the potential temporary negative impacts of wildland fire on vegetation resources in Contra Loma would be moderated by the potential long term beneficial impacts of isolated or occasional wildland fire.

Protection or Conservation of Special Status Plant Species

Under all RMP alternatives, the local managing partner(s) for the Regional Park would continue to perform periodic biological surveys to inventory and assess special-status plant and wildlife species. Known populations of special status plants in Contra Loma are limited to stinkbells, which are located adjacent to one trail in the northwest corner of Contra Loma. Effects on the native vegetation resources resulting from special status plant conservation and protection, as called for in the management actions, is expected to be beneficial.

4.8.4 Impacts Specific to the No Action Alternative

Wildland Fire

The impacts would be the same as those addressed in Section 4.8.3.

Protection or Conservation of Special Status Plant Species

The impacts would be the same as those addressed in Section 4.8.3.

Human Use at Public Sites and Trails

As described previously, visitor use of Contra Loma is expected to increase under all of the alternatives. This increased visitation would predominantly be in the developed portions of Contra Loma such as the picnic areas, fishing access areas, and sports fields which currently experience the most visitor use. Additional use of these areas could increase the potential for trampling of sensitive habitats near the developed areas (e.g., wetland and riparian habitat) should visitors venture into them for fishing access or other purposes. Trampling can damage vegetation through direct contact and by increased soil compaction or erosion that can impair

plant growth. However, environmental conditions such as the density of vegetation, soil moisture (i.e., muddy) conditions, and the risk of contact with insects, blackberry prickles, or poison oak reduce the attractiveness of entering these areas, thereby reducing the potential for trampling of sensitive habitats.

The trails in the undeveloped portions of Contra Loma would also receive increased visitation, although in fewer numbers than the developed areas. The trails in the undeveloped areas now pass through annual grasslands and provide access to areas supporting other vegetation types (e.g., wetlands, riparian, oak woodland). Increased pedestrian traffic on these trails could increase foot traffic within the annual grassland in the vicinity of the trails causing increased soil compaction and erosion that could impair the growth of the grassland species. Trail users can also damage other vegetation types (e.g., wetlands, riparian, oak woodland) by trampling them when poor trail conditions (e.g., muddy or eroded sections) cause them to leave the trail to bypass the problem sections or when venturing off the trail for other reasons. Increased visitation would increase the potential for trampling; however visitors are less likely to leave trails adjacent to wetlands due to the density of vegetation and soil moisture conditions.

RMP management actions would require the local managing partner(s) to manage and maintain the trails, thereby reducing the likelihood of visitors leaving the trails to avoid poor trail conditions. These management actions, and the fact that existing trails have been routed to avoid direct incursion into sensitive habitats would reduce but not eliminate the likelihood of trampling.

Impacts on vegetation caused by human use are expected to be similar to existing conditions, but increased visitation would incrementally increase the potential for vegetation impacts.

Livestock Grazing

Unmanaged grazing can contribute to degradation of vegetation through excessive trampling, soil erosion, sedimentation, and over-harvest. As discussed below (Introduction of Invasive Species), however, livestock grazing can control the growth of non-native grasses and herbs. Grazing would likely continue under all management alternatives, subject to a Reclamation-approved grazing management plan prepared by the managing partner(s). Under this alternative, no change in the acreage, location, or intensity of grazing would occur. Therefore, the overall effect of livestock grazing on vegetation would be similar to current conditions.

Introduction of Invasive Species

Reconnaissance surveys conducted in 2010 and 2011 identified 23 invasive and/or noxious non-native plant species occurring at Contra Loma. None of these plants are listed as noxious weeds in accordance with Section 2814 of the Federal Noxious Weed Act of 1974; however, they are rated as noxious or invasive by either the CDFA or Cal-IPC. Invasive plant species can threaten or disrupt native vegetation species and communities by altering nutrient and hydrologic cycles, increasing fire hazard, creating changes in sediment deposition and erosion, displacing native species, or hybridizing with native species. Invasive plant species can spread via natural dispersion, or they can be spread by humans, horses, livestock, or vehicles.

The RMP includes management actions requiring the local managing partners(s) for the Regional Park to continue implementation of pesticide management plans and IPM plans for weeds, which

are subject to review and approval by Reclamation prior to implementation. Future vegetation management for the control of invasive weeds or for trail maintenance activities requiring herbicides will continue to be guided by these existing plans.

The current grazing practices at Contra Loma may also serve to successfully control some species of invasive grasses and other weeds, including oat species, bromes, ryegrass, and burclover. Livestock grazing can control the growth of non-native grasses and herbs so that other desirable plants (e.g., wildflowers, native grasses) can regenerate and coexist with them (East Bay Regional Park District 2012a). Grazing can favor native annual forbs and can control non-native species (Immel et al. 2012). Under this alternative, no change in the acreage, location, or intensity of grazing would occur and grazing would likely continue under all RMP alternatives, subject to a Reclamation-approved grazing management plan prepared by the managing partner(s). The grazing management plan would address means to control the introduction of invasive plants when livestock first enter a grazing area or are moved from one grazing area to another within Contra Loma. Therefore, the effect of livestock grazing on control of non-native species would be similar to current conditions.

4.8.5 Impacts Specific to the Enhanced Recreation and Facilities Alternative

Wildland Fire

The impacts would be the same as those expected under the No Action Alternative and addressed in Section 4.8.3.

Protection or Conservation of Special Status Plant Species

The impacts would be the same as those expected under the No Action Alternative and addressed in Section 4.8.3.

Human Use at Public Sites and Trails

The impacts would be similar to those addressed in Section 4.8.4; however, this alternative would include facility improvements and renovations that would increase the public's enjoyment and use of Contra Loma. This alternative would likely attract more visitors than the No Action Alternative, thereby increasing the potential for human use to impact vegetation.

Livestock Grazing

This alternative could increase the total grazing area by 0.3 acre. This small change in grazing area would incrementally increase the potential for degradation of vegetation as compared to the No Action Alternative, resulting in a minor adverse impact.

Introduction of Invasive Species

The impacts are similar to those addressed in Section 4.8.4; however, this alternative could increase the total grazing area by 0.3 acre as compared to the No Action Alternative. This small change in grazing area would incrementally increase the potential for introduction of invasive species, resulting in a minor adverse impact.

Construction Related Surface Disturbances (Temporary or Permanent)

This alternative would include construction of new, enhanced, or renovated facilities and supporting infrastructure that would not be built under the No Action Alternative. Most construction proposed under this alternative is expected to be on sites that are already altered or

developed, in areas where a vegetation component is either entirely lacking or has been replaced by hardscape (i.e. barren), or in areas that are urban in nature. The management action to provide drainage improvements to sports field 3 includes a provision to minimize the effects on the adjacent riparian habitat caused by placement of fill, removal of vegetation, transport of chemicals and fertilizers, or changes in hydrology.

This alternative potentially includes some construction on undisturbed or unoccupied sites, including the construction of a new park residence near the park office and a new fueling station and fuel storage tank.

New construction can cause impacts to vegetation from vegetation removal on the structure footprint, from ground disturbance due to equipment operations, or from covering due to spoils deposition or erosion and siltation. Most of the affected vegetation is expected to be non-native annual grassland. Management Action 53 provides that future improvements should be consistent with laws and regulations that govern the protection of natural resources. However, this provision alone would not necessarily prevent impacts without specific knowledge of the risk to wetlands, potentially present rare plants, or other sensitive vegetation for each construction site. Incorporation of Mitigation Measures Vegetation-1 and Vegetation-2 (Section 4.8.8) within this alternative would reduce impacts to the no impact or minor impact level. These impacts would not occur under the No Action Alternative.

4.8.6 Impacts Specific to the Expanded Recreation and Facilities Alternative

Wildland Fire

The impacts would be the same as those expected under the No Action Alternative and addressed in Section 4.8.3.

Protection or Conservation of Special Status Plant Species

The impacts would be the same as those expected under the No Action Alternative and addressed in Section 4.8.3.

Human Use at Public Sites and Trails

This alternative would include facility improvements and renovations that would increase the public’s enjoyment and use of Contra Loma beyond those of the other two alternatives. This alternative would likely attract more visitors than the other two alternatives, thereby increasing the potential for human use to impact vegetation.

This alternative may also include expanding the trail system for hiking, equestrian, and bicycle use, and allowing bicycle use on existing trails not currently open to bicycles. Expansion of the trail system would improve access to certain areas of Contra Loma beyond those already accessible by trail. Therefore, trail system expansion may increase the potential for trampling of vegetation communities. RMP management actions would require the local managing partner(s) to manage and maintain the trails and to implement future improvements in a manner that is consistent with laws and regulations that govern the protection of natural resources. This alternative also includes an interpretive signage and education program intended to both instill an appreciation of the region’s natural resources and motivate conservation of natural resources. Despite these measures, however, this alternative may result in a major adverse impact on

vegetation resources resulting from increased human use at public sites and trails. With incorporation of Mitigation Measures Vegetation-3 and Vegetation-4 (Section 4.8.8) into this alternative, human use impacts would be reduced to a minor level. These impacts would not occur under the No Action Alternative.

Livestock Grazing

This alternative may include the addition of two new sports fields within the Community Park and expansion of the Community Park boundaries south into the Regional Park. Livestock would be excluded from this area (approximately 15 acres), which is currently grazed. Therefore, this alternative could reduce the amount of grazing area within Contra Loma and the potential for degradation of vegetation. This would result in a minor beneficial impact that would not occur under the No Action Alternative.

Introduction of Invasive Species

The impacts are similar to those addressed in Section 4.8.4; however, this alternative could reduce the grazing area by 15 acres, thereby reducing the potential for introduction of invasive species. This would result in a beneficial impact that would not occur under the No Action Alternative.

Construction Related Surface Disturbances (Temporary or Permanent)

This alternative would include construction of new infrastructure and facility improvements in addition to those that would be built under the Enhanced Recreation and Facilities Alternative. Therefore, this alternative would have more potential for construction activities to adversely affect vegetation resources than the other alternatives. New facilities under this alternative could include an anglers' shelter along the south or east reservoir shore, a fitness course along the shoreline trail loop, a disc golf course, and additional multi-use sports fields directly south of the two existing sports fields which would include additional parking. Some or all of these facilities could potentially be constructed on previously undisturbed sites with grassland vegetation, or adjacent to sensitive riparian or wetland vegetation. New construction can cause impacts to vegetation from vegetation removal on the structure footprint, from ground disturbance due to equipment operations, or from covering due to spoils deposition or erosion and siltation.

Management actions would serve to lessen potential impacts. Despite these measures, however, this alternative may result in a major adverse impact on vegetation resources resulting from new construction. Incorporation of Mitigation Measures Vegetation-1 and Vegetation-2 within this alternative would reduce impacts to the no impact or minor impact level. These impacts would not occur under the No Action Alternative.

Increased Withdrawal of Reservoir Water

Under this alternative, reservoir water pumping for irrigation of vegetation within developed areas may be increased from 100 acre-feet per year to 150 acre-feet per year. The additional irrigation can be expected to have a beneficial impact on vegetation resources in developed areas of Contra Loma, including managed landscaping.

The increase in irrigation water of 50 acre-feet would represent a net additional reservoir drawdown of approximately one foot, occurring most likely during the hot months of July and August. The additional reservoir drawdown would cause a small decrease in the reservoir's

wetted perimeter of less than one foot along 5,300 linear feet of existing wetland vegetation at the reservoir high water mark primarily during the months of July and August. This change is not expected to affect wetland vegetation beyond that which currently occurs due to periodic drawdowns.

4.8.7 Cumulative Impacts

Increased Visitation, Concurrent Improvements, and Land Use Changes

As discussed previously, visitation to Contra Loma is expected to continue to increase under all of the alternatives with more visitation expected under the two action alternatives than the No Action Alternative. A substantial portion of the expected future visitor increase would be attributable to the projected population increase expected to occur within the northeastern portion of the County from buildout of the City and County general plans. The improvements to sports fields 4 and 5 and the boat launch area upgrades will increase visitation to Contra Loma.

Approximately 38 percent of the land within the City (6,383 acres) and nearly 46 percent of the land within the unincorporated portion of the General Plan study area (2,240 acres) were vacant in 2003. Buildout of the City and County general plans would convert a substantial amount of vacant land to urbanized uses, increasing the potential for regional impacts on vegetation.

Wildland Fire

Increased visitation to Contra Loma could increase the potential for accidental wildland fires to start. However, the potential temporary negative impacts of wildland fire on vegetation resources in Contra Loma would be moderated by the potential long term beneficial impacts of isolated or occasional wildland fire. Increased visitation, therefore, would have a minor cumulative effect with respect to wildland fires.

Human Use at Public Sites and Trails

Visitation to Contra Loma would increase under all of the alternatives, with more visitation expected under the two action alternatives than the No Action Alternative. Regional population growth would further increase visitation to Contra Loma and the addition of flood lights to sports fields 4 and 5 will increase nighttime visitation to the Community Park. This cumulative increase in visitation would result in greater potential for trampling of vegetation and the spread of invasive weeds.

As discussed in Sections 4.8.4 and 4.8.5, the No Action and Enhanced Recreation and Facilities alternatives would result in minor adverse effects on trampling of vegetation and all three alternatives would result in minor adverse effects on the spread of invasive weeds. Increased visitation is expected to cause minor cumulative impacts. Increased development from buildout of the City and County general plans could facilitate introduction and spread of invasive weeds, contributing to this cumulative adverse effect.

Because the Expanded Recreation and Facilities Alternative may include expansion of the trail system and would generate more visitation than the other two alternatives, it would contribute more to this adverse cumulative impact than the other two alternatives. As discussed in Section 4.8.6, the Expanded Recreation and Facilities Alternative would result in a major adverse impact with respect to trampling of vegetation. Increased visitation could have a major cumulative

impact. With incorporation of Mitigation Measures Vegetation-3 and Vegetation-4 (Section 4.8.8) into this alternative, cumulative human use impacts would be reduced to a minor level.

Construction Related Surface Disturbance (Temporary or Permanent)

The two action alternatives would include construction of new, enhanced, expanded or renovated facilities and would, therefore, result in vegetation removal. The Expanded Recreation and Facilities Alternative would remove the most vegetation. The improvements to sports fields 4 and 5 would replace several acres of annual grassland with artificial turf. Development needed to accommodate the projected regional population growth would convert a substantial amount of vacant land to urban uses. Such development would remove a substantial amount of native and non-native vegetation, increasing habitat fragmentation. These actions could result in major adverse cumulative impacts on vegetation.

As discussed above, RMP management actions and Mitigation Measures Vegetation-1 through Vegetation-4 would protect Contra Loma's vegetation, especially sensitive plant communities, and ensure that RMP activities result in only minor impacts to vegetation. In addition, the City's General Plan includes policies to preserve sensitive habitats and habitats supporting rare and endangered species of plants. The County's General Plan includes policies to preserve and enhance areas important for the maintenance of natural vegetation and wildlife populations. These management actions, mitigation measures, and general plan policies would reduce cumulative impacts on vegetation.

4.8.8 Mitigation Measures

Mitigation Measure Vegetation-1: Perform wetland delineations for construction related impacts to wetland and riparian vegetation communities.

When specific construction activities are proposed, site-specific environmental analysis would be conducted that would include a more focused assessment of any potential impact on vegetation resources. If deemed necessary by Reclamation, the local managing partner(s) proposing a construction activity will perform a delineation of wetland and riparian vegetation of all areas potentially affected by temporary or permanent construction-related activities. The delineation will fully describe all areas classified as Waters of the U.S. (Federal Clean Water Act). Feasible mitigation shall be proposed for any temporary or permanent losses of wetlands or for any wetland or riparian vegetation communities impacted. Such project-specific mitigation could include impact avoidance, minimization or compensatory measures, or a combination thereof. All projects would be designed to avoid waters of the United States, to the extent practicable, but if impacts are identified, a Section 404 Clean Water Act permit may be necessary and appropriate mitigation measures will be identified to offset impacts (e.g., payment into a mitigation bank, on-site restoration or enhancement of wetlands). The type of permit will be dependent on the nature and extent of impacts, although most projects are expected to fall under Nationwide Permits.

Mitigation Measure Vegetation-2: Perform protocol level surveys for presence of special-status plants.

When specific construction activities are proposed, site-specific environmental analysis would be conducted that would include a more focused assessment of any potential impact on vegetation resources. If deemed necessary by Reclamation, the local managing partner(s) proposing a

construction activity will perform protocol level surveys for the presence of special-status plants. The surveys will follow protocols as directed by Reclamation, which may elect to use standardized protocols, and may include those developed by CDFW. Focused plant surveys shall be used to propose feasible means of avoiding or minimizing any temporary or permanent losses of special-status plants. Such project-specific measures could include restoration or re-routing of trails to avoid sensitive vegetation (as described below for Mitigation Measure Vegetation-4) where applicable; transplantation; or a combination thereof.

Mitigation Measure Vegetation-3: Incorporate signage along equestrian and bicycle trails to prevent horses and bicycles from leaving trails.
All new or expanded trails proposed under the Expanded Recreation and Facilities Alternative, and any expansion of equestrian or bicycle use on existing trails as proposed under this alternative, shall incorporate signage at reasonable intervals (subject to Reclamation approval) prescribing no equestrian or bicycle use off established trails.

Mitigation Measure Vegetation-4: Route any new trails to avoid sensitive vegetation communities, and provide for an educational leaflet program.
All new trails or trail connectors proposed under the Expanded Recreation and Facilities Alternative shall be routed to provide a minimum 50 foot buffer from wetland and riparian communities, quail restoration areas, and known rare plant communities. Additionally, if new trails, trail connectors, or expanded facilities are proposed within 100 feet of such vegetation communities, an educational leaflet program will be developed to provide information to the public on the sensitive nature of the vegetation communities adjacent to the proposed trail or improvement and to encourage users to limit human disturbance within and adjacent to such sensitive areas. The leaflets will be available at each visitor kiosk at the park entrances and from leaflet stands where trails leave parking areas, and adjacent to wetland and riparian vegetation communities.

4.9 Wildlife

4.9.1 Type of Impacts

A wide variety of reptile, amphibian, mammal and bird species are known to or highly likely to be present in Contra Loma, as described in Section 3.10.1. Because the RMP neither includes nor defines specific projects, the analysis in this section is qualitative.

Potential impacts to wildlife resources could result from five general types of activities:

- Wildland Fire
- Human Use
- Livestock Grazing
- Construction Activities
- Increased Withdrawal of Reservoir Water

Impacts to wildlife under the RMP can be direct impacts to wildlife populations or individuals resulting from direct mortality or displacement or may be indirect impacts due to habitat removal or alteration, habitat fragmentation, or disruption of wildlife corridors. Impacts can also be temporary or permanent.

4.9.2 Assumptions

The wildlife resources impact analysis is based on the following assumptions:

- Reclamation would only provide project-specific authorization for activities, including construction and operation of new facilities that have undergone appropriate environmental review.
- The proposed management actions would comply with applicable laws and regulations governing protection of special status wildlife and upland and wetland wildlife habitats.
- Reclamation and the managing partner(s) will continue to manage, protect, and restore Contra Loma's wildlife resources consistent with current management trends as articulated in existing management and policy documents and ordinances.

4.9.3 Impacts Common to All Alternatives

Wildland Fire

Wildland fire can have temporary negative impacts on wildlife through initial mortality and by removal or reduction of annual grassland habitat. However, as described in Section 4.8.3, California coastal prairies have adapted to historic occasional fire regimes as commonly employed by Native Americans. Thus occasional grassland fire would not necessarily lead to lasting negative impacts on wildlife from habitat loss.

The risk of catastrophic wildland fire in Contra Loma is low because existing wildland fire management facilities provided by CCCFPD are maintained at high response levels near Contra Loma, with 2 stations located within 1.5 miles. EBRPD also provides backup fire suppression with satellite stations and a wildland fire truck located at the southern park boundary. The managing partners would be expected to continue to provide these services under all management alternatives. Wildland fire risk is further reduced because management actions common to all alternatives would perform periodic mowing and continue livestock grazing of the grassland areas adjacent to trails to reduce fire hazard and implement plans for fire and emergency preparedness. The risk of fire which can be damaging to wildlife within the developed areas of Contra Loma is very low due to the scarcity of dry vegetation and the predominance of landscaped or wetland vegetation types. Thus, under all management alternatives, wildland fire would have minor effects on wildlife resources in Contra Loma.

4.9.4 Impacts Specific to the No Action Alternative

Wildland Fire

Impacts would be the same as those described in Section 4.9.3.

Human Use

As described previously, visitor use of Contra Loma is expected to increase under all of the alternatives. Increased visitation would result in more pedestrian, bicycle, and equestrian traffic on trails, causing an increase of human disturbance to wildlife which relies on adjacent habitats such as annual grasslands, upland riparian, blue oak woodland, and wetlands. Increased traffic on trails may disturb wildlife from noise impacts or simply from human presence. Similar to existing conditions, however, the additional visitors would tend to be concentrated in the developed portions of Contra Loma such as the picnic areas, swim lagoon, fishing access areas, and sports fields. In undeveloped portions of Contra Loma, visitation increases are expected to be more modest. Hikers on trails in the undeveloped areas through grasslands and near wetland or riparian habitats are less likely to cause sustained loud noise more commonly associated with high use recreational amenities such as the swim lagoon, picnic areas, and sports fields. Hence, impacts to wildlife from increased noise or human presence on trails would be minor.

Wildlife can be affected by direct conflict with maintenance equipment, disturbance from equipment noise, and contact with inadvertent hazardous materials spills. Increased visitation would increase the need for operation and maintenance activities by the managing partner(s) over existing conditions. This could incrementally increase the potential for these activities to adversely affect wildlife. Operation and maintenance activities would need to be coordinated with programs implemented to protect special status species. Management actions call for the local managing partners(s) to perform ongoing routine maintenance activities and repairs of the existing facilities that would not involve ground-disturbance or otherwise have the potential to cause significant environmental effects. The incremental increase in the potential for these activities to adversely affect wildlife would result in a minor adverse impact.

Increased trail use could also increase the potential for visitors to leave the trail and investigate sensitive habitats, especially wetland or riparian habitats. Therefore, increased trail use could increase the potential for visitors to affect wildlife through incidental harassment or disturbance, or displacement due to trampling of sensitive habitats, especially wetlands. Impacts could also result from increased introduction of exotic species related to increased human traffic. The expected visitation increase would incrementally increase the potential for wildlife disturbance, resulting in a minor adverse impact.

In developed high activity areas of Contra Loma adjacent to sensitive wetland and riparian wildlife habitats, existing trails have been routed to avoid direct incursion into such areas. Visitors are unlikely to leave trails adjacent to wetlands due to the density of vegetation, soil moisture (i.e., muddy) conditions, and the risk of contact with insects, blackberry prickles, or poison oak. These environmental conditions would continue to reduce the attractiveness of entering these areas, thereby reducing the potential for wildlife disturbance and resulting in a minor adverse impact.

The local managing partner(s) for the Regional Park would continue to perform periodic biological surveys to inventory and assess special-status plant and wildlife species, and would continue to develop and implement programs to protect special-status species likely to occur at the park. Such programs would be coordinated with operation and maintenance programs and would be consistent with the RMP goals of protecting and enhancing natural resources and

maintaining the natural setting of Contra Loma. Thus, increases in human use would cause only minor impacts to wildlife.

Livestock Grazing

Livestock grazing controls the growth of non-native grasses and herbs so that other desirable native grasses can regenerate and coexist with them (East Bay Regional Park District 2012a). This serves to maintain the condition of native wildlife habitat within the annual grasslands. Grazing would likely continue under all management alternatives, subject to a Reclamation-approved grazing management plan prepared by the managing partner(s). Grazing in Contra Loma is currently limited to cattle; however, other species (e.g., sheep, goats) could be permitted subject to the grazing management plan. Potential impacts on wildlife habitat may be less for sheep or goats than cattle due to their smaller weight and size per animal unit, as they have smaller impacts on soils and vegetation, particularly when soils are damp (Oregon State University, 2013). Conversely sheep are able to browse closer to the soil surface, potentially resulting in greater damage to soils and the root zone than cattle. Relative impacts and merits of grazing different livestock species would need to be considered during preparation of the grazing management plan. Although unmanaged grazing can contribute to degradation of grassland wildlife habitat through excessive trampling and soil erosion, a well-managed grazing program within the annual grasslands of Contra Loma would have positive effects on wildlife resources. Under this alternative, no change in the acreage, location, or intensity of grazing would occur. Therefore, the overall effect of livestock grazing on wildlife would be similar to current conditions.

4.9.5 Impacts Specific to the Enhanced Recreation and Facilities Alternative

Wildland Fire

Impacts would be the same as those expected under the No Action Alternative and addressed in Section 4.9.3.

Human Use

Impacts would be similar to those addressed in Section 4.9.4; however, this alternative would include facility improvements and renovations that would increase the public’s enjoyment and use of Contra Loma. This alternative would likely attract more visitors and would require more maintenance than the No Action Alternative, thereby increasing the potential for human use to impact wildlife.

Livestock Grazing

The impacts are similar to those addressed in Section 4.9.4; however, this alternative could increase the total grazing area by 0.3 acre. This small change in grazing area would incrementally increase the potential for the positive effects on wildlife resources derived from a well-managed grazing program. This would be a minor beneficial impact that would not occur under the No Action Alternative.

Construction Activities

This alternative would include construction of new, expanded or renovated facilities and supporting infrastructure that would not occur under the No Action Alternative. Most construction proposed by this alternative is on altered or developed sites, within areas where

habitat is either urban in nature and thus of limited value to wildlife or entirely lacking due to replacement by hardscape (i.e., barren). Consequently there would be no impact to wildlife from expanded or renovated facilities in areas of urban or barren habitat.

This alternative may include some new construction on undisturbed or unoccupied sites, including the construction of a new park residence near the park office. Underground utility extensions to provide renovated water and sewer line and communications facilities could also be constructed on undisturbed sites.

New construction and related ground disturbing activity can cause impacts to wildlife from direct mortality or habitat removal due to equipment operations, overcovering by placement of spoils, or erosion. If special status birds such as burrowing owl are nesting within the area of construction impacts, their potential resulting mortality or reproductive failure would be a major impact. Similarly, if special status wildlife such as San Joaquin kit fox occupy the construction site or its margins, their potential mortality or displacement would be considered a major impact. If new construction were to result in take of Federally-listed species, formal consultation with the USFWS would be required. Impacts on other special-status species would require coordination with CDFW to identify appropriate measures to implement to avoid or minimize adverse effects.

In addition to habitat removal associated with new or expanded facilities, the facility improvements could result in habitat fragmentation or the disruption of wildlife corridors (e.g., from exclusionary fencing). The grasslands and oak woodlands at Contra Loma provide expansive open space that supports a diversity of wildlife species, such as mule deer, that move through the area to adjacent habitats. Riparian corridors also provide movement corridors for riparian and aquatic species that stay close to water sources as they move through an area. As new projects or actions are defined, a detailed analysis of impacts associated with habitat fragmentation and disruption of wildlife corridors would be conducted. With the presence of existing facilities, new or expanded facilities under this alternative are likely to be placed in close proximity to the existing facilities, which would avoid the potential for habitat fragmentation and minimize disruptions to wildlife corridors.

Management Action 53 provides that future improvements should be consistent with laws and regulations that govern the protection of natural resources. However, this provision alone would not necessarily prevent impacts, lacking specific knowledge of the risk to nesting birds or other special status wildlife for each construction site. Incorporation of Mitigation Measures Wildlife-1 and Wildlife-2 (Section 4.9.8) into this alternative would reduce impacts to a no impact or minor impact level. These impacts would not occur under the No Action Alternative.

4.9.6 Impacts Specific to the Expanded Recreation and Facilities Alternative

Wildland Fire

Impacts would be the same as those expected under the No Action Alternative and addressed in Section 4.9.3.

Human Use

Impacts would be similar to those addressed in Section 4.9.5; however, this alternative would include facility improvements and expansion of trail use that would increase the public's

enjoyment and use of Contra Loma beyond those of the other two alternatives. This alternative would likely attract more visitors than the other alternatives, thereby increasing the potential for human use to impact wildlife.

Livestock Grazing

This alternative may include the addition of two new sports fields within the Community Park and expansion of the Community Park boundaries south into the Regional Park. Livestock would be excluded from this area (approximately 15 acres), which is currently grazed. Therefore, this alternative could reduce the amount of grazing area within Contra Loma. This reduction would reduce the potential for the positive effects on wildlife resources derived from a well-managed grazing program. This would be a minor adverse impact that would not occur under the No Action Alternative.

Construction Activities

This alternative would include construction of new infrastructure and facility improvements in addition to those that would be built under the Enhanced Recreation and Facilities Alternative. Therefore, this alternative would have more potential to adversely affect wildlife resources from construction activities. New facilities under this alternative may include a fishermen's shelter along the south or east reservoir shore, a fitness course along the shoreline trail loop, a disc golf course, and additional multi-use sports fields directly south of the two existing sports fields, including additional parking. This alternative also allows for underground utility extensions to provide new water and sewer line and communications facilities, and new or expanded trails and additional trail connectors to allow trail system looping. These facilities could either be constructed on previously undisturbed sites with annual grassland habitat, or adjacent to sensitive riparian, blue oak woodland or wetland wildlife habitats.

New construction and related ground disturbing activity can cause impacts to wildlife from direct mortality or habitat removal due to equipment operations, overcovering by placement of spoils, or erosion. If special status birds such as burrowing owl are nesting within the area of construction impacts, their potential resulting mortality or reproductive failure would be a major impact. Similarly, if special status wildlife such as San Joaquin kit fox occupy the construction site or its margins, their potential mortality or displacement would be considered a major impact. If new construction were to result in take of Federally-listed species, formal consultation with the USFWS would be required. Impacts on other special-status species would require coordination with CDFW to identify appropriate measures to implement to avoid or minimize adverse effects. Mitigation Measures Wildlife-1 and Wildlife-2 would reduce such adverse impacts to the no impact or minor impact level.

Construction of new trails to allow increased pedestrian, equestrian, and bicycle use may result in increased impacts on adjacent habitats of special status wildlife. Existing trails generally are routed to avoid sensitive habitats, however, new trails and trail connectors could be routed such that unexpected stress on special status species results. New trails routed too close to sensitive habitats could also result in an increased tendency for humans to venture into sensitive habitats.

In addition to habitat removal associated with new or expanded facilities, the facility improvements could result in habitat fragmentation or the disruption of wildlife corridors (e.g., from exclusionary fencing). The grasslands and oak woodlands at Contra Loma provide

expansive open space that supports a diversity of wildlife species, such as mule deer, that move through the area to adjacent habitats. Riparian corridors also provide movement corridors for riparian and aquatic species that stay close to water sources as they move through an area. As new projects or actions are defined, a detailed analysis of impacts associated with habitat fragmentation and disruption of wildlife corridors would be conducted. With the presence of existing facilities, new or expanded facilities under this alternative are likely to be placed in close proximity to the existing facilities, which would avoid the potential for habitat fragmentation and minimize disruptions to wildlife corridors. For larger facilities that may encroach on open habitat used as wildlife corridors, design considerations would reduce potential disruptions to wildlife movement.

Management Action 53 requires future improvements to be consistent with laws and regulations that govern the protection of natural resources. Developing and implementing design and construction BMPS that include minimizing the number of trail crossings of streams, wetlands, and other sensitive habitats; providing clear span bridges, reinforced fords, or other small crossing structures to minimize the direct effect of foot and bicycle traffic passing through the sensitive habitats; revegetating sensitive habitat disturbed during the trail construction process; and following project-specific conditions of any regulatory agency permits and approvals required for the project would further lessen potential impacts on wildlife resources from construction and use of new trails and connectors. This alternative may still result in a major adverse impact on wildlife resources resulting from these activities. With incorporation of Mitigation Measure Wildlife-3 into the Expanded Recreation and Facilities Alternative (Section 4.9.8), impacts to wildlife resources would be minor. These impacts would not occur under the No Action Alternative.

Increased Withdrawal of Reservoir Water

Under this alternative, reservoir water pumping for landscape irrigation within developed areas may be increased from 100 acre-feet per year to 150 acre-feet per year. This increase would not occur under the No Action Alternative. The additional irrigation would have a positive impact on the urban habitat component in developed areas of Contra Loma, and hence may have a small positive impact on wildlife there. The additional irrigation of managed landscaping may also help maintain the hydrology of certain wetland and stream corridor wildlife habitats that receive runoff from the landscaped areas. Conversely, fertilizers and pesticides applied to non-native landscape plantings could be transported to aquatic habitats by the additional landscape irrigation and adversely affect wildlife and aquatic resources. Management actions requiring preparation of non-aquatic pesticide management plans and consistency with laws and regulations protecting natural resources would be implemented; therefore, the additional landscape irrigation would not result in major impacts on wildlife resources.

The increase in irrigation water of 50 acre-feet would represent a net additional reservoir drawdown of approximately one foot, most likely occurring during the hot months of July and August. The additional reservoir drawdown would cause a small decrease in the reservoir’s wetted perimeter adjacent to existing wetland vegetation at the reservoir high water mark, resulting in a minor impact to wildlife that benefit from wetland vegetation.

4.9.7 Cumulative Impacts

Increased Visitation, Concurrent Improvements, and Land Use Changes

As discussed previously, visitation to Contra Loma is expected to continue to increase under all of the alternatives with more visitation expected under the two action alternatives than the No Action Alternative. A substantial portion of the expected future visitor increase would be attributable to the projected population increase expected to occur within the northeastern portion of the County from buildout of the City and County general plans. The improvements to sports fields 4 and 5 and the boat launch area upgrades will increase visitation to Contra Loma.

Approximately 38 percent of the land within the City (6,383 acres) and nearly 46 percent of the land within the unincorporated portion of the General Plan study area (2,240 acres) were vacant in 2003. Buildout of the City and County general plans would convert a substantial amount of vacant land to urbanized uses, increasing the potential for regional impacts on wildlife habitats.

Wildland Fire

Increased visitation to Contra Loma could increase the potential for accidental wildland fires to start. However, the potential temporary negative impacts of wildland fire on wildlife resources in Contra Loma would be moderated by the potential long term beneficial impacts of isolated or occasional wildland fire. Increased visitation, therefore, would have a minor cumulative effect with respect to wildland fires.

Human Use

Visitation to Contra Loma would increase under all of the alternatives, with more visitation expected under the two action alternatives than the No Action Alternative. Regional population growth would further increase visitation to Contra Loma and the addition of flood lights to sports fields 4 and 5 will increase nighttime visitation to the Community Park. This cumulative increase in visitation would result in greater potential for effects on wildlife caused by disturbance from human presence, maintenance activities, increased introduction of exotic species, and displacement due to trampling of sensitive habitats. Because the Expanded Recreation and Facilities Alternative may include expansion of the trail system and would generate more visitation than the other two alternatives, it would contribute more to this cumulative impact than the other two alternatives. For reasons similar to the RMP-specific impacts discussed above, these cumulative effects are expected to be minor.

Construction Activities

The two action alternatives would include construction of new, enhanced, expanded or renovated facilities and could, therefore, cause impacts to wildlife from direct mortality or habitat removal. The Expanded Recreation and Facilities Alternative would involve the most new construction. The improvements to sports fields 4 and 5 would replace several acres of annual grassland with artificial turf. Development needed to accommodate the projected regional population growth would convert a substantial amount of vacant land to urban uses. Such development would remove a substantial amount of native and non-native vegetation, would increase habitat fragmentation. These actions could have a major adverse cumulative effect on wildlife.

As discussed above, RMP management actions and Mitigation Measures Wildlife-1 through Wildlife-3 would protect Contra Loma’s special-status wildlife species and their habitats and

reduce impacts from RMP activities to a no impact or minor impact level. In addition, the City's General Plan includes policies to preserve sensitive habitats and habitats supporting endangered species of animals. The County's General Plan includes policies to preserve and enhance areas important for the maintenance of natural vegetation and wildlife populations. These management actions, mitigation measures, and general plan policies would reduce cumulative impacts on wildlife.

4.9.8 Mitigation Measures

Mitigation Measure Wildlife-1: Perform nest surveys for construction related impacts to special status birds within riparian, wetland, woodland, or grassland wildlife habitats or their margins.

When specific construction activities are proposed, a site-specific environmental analysis would be conducted that includes a more focused assessment of the activity's impact on special status avian wildlife resources. If deemed necessary by Reclamation, the local managing partner(s) proposing a construction activity will perform surveys for special status bird nests or burrows in all areas potentially affected by temporary or permanent construction related activities. The surveys will be conducted at times selected to target all special status bird species potentially affected by a construction activity and shall propose feasible mitigation for any temporary or permanent impacts to special status wildlife or reproductive success. Such project-specific mitigation could include impact avoidance (which could include removal of nest materials prior to the applicable reproductive cycle), minimization (which could include appropriate buffers), compensatory measures, or a combination thereof that does not lead to take of migratory birds. Specific measures will be identified in coordination with USFWS and CDFW on a project-by-project basis depending on the species that could be affected.

Mitigation Measure Wildlife-2: Perform protocol level surveys for presence of special status wildlife species.

When specific construction activities are proposed, a site-specific environmental analysis would be conducted that includes a more focused assessment of the activity's impact on special status wildlife resources. If deemed necessary by Reclamation, the local managing partner(s) proposing a construction activity will perform protocol level surveys for presence of special status wildlife species. The surveys shall propose feasible mitigation for any temporary or permanent losses of special status wildlife species or their habitat. Such project-specific mitigation would require input from USFWS and/or CDFW on specific measures to achieve no or minor impacts.

Mitigation Measure Wildlife-3: Incorporate signage along equestrian and bicycle trails to prevent horses and bicycles from leaving trails.

To protect special status wildlife species, all new or expanded trails and any expansion of equestrian or bicycle use on existing trails shall incorporate signage adjacent to sensitive wildlife habitats at reasonable intervals, subject to Reclamation approval, prescribing no equestrian or bicycle use off established trails.

4.10 Fisheries

4.10.1 Type of Impacts

As described in Section 3.10.1, there are currently 20 known fish species, including eight species of game fish, in Contra Loma Reservoir (Table 8, Chapter 3). Because the RMP neither includes nor defines specific projects, the analysis in this section is qualitative. Potential impacts to fishery resources from implementation of the RMP could result from three factors or activities:

- Fishing Pressure
- Invasive or Exotic Species
- Construction Activities

Fishery resource impacts under the RMP can be direct impacts to fish populations due to direct mortality or displacement, or can be indirect impacts due to habitat manipulation such as reservoir drawdown. Impacts can also be temporary or permanent in nature.

4.10.2 Assumptions

The fishery resources impact analysis is based on the following assumptions:

- Reclamation would only provide project-specific authorization for activities, including construction and operation of new facilities that have undergone appropriate environmental review.
- The proposed management actions would comply with applicable laws and regulations pertaining to fishery resources and recreational sport fishing.
- Reclamation and the managing partner(s) would continue to manage, protect, and restore Contra Loma's fishery resources consistent with current management trends as articulated in existing management and policy documents and ordinances**.**
- The risk of inadvertent introduction of fish species not known to be present in the reservoir has been greatly reduced because of the recent completion of the Rock Slough Fish Screen Project described in Section 3.11.1.

4.10.3 Impacts Specific to the No Action Alternative

Fishing Pressure

As described previously, visitor use of Contra Loma is expected to increase under all of the alternatives. Fishing pressure can be expected to increase at rates similar to the increase in overall visitation, due to the increased popularity of the Regional Park but also due to the increased popularity of and demand for the unique recreational fishing opportunities that Contra Loma provides.

Increased fishing pressure may result in overharvest of existing sport fishing stocks. This is often a self-limiting effect, as fishing pressure tends to decrease in response to decreased angler success. Nonetheless, in the case of put and take fisheries such as the reservoir's trout and catfish

fisheries, overharvest could lead to spikes in populations of prey species such as threadfin shad which can in turn upset fishery population balances. Fishing pressure for these species tends to fluctuate consistent with the chances for success, so a quality put and take trout or catfish fishery depends on meeting demand with adequate stocking rates. Trout and catfish plants at Contra Loma have typically been scheduled to address existing demand, such that the fishery provides a reasonable chance of success and remains popular. Management actions would serve to ensure that planting rates would adequately keep pace with demand; hence the impact of increased trout or catfish fishing pressure on the fishery resources of Contra Loma would have a minor adverse impact.

Overharvest could also cause adverse impacts on the population of largemouth bass and adversely affect the ability of this fishery resource to remain self-sustaining. Current regulations allow anglers to harvest largemouth bass larger than 12 inches. Annual EBRPD monitoring efforts over the last 10 years using electrofishing reveals moderate declines in overall bass populations. Harvest rates of largemouth bass may be a contributing factor in these declines. However, impaired reproductive success may have a much larger impact than harvest rates. A recent increase in average largemouth bass size from under 10 inches to approximately 13 inches (measured in fork length) coupled with the overall decrease in population during the 2007-2011 period indicates significantly fewer young fish are in the population, which suggests there has been less successful reproduction or survival over this period. Low survival could be due to poor conditions for fry survival as well as predation by other fish.

EBRPD encourages anglers to practice catch and release when fishing for bass through its educational and press release literature available on-line, and with signs posted at fishing and boat launching docks and at the lakeshore. EBRPD also requests anglers to report fishing success and harvest rates upon exiting the park, using a “creel census” card issued with each daily fishing permit (Alexander, pers. comm. 2012). These current practices are embodied in the RMP as management actions common to all alternatives. Hence the intensity of increases in fishing pressure over time and resulting potential for overharvesting of largemouth bass would have a minor adverse impact on fishery resources.

Although less popular with most anglers than trout, catfish or bass, several other species of panfish at Contra Loma provide an additional quality recreational fishery, including white and black crappie, bluegill, and redear and green sunfish. Annual population surveys of these species indicate a very viable self-sustaining fishery. Historic and current fishing pressure on these species is relatively light, and there is no indication that overharvest has occurred. Management actions common to all alternatives would insure that this fishery is monitored and remains viable in spite of future increases in fishing pressure and harvest rates. Consequently, increased fishing pressure over time would have a minor adverse impact on panfish populations under all RMP alternatives.

Invasive or Exotic Species

Invasive or exotic species that could be introduced into Contra Loma Reservoir include various species of bait fish or crayfish introduced by fishermen, zebra and quagga mussels potentially introduced by water craft users, and introduction or proliferation of aquatic plants (macrophytes) such as Eurasian milfoil and other pond weed species of the Potamogetonaceae family, and various bulrush and cattail species. As noted in Section 4.10.2 above, the risk of introducing

exotic species into the reservoir from the Contra Costa Canal would be very low due to the completion of the Rock Slough Fish Screen Project. The screen mesh is sufficiently small to reduce the introduction of fish species from the canal.

Bait fish or crayfish when used in a reservoir as live bait can under certain circumstances become established, upsetting population balances of desirable species. Increased use of the reservoir for fishing would increase the potential for introduction of exotic or invasive species. Currently, Ordinance 38 of the EBRPD does not allow the use of wet or live baits in any EBRPD reservoir, except worms or nightcrawlers, whether from commercial sources, imported from other waters or captured in Contra Loma Reservoir. RMP management actions would allow the Regional Park's managing partner(s) to implement similar restrictions, which would continue to reduce the potential for introduction of exotic or invasive species. Additionally, management actions common to all alternatives call for monitoring and annual electrofishing, which can be expected to detect infestation of exotic or invasive species. Hence the increased risk of introduction of exotic species of baitfish or crayfish into the reservoir from increased fishing would be a minor impact.

Introduction of zebra and quagga mussels poses a major threat to the viability of the fisheries resources of Contra Loma Reservoir, although none have been observed in the reservoir. Zebra or quagga mussels have invaded other reservoirs in California and can have very detrimental and disruptive effects on other resources and species (including fish), due to their explosive reproductive capabilities, and their propensity to alter water chemistry and filter out important food chain nutrients (Benson 2012). Currently, all vessels are subject to pre-launch inspections by trained staff and wet boats and gear are prohibited from entering the reservoir (see Section 3.3). Management actions common to all alternatives call for the local managing partners(s) for the Regional Park to continue to support and complement CCWD's programs to prevent introduction of zebra and quagga mussels. Elements of this program may be modified or expanded as necessary to improve the program's effectiveness in preventing mussel infestation. Hence, the risk of introduction of zebra or quagga mussels, although never completely eliminated, would be minor.

The reservoir already contains certain exotic macrophyte species that may pose risks to the reservoir's fishery resources and to angler access, including milfoil and various other submergent macrophytes, and various bulrush or tule (family Cyperaceae) and cattail (family Typhaceae) emergents. Some of the tule and cattail emergents present in the reservoir may be California natives, or may have been introduced. Although current populations of these macrophyte communities provide important positive habitat and cover attributes for many resident fish species, their unchecked proliferation and expansion could cause imbalances in water chemistry and temperature, restrict boat launching and reduce or seriously limit open water fishing opportunities and shoreline angler access. CCWD has an unpublished draft macrophyte management plan for Contra Loma Reservoir calling for periodic treatment of shoreline vegetation including tules and cattails that restrict fishing access, particularly to benefit annual fishing derbies (East Bay Regional Park District 2011d). Macrohpyte control activities have been limited to occasional spot herbicide treatments in the littoral zone and to specific tule beds, and have only been necessary several times in the last 6 years (Nakagawa, pers. comm. 2012). The treatments are timed such that the herbicide is absorbed by the root rhizome during the plant's dormant period so that physical removal of dead plant biomass is not generally necessary. No

long-term treatment procedures have been developed or deemed necessary to date. Due to existing management activities of CCWD, as monitored by the Regional Park's managing partner(s), invasive macrophytes represent a minor risk to fishery resources. It may become necessary to employ more aggressive measures to control macrophytes in the future, which could have further impacts on fishery resources. For example, drawdown of the reservoir may be an option for controlling an exotic species that could have more than a minor risk to fishery resources. However, future implementation of such measures would have to be analyzed further for their impacts on fisheries at the time they are proposed. All the RMP alternatives would have similar levels of impact with respect to this issue.

Reservoir Levels

Contra Loma Reservoir levels are managed by CCWD under a separate agreement with Reclamation and are outside the scope of the RMP. The primary purpose of the reservoir is water supply; recreation is a secondary purpose. Therefore, water supply and reservoir operation and management take precedence over management for recreation, including fisheries. Contra Loma Reservoir is not a principal water storage reservoir. Water to meet CCWD customer demands is not drained from the reservoir on a daily basis, but instead the reservoir storage is used to meet periodic peak system demands. Water is pumped into the reservoir from the Contra Costa Canal for storage and returned to the canal when CCWD operational needs dictate. In the spring, in preparation for peak summer demands, water is cycled out of and back into the reservoir to address taste and odor concerns. Hence, the water level in the reservoir fluctuates as operational demands require.

During fall and winter of some years, the reservoir is drawn down as part of CCWD's operations. This drawdown can leave fishing docks out of the water, forcing fishermen to use the boat dock or to fish only from shore. Additionally, winter drawdown can make it harder for anglers to reach open water that is free of macrophyte vegetation from shore. During these seasons, however, fishing pressure is generally lighter than in spring and summer. Opportunities for anglers to reach open water at limited shore locations still exist during fall and winter. Also, as noted elsewhere in this section, CCWD performs a periodic macrophyte control program which typically responds to the need to provide shore access to anglers during fall or winter drawdowns and for fishing derbies. These activities reduce the adverse effect of fall and winter drawdown.

4.10.4 Impacts Specific to the Enhanced Recreation and Facilities Alternative

Fishing Pressure

Impacts would be similar to those addressed in Section 4.10.3; however, this alternative would include facility improvements and renovations that would increase the public's enjoyment and use of Contra Loma. This alternative would likely attract more visitors than the No Action Alternative, thereby increasing fishing pressure and resulting in a minor adverse impact.

Invasive or Exotic Species

Impacts would be similar to those addressed in Section 4.10.3; however, this alternative would include facility improvements and renovations that would increase the public's enjoyment and use of Contra Loma. This alternative would likely attract more visitors than the No Action Alternative, thereby increasing the potential for introduction or spread of invasive or exotic species.

Reservoir Levels

Impacts would be similar to those addressed in Section 4.10.3; however, this alternative would include improvements that would enhance angler access. These improvements include modification, reconstruction, or replacement of the existing fishing piers to allow safe, continuous fishing during reservoir drawdowns. More fishing piers may also be added if needed to accommodate increased demand. Also, a number of fishing pier and boat ramp improvements may be completed to enhance ADA access, including ADA compliance for rest room facilities, paving of parking areas, and paved trails to the boat launch and fishing pier areas. These improvements would serve to partially compensate for the existing adverse effects on the angler experience during fall and winter low water conditions and would have a beneficial impact that would not occur under the No Action Alternative.

Construction Activities

This alternative would include modification, reconstruction, or replacement of existing fishing piers to allow safe, continuous fishing use during reservoir drawdowns. In addition, more fishing piers may be added if needed to accommodate increased demand. In addition, several improvements may be implemented at the boat launch area to enhance boating and fishing access. The improvements may include reconstruction of the boat ramp and providing for ADA accessibility compliance. Some of the new or rehabilitated docks may require new pilings.

Construction activities of this type may cause temporary impacts on lake water quality, may adversely affect fish resources especially young panfish and bass and may temporarily inconvenience anglers. As discussed in Section 4.7.5, this alternative includes a management action requiring a focused site-specific assessment of any potential impact on water quality when specific construction activities are proposed. If required by Federal regulations, the local managing partner(s) proposing a construction activity would submit a plan that identifies the sources of sediment and other pollutants on site and ensures the reduction of such pollutants. This management action would reduce the effects of in-water construction activities on fisheries. In addition, the construction would of necessity be carried out during lower water level periods in the late fall or winter, thus siltation of reservoir waters could be kept at a minimum. This would reduce the intensity of any effects caused by siltation. No special status aquatic species or fish are known to inhabit the reservoir, so no adverse impacts to special status species would result. Also at these times, fishing pressure would be lower, so inconvenience to anglers would be minimal. Finally, the resident panfish and bass species are known to spawn in the spring, so there would be no impacts to these species due to spawning disruption. Hence, construction activities would cause minor adverse impacts on fishery resources under this alternative that would not occur under the No Action Alternative.

4.10.5 Impacts Specific to the Expanded Recreation and Facilities Alternative

Fishing Pressure

In addition to the impacts expected under the No Action Alternative and addressed in Section 4.10.4, this alternative may include construction of a fishermen's shelter along the south or east shore and may improve fish habitat to increase fish populations. These management actions would result in positive impacts on the sportfishing experience at Contra Loma, and partially compensate for the minor adverse impacts on fishery resources expected from increased fishing pressure.

Invasive or Exotic Species

The impacts would be the same as those addressed in Section 4.10.3.

Reservoir Levels

Impacts would be similar to those addressed in Section 4.10.3; however, this alternative may include creation or modification of fish habitat if desirable to increase fish populations. If implemented, this management action would serve to partially compensate for the existing adverse effects on the angler experience during fall and winter low water conditions and would have a beneficial impact that would not occur under the No Action Alternative or the Enhanced Recreation and Facilities Alternative.

Construction Activities

Additional improvements under this alternative may include construction of a fishermen's shelter along the south or east shore and improvement or creation of additional fish habitat to increase fish populations. Similar to the discussion in Section 4.10.4, in-water construction activities would most likely be undertaken in the fall or winter, while lake levels are drawn down and fishing pressure is somewhat lighter. Also, the management action requiring a focused site-specific assessment of any potential impact on water quality and preparation of a plan that ensures the reduction of such pollutants would reduce the effects of in-water construction activities on fisheries. Consequently, these additional improvements would result in minor temporary adverse impacts on fishery resources that would not occur under the No Action Alternative.

4.10.6 Cumulative Impacts

Increased Visitation, Concurrent Improvements, and Land Use Changes

As discussed previously, visitation to Contra Loma is expected to continue to increase under all of the alternatives with more visitation expected under the two action alternatives than the No Action Alternative. A substantial portion of the expected future visitor increase would be attributable to the projected population increase expected to occur within the northeastern portion of the County from buildout of the City and County general plans. The improvements to sports fields 4 and 5 and the boat launch area upgrades will increase visitation to Contra Loma.

Fishing Pressure

Visitation to Contra Loma would increase under all of the alternatives, with more visitation expected under the two action alternatives than the No Action Alternative. Regional population growth would further increase visitation to Contra Loma. This cumulative increase in visitation would result in greater pressure on Contra Loma’s fisheries. Increased fishing pressure may result in overharvest of existing sport fishing stocks.

The RMP includes management actions requiring the managing partner for the Regional Park to manage recreational fisheries through fish planting (i.e., stocking) programs, continued monitoring of fish populations, and provision of educational information to the public. These actions may also include catch-and-release practices for certain fish species, tracking of stocking rates and angler permit sales, and periodic evaluation and adjustment of stocking rates to maximize angler success and experience. These management actions would ensure that the

cumulative impact of increased fishing pressure from regional population growth would be minor.

Changes to future conditions at other similar nearby lakes and reservoirs could also contribute to a cumulative increase in fishing pressure at Contra Loma. Nearby fresh water fish bearing reservoirs managed by EBRPD include Lake Chabot near Castro Valley, Lake Temescal near Oakland, and Shadow Cliffs near Pleasanton. These water bodies provide similar fishing opportunities, with catchable trout and catfish as well as bass and panfish opportunities. A number of smaller reservoirs add somewhat to the available opportunities. However, Contra Loma provides the highest quality bass fishing of any large water body in the region, and is very popular for put and take trout fishing as well. Other lakes or reservoirs of the region (e.g., Del Valle in Livermore) are likely to be too distant to be considered as providing comparable sport fishing for the local population. Fishery resources in these reservoirs are successfully managed by EBRPD and CDFW in a similar manner as Contra Loma. EBRPD's Master Plan includes a policy to develop aquatic facilities, where appropriate, to create a wide variety of fisheries; to monitor fisheries resources to determine species composition, size, population and growth rates; and to cooperate with CDFW to conserve, enhance and manage EBRPD fisheries resources for ecological and recreational benefit for all fish bearing lakes and reservoirs it manages (East Bay Regional Park District 2013). There are no known projects or changes planned for these other lakes that would adversely affect their fishery resources and result in cumulative impacts to Contra Loma fisheries (Alexander, pers. comm. 2013), nor is there any available information to indicate that fishing pressure impacts on these lakes when combined with Contra Loma would result in additional unmitigated effects.

Invasive or Exotic Species

The cumulative increase in visitation could also increase the potential for the introduction or spread of invasive or exotic species such as bait fish, crayfish, zebra mussels, and quagga mussels. The RMP includes a management action to allow the managing partner for the Regional Park to impose restrictions on the use of certain live baits. Hence the increased risk of introduction of exotic species of baitfish or crayfish into the reservoir from a cumulative increase in fishing would be a minor impact.

RMP management actions call for the local managing partners(s) for the Regional Park to continue to support and complement CCWD's programs to prevent introduction of zebra and quagga mussels. With these management actions, the risk of introduction of zebra or quagga mussels from a cumulative increase in visitation, although never completely eliminated, would be minor.

4.10.7 Mitigation Measures

No need for mitigation has been identified.

4.11 Geologic and Soil Resources

4.11.1 Types of Impacts

This section assesses the potential impacts of the RMP alternatives on the geologic and soil resources found in Contra Loma. Impacts related to soil erosion caused by construction activities

are addressed in Section 4.7 (Water Resources). Because the RMP neither includes nor defines specific projects, the analysis in this section is qualitative.

Potential impacts to geology and soils could result from three general types of activities:

- Facility Maintenance
- Fire Suppression
- Facility Improvements

4.11.2 Assumptions

The geology and soils impact analysis is based on the following assumptions:

- Reclamation would only provide project-specific authorization for activities, including construction and operation of new facilities that have undergone appropriate environmental review.
- The proposed management actions would comply with applicable laws and regulations governing geologic hazards, structure stability and erosion protection.
- Negative impacts on geology and soil resources would be greatest from direct, large-scale disturbance activities such as earthquakes or large-scale construction projects which require use of heavy equipment such as bulldozers, scrapers, large excavators or drilling and blasting.
- All buildings and structures at Contra Loma would meet City and/or state building code standards pertaining to geologic hazards and stability.

4.11.3 Impacts Common to All Alternatives

Facility Maintenance

Ongoing routine maintenance activities and repairs of existing facilities by the managing partner(s) at the Regional Park and the Community Park would, in general, not involve ground disturbance or otherwise have the potential to cause significant environmental effects. However, trail maintenance activities in the Regional Park may include annual grading of fire roads and trails using machinery and hand tools in order to maintain the quality of the road or trail surface as well as maintain proper drainage. Vegetation management activities may include mowing of grasslands adjacent to trails to aid in fire suppression, potentially exposing soils to erosion, and use of herbicides to control invasive plants, potentially contaminating soils. However, vegetation would not typically be removed in a manner that exposes bare soil, and removal of dead tree stumps causing soil disturbance would be a rare occurrence. Vegetation management conducted by the use of chemical herbicides would be done using products which have no soil latency or limited soil latency, as prescribed by a qualified Pest Control Advisor and in compliance with the IPM plan. All of the RMP alternatives would have a minor but long-term beneficial impact on soils by managing and reducing the potential for erosion.

Fire Suppression

Wildland fire can have temporary negative impacts on soils due to soil erosion caused by off-road fire equipment use and temporary loss of grasslands. Management actions common to all alternatives would include periodic mowing and livestock grazing of the grassland areas adjacent to certain trails, hence reducing grassland fire hazards and the erosion effects which can result. These maintenance activities would be similar to current practices. Vegetation fire risk within the developed areas of Contra Loma is very low due to the scarcity of dry vegetation and the predominance of landscaped or wetland vegetation types, hence soil erosion resulting from fire would be very unlikely in the developed areas of Contra Loma.

4.11.4 Impacts Specific to the No Action Alternative

Facility Maintenance

The impacts would be the same as those addressed in Section 4.11.3.

Fire Suppression

The impacts would be the same as those described in Section 4.11.3.

4.11.5 Impacts Specific to the Enhanced Recreation and Facilities Alternative

Facility Maintenance

The impacts would be the same as those expected under the No Action Alternative and described in Section 4.11.3.

Fire Suppression

The impacts would be the same as those expected under the No Action Alternative and described in Section 4.11.3.

Facility Improvements

Improvements to the boat launch area that are proposed in this alternative include the installation of concrete trails from the reservoir shoreline to the boat launch area in order to improve access. This action would also decrease the potential for erosion along the shoreline, resulting in a beneficial impact that would not occur under the No Action Alternative.

This alternative also includes paving of the unpaved portions of the East Shore Trail, the West Shore Trail, and the trail across the dam. Paving these trail sections would create a shoreline loop trail system that could be used year-round without increasing the potential for soil erosion and the subsequent potential for sediment to reach the reservoir, resulting in a beneficial impact that would not occur under the No Action Alternative.

Finally, this alternative would include construction of new or expanded buildings and facilities, such as restrooms, utility lines, offices, the police substation, a park residence, a communication tower, and fishing and boating facilities. All new buildings and facilities at Contra Loma would meet City and/or state building code standards pertaining to geologic hazards and stability. Therefore, these facility improvements would have a minor impact with respect to geology and soil resources that would not occur under the No Action Alternative.

Section 4.7 (Water Resources) assesses impacts related to soil erosion caused by construction activities, and includes mitigation measures to control construction-related erosion and sedimentation.

4.11.6 Impacts Specific to the Expanded Recreation and Facilities Alternative

Facility Maintenance

The impacts would be the same as those expected under the No Action Alternative and described in Section 4.11.3.

Fire Suppression

The impacts would be the same as those expected under the No Action Alternative and described in Section 4.11.3.

Facility Improvements

This alternative would include construction of new or expanded buildings and facilities in addition to those that would be built under the Enhanced Recreation and Facilities Alternative. Additional buildings and facilities proposed under this alternative include expansion of the swim lagoon, an anglers' shelter, additional sports fields, and solar panels. Similar to the Enhanced Recreation and Facilities Alternative, all new buildings and facilities at Contra Loma would meet City and/or state building code standards pertaining to geologic hazards and stability. Therefore, these facility improvements would have a minor impact with respect to geology and soil resources that would not occur under the No Action Alternative.

The Expanded Recreation and Facilities Alternative may include construction of new trails that would be open to bicycles and/or would allow bicycles on portions of trails that are not currently open to bicycles. This alternative may also include establishment of a new fitness course by installing outdoor exercise stations with stationary equipment and signage along the shoreline trail loop. Construction of new trails or fitness trail equipment and signage would result in soil disturbance. However, newly constructed trails and existing trails opened for bicycle use would be built in a manner that minimizes erosion, resulting in a minor impact that would not occur under the No Action Alternative.

This alternative includes a proposal to build a disc golf course in the Regional Park that would not be built under the No Action Alternative. Potential locations being considered for the disc golf course include areas east of the reservoir and in the southeast part of the Regional Park. Steep, unstable terrain has been mapped in the eastern half of the Regional Park (see Figure 3-15), indicating that there is a potential for landslides to occur in response to changes in water content, earthquakes, or the removal of downslope support. Construction of the disc golf course, including the infrastructure associated with disc golf would involve relatively little earthwork, limited to the construction of tee pads. Tee pads are typically 5-feet to 6-feet wide and 12-feet to 18-feet long and have a level surface of textured cement, asphalt, grass, or earth. Construction of the tee pads would not require any major ground disturbance associated with heavy equipment use; therefore, this impact would be minor.

4.11.7 Cumulative Impacts

Concurrent Improvements and Land Use Changes

Approximately 38 percent of the land within the City (6,383 acres) and nearly 46 percent of the land within the unincorporated portion of the General Plan study area (2,240 acres) were vacant in 2003. Buildout of the City and County general plans would cause a substantial amount of ground disturbance. The improvements to the boat launch area would cause a small amount of ground disturbance.

Facility Improvements

The proposed construction activities proposed under the two action alternatives could temporarily increase the potential for soil erosion. Construction activities carried out by others in the vicinity of Contra Loma, including the sports field improvements at the Community Park, could also increase the potential for soil erosion, which could cause a cumulative increase in soil erosion and sedimentation in local waterways. However, Section 4.7 (Water Resources) includes mitigation measures to control construction-related erosion and sedimentation attributable to the RMP, thereby reducing the RMP's contribution to a potential cumulative soil erosion impact.

4.11.8 Mitigation Measures

No need for mitigation has been identified.

4.12 Climate and Air Quality

4.12.1 Types of Impacts

This section assesses the potential impacts of the RMP alternatives on climate change and on regional air quality. Because the RMP neither includes nor defines specific projects, the analysis in this section is qualitative. Any proposed future projects would be required to demonstrate conformity with the BAAQMD Clean Air Plan pursuant to the General Conformity Rule (Title 40 CFR Part 51.853) due to the county's non-attainment status for ozone and PM2.5.

Potential impacts related to air quality and climate change could result from four general types of activities:

- Human Use
- Facility Maintenance
- Facility Improvements
- Increased Vehicular Traffic

4.12.2 Assumptions

The air quality and climate change impact analysis is based on the following assumptions:

- Reclamation would only provide project-specific authorization for activities, including construction and operation of new facilities that have undergone appropriate environmental review.

4.12.3 Impacts Specific to the No Action Alternative

Human Use

Vehicle emissions of air pollutants generated by park visitation would have minor adverse impacts on air quality in the Contra Loma region. Ozone precursors (i.e., ROG, NOx), PM10 and PM2.5, and GHGs are currently generated by vehicles traveling to and from Contra Loma. Although increased visitation to Contra Loma would increase the volume of air pollutants generated by visitors' vehicles, this increase is not likely to result in levels of park visitation high enough to cause exceedance of National Ambient Air Quality Standards (NAAQS).

Although the primary access road into the Regional Park is paved, some of the parking areas in the Regional Park as well as the road leading to the east side of the reservoir have gravel surfaces. Use of gravel roads and parking areas may generate a small but insubstantial amount of dust because the gravel provides a protective ground surface and because the speed and number of vehicles driving in unpaved areas within the Regional Park are generally low. The recreational trail system in the Regional Park is closed to privately operated motorized vehicles. Therefore, dust generated by recreational trail use would result from activities such as mountain biking, hiking, and equestrian use. However, these types of recreational transportation activities are not usually fast enough or dense enough to generate a substantial amount of dust. Three of the Community Park's sports fields have baseball diamonds with dirt infields. Use of these fields generates a small, insubstantial amount of dust. Increased visitation to Contra Loma would increase the amount of dust generated by human use but is not expected to substantially increase the amount of dust emissions generated within Contra Loma due to reasons described above resulting in a minor impact on air quality.

Smoke from barbecue grills used by park visitors is a source of PM. However, the amounts of smoke generated by occasional day use activities typically only occur seasonally, primarily on weekends, resulting in temporary minor impacts to air quality. Increased visitation would incrementally increase the amount of PM generated by barbecue grills. However, this incremental increase would not be substantial and would result in a minor impact on air quality.

Facility Maintenance

Ongoing routine maintenance and management activities and repairs of existing facilities at the Regional Park and the Community Park by the managing partner(s) would continue to involve the use of motorized vehicles and equipment such as staff vehicles, mowers, graders, and various landscaping equipment. Increased visitation could incrementally increase the amount of facility maintenance required. These maintenance and repair activities could generate dust and hydrocarbon emissions, including PM, ozone precursors (ROG, NOx), and GHGs. It is anticipated that equipment would be properly maintained by the managing partner(s) to reduce exhaust emissions. Dust would continue to be generated by mowing and other landscaping activities and by park vehicles traveling on dirt fire roads (see Section 3.13); however, mowing and landscaping activities would be short term and park maintenance vehicles would reduce dust generation by complying with park road speed limits. Annual fire road grading and maintenance activities would likely involve the use of heavy construction equipment that would generate dust. Such activities, however, are temporary and of short duration. It is anticipated that maintenance activities requiring substantial ground disturbance would include use of water trucks to minimize dust emissions and that the managing partner(s) or their contractor would maintain mechanized

equipment in accordance with local and state emissions guidelines; therefore, facility maintenance and repairs would have a minor impact on air quality and climate change.

4.12.4 Impacts Specific to the Enhanced Recreation and Facilities Alternative

Human Use

Impacts would be similar to those addressed in Section 4.12.3; however, this alternative would include facility improvements and renovations that would increase the public's enjoyment and use of Contra Loma. This alternative would likely attract more visitors and would, therefore, generate more air pollutants than the No Action Alternative. For the reasons discussed in Section 4.12.3, air quality and climate change impacts from human use would be minor.

Facility Maintenance

The impacts would be similar to those addressed in Section 4.12.3; however, this alternative would include more recreation and infrastructure facilities than the No Action Alternative, which could require more maintenance than the No Action Alternative. In addition, because this alternative would include more enhanced recreation opportunities than the No Action Alternative, it could result in more visitor use and require incrementally more maintenance than the No Action Alternative. For the reasons discussed in Section 4.12.3, air quality and climate change impacts from facility maintenance would be minor.

Facility Improvements

This alternative includes expansion or renovation of existing buildings and structures as well as construction of new facilities within the Regional Park that would occur under the No Action Alternative. These actions may include mechanical ground-disturbing activities that could generate dust and create conditions conducive to wind erosion. With implementation of Mitigation Measure Air Quality-1 and compliance with BAAQMD rules and regulations, construction activities for individual projects or actions would result in minimal air quality impacts.

Construction activities for facility improvements would also temporarily generate air pollutants, including PM, ozone precursors, and GHGs, through fuel combustion and the evaporation of solvents, paints, and fuels. Diesel particulate emitted from heavy equipment is an identified toxic air contaminant. However, construction emissions would be temporary and primarily localized around the construction areas. Project operations would adhere to local and statewide efforts aimed at minimizing GHG emissions, including measures recommended in BAAQMD's 2010 Clean Air Plan (CAP). Efforts Mitigation Measures Air Quality-1 and Air Quality-2 to reduce fugitive dust, tailpipe emissions, and diesel exhaust produced by combustion engines and applicable GHG-reducing measures would be included in all construction activities at Contra Loma (see Mitigation Measures Air Quality-1 and Air Quality-2); therefore, impacts on air quality and climate change would be minor.

Potential expansion of the pumping and filtration facility at the swim lagoon is proposed under this alternative. Operation of the pump(s) and filtration system needed for this expansion would be a permanent source of exhaust emissions. However, this would have a minor impact on air quality since equipment would be operated and maintained at levels consistent with BAAQMD

stationary source measures resulting in minor impacts on air quality and climate change that would not occur under the No Action Alternative.

This alternative may include a new fueling station and fuel storage tank for Regional Park vehicles and equipment as well as for public safety officers. The managing partner(s) would be required to design and operate the facility in a manner that minimizes its impact on air quality and the facility may only be built and operated in compliance with applicable federal and federally-mandated air quality laws, regulations, and permits. Even with these measures, some petroleum vapors (air pollutants) would escape to the atmosphere during equipment fueling and fuel handling. The amount of air pollutants generated by the fueling facility would likely be similar to the amount of pollutants currently emitted when the current managing partner for the Regional Park fuels its vehicles at offsite fueling stations. If the new fueling station were to generate more air pollutants than the current managing partner's fueling practices, the air quality measures described above would ensure that the fueling station would only have a minor adverse impact on air quality. This impact would not occur under the No Action Alternative.

Increased Vehicular Traffic

Vehicle emissions from visitor and boat traffic would have minor adverse impacts on air quality in the Plan Area. Although visitation to Contra Loma is expected to increase, the levels of park visitation are not expected to be high enough to create heavy and sustained traffic patterns that would produce major air quality issues.

4.12.5 Impacts Specific to the Expanded Recreation and Facilities Alternative

Human Use

The impacts would be similar to those addressed in Section 4.12.3; however, this alternative would include facility improvements and expansion of trail use that would increase the public's enjoyment and use of Contra Loma beyond those of the other two alternatives. This alternative would likely attract more visitors and would, therefore, generate more air pollutants than the other two alternatives. For the reasons discussed in Section 4.12.3, air quality and climate change impacts from human use would be minor.

Facility Maintenance

The impacts would be similar to those addressed in Section 4.12.3; however, this alternative would include more facility and trail improvements than the other two alternatives, which could require more maintenance. In addition, because this alternative would include more enhanced recreation opportunities than the other alternatives, it could result in more visitor use and require incrementally more maintenance. For the reasons discussed in Section 4.12.3, air quality and climate change impacts from facility maintenance would be minor.

Facility Improvements

This alternative would include construction of new or expanded buildings and facilities in addition to those that would be built under the Enhanced Recreation and Facilities Alternative. These activities would generate PM through mechanized ground disturbance and wind erosion. Construction activities would comply with guidelines contained in the BAAQMD CAP and the construction contractor would be required to minimize airborne dust to the extent possible, resulting in a minor impact on air quality that would not occur under the No Action Alternative.

The increased construction that would occur under this alternative would also increase the volume of temporary, construction-related vehicle and equipment exhaust emissions. However, construction emissions would be temporary and primarily localized around the construction areas. Project operations would adhere to local and statewide efforts aimed at minimizing GHG emissions, including measures recommended in BAAQMD's CAP. Efforts Mitigation Measures Air Quality-1 and Air Quality-2 to reduce fugitive dust, tailpipe emissions, and diesel exhaust produced by combustion engines would be included in all construction activities at Contra Loma; therefore, impacts on air quality and climate change would be minor. These impacts would not occur under the No Action Alternative.

Expansion of the Regional Park's recreational trail system is included under this alternative. Impacts on air quality resulting from the use of motorized equipment employed for trail creation or road grading would need to be assessed in future project-specific analyses to assure conformity to BAAQMD's CAP. Impacts on air quality as a result of dust generated by low-impact recreational use of the expanded trail system would be similar to those described in Section 4.12.4. There would be no impact on air quality as a result of expanded recreational trail use.

This alternative would also include installation of solar panels to supplement the Regional Park's energy needs. Solar panels would reduce the Regional Park's demand for conventionally generated electricity, thereby slightly reducing air pollutant emissions generated at the power plants that serve Contra Loma. This would be a beneficial impact that would not occur under the No Action Alternative.

Increased Vehicular Traffic

The impacts would be the same as those addressed in Section 4.12.4.

4.12.6 Cumulative Impacts

Increased Visitation, Concurrent Improvements, and Land Use Changes

As discussed previously, visitation to Contra Loma is expected to continue to increase under all of the alternatives with more visitation expected under the two action alternatives than the No Action Alternative. A substantial portion of the expected future visitor increase would be attributable to the projected population increase expected to occur within the northeastern portion of the County from buildout of the City and County general plans. The improvements to sports fields 4 and 5 and the boat launch area upgrades will increase visitation to Contra Loma.

Approximately 38 percent of the land within the City (6,383 acres) and nearly 46 percent of the land within the unincorporated portion of the General Plan study area (2,240 acres) were vacant in 2003. Buildout of the City and County general plans would convert a substantial amount of vacant land to urbanized uses, increasing the potential for air pollutant emissions.

Discussion

Cumulative air quality impacts typically occur when multiple projects affect the same air basin at the same time, or when sequential projects extend the duration of air quality emissions over a longer period of time. Because attainment of NAAQS for ozone and PM require evaluation of

conditions over a three-year period, air pollution emissions that occurred in the recent past can affect attainment or nonattainment designations.

Cumulative construction-related air quality impacts would occur if projects approved or carried out by other government entities were constructed concurrently with construction being performed under the proposed RMP. The City and the County both expect future population increases, accompanied by new construction on public and private lands. Some of this construction activity is likely to occur concurrently with RMP-related construction activity. PM and ozone precursors generated during RMP construction activities could contribute to the existing violations of PM in the Bay Area and could exceed state ambient air quality standards. Therefore, the construction contractor would be required to minimize airborne dust, PM, ozone precursors, and GHG emissions to the extent required by applicable air quality plans and guidelines.

Cumulative operational air quality impacts would occur if projects approved or carried out by other government entities were to combine with emissions from Contra Loma operations and generate emissions that conflict with applicable air quality plans. Management activities associated with the RMP alternatives could have some minor adverse impacts on air quality and climate change, but the overall contribution of the actions proposed at Contra Loma to air quality and climate change would be minimal. Aside from the motor vehicles used by many park visitors to access Contra Loma, recreational activities at the Regional and Community parks do not generate substantial emissions. Low impact, non-motorized activities that produce minimal amounts of airborne dust typify recreational pursuits at Contra Loma.

The expected regional population growth would increase the number of vehicles traveling regional roads, leading to increased vehicle emissions. Federal vehicle emission control programs could offset the increased emissions from population growth.

Global climate change and GHG emissions are now being considered in environmental documents because of increasing concerns related to climate change. Currently no standard, widely used methodologies or significance criteria exist to address future climate change impacts from GHG emissions. Air districts have generally provided guidance on analysis methodologies and significance criteria for criteria pollutant and toxic air contaminant impacts, but they have not yet established guidelines for GHG emissions and their impacts. CARB has established GHG significance thresholds, which are sector-specific in terms of what types of activities generate the GHG emissions which include industrial sources and commercial/residential sources. Growth models provided for the region surrounding Contra Loma Reservoir estimate the population increasing from 1,049,025 (ca. 2010) to 1,422,840 (35.6%) over the coming two decades. Increasing local population and corresponding increases in visitation are expected to result in cumulative impacts on air quality within Contra Loma.

Because the two action alternatives would include more facilities and would experience more visitation than the No Action Alternative, they would contribute most to cumulative air quality impacts.

4.12.7 Mitigation Measures

Mitigation Measure Air Quality-1: Implement fugitive dust and emission control measures during construction activities.

When specific projects or actions are identified for Alternatives 2 and 3, a site-specific environmental analysis would be conducted to quantify air quality impacts and identify appropriate mitigation measures to comply with the Clean Air Act and BAAQMD rules and regulations. Construction activities for individual projects will comply with the required BAAQMD rules and regulations to mitigate for short-term construction emissions involving earthmoving, regardless of the project size and duration. The following mitigation measures are recommended by BAAQMD and may be implemented on a project-by-project basis:

- Water all active construction sites at least twice daily.
- Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least 2 feet of freeboard.
- Apply water three times daily or apply non-toxic soil stabilizers on all unpaved access roads, parking areas, and staging areas at construction sites.
- Sweep daily (with water sweepers) all paved access roads, parking areas, and staging areas at construction sites.
- Sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent public streets.
- Hydroseed or apply non-toxic soil stabilizers to inactive construction areas (previously disturbed areas inactive for 10 days or more).
- Enclose, cover, and water twice daily, or apply non-toxic soil binders to exposed stockpiles (dirt, sand, etc.).
- Install sandbags or other erosion control measures to prevent silt runoff to public roadways.
- Replant vegetation in disturbed areas as quickly as possible.
- Suspend excavation and grading activity when winds (instantaneous gusts) exceed 20 miles per hour.
- Minimize idling time to 5 minutes or less.
- Maintain properly tuned equipment.

Mitigation Measure Air Quality-2: Implement measures to reduce GHG emissions.

The following lists present some examples of feasible measures that could be implemented to reduce CO_2 emissions from vehicles and related sources. The measures are categorized as passenger vehicles and park maintenance and infrastructure. These measures would be evaluated

for applicability as each project gets funded and planned and could be included as mitigation at the project-level analysis.

Passenger Vehicles

- Limit trailhead access by vehicle
- Limit parking expansion to the existing parking areas
- Prohibit motorized dirt bikes
- Give reservation preference to visitors with hybrid or high fuel economy vehicles
- Improve vehicle access/alleviate congestion near park entrances
- Add dedicated lane for existing campers returning to camp

Park Maintenance and Infrastructure

- High-efficiency lighting
- Tank-less water heaters
- Solar panels for power
- Clean park maintenance fleet vehicles (electric vehicles, golf carts, or CNG)
- Use electric-powered landscaping/maintenance equipment

If funding is available, several energy-saving measures currently in use in “green” buildings and housing could be implemented in the park infrastructure to reduce GHG emissions. High-efficiency lighting could replace incandescent bulbs, tank-less water heaters would reduce energy loss from conventional hot water tanks, and solar panels could be constructed for power needs within the park. In addition, park maintenance vehicles could be electric, use compressed natural gas fuel, or be gas-electric hybrids. No need for mitigation has been identified.

4.13 Noise

4.13.1 Types of Impacts

This section describes potential impacts on existing noise levels as a result of management actions included in the RMP alternatives. The impacts of the RMP alternatives on noise levels are evaluated qualitatively considering the existing noise environment and the duration and anticipated magnitude of noise level changes. Although a number of sensitive noise receptors (i.e., residences) are located within ¼ mile of the north and southeast boundaries of Contra Loma, to date, neither of the current managing partners has received any noise complaints from nearby residents. Because the RMP neither includes nor defines specific projects, the analysis in this section is qualitative.

Noise impacts could potentially result from three general types of activities:

- Human Use
- Facility Maintenance
- Facility Improvements

4.13.2 Assumptions

The noise impact analysis is based on the following assumptions:

- Reclamation would only provide project-specific authorization for activities, including construction and operation of new facilities that have undergone appropriate environmental review.
- The proposed management actions would comply with applicable policies and regulations governing noise.
- The public's use of Contra Loma would continue to increase regardless of the selected alternative, and would require an increased level of facilities management to satisfy this demand.

4.13.3 Impacts Common to All Alternatives

Human Use

Visitor use of Contra Loma is expected to increase under all of the RMP alternatives, consistent with the visitation trend over the past few years. As a result, visitor generated noise from sources such as vehicles or human voices is expected to increase incrementally. Although noise levels within Contra Loma would likely increase, the impact would occur over limited time periods and would typically occur in areas of concentrated human use such as the swim lagoon, the south shore of the reservoir, and the Community Park recreational facilities. Most of the noise generated by human use within Contra Loma would occur during daytime hours, although nighttime use of the currently lighted Community Park sports fields would continue. Such noises are generally an accepted part of the ambient noise levels experienced by park visitors and nearby residents. Noise level increases from non-vehicular human use are not expected to be noticeable; therefore, noise impacts resulting from increased non-vehicular human use would be minor.

Increased visitor use would increase vehicle trips to Contra Loma, resulting in a small increase in vehicle noise on roads leading to Contra Loma. Typically, traffic volumes must double before traffic noise increases are noticeable. According to the City's General Plan EIR, traffic volumes on the local roads providing access to Contra Loma (i.e., James Donlon Boulevard, Lone Tree Way, Contra Loma Boulevard) would not double by the year 2020, even with build out of the General Plan (2020 is the study horizon of the General Plan EIR traffic analysis; City of Antioch 2003b). Therefore, the addition of vehicles from Contra Loma visitors is also not expected to cause vehicle traffic to double. For this reason, vehicle noise level increases from increased visitation are not expected to be noticeable and would result in a minor noise impact.

Facility Maintenance

Increased visitation would incrementally increase the need for routine maintenance activities such as waste disposal, facility repairs, vehicle patrols, and emergency response by the managing partner(s) or others. Similar to current practices, most noise generated by maintenance activities within Contra Loma would occur during daytime hours. In addition, such noises are generally an accepted part of the ambient noise levels experienced by park visitors and nearby residents. Noise level increases caused by maintenance activities are not expected to be noticeable; therefore, noise impacts resulting from increased facility maintenance would be minor.

4.13.4 Impacts Specific to the No Action Alternative

Human Use

The impacts would be the same as those addressed in Section 4.13.3.

Facility Maintenance

The impacts would be the same as those addressed in Section 4.13.3.

4.13.5 Impacts Specific to the Enhanced Recreation and Facilities Alternative

Human Use

In addition to the impacts addressed in Section 4.13.3, this alternative would include more enhanced recreation opportunities than the No Action Alternative, which could incrementally increase visitor use and vehicle trips to Contra Loma. An incremental increase in visitor use would proportionally increase noise from human activity.

Facility Maintenance

In general noise impacts would be the same as those described in Section 4.13.3; however, this alternative would include more enhanced recreation opportunities than the No Action Alternative, which could require more facility maintenance. Unlike the No Action Alternative, this alternative would also include the replacement of existing portable chemical toilets with permanent restrooms, which would reduce or remove the need for periodic waste water pumping, and would therefore minimize or remove this common maintenance activity as a source of noise.

Facility Improvements

This alternative may include new, expanded, or renovated facilities at the Regional Park to enhance recreation and improve operations. Examples include a new park residence, classroom facilities near the swim lagoon, improvements to the park office and police substation, a new fueling station, additional picnic sites, a storm water retention basin, and a “safe swim” area or splash pad at the swim lagoon. Expanded pumping and filtration facilities may also be needed to operate the additional swim facilities. Use of these facilities could increase ambient noise levels within the Regional Park at certain times. However, the impact would occur over limited time periods, would typically occur in areas of concentrated human use such as the swim lagoon and south shore of the reservoir, and would not occur near noise-sensitive land uses located outside Contra Loma. In addition, such noises are generally an accepted part of the ambient noise levels experienced by park visitors; therefore, noise level increases from these improvements are not expected to be noticeable.

Construction of the facility improvements would temporarily increase noise levels within Contra Loma, which could be distracting to some park visitors. Construction noise may also be audible from some offsite areas, depending on the location and the nature of the construction activity. However, construction activities would be short-term. Also, the managing partner(s) can limit construction activities to days and times that reduce noise-related effects on visitors and on sensitive receptors near Contra Loma. For these reasons, noise increases attributable to facility improvements would have a minor adverse impact. This impact would not occur under the No Action Alternative.

4.13.6 Impacts Specific to the Expanded Recreation and Facilities Alternative

Human Use

In general, noise impacts would be similar to the Enhanced Recreation and Facilities Alternative. Overnight group camping at the Regional Park would increase the potential for noise, particularly nighttime noise. However, overnight camping would be allowed only in the Regional Park, and would most likely occur in the developed picnic area along the south shore of the reservoir. Noise generated in this location is buffered from residential areas by distance and topography. In addition, event-specific authorization, oversight, and regulation by the managing partner(s) would be required, thereby ensuring that group camping would not generate excessive noise; therefore, the noise impact from this activity would be minor. This impact would not occur under the No Action Alternative. Under this alternative, all other types of human use would result in minor adverse impacts similar to those described in Section 4.13.3.

Facility Maintenance

This alternative would include the routine maintenance activities needed for operation of the Regional Park and Community Park that are included in the Enhanced Recreation and Facilities Alternative. In addition, this alternative would include more expanded recreation opportunities than the other two alternatives, which could require more facility maintenance and generate more noise than the other two alternatives.

Facility Improvements

This alternative would include construction of new or expanded facilities in addition to those that would be built or enhanced under the Enhanced Recreation and Facilities Alternative. Except as discussed below, construction and use of new or expanded facilities under this alternative would be the same as described under the Enhanced Recreation and Facilities Alternative.

This alternative may include the addition of two new sports fields and increased parking capacity in the Community Park. The sports fields would have floodlights to allow evening use in addition to those currently used within sports fields 1, 2, and 3. Therefore, this alternative may expand sports field use, including evening league play, at the Community Park. Noise generated by sports league play at the Community Park includes vehicle noise, sports whistles, and human voices such as cheers and shouts. Noise generated at the new sports fields could be noticeable to some residents near the eastern portion of the Community Park, although the closest residence would be approximately 800 feet away on the north side of James Donlon Boulevard. In addition, the homes closest to the Community Park are routinely exposed to vehicle noise from James Donlon Road, and vehicle noise associated with use of the new sports fields would be similar. The magnitude of noise levels experienced at nearby residences from sports field use is

currently buffered and would continue to be buffered by topography and distance. Also, noise generated by the new sports fields would typically be of short duration, lasting no more than a few hours on any given day. Therefore, the intensity of the additional noise generated by the new sports fields is not expected to be substantial. Also, human noise generated by use of the new fields would be similar to noise generated by use of Fields 1, 2, and 3. Therefore, when considering the context and intensity of additional noise generated by new sports fields, the new fields would have a minor noise impact. In addition, the local managing partner(s) for the Community Park would have the ability to adjust the hours of use to accommodate the needs of nearby residents. This minor impact would not occur under the No Action Alternative.

4.13.7 Cumulative Impacts

Increased Visitation, Concurrent Improvements, and Land Use Changes

As discussed previously, visitation to Contra Loma is expected to continue to increase under all of the alternatives with more visitation expected under the two action alternatives than the No Action Alternative. A substantial portion of the expected future visitor increase would be attributable to the projected population increase expected to occur within the northeastern portion of the County from buildout of the City and County general plans. The improvements to sports fields 4 and 5 and the boat launch area upgrades will increase visitation to Contra Loma.

Approximately 38 percent of the land within the City (6,383 acres) and nearly 46 percent of the land within the unincorporated portion of the General Plan study area (2,240 acres) were vacant in 2003. Buildout of the City and County general plans would convert a substantial amount of vacant land to urbanized uses, increasing noise within the project region.

Human Use and Facility Maintenance

Increased visitation would cumulatively, though incrementally, increase the volume of noise generated by visitors and maintenance activities. This impact would occur over limited time periods and would typically occur in areas of concentrated human use such as the swim lagoon, the south shore of the reservoir, and the Community Park recreational facilities. Most of the noise generated by human use within Contra Loma would occur during daytime hours, although installation of floodlights at sports fields 4 and 5 would increase nighttime use of the Community Park sports fields. The intensity of the additional noise generated by the new sports fields is not expected to be substantial. Also, such noises are generally an accepted part of the ambient noise levels experienced by park visitors and nearby residents. Therefore, when considering the context and intensity of additional noise generated by a cumulative increase in visitation and nighttime use of sports field 4 and 5, the cumulative noise impact would be minor. Because the two action alternatives would experience more visitation and would include more new facilities than the No Action Alternative, they would result in higher noise levels attributable to human use and facility maintenance than the No Action Alternative.

Increased visitor use would increase vehicle trips to Contra Loma, resulting in a small increase in vehicle noise on roads leading to Contra Loma. Regional population growth would also increase traffic volumes and resulting vehicle noise on roads near Contra Loma. Typically, traffic volumes must double before traffic noise increases are noticeable. According to the City's General Plan EIR, traffic volumes on the local roads providing access to Contra Loma (i.e., James Donlon Boulevard, Lone Tree Way, Contra Loma Boulevard) would not double by the

year 2020, which corresponds with the study horizon of the General Plan EIR traffic analysis (City of Antioch 2003b). The addition of vehicles from Contra Loma visitors is not expected to cause vehicle traffic to double. Therefore, cumulative vehicle noise level increases from increased visitation are not expected to be noticeable and would result in a minor cumulative noise impact.

Facility Improvements

Sports fields 1 through 5 currently generate noise from sporting activities. Sports fields 1, 2, and 3 have floodlights for nighttime use and floodlights have recently been installed at sports fields 4 and 5. The Expanded Recreation and Facilities Alternative would include two new sports fields with floodlighting. When combined, use of these fields would cause a cumulative noise level increase during the daytime and early nighttime hours in the vicinity of the Community Park. The greatest noise increase would be in the eastern portion of the Community Park near Fields 4 and 5 and the two proposed sports fields because Fields 4 and 5 will soon be usable at night and because the new fields would represent new noise sources. The cumulative noise increase at the new sports fields could be noticeable to some residents near the Community Park. The closest residences would be approximately 360 feet away from Fields 1, 2, and 3, 575 feet away from Fields 4 and 5, and 800 feet away from the two new sports fields. All of these residences are on the north side of James Donlon Boulevard. These residences are routinely exposed to vehicle noise from James Donlon Road, and vehicle noise associated with use of the new sports fields would be similar. The magnitude of noise levels experienced at nearby residences from sports field use is currently buffered and would continue to be buffered by topography and distance. Also, noise generated by the new sports fields would typically be of short duration, lasting no more than a few hours on any given day. Therefore, the intensity of the cumulative noise increase generated by the existing sports fields, nighttime use of sports fields 4 and 5, and the proposed new fields is not expected to be substantial. Also, human noise generated by use of the new fields would be similar to noise generated by use of Fields 1, 2, and 3 and daytime use of fields 4 and 5. Therefore, when considering the context and intensity of additional cumulative noise levels, the increase would have a minor noise impact. In addition, the local managing partner(s) for the Community Park would have the ability to adjust the hours of use to accommodate the needs of nearby residents.

4.13.8 Mitigation Measures

No need for mitigation has been identified.

4.14 Visual Resources

4.14.1 Types of Impacts

This section describes potential effects on visual resources from management actions and other resource uses. This analysis focuses on direct and indirect effects from actions that would change the visual resources by introducing intrusions into the landscape. Because the RMP neither includes nor defines specific projects, the analysis in this section is qualitative.

Potential impacts to visual resources could result from three general types of activities:

- Human Use

- Physical Improvements to the Regional Park
- Physical Improvements to the Community Park

4.14.2 Assumptions

The visual resources impact analysis is based on the following assumptions:

- Reclamation would only provide project-specific authorization for activities, including construction and operation of new facilities that have undergone appropriate environmental review.
- The size and/or severity of surface disturbance proportionally increases the magnitude of the resulting effect on scenic quality.
- Visual quality and opinions about the effect of changes within the visual environment are highly subjective to the viewer.

4.14.3 Impacts Common to All Alternatives

Human Use

As described previously, visitor use of Contra Loma is expected to increase under all of the alternatives, consistent with the visitation trend over the past few years. Increased visitation would increase the potential for littering, trampled vegetation, scarred terrain, vandalism, and facility deterioration, which could impair the visual quality of the landscape. Under all of the alternatives, however, litter and waste reduction programs will continue to be implemented to effectively meet demand, thereby reducing the possibility that litter will impair visual quality. In addition, the local managing partner(s) will continue to be responsible for performing landscape maintenance and management activities that regulate park uses in order to minimize trampling of vegetation, scarring of terrain, and vandalism. The managing partner(s) will also continue to repair and maintain facilities before they deteriorate and can adversely affect Contra Loma's visual character. These maintenance and management activities would ensure that the intensity of any visual change caused by increased human use and the resulting impacts to visual resources would be minor.

4.14.4 Impacts Specific to the No Action Alternative

Human Use

The impacts would be the same as those addressed in Section 4.14.3.

4.14.5 Impacts Specific to the Enhanced Recreation and Facilities Alternative

Human Use

The impacts would be the same as those expected under the No Action Alternative and addressed in Section 4.14.3.

Physical Improvements to the Regional Park

This alternative may include new, expanded, or renovated buildings and structures to improve operations. These improvements would not be built under the No Action Alternative. Examples

include a new park residence, new permanent restrooms to replace existing portable chemical toilets, classroom facilities near the swim lagoon, and a radio communication tower. This alternative may also include new or renovated recreational facilities, such as new or reconstructed fishing docks, improvements at the boat launch area to enhance boating and fishing access, a “safe swim” area or splash pad at the swim lagoon, additional shade structures on the swim lagoon lawn, additional trail signs, and additional picnic sites.

Some of the new or renovated facilities would improve the visual quality within the Regional Park. Examples include new permanent restroom facilities to replace portable chemical toilets and renovated fishing docks to replace deteriorating docks. Such improvements would result in a beneficial impact on localized views in the vicinity of these improvements.

Some of the proposed improvements would represent noticeable changes to the visual environment but would not impair the visual quality or character of the Regional Park because they would be consistent with the existing visual character of the Regional Park. For example, park visitors are accustomed to seeing picnic areas, shade structures, trail signs, and restrooms when visiting the Regional Park, and consider such facilities to be important components of their recreational experience. Similarly, improvements to the swim lagoon area such as a “safe swim” area or splash pad for children would be consistent with views in the vicinity of the swim lagoon. Such improvements, therefore, would have no impact on visual resources within the Regional Park.

Other proposed improvements, however, have the potential to impair visual resources. These include the larger and more prominent improvements such as a new park residence, classroom facilities, and a new radio communication tower. These larger facilities would be visible from various locations within the Regional Park and some facilities, such as a radio communication tower, could be visible from offsite locations. Because the specific designs and locations of these facilities are not yet known, the potential impact on visual resources could vary in intensity. Improvements that are designed to blend well with the visual environment would result in minor adverse impacts. Alternatively, improvements that appear inconsistent with the visual environment could impair the visual character of Contra Loma from viewpoints within the recreation area and from viewpoints outside the recreation area, resulting in major adverse impacts.

When specific facilities are proposed, site-specific environmental analysis would be conducted that includes a more focused assessment of the potential impact on visual resources. When feasible and appropriate, the proposed activity would be modified or mitigation measures would be implemented to reduce impacts on visual resources (see Section 4.14.8, Mitigation Measure Visual-1).

4.14.6 Impacts Specific to the Expanded Recreation and Facilities Alternative

Human Use

The impacts would be the same as those expected under the No Action Alternative and addressed in Section 4.14.4.

Physical Improvements to the Regional Park

This alternative would include new, expanded, or renovated infrastructure or recreational facilities in addition to those that would be built under the Enhanced Recreation and Facilities Alternative. Therefore, this alternative would have more potential to change the visual character of the Regional Park than the other alternatives.

Some of the proposed improvements would represent noticeable changes to the visual environment but would not impair the visual quality or character of the Regional Park because they would be consistent with the existing visual character of the Regional Park. For example, park visitors are accustomed to seeing trails, shade structures, picnic tables, wash basins, electrical outlets, interpretive signage, fitness courses, and playground structures when visiting the Regional Park or other similar recreation areas. Similarly, an expanded swim lagoon would be consistent with existing views of the swim lagoon. Such improvements, therefore, would have no impact on visual resources within the Regional Park.

This alternative may also include installation of shade structures in the parking and picnic areas, and solar panels may be installed on top of the shade structures or on buildings to supplement the Regional Park's energy needs. Shade structures in picnic areas are common in many recreation areas and would be visually consistent with the Regional Park's recreational setting. Therefore, shade structures would have no impact on visual resources. Solar panels and parking area shade structures are widely used within non-recreational land uses, but are less commonly seen in park settings. Therefore, solar panels and parking lot shade structures would likely be more noticeable to park users than many of the other proposed improvements. The intensity of the visual change, however, would not be substantial and, thus, would not impair the visual quality or character of the Regional Park. Such improvements, therefore, would have no impact on visual resources within the Regional Park.

This alternative may also include installation of disc golf course in an undeveloped location that is suitable for disc golf and that minimizes conflicts with other park uses. Potential locations may include the gently rolling land east of the reservoir and west of the Lone Tree Golf Course, gently sloping land near the southwest corner of the reservoir, and the level or gently sloping land in the southeast portion of the Regional Park directly north of Frederickson Lane. These locations are undeveloped and currently support grazed annual grassland.

Disc golf courses typically have a relatively low visual prominence because they require minimal ground disturbance and infrastructure. A typical disc golf course includes either 9 or 18 holes, and consists of a tee pad and a target for each hole and simply-designed signage. Tee pads are typically 5-feet to 6-feet wide and 12-feet to 18-feet long and have a level surface of textured cement, asphalt, grass, or earth. Disc golf targets are approximately 5-feet high and 27-inches in diameter and consist of a metal pole supporting a metal basket and several metal chains. Some areas within a disc golf course may require clearing of grass and herbaceous vegetation. The course would be noticeable to viewers in some locations, but would have no adverse impact on visual resources because the intensity of the visual change from annual grassland to a disc golf course would be relatively minor, and because a disc golf course at the Regional Park would be visually consistent with other recreational land uses within the Regional Park, the Community Park, and the adjacent Lone Tree Golf Course.

This alternative would also include the management actions proposed for the Enhanced Recreation and Facilities Alternative, including some proposed improvements that have the potential to impair visual resources. As discussed for the Enhanced Recreation and Facilities Alternative, when specific facilities are proposed, site-specific environmental analysis would be conducted that includes a more focused assessment of any potential impact on visual resources. When feasible and appropriate, the proposed activity would be modified or mitigation measures would be implemented to reduce impacts on visual resources (see Section 4.14.8, Mitigation Measure Visual-1).

Physical Improvements to the Community Park

This alternative would include new, expanded, or renovated infrastructure or recreational facilities that would not be included in the Enhanced Recreation and Facilities Alternative. Therefore, this alternative would have more potential to change the visual character of the Community Park than the other alternatives.

This alterative may include new trails and a botanical garden within the Community Park. These improvements would represent noticeable changes to the visual environment but would not impair the visual quality or character of the Community Park because they would be consistent with the existing visual character of the Community Park which includes trails and landscaping; therefore, these improvements would have no impact on visual resources.

Additional multi-use sports fields may be built directly south of the two existing sports fields on the east side of the Community Park and additional parking areas may be developed nearby (see Figure 2-1). The new sports fields may include floodlights to allow evening use. These improvements would represent noticeable changes to the visual environment of the Community Park. During the day, the new fields would be visible to Contra Loma visitors. However, they would be consistent with the existing visual character of the Community Park, which currently has five multi-use sports fields and two parking lots.

The new sports fields would be approximately 800 feet away from the nearest residences, located on the north site of James Donlon Boulevard, and would be screened by vegetation and topography. At night, glare or general skyglow from the floodlights may be visible from some residences. However, the additional nighttime lighting would be visually consistent with the lighting used at Fields 1, 2, and 3 and with the street lights along James Donlon Boulevard. Within this context, the new lighting would be less noticeable. Also, the distance between the lighted fields and the residences would reduce their intensity as observed from the residences. In addition, the lights would be shut off each night after their use, and the local managing partner(s) for the Community Park would have the ability to adjust the hours of use to accommodate the needs of nearby residents. For these reasons, the sports field lights would result in a minor adverse impact on visual resources. This impact would not occur under the No Action Alternative.

4.14.7 Cumulative Impacts

Increased Visitation, Concurrent Improvements, and Land Use Changes

As discussed previously, visitation to Contra Loma is expected to continue to increase under all of the alternatives with more visitation expected under the two action alternatives than the No

Action Alternative. A substantial portion of the expected future visitor increase would be attributable to the projected population increase expected to occur within the northeastern portion of the County from buildout of the City and County general plans. The improvements to sports fields 4 and 5 and the boat launch area upgrades will increase visitation to Contra Loma.

Approximately 38 percent of the land within the City (6,383 acres) and nearly 46 percent of the land within the unincorporated portion of the General Plan study area (2,240 acres) were vacant in 2003. Buildout of the City and County general plans would convert a substantial amount of vacant land to urbanized uses, changing the visual appearance of the project region.

Human Use

Increased visitation would increase the potential for littering, trampled vegetation, scarred terrain, vandalism, and facility deterioration, which could impair the visual quality of the landscape. For the reasons presented in Section 4.14.3, the intensity of any visual change caused by the cumulative increase in human use and the resulting impacts to visual resources would be minor.

Physical Improvements

Sports fields 1, 2, and 3 currently have floodlights for nighttime use and floodlights are currently being installed at sports fields 4 and 5. The Expanded Recreation and Facilities Alternative would include two new sports fields with floodlighting. When combined, lighting for these sports fields would cause a cumulative increase in nighttime lighting in the vicinity of the Community Park. However, this nighttime lighting would be visually consistent with the lighting used at Fields 1, 2, and 3 and with the street lights along James Donlon Boulevard. Within this context, the combined lighting would be less noticeable. Also, the distance between Fields 4 and 5 and the residences would reduce their intensity as observed from the residences. In addition, all of the lights would be shut off each night after their use, and the local managing partner(s) for the Community Park would have the ability to adjust the hours of use to accommodate the needs of nearby residents. For these reasons, the sports field lights would result in a minor cumulative impact on visual resources.

Very few land use changes are expected to occur in the vicinity of Contra Loma that could contribute to a cumulative impact on visual resources when considered in combination with the visual changes proposed in the RMP. The land to the north of Contra Loma has largely been built out with suburban land uses. The land directly to the east of Contra Loma is occupied by the Lone Tree Golf Course. The land east of the golf course has also largely been built out with suburban land uses. The residential land directly adjacent to the southeastern boundary of Contra Loma has largely been built out. The land southwest of Contra Loma is owned and managed by EBRPD as the Black Diamond Mines Regional Preserve. Therefore, no land use changes are expected to occur in these areas that would contribute to a cumulative impact on visual resources.

Only the land on the southern portion of the western boundary of Contra Loma has the potential for further development. The City's General Plan designates this land as Estate Residential with a density of two dwelling units per acre. However, most of this area is visually separated from Contra Loma by the ridgeline that runs along the eastern boundary of Contra Loma and is, therefore, not visible from most locations within Contra Loma. Therefore, it is highly unlikely

that buildout of the residential area and the management actions proposed in the RMP would combine to contribute to a cumulative impact on visual resources.

4.14.8 Mitigation Measures

Mitigation Measure Visual-1: Implement design measures to reduce visual impacts from new development.

When a specific project is proposed, a site-specific environmental analysis would be conducted that includes a more focused assessment of the potential impact on visual resources. When feasible and appropriate, the proposed activity would be modified to reduce impacts on visual resources. Such modifications may include, but are not limited to:

- Design all new development to be visually compatible with Contra Loma's visual character and quality.
- Use building materials that are visually compatible with Contra Loma's natural setting.
- Avoid removal of native vegetation to the extent possible.
- Minimize grading of slopes to the extent possible.
- Revegetate cut and fill slopes with native plants.
- Avoid the placement of infrastructure, including communications facilities, on ridges and peaks in order to maintain open viewsheds.

4.15 Hazards

4.15.1 Type of Impacts

This section addresses the potential hazards related to the use of hazardous materials and wildland fire associated with the RMP alternatives. Hazards related to visitor use and safety are described in Section 4.6 (Public Health and Safety) and hazards related to seismic events or other geologic issues are described in Section 4.11 (Geologic and Soil Resources). Because the RMP neither includes nor defines specific projects, the analysis in this section is qualitative.

The RMP does not address hazards related to operation of the dam and reservoir, which is subject to a separate contract agreement between Reclamation and CCWD and, therefore, outside the scope of the Contra Loma RMP. It is important to note, however, that Reclamation has determined that the overall safety classification of the dam is considered satisfactory and the risk from dam failure is low (City of Antioch 2003a).

Four general types of activities involve management actions intended to reduce potentially hazardous situations or that could result in exposure of the public or environment to hazardous situations or materials:

- Facility Maintenance

- Livestock Grazing
- Fire And Emergency Preparedness
- Facility Improvements

4.15.2 Assumptions

The hazards impact analysis is based on the following assumptions:

- The proposed management actions would comply with applicable laws and regulations related to hazards.
- The managing partner(s) would uphold their responsibilities to provide the standard of care necessary to ensure the health and safety of visitors to Contra Loma as well as the natural environment.

4.15.3 Impacts Common to All Alternatives

Facility Maintenance

All of the RMP alternatives include continuation of routine maintenance and repair activities that sometimes require the use of potentially hazardous materials (e.g., cleaning solutions, petroleum products). Increased visitation could incrementally increase the amount of facility maintenance required. The local managing partners(s) will be required to prepare a hazardous waste/spill prevention plan subject to review and approval by Reclamation. Therefore, the potential for accidental release of potentially hazardous materials or for public exposure to such materials in toxic amounts is minimal and would not substantially increase. Continued use of potentially hazardous materials (see Section 3.16), although at a slightly greater level, would result in a minor impact with respect to hazards.

All of the RMP alternatives include continuation of mowing in the Regional and Community parks and grazing in the Regional Park to reduce the potential for ignition and spread of wildland fire. Mowing of grassland areas would continue to reduce fine fuels (e.g., dry grass, small twigs) that ignite readily and are consumed rapidly. Mowing activities in the Regional Park and the Community Park by the managing partner(s) would continue to be an important safety practice (see Section 3.6), but would not reduce hazards below the current conditions and, therefore, would have no impact with respect to hazards.

Livestock Grazing

Livestock grazing would likely continue in the Regional Park under all of the RMP alternatives. Grazing of grasslands in the natural environment unit (i.e., the grasslands and rolling hills that surround the reservoir) of the Regional Park reduces fine fuels (e.g., dry grass, small twigs) that ignite readily and are consumed rapidly. Grazing in the Regional Park would continue to reduce fire hazard, but would not reduce hazards below the current conditions and, therefore, would have no impact with respect to hazards.

Fire and Emergency Preparedness

Included in all RMP alternatives are management actions that require the preparation of fire and emergency preparedness plans for the Regional Park and the Community Park. Fire and

emergency services will continue to be implemented by the managing partner(s) or they may be contracted with other local agencies. Use of existing fire and emergency services, and the development and implementation of fire and emergency preparedness plans, would ensure that the managing partner(s) and/or other local responsible agencies would continue to provide an adequate fire suppression strategy and respond appropriately to accidental hazardous materials spills. The managing partner(s) would continue to provide effective fire and emergency services to Contra Loma (see Section 3.6). These management actions, therefore, would have no impact with respect to hazards.

Continued maintenance of the Regional Park trail system and annual grading of fire roads would ensure that all-weather access is provided for fire trucks and other emergency responders into the Regional Park's natural environment unit. Continuation of these maintenance activities would not increase the potential for impacts from hazards beyond the current conditions.

4.15.4 Impacts Specific to the No Action Alternative

Facility Maintenance

The impacts would be the same as those addressed in Section 4.15.3.

Livestock Grazing

The impacts would be the same as those addressed in Section 4.15.3.

Fire and Emergency Preparedness

The impacts would be the same as those addressed in Section 4.15.3.

4.15.5 Impacts Specific to the Enhanced Recreation and Facilities Alternative

Facility Maintenance

This alternative would include more recreation and infrastructure facilities than the No Action Alternative, which could require more maintenance than the No Action Alternative. In addition, because this alternative would include more enhanced recreation opportunities than the No Action Alternative, it could result in more visitor use and require incrementally more maintenance than the No Action Alternative. Similar to the No Action Alternative, however, the local managing partners(s) will be required to prepare a hazardous waste/spill prevention plan subject to review and approval by Reclamation. Therefore, the potential for accidental release of potentially hazardous materials or for public exposure to such materials in toxic amounts is minimal. Continued use of potentially hazardous materials for routine facility maintenance and repairs (see Section 3.16), although at an incrementally greater level, would result in a minor impact with respect to hazards.

Livestock Grazing

The impacts would be the same as those addressed in Section 4.15.3; however, this alternative could increase the total grazing area by 0.3 acre. This small change in grazing area would incrementally increase the positive effects of grazing on reducing wild fire hazards as compared to the No Action Alternative. This would be a minor beneficial impact.

Fire and Emergency Preparedness

The impacts would be the same as those expected under the No Action Alternative and as discussed in Section 4.15.3.

Facility Improvements

This alternative may include a new fueling station and fuel storage tank for Regional Park vehicles and equipment as well as for public safety officers. The managing partner(s) would be required to implement substantial design and operational measures to reduce the potential for the station to cause an environmental hazard. Only staff trained to safely use the station would be allowed to operate it, thereby reducing the potential for spills caused by improper use. The managing partner(s) must design the facility with fuel containment devices to prevent any spilled fuel from reaching the natural ground surface (i.e., soil), entering the reservoir, or otherwise causing an environmental hazard. This facility may only be built and operated in compliance with applicable federal and federally-mandated laws, regulations, and permits. As a condition of Reclamation's approval of this facility, the local managing partner(s) will ensure that spill prevention and decommissioning plans are prepared or amended to address operation of this facility. These measures would substantially reduce the likelihood of large spills, would ensure that small spills are cleaned up quickly and effectively, and would ensure that the facility is decommissioned properly. By implementing these measures, this facility would have a minor adverse impact with respect to environmental hazards. This impact would not occur under the No Action Alternative.

4.15.6 Impacts Specific to the Expanded Recreation and Facilities Alternative

Facility Maintenance

This alternative would include more recreation and infrastructure facilities than the other alternatives, which could require more maintenance than the other alternatives. In addition, because this alternative would include more expanded recreation opportunities than the other alternatives, it could result in more visitor use and require incrementally more maintenance than the other alternatives. Similar to the other alternatives, however, the local managing partners(s) will be required to prepare a hazardous waste/spill prevention plan subject to review and approval by Reclamation. Therefore, the potential for accidental release of potentially hazardous materials or for public exposure to such materials in toxic amounts is minimal. Continued use of potentially hazardous materials for routine facility maintenance and repairs (see Section 3.16), although at an incrementally greater level, would result in a minor impact with respect to hazards.

Livestock Grazing

In addition to the changes in grazing area described in Section 4.15.5, this alternative may also include the addition of two new sports fields within the Community Park and expansion of the Community Park boundaries south into the Regional Park. Livestock would be excluded from this area (approximately 15 acres), which is currently grazed. Therefore, this alternative could reduce the amount of grazing area within Contra Loma. The new sports fields would either have an artificial turf surface or would be mowed by the managing partner(s) for the Community Park to maintain a playing surface. Therefore, the sports fields would pose a similar risk of fire hazard to grazed annual grassland.

Fire and Emergency Preparedness

The impacts would be the same as those expected under the No Action Alternative and addressed in Section 4.15.3.

Facility Improvements

The impacts would be the same as those addressed in Section 4.15.5.

4.15.7 Cumulative Impacts

Increased Visitation, Concurrent Improvements, and Land Use Changes

As discussed previously, visitation to Contra Loma is expected to continue to increase under all of the alternatives with more visitation expected under the two action alternatives than the No Action Alternative. A substantial portion of the expected future visitor increase would be attributable to the projected population increase expected to occur within the northeastern portion of the County from buildout of the City and County general plans. The improvements to sports fields 4 and 5 and the boat launch area upgrades will increase visitation to Contra Loma.

Approximately 38 percent of the land within the City (6,383 acres) and nearly 46 percent of the land within the unincorporated portion of the General Plan study area (2,240 acres) were vacant in 2003. Buildout of the City and County general plans would convert a substantial amount of vacant land to urbanized uses.

Facility Maintenance

Increased visitation could incrementally increase the amount of facility maintenance required. The two action alternatives would require more maintenance than the No Action Alternative. The local managing partners(s) will be required to prepare a hazardous waste/spill prevention plan subject to review and approval by Reclamation. Therefore, the potential for accidental release of hazardous materials or for public exposure to such materials in toxic amounts is minimal and would not substantially increase. Continued use of potentially hazardous materials, although at a slightly greater level, would result in a minor cumulative impact with respect to hazards.

Fire And Emergency Preparedness

Increased visitation would incrementally increase the potential for wildland fires. Also, new housing developments that could be built along the urban/wildland interface could increase the need for immediate fire suppression and increase the potential for wildfires to spread into Contra Loma.

Included in all of the alternatives, however, are management actions that require the preparation of fire and emergency preparedness plans for the Regional Park and the Community Park. Fire and emergency services would be implemented by the managing partner(s) or they may be contracted with other local agencies. Use of existing fire and emergency services, and the development and implementation of fire and emergency preparedness plans, would ensure that the managing partner(s) and/or other local responsible agencies would continue to provide an adequate fire suppression strategy. In addition, the City and other surrounding communities would be expected to maintain adequate service ratios for fire protection, with new staff and facilities funded through developer fees, bond monies, and taxes on new development. For these reasons, increased visitation and additional urban growth in surrounding communities would have a minor cumulative impact with respect to hazards.

4.15.8 Mitigation Measures

No need for mitigation has been identified.

4.16 Cultural Resources

4.16.1 Type of Impacts

Cultural resources include prehistoric, historic-era, architectural, and traditional cultural properties. Cultural resources documented within the APE consist of traces of prehistoric occupation such as lithic debitage and implement deposits and scatters, and the remains of historic-era ranching and agricultural activities such as building foundations. Other historic-era resources found within and near the APE include transportation routes such as the Empire Railroad, and water storage and conveyance facilities including the Contra Costa Canal and the Contra Loma Dam and Reservoir. Similar resources could also be present in areas of the APE not previously subject to archaeological surveys. Because the RMP neither includes nor defines specific projects, the analysis in this section is qualitative.

Historic properties are defined as prehistoric or historic-era cultural resources that are presently listed or are eligible for listing on the NRHP. Impacts on historic properties occur when a management action causes damage or loss of such resources or important contextual aspects of their character and setting. This section assesses the potential impacts of the RMP alternatives on historic properties. None of the known cultural resources in Contra Loma have been evaluated for NRHP eligibility although the dam may be determined eligible for NRHP listing as a contributing property to the CVP. Also, communication with Native American Tribes did not yield any specific information about traditional cultural properties or other pertinent Native American cultural interests in the immediate area. During recent efforts to relocate previously recorded cultural resource sites, Reclamation's archaeological consultant observed that some of these resources had already been affected by previous management activities, such as construction of the reservoir, the sports fields, and other facilities. However, new impacts in already-developed portions of the APE (including the Contra Loma Dam and Reservoir) are not likely to further affect cultural resources. Potential impacts on presently undocumented cultural resources would be most likely to occur in areas of the APE that have not been subjected to cultural resources surveys and in subsurface contexts for proposed activities that would require excavation.

Potential impacts on historic properties could result from four general types of activities:

- Human Use
- Facility Maintenance
- Livestock Grazing
- Facility Improvements

4.16.2 Assumptions

This impact analysis is based on the following assumptions:

- Cultural resources identified in future investigations would be similar to the types already known to exist within the APE and the immediate surrounding area.

- The proposed management actions would comply with applicable laws and regulations governing historic properties.

- Portions of Contra Loma have been inventoried for historic properties; however, historic properties may be present in unsurveyed areas or may have remained undiscovered by previous-surveys;

- No changes are proposed that would affect Contra Loma Dam.

4.16.3 Impacts Common to All Alternatives

Human Use

Increased visitation would increase the potential for visitors to adversely affect known or unknown cultural resources. However, none of the known cultural resources in Contra Loma have been evaluated for NRHP eligibility and outreach with Native American Tribes did not yield any specific information about traditional cultural properties or other pertinent Native American cultural interests in the immediate area. Therefore, no adverse impacts on historic properties or traditional cultural properties are anticipated because no such resources have been identified within Contra Loma.

If any unidentified historic properties are located within Contra Loma, visitors could affect them through inadvertent trampling or the unauthorized collecting of archaeological materials. The majority of human use is concentrated near the developed recreational facilities located along the south side of the reservoir and within the Community Park. These areas have undergone substantial alteration, and the likelihood that unidentified historic properties exist in these areas is very low. In the more remote parts of the Regional Park, visitors are typically dispersed and practice low-impact activities such as hiking. Therefore, human use in these areas would be less likely to adversely affect unidentified historic properties than in the more developed recreation areas. In summary, human use would have a minor impact on unidentified historic properties.

Facility Maintenance

Ongoing routine maintenance activities and repairs of existing facilities by the managing partner(s) at the Regional Park and the Community Park would, in general, not involve ground disturbance or otherwise have the potential to cause adverse effects on unidentified historic properties. Trail maintenance activities in the Regional Park may include annual grading of fire roads and trails using machinery and hand tools to maintain the quality of the road or trail surface and maintain proper drainage. Soil disturbance and vegetation removal could inadvertently impact unidentified historic properties, if any are present. However, it is unlikely that periodic, routine maintenance activities such as these would have an impact on unidentified historic properties, because there is no indication that past and present maintenance practices have adversely affected historic properties. Therefore, no impacts on unidentified historic properties are anticipated as a result of routine facility maintenance.

4.16.4 Impacts Specific to the No Action Alternative

Human Use

The impacts would be the same as those addressed in Section 4.16.3.

Facility Maintenance

The impacts would be the same as those addressed in Section 4.16.3.

Livestock Grazing

Livestock grazing would likely continue in the Regional Park under the No Action Alternative. Trampling by livestock and an increased potential for grazing-induced erosion could have an adverse impact on unidentified historic properties, if present. No substantial change in the acreage, location, or intensity of grazing is anticipated under this alternative. Continuation of livestock grazing would not increase the potential for impacts to historic properties beyond the current condition.

4.16.5 Impacts Specific to the Enhanced Recreation and Facilities Alternative

Human Use

The impacts of human use on historic properties are addressed in Section 4.16.3. This alternative would include more enhanced recreation opportunities than the No Action Alternative, which could result in more visitor use, thereby increasing the potential for visitors to adversely affect unidentified historic properties.

Facility Maintenance

The impacts of facility maintenance on historic properties are addressed in Section 4.16.3. This alternative would include more enhanced recreation opportunities than the No Action Alternative, which could require more facility maintenance than the No Action Alternative. However, it is unlikely that periodic routine maintenance activities such as these would have an impact on unidentified historic properties for the reasons described above.

Livestock Grazing

This alternative could increase the total grazing area by 0.3 acre. This small change in grazing area would incrementally increase the potential for impacts to historic properties as compared to the No Action Alternative, resulting in a minor adverse impact.

Facility Improvements

This alternative would include construction of new or expanded buildings and facilities, such as restrooms, utility lines, offices, the police substation, a park residence, a communication tower, and new picnic facilities. While most construction or renovation activities would occur within the footprint of existing buildings or structures where there would be no impacts on historic properties, new construction activities such as expansion of parking areas or installation of a new radio communications tower could affect unidentified historic properties, if any are present.

When specific construction activities are proposed, site-specific environmental analyses would be conducted that include a more focused assessment of any potential impact on historic properties. If impacts are identified, the proposed activities may be modified or other mitigation measures may be implemented to eliminate these impacts when possible (see Section 4.16.8,

Mitigation Measure Cultural-1). These impacts would not occur under the No Action Alternative.

4.16.6 Impacts Specific to the Expanded Recreation and Facilities Alternative

Human Use

The impacts of human use on historic properties are addressed in Section 4.16.3. This alternative would include more expanded recreation opportunities than the other two alternatives, which could result in more visitor use. This alternative, therefore, could increase the potential for visitors to adversely affect unidentified historic properties beyond what is expected under the other two alternatives, if any are located where a disc golf course or new trails might be built. Please refer to the discussion of Facility Improvements later in this section for an analysis of this issue.

Facility Maintenance

The impacts of facility maintenance on historic properties are addressed in Section 4.16.3. This alternative would include more enhanced recreation opportunities than the other two alternatives, which could require more facility maintenance. However, it is unlikely that periodic routine maintenance activities such as these would have an impact on unidentified historic properties for the reasons described above.

Livestock Grazing

The impacts of grazing on historic properties are addressed in Section 4.16.3. However, this alternative may also include the addition of two new sports fields within the Community Park and expansion of the Community Park boundaries south into the Regional Park. Livestock would be excluded from this area (approximately 15 acres), which is currently grazed. Therefore, this alternative could reduce the amount of grazing area within Contra Loma, thereby reducing the potential for grazing to adversely affect unidentified historic properties. The construction of new sports fields, however, could affect unidentified historic properties. This issue is discussed in Facility Improvements section below. These effects would not occur under the No Action Alternative.

Facility Improvements

This alternative would include construction of new or expanded recreation facilities in addition to those that would be built under the Enhanced Recreation and Facilities Alternative. This alternative may include signage and/or kiosks and programs that provide interpretive opportunities focusing on historic areas within Contra Loma and natural resources of importance to local Native American groups.

Other facilities proposed under this alternative include expansion of the swim lagoon in the Regional Park and construction of two additional sports fields in the Community Park. Most expansion activities would occur in previously disturbed areas and would likely have no impact on unidentified historic properties. However, construction of the new sports fields and related parking areas would require substantial grading and other soil disturbance activities in previously undisturbed areas. Construction of these facilities could potentially affect unidentified historic properties, if any are present. Such effects would not occur under the No Action Alternative.

This alternative may also include construction of a disc golf course in an unimproved part of the Regional Park. Potential locations may include the gently rolling land east of the reservoir, gently sloping land near the southwest corner of the reservoir, and the southeast portion of the Regional Park directly north of Frederickson Lane. Construction of the disc golf course would involve a small amount of ground disturbance, and its use would increase visitation in less-frequently used areas of the Regional Park. A known prehistoric site (CA-CCo-572) is located in an area where the disc golf course may be built and it could be affected by construction and use of the disc golf course. This site has not been assessed as to NRHP listing eligibility; however, there is a possibility that presently unidentified components of CA-CCo-572 exist in subsurface contexts that could contribute to the site being eligible for NRHP listing. Construction activities could disturb or destroy such materials and adversely affect the site's NRHP eligibility. Consequently, unnecessary effects to this resource should be avoided if possible. Avoiding unnecessary effects on this site would be consistent with RMP goals.

This alternative may also include construction of new recreational trails for bike, equestrian, and pedestrian use. New trail construction could cause ground disturbance that could adversely affect unidentified historic properties, and could affect the known prehistoric site (CA-CCo-572). Also, construction of a new trail in the vicinity of this prehistoric site could increase public access to this area and increase the potential for unauthorized collecting of or damage to archaeological materials.

When specific construction activities are proposed, site-specific environmental analyses would be conducted that include a more focused assessment of any potential impact on historic properties. If impacts are identified, the proposed activities may be modified or other mitigation measures may be implemented to eliminate these impacts when possible (see Section 4.16.8, Mitigation Measure Cultural-1). These impacts would not occur under the No Action Alternative.

4.16.7 Cumulative Impacts

Cultural resource surveys, data base reviews, and tribal outreach efforts have not identified cultural resources that have been determined or recommended eligible for NRHP listing or traditional cultural properties. Unless unidentified historic properties are present within Contra Loma that would be affected by management actions included in the RMP, none of the alternatives would contribute to a cumulative impact on historic properties.

4.16.8 Mitigation Measures

Mitigation Measure Cultural-1: Implement measures to protect unidentified historic properties during construction activities.

Prior to the implementation of undertakings incorporating potential ground-disturbing activities in un-surveyed areas of Contra Loma, Reclamation and the local managing partner(s) proposing the activity will follow the Section 106 process as outlined in 36 CFR, Part 800. These regulations, which describe implementation of Section 106 of the NHPA, call for consultation with the State Historic Preservation Officer, Indian Tribes, and interested members of the public throughout the Section 106 compliance process. The four principal steps are:

- initiate the Section 106 process (36 CFR, Part 800.3),

- identify historic properties (36 CFR, Part 800.4),
- assess the effects of the undertaking on historic properties within the APE (36 CFR, Part 800.5), and
- resolve adverse effects (36 CFR, Part 800.6).

The identification step would consist of a cultural resources inventory to document any historic properties that could be affected by the proposed activities. Reclamation is responsible for Native American community and public consultation and will modify undertakings if possible to avoid historic properties and make every effort to avoid other cultural resources. In addition, Reclamation, in cooperation with local managing partner(s) will ensure compliance with Section 106 of the NHPA prior to undertaking authorization.

Cultural resources and human remains are also protected according to the provisions of the Archaeological Resources Protection Act of 1979 (ARPA) and the Native American Graves Protection and Repatriation Act (NAGPRA). The ARPA strengthened the permitting procedures required for conducting archeological fieldwork on federal lands, originally mandated by the Antiquities Act of 1906. It also establishes rigorous fines and penalties for unauthorized excavation on or the removal of archaeological materials from federal land.

ARPA is important from the standpoint of managing archeological collections because it:

- acknowledges federal ownership of objects excavated from federal lands;
- calls for the preservation of objects and associated records in a "suitable" institution and,
- prohibits public disclosure of information concerning the nature and location of archeological resources that require a permit or other permission under ARPA for their excavation or removal.

NAGPRA requires federal agencies and institutions that receive federal funding to return Native American "cultural items" to lineal descendants and culturally affiliated Indian tribes and Native organizations. NAGPRA also establishes procedures for the inadvertent discovery or planned excavation of Native American cultural items and human remains on federal or tribal lands. While these provisions do not apply to discoveries or excavations on private or state lands, the collection provisions of NAGPRA may apply to Native American cultural items if they come under the control of an institution that receives federal funding. In addition, NAGPRA makes it a criminal offense to traffic in Native American human remains without right of possession or in Native American cultural items obtained in violation of NAGPRA.

4.17 Socioeconomics

4.17.1 Types of Impacts

This impact analysis includes consideration of the local and regional demographic characteristics and economies that could be affected by existing and proposed land management actions within

Contra Loma. This section assesses the potential impacts of the RMP alternatives on socioeconomics with regard to proposed management actions and resource use. For the purpose of this assessment, socioeconomic impacts were not modeled quantitatively and were not derived using dollar values. Rather, impacts are described in qualitative terms.

Potential impacts on socioeconomics could result from four general types of activities:

- Human Use
- Facility Maintenance
- Livestock Grazing
- Facility Improvements

4.17.2 Assumptions

The socioeconomic impact analysis is based on the following assumptions:

- The managing partner(s) would uphold their responsibilities to provide the standard of care necessary to ensure that public recreation facilities are reasonably available and maintained for the benefit of visitors to Contra Loma. These agencies would provide staff levels commensurate with recreation visitation to ensure implementation of the policies and management actions intended to maintain the level and quality of safety and services expected by visitors to the Regional Park and the Community Park.

- Visitation to Contra Loma would continue to increase regardless of the selected alternative, requiring an increased level of facility management.

- Because Contra Loma is a regional facility, most visitors live within about a one-hour driving radius. Therefore, the effect of visitation to Contra Loma on the local economy is limited to incidental expenditures such as gasoline, occasional meals, and consumable recreational supplies as opposed to tourism involving overnight stays and multiple, successive meals.

- Staffing of Contra Loma creates employment, thereby improving the local and regional economies.

- Facility and recreational improvements create temporary construction-related jobs, thereby improving the local and regional economies.

- Increased population growth would stimulate economic activity and improve local economies.

- None of the RMP alternatives would result in a direct change in population or the demand for housing, schools, public facilities, or public services outside of Contra Loma.

4.17.3 Impacts Common to All Alternatives

Human Use

Visitor use of Contra Loma is expected to increase under all of the RMP alternatives. Management actions included in all the RMP alternatives would be implemented to ensure continued public health and safety as well as continued operation of existing facilities and activities, thereby ensuring a positive recreation experience for park visitors. Positive visitor experiences would encourage continued or increased visitation. Use fees charged for various visitor use activities (e.g., boat launch, swim area, parking, league sports) would continue to be a consistent source of revenue that keeps pace with ever-increasing park use (see Section 3.3). Increased human use of Contra Loma would likely require increased levels of staffing and concessions, thereby creating jobs and stimulating business opportunities within Contra Loma. Increased employment and business revenues would directly and indirectly benefit many sectors of the local and regional economies. Increased human use of Contra Loma would have a net beneficial socioeconomic impact, although increasing use fees could impair the affordability of some uses for members of low-income populations.

Included in all RMP alternatives is a commitment by the managing partner(s) to provide and manage a recreational fishing program at the Regional Park's reservoir. The local managing partner(s) for the Regional Park will continue to provide a recreational fishing program in the reservoir and to manage fish populations through fish planting (i.e., stocking) programs. In 2011 in California, $2.3 billion was spent on fishing recreation, of which $1.6 billion was for trip-related expenditures, $577 million was for equipment purchases, and $71 million was for the purchase of other items, such as magazines, membership dues, licenses, permits, stamps, and land leasing and ownership. The average expenditure per angler was $1,333 and the average angler trip expenditure per day was $68. In California, in 2012, sales generated by sport fishing licenses totaled $56,959,464 (California Department of Fish and Wildlife 2013b). Fishing at Contra Loma contributes to the local economy through sales of fishing supplies such as bait, tackle, and equipment resulting in a beneficial socioeconomic impact.

Facility Maintenance

In order to maintain existing land uses, all RMP alternatives would include ongoing routine maintenance activities and repairs of existing facilities by the managing partner(s) at the Regional Park and the Community Park. Anticipated increases in visitation would increase the frequency and amount of maintenance that would be required to meet the public's expectations and enjoyment of park facilities and recreational opportunities. Increased facility maintenance and repair could have a minor beneficial socioeconomic impact on the region because the managing partner(s) would need to purchase additional supplies and services.

4.17.4 Impacts Specific to the No Action Alternative

Human Use

The impacts would be the same as those addressed in Section 4.17.3.

Facility Maintenance

The impacts would be the same as those addressed in Section 4.17.3.

Livestock Grazing

Livestock grazing would likely continue in the Regional Park under this alternative. The local managing partner(s) for the Regional Park would likely continue to collect fees to cover administrative costs; however, no increase in grazing acreage or intensity would occur. Consequently, there would be no change from current socioeconomic conditions.

4.17.5 Impacts Specific to the Enhanced Recreation and Facilities Alternative

Human Use

This alternative would include facility improvements and renovations that could increase the public's enjoyment and use of the Regional Park and the Community Park. These improvements would likely attract more visitors than the No Action Alternative. Although there could be an increase in visitor use, the impacts would be the same as those expected under the No Action Alternative and addressed in Section 4.17.3.

Facility Maintenance

This alternative would include facility improvements and renovations that could increase the public's enjoyment and use of the Regional Park and the Community Park. These improvements would likely attract more visitors and require more maintenance than the No Action Alternative. Increased facility maintenance and repair could have a minor beneficial socioeconomic impact on the region because the managing partner(s) would need to purchase additional supplies and services similar to the No Action Alternative.

Livestock Grazing

Under this alternative, adjustment of the boundary lines between the Regional Park and Community Park could result in an overall increase of approximately 0.3 acre of grazing in Contra Loma. This would represent a negligible increase in grazing area of 0.07 percent. Any increase in grazing revenue from this additional grazing area would also be negligible and would not change socioeconomic conditions.

Facility Improvements

This alternative would include construction, expansion, or renovation of recreation and infrastructure facilities for the purpose of improving operation and enjoyment of Contra Loma. These improvements would not be built under the No Action Alternative. Recreational facility improvements may include structures and facilities for classes, such as a low-income youth swim program; improved fishing docks, cleaning stations, and a boat launch that would increase the desirability of fishing opportunities at the reservoir; the addition of picnic sites within the reservoir's recreation cluster; and improvements to the Community Park sports fields. These improvements would increase Contra Loma's attractiveness to a wide variety of visitors, including minority and low-income populations, and may increase the desirability of buying or renting a home in the local area. This, in turn, could increase housing costs in the local area. This effect would not occur under the No Action Alternative.

This alternative also includes a management action to increase the frequency of fish stocking in the reservoir from current levels in order to meet demand. Fishing at the reservoir provides important social benefits for some populations in the region. Increasing fisheries resources would benefit the local economy by increasing the desirability of the reservoir as a fishing destination;

therefore, resulting in a beneficial socioeconomic impact that would not occur under the No Action Alternative.

Facility improvements at the Regional Park and Community Park would create temporary construction-related jobs and increase the amount the services and supplies purchased by the local managing partner(s). Facility improvements would contribute to the local and regional economies, resulting in temporary beneficial socioeconomic impacts that would not occur under the No Action Alternative.

4.17.6 Impacts Specific to the Expanded Recreation and Facilities Alternative

Human Use

This alternative would include facility improvements and renovations beyond those proposed under the Enhanced Recreation and Facilities Alternative, such as a new disc golf course, expansion of the swim lagoon at the Regional Park, and two new sports fields at the Community Park. These improvements would further increase the public's enjoyment and use of the Regional Park and the Community Park and would likely attract more visitors than the other alternatives. Increased human use would have a beneficial socioeconomic impact through increased job creation potential and revenue generation at Contra Loma and in the surrounding communities that would not occur under the No Action Alternative.

Facility Maintenance

This alternative would include facility improvements and renovations beyond those proposed under the Enhanced Recreation and Facilities Alternative. These improvements would likely attract more visitors and require more maintenance than the other alternatives. Increased facility maintenance and repair could have a beneficial socioeconomic impact on the region because the managing partner(s) would need to purchase additional supplies and services that would be needed under the No Action Alternative and as described in Section 4.17.3.

Livestock Grazing

This alternative may include the addition of two new sports fields within the Community Park and expansion of the Community Park boundaries south into the Regional Park. Livestock would be excluded from this area (approximately 15 acres), which is currently grazed. In conjunction with the potential boundary change between the parks, this expansion would result in a net reduction of grazing in Contra Loma by 14.7 acres. This would reduce grazing within Contra Loma by about 3 percent, thus reducing grazing revenues by about 3 percent. This reduction of grazing land would cause a negligible (about 0.01 percent) decrease in the amount of active pasture and range land within the County as compared to the No Action Alternative. This alternative would have a minor adverse socioeconomic effect with respect to livestock grazing.

Facility Improvements

This alternative would include facility improvements and renovations beyond those proposed under the Enhanced Recreation and Facilities Alternative. These improvements would likely attract more visitors and require more maintenance than the other alternatives. Facility improvements would cause beneficial impacts that would not occur under the No Action Alternative for the same reasons discussed in Section 4.17.5.

4.17.7 Cumulative Impacts

Increased Visitation, Concurrent Improvements, and Land Use Changes

As discussed previously, visitation to Contra Loma is expected to continue to increase under all of the alternatives with more visitation expected under the two action alternatives than the No Action Alternative. A substantial portion of the expected future visitor increase would be attributable to the projected population increase expected to occur within the northeastern portion of the County from buildout of the City and County general plans. The improvements to sports fields 4 and 5 and the boat launch area upgrades will increase visitation to Contra Loma.

Human Use

The cumulative increase in visitation would likely require increased levels of staffing and concessions, thereby creating jobs and stimulating business opportunities within Contra Loma. Increased employment and business revenues would benefit many sectors of the local and regional economies. This would result in a beneficial cumulative impact. The Expanded Recreation and Facilities Alternative would have a greater effect than the other alternatives because it would attract more visitors.

Facility Maintenance

Increased visitation would increase the need for facility maintenance and repair, which could have a minor cumulative beneficial socioeconomic impact on the region because the managing partner(s) would need to purchase additional supplies and services. The two action alternatives would have a greater effect than the No Action Alternative because they would require more facility maintenance.

Facility Improvements

The two action alternatives would include construction, expansion, or renovation of recreation and infrastructure facilities. These improvements, along with the improvements to sports fields 4 and 5 and the boat launch area, would increase Contra Loma's attractiveness to a wide variety of visitors, including minority and low-income populations, and may increase the desirability of buying or renting a home in the local area. This, in turn, could increase housing costs in the local area. This cumulative adverse effect would not occur under the No Action Alternative.

The facility improvements included in the two action alternatives, along with the boat launch improvements, would create temporary construction-related jobs and increase the amount the services and supplies purchased by the local managing partner(s). Facility improvements would contribute to the local and regional economies, resulting in temporary beneficial cumulative impacts that would not occur under the No Action Alternative.

4.17.8 Mitigation Measures

No need for mitigation has been identified.

4.18 Environmental Justice

4.18.1 Types of Impacts

This impact analysis considers whether the RMP alternatives could cause disproportionately high and adverse impacts to minority and/or low-income populations. Federal agencies are required to

include analysis of environmental justice in their EISs. Because the RMP neither includes nor defines specific projects, the analysis in this section is qualitative.

Potential impacts to environmental justice populations could result from four general types of activities:

- Human Use
- Facility Improvements
- Facility Maintenance
- Low-Income Recreational Programs

4.18.2 Assumptions

The environmental justice impact analysis is based on the following assumptions:

- "Minority population" is defined as including all non-white racial groups and Hispanics of any racial group. "Low-income" population is defined based on federal poverty thresholds (Council of Environmental Quality 1997).

- The managing partner(s) would uphold their responsibilities to provide the standard of care necessary to ensure that public recreation facilities are reasonably available and maintained for the benefit of visitors to Contra Loma. These agencies would provide staff levels commensurate with recreation visitation to ensure implementation of the policies and management actions intended to maintain the level and quality of safety and services expected by visitors to the Regional Park and the Community Park.

- Visitation to Contra Loma would continue to increase regardless of the selected alternative.

- Facility and recreational improvements create temporary construction-related jobs.

4.18.3 Impacts – All Alternatives

Although some residents in the general vicinity of Contra Loma have incomes below the poverty level, the proportion of low-income households within the community is not high enough to be considered a low-income population. According to the Census Bureau, the proportions of households within the County and the City that have incomes below the poverty level are relatively low at 8.6 and 12.5 percent, respectively, and do not constitute a majority. These percentages are lower than the state average of 13.2 percent (Census Bureau 2009; Fannie Mae 2011). Therefore, none of the alternatives would disproportionately affect low-income populations.

According to the Council on Environmental Quality, minority populations should be identified where either: (a) the minority population of the affected area exceeds 50 percent; or, (b) the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis (Council of Environmental Quality 1997).

The minority population in the City exceeds 50 percent, which is a higher proportion than the County. In 2010, the percentage of non-Hispanic minorities in the City totaled 51.1 percent and people of Hispanic ethnicity comprised 31.7 percent of the City's population. In comparison, the percentage of non-Hispanic minorities in the County totaled 41.4 percent and people of Hispanic ethnicity comprised 24.4 percent of the County's population in 2010. Although the population in the general vicinity of Contra Loma includes a relatively high proportion of minorities, none of the alternatives would cause dislocation, adverse changes in employment, or increase flood, drought, or disease and none would disproportionately impact economically disadvantaged or minority populations in an adverse manner.

No private residences are located within Contra Loma; therefore, none of the alternatives include any land use changes that would directly cause people to move or otherwise be dislocated from their residences. Offsite effects of the RMP alternatives include minor noise increases near Contra Loma and more vehicles using public roads to access Contra Loma. As discussed in Sections 4.4 and 4.13, these offsite impacts would be minor; therefore, they would not be expected to indirectly cause people to move from their residences. None of the census tracts nearest Contra Loma (i.e., those most likely to be affected by these offsite effects) are comprised of more than 50 percent minorities (Census Bureau 2010c). Therefore, these minor impacts would not disproportionately affect minority populations.

As discussed previously, all of the alternatives have the potential to increase employment and business opportunities within Contra Loma and in the surrounding communities. None of the alternatives would reduce or eliminate employment opportunities.

All of the alternatives would include management actions that encourage continued use of Contra Loma's recreational facilities by low-income groups (e.g., low-income youth swimming programs), thereby benefiting low-income individuals.

4.18.4 Cumulative Impacts

None of the alternatives would disproportionately affect low-income populations or cause dislocation, adverse changes in employment, or increase flood, drought, or disease and none would disproportionately impact economically disadvantaged or minority populations in an adverse manner. Therefore, none of the alternatives would contribute to a cumulative adverse impact with respect to environmental justice.

4.18.5 Mitigation Measures

No need for mitigation has been identified.

4.19 Unavoidable Adverse Impacts

NEPA Section 102(2)(c)(ii) requires the environmental analysis in an EIS to identify any unavoidable adverse impacts, defined as those impacts of an action that cannot be avoided, either by changing the nature of the action or through mitigation if the action in undertaken. Based on the analysis presented in EIS Sections 4.2 through 4.17, the RMP would result in several unavoidable adverse impacts, although all adverse impacts would be minor or could be mitigated to a minor level.

Visitor use to Contra Loma is expected to increase under all of the RMP alternatives for the foreseeable future. Increased visitation would result in many types of unavoidable adverse impacts, such as increased risk of conflict between various user groups and between recreational activities and grazing; increased vehicle congestion on internal park roads and public roads leading to Contra Loma; increased demand for parking spaces; increased volumes of air pollutants, including GHGs, generated by visitor vehicles; increased volumes of PM generated by additional use of trails and barbecue grills; increased demand for utilities such as water, wastewater disposal, and electricity; increased risk of littering, trampled vegetation, scarred terrain, vandalism, and facility deterioration, which could impair the visual quality of the landscape; increased risk of accidental releases or inadvertent public contact with potentially hazardous materials used for construction and maintenance activities; increased risk of damage to known or unknown cultural resources; increased risk of water quality impacts from unauthorized human contact with the reservoir; increased risk of water quality and public health impacts from increased volumes of solid, human, and domestic animal (e.g., dogs and horses) waste; increased erosion and sedimentation from trail use; increased risk of damage to sensitive vegetation communities and wildlife habitats; increased risk of introduction or spread of invasive or noxious non-native plant or animal species (e.g., zebra or quagga mussels); increased risk of human disturbance to wildlife caused by noise impacts or simply by human presence; and increased pressure on the recreational fishery resources.

Maintenance activities would continue under all of the alternatives. The two action alternatives would include construction of new or renovated facilities which, in turn, would require additional maintenance. Maintenance and construction activities can cause short-term and long-term unavoidable adverse impacts. New construction can cause impacts to vegetation from vegetation removal within the structure footprint, overcovering for spoils deposition, or erosion. Ground disturbing activity can also affect wildlife through direct mortality, noise, contact with inadvertent chemical spills, and impacts to habitat. Most of the affected vegetation is expected to be non-native annual grassland; however, other sensitive vegetation communities could be affected.

Construction activities could affect water quality through erosion and sedimentation, a temporary increase in reservoir turbidity due to runoff from construction areas, or inadvertent spilling of construction-related chemicals. Increased use of mechanized equipment would generate additional air pollutants, including GHGs and PM. Ground disturbance could also damage known or previously undiscovered cultural resources.

The new or renovated facilities proposed under the two action alternatives could also cause other unavoidable adverse impacts. Some of the facilities would convert vegetation communities to recreational or administrative land uses, thereby reducing the amount of wildlife habitat within the Regional Park. Most of the affected vegetation is expected to be non-native annual grassland; however, other sensitive vegetation communities could be affected. Some of the facility improvements would change Contra Loma’s visual setting and possibly impair its visual character in some locations. For example, a new communications tower could be visible from viewpoints in many areas of Contra Loma, and from some offsite locations. Also, floodlights for the proposed sports fields could produce nighttime glare or a general skyglow that may be visible from some nearby residences. The new sports fields would increase ambient noise in the vicinity of the Community Park and would exclude livestock grazing from about 15 acres of land that is

currently grazed. This would permanently reduce the amount of grazing land available within Contra Loma. New or expanded facilities would increase demand for utilities such as water, wastewater disposal, and electricity and would increase energy demand, which could generate increased volumes of air pollutants, including GHGs.

4.20 Irreversible or Irretrievable Commitment of Resources

NEPA Section 102(2)(c)(v) requires the environmental analysis in an EIS to identify any irreversible and irretrievable commitment of resources that would be involved in the proposed action should it be implemented. Reclamation and other Federal agencies have interpreted irreversible and irretrievable commitments to mean the use of nonrenewable resources and the effects this use would have for the future.

An irreversible commitment of resources refers to a loss of future opportunities associated primarily with nonrenewable resources, such as mineral, soils, or cultural resources. The effects of project actions on nonrenewable resources are usually permanent, although in some cases the resource could be restored over a long period of time and possibly at great expense. Mineral extraction, destruction of cultural resources, and species extinction are examples of irreversible commitments.

An irretrievable commitment of resources occurs when there is a loss of opportunity for production, harvest, or use of nonrenewable resources. Typically, these opportunities are forfeited while the proposed action is being implemented. During this period, use of the resource cannot be realized. Land conversion to a use that would prevent extraction of underground minerals and construction of a levee preventing beneficial flooding of flood plains to replenish soil fertility are examples of irretrievable commitments.

The principal nonrenewable resources within Contra Loma include cultural resources and special-status species. Open space and views of undeveloped, natural landscapes may also be considered nonrenewable resources within Contra Loma. Coal and sand mining historically occurred within the adjacent Black Diamond Mines Regional Preserve until unfavorable market conditions caused the mines to cease production. Coal, sand, and other mineral resources could also underlie Contra Loma.

Implementation of the RMP would not result in an irreversible or irretrievable commitment of cultural resources or special-status species because the RMP includes goals and management actions to effectively manage these resources, because none of the alternatives includes actions that would require use or elimination of these resources, and because the EIS includes mitigation measures to protect cultural resources and special-status species.

The RMP would irretrievably commit open space and views of undeveloped, natural landscapes within Contra Loma because many of the RMP management actions would include recreation or facility improvements. Most of the improvements would be visible to varying degrees and depending on their location and setting, some improvements would irreversibly change views of undeveloped, natural landscapes to other uses consistent with the management and operation of a public recreation area. However, the RMP includes management actions requiring certain

improvements (i.e., radio communication facilities) to be sited and designed in a manner that minimizes impacts to the Regional Park's aesthetic character. In addition, the EIS includes mitigation measures requiring the managing partner(s) to implement design measures to reduce visual impacts from new development.

If coal, sand, or other mineral resources underlie Contra Loma, the RMP would cause an irretrievable commitment these resources because the RMP would not allow mining to occur within Contra Loma. Similar to the historic mining that occurred within Black Diamond Mines Regional Preserve, however, market conditions would likely not be favorable for extracting these resources even if they were present and mining were allowed in Contra Loma.

The RMP would not cause any other irreversible or irretrievable commitments of resources.

4.21 Relationship of Short-Term Uses of the Environment to Long-Term Productivity

NEPA Section 102(2)(c)(iv) requires an EIS to discuss the relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity. In other words, an EIS should include a discussion of long-term effects versus short-term effects, regardless of whether such effects are adverse or beneficial. Short-term effects are expected to occur while various management actions are being implemented (i.e., constructed). Long-term effects are those effects expected to continue for an extended period after implementation of a management action. They may or may not extend beyond the 25-year planning horizon of the RMP.

The previous sections of Chapter 4 evaluated the environmental impacts of implementing each of the alternatives and identified short-term effects and long-term effects, when applicable. Regardless of which alternative is selected, certain management activities would result in various short-term adverse effects from construction activities such as increased localized soil erosion, air pollutant emissions affecting air quality, damage to vegetation and to fish and wildlife habitat, and decreased visual resource quality. These short-term adverse effects from construction activities would lead to long-term beneficial effects such as improved recreational opportunities, replacement of portable chemical toilets with permanent restrooms, improved radio communications for public service personnel, the use of solar panels to decrease dependency on commercial electricity, improved safety from construction of a "safe swim" area or splash pad for small children at the swim lagoon, improved accessibility from ADA upgrades, improved aesthetics from replacement of deteriorating facilities, and socioeconomic benefits from facility improvements, maintenance, and increased visitation. Therefore, the short-term adverse effects from temporary construction activities would improve the productivity of Contra Loma's recreational resources, the ability of the local managing partner(s) to manage Contra Loma, and the economic productivity of the local economy.

Many of the proposed management actions would result in long-term adverse effects. For example, construction of new facilities would convert wildlife habitat and grazing land to recreational or administrative uses, thereby causing a long-term reduction of the productivity of Contra Loma's wildlife habitat and grazing land. Construction of new facilities would also

change Contra Loma's visual setting and possibly impair its visual character in some locations. However, these long-term adverse effects would improve the productivity of Contra Loma's recreational resources, the ability of the local managing partner(s) to manage Contra Loma, and the economic productivity of the local economy.

As discussed in the previous sections of Chapter 4, most of the RMP's long-term adverse effects would be minor and the remainder would be mitigated to a minor level.

Chapter 5. Consultation, Coordination, and Cooperation

This chapter describes the history of relevant public involvement and agency coordination activities that have taken place and that will take place during the planning and preparation of this RMP/EIS.

5.1 Public Involvement

Public involvement is a critical element in developing the RMP. Reclamation's goal is to gain input from a cross section of the user public and stakeholders, including the current local managing partners. A Notice of Intent to prepare the RMP/EIS was published in the *Federal Register* on November 12, 2009. Reclamation conducted public outreach in 2010 and 2011 to explain the scope and objectives of the Contra Loma RMP and to encourage comments from the public and stakeholders, including EBRPD, the City, CCWD, about the issues that should be addressed in the RMP and evaluated in the EIS. Reclamation held a scoping meeting for the Contra Loma RMP/EIS on February 8, 2010, at the Nick Rodriguez Community Center in Antioch. Reclamation also held a public workshop on August 4, 2010, at Sutter Elementary School in Antioch to seek ideas, concerns, and comments to inform development of the RMP/EIS. Written scoping comments were solicited by Reclamation from February 8 through 22, 2010 and from August 4 through 31, 2010. On March 3, 2011, Reclamation held a second public workshop at Prewett Community Center in Antioch to solicit comments on the conceptual draft packages of RMP actions and alternatives.

Attendance at the three public meetings/workshops totaled 59 participants: 20 people attended the scoping meeting, 26 attended the August 4, 2010 workshop, and 13 people attended the March 3, 2011 workshop. Some participants attended more than one meeting or workshop. Some attendees at the scoping meeting and the March 3, 2011 workshop provided verbal comments, which were recorded by hand and are summarized in Appendix D. Written comments were received from the following public agencies and elected officials:

- The Office of U.S. Congressman John Garamendi
- The Office of County Supervisor Federal D. Glover
- East Bay Regional Park District
- Contra Costa Water District
- Antioch City Council
- Antioch Parks and Recreation Commission
- City of Antioch Recreation Department

Comments were received from the following nongovernmental organizations or representatives of such organizations:

- Delta Youth Soccer League
- Turf and Track Group
- St. Anthony Church
- Village Community Resource Center

In addition, Reclamation developed a mailing list (and accompanying database), produced and distributed flyers and public notices, and posted project updates and information on Reclamation's Contra Loma RMP/EIS website and the EBRPD website listed below.

- www.usbr.gov/mp/nepa/nepa_projdetails.cfm?Project_ID=6396
- www.ebparks.org/

Based on the comments received and its own review of the issues, Reclamation identified the following primary issue areas to be addressed in the RMP:

- recreational facilities and opportunities at Contra Loma Regional Park,
- infrastructure and administrative facilities at Contra Loma Regional Park,
- facility management at Contra Loma Regional Park,
- recreational facilities and opportunities at Antioch Community Park,
- facility management at Antioch Community Park,
- reservoir management and reservoir water quality, and
- pasture vegetation management at Contra Loma Regional Park.

Reclamation also identified the following sub-issue areas within the primary issue areas:

- swim lagoon;
- fishing;
- reservoir recreation (non-fishing);
- trail system;
- sports fields;
- other recreation;
- restrooms;
- buildings, structures, and other infrastructure;

- litter, animal feces, and graffiti;
- staffing and security;
- reservoir level fluctuation;
- reservoir water quality; and
- aquatic invasive species.

In December 2010, Reclamation prepared an Issues and Opportunities Report that provided a summary of public comments and the issues that were raised during the scoping meeting and the first public workshop in August 2010.

Reclamation prepared an Issues and Opportunities Report summarizing the public comments and issues raised during the scoping meeting and the first public workshop in August 2010. The report is included as Appendix A and provides a summary of written and verbal comments provided by agencies, organizations, and individuals (Bureau of Reclamation 2010).

Summaries of the public meetings and workshops and copies of the public notices are provided in Appendix D.

Reclamation posted the Draft RMP/EIS for a 60-day public review period to solicit written comments, beginning on May 2 and ending on July 2, 2014. Reclamation also held a public meeting on May 19, 2014, to receive public comments on the Draft RMP/EIS. Comments received and responses to public comments are included in Appendix G.

5.2 Cooperating Agencies

No cooperating agencies were invited to formally participate in preparation of this EIS. However, Reclamation coordinated extensively with the EBRPD, the City, and CCWD throughout the course of the RMP planning process. These agencies contributed to the RMP/EIS by providing data, planning documents, technical expertise, and anecdotal information based on many years of experience managing natural and cultural resources at Contra Loma. In addition, all of these agencies attended the scoping meeting and participated in the RMP workshops. In addition, federally-recognized Indian Tribes were consulted during preparation of the Contra Loma Recreation Area Cultural Resources Technical Report.

5.3 Other Environmental Compliance

The RMP includes recommendations for various resource management actions and facility improvement projects. These are specific actions that may be implemented at Contra Loma to meet the RMP goals. These management actions and projects are defined at a conceptual or programmatic level in the RMP. More detailed descriptions of the actions and projects will be developed during the planning horizon of the RMP. The responsibility for funding, designing,

and implementing (or constructing) the management actions and improvement projects will be specified in financial assistance agreements with the local managing partner(s).

Should the local managing partner(s) choose to implement management actions that involve new or expanded recreational activities or facilities identified in the RMP, such as new fishing docks in the reservoir or new sewer lines to connect the Regional Park sanitary facilities to the City's wastewater treatment system, they would be required to conduct an appropriate site specific environmental review. The local managing partner(s) would need to receive Reclamation approval and project-specific environmental documentation would be prepared to meet NEPA and other Federal environmental requirements. In addition, local managing partner(s) will need to satisfy CEQA requirements.

The actions described in this RMP/EIS have been analyzed at a programmatic level. Given this level of specificity additional environmental compliance maybe required when specific projects described in this document are implemented. Consultations with the State Historic Preservation Office and affected Indian Tribes pursuant to the NHPA could be required during implementation of individual projects. Consultation with the USFWS would be initiated if Reclamation determines that any proposed projects, when identified, may affect listed species.

Chapter 6. List of Preparers

6.1 Bureau of Reclamation

Name	Position/Title	Role
Sheryl Carter	Chief of Lands Division	Contracting Officer Representative
David Woolley	Land Resource Specialist	Overall Project Management
Rain Emerson	Supervisory Natural Resources Specialist	NEPA Review
Michael Inthavong	Natural Resources Specialist	NEPA Review
Elizabeth Vasquez	Natural Resources Specialist	NEPA Review
Laureen Perry	Regional Archaeologist	Cultural Resources Review
Amy Barnes	Archaeologist	Cultural Resources Review
Ned Gruenhagen	Wildlife Biologist	Biological Resources
Jennifer Lewis	Wildlife Biologist	Biological Resources

6.2 North State Resources, Inc.

Name	Position/Title	Area of Expertise Addressed In RMP/EIS
Leslie Perry	Environmental Analyst	Deputy Project Manager
Scott Goebl	Senior Environmental Manager	Overall Project Management, Visual Resources, Cumulative
Wirt Lanning	NEPA Program Manager	Overall Project Direction
Scott Lorenzen	Environmental Analyst	Comment Responses
Connie Carpenter	Environmental Analyst	Land Use and Management, Recreation, Visitor Access and Circulation, Utilities, Public Health and Safety, Geology and Soils, Climate and Air Quality, Noise, Hazards, Socioeconomics and Environmental Justice
Brian Ludwig, Ph.D.	Senior Archaeologist	Cultural Resources
Kristina Crawford	Archaeologist	Cultural Resources
Paul Kirk	Botanist	Vegetation
Brandon Amrhein	Wildlife Biologist	Wildlife
Bruce Webb	Senior Environmental Analyst	Fisheries, Vegetation, Wildlife
Duncan Drummond	Registered Geologist	Geology and Soils, Water Quality
Mike Gorman	Fisheries Biologist	Fisheries
Andy Lindeman	Water Quality Analyst	Water Resources
Teri Mooney	GIS Specialist	GIS

Name	Position/Title	Area of Expertise Addressed In RMP/EIS
Sylvia Cantu	Document Production Specialist	Document Production
Andrew Minks	Environmental Analyst	Technical Editing
Brooke McDonald	Editor	Technical Editing

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7.2 Personal Communications

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Bondurant, J., Senior Park Planner, East Bay Regional Park District. September 19, 2011a. Email to Debra Lilly of North State Resources regarding public services at Contra Loma Recreation Area.

Bondurant, J., Senior Park Planner, East Bay Regional Park District. August 30, 2011b. Email to Scott Goebl of North State Resources regarding visitor use and park facilities at Contra Loma Recreation Area.

Bondurant, J., Senior Park Planner, East Bay Regional Park District. October 8, 2013. Email to Scott Goebl of North State Resources regarding paleontological resources at Contra Loma Recreation Area.

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APPENDIX A

Issues and Opportunities Report

RECLAMATION

Managing Water in the West

Contra Loma Reservoir and Recreation Area
Resource Management Plan Project

Issues and Opportunities Report

California, Mid-Pacific Region

U.S. Department of the Interior
Bureau of Reclamation

December 2010

Contra Loma Reservoir and Recreation Area
Resource Management Plan Project

Issues and Opportunities Report

California, Mid-Pacific Region

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Introduction

The U.S. Bureau of Reclamation (Reclamation) is developing a Resource Management Plan (RMP) for the Contra Loma Reservoir and Recreation Area (Contra Loma) in Antioch, Contra Costa County, California. The Contra Loma RMP will be a long-term plan to guide management of the reservoir, the recreation areas, and surrounding lands owned by Reclamation. The RMP is being developed based on a comprehensive inventory of environmental resources and facilities; input from the current local managing partners (i.e., the East Bay Regional Park District [EBRPD], the City of Antioch [the City], and the Contra Costa Water District [CCWD]); and input from the public. The primary emphasis of the RMP is to protect water supply, water quality, and natural resources, while enhancing recreational uses.

The overall objective of this RMP is to establish a set of management objectives, goals, and actions to be implemented by Reclamation, either directly or through its management agreement(s) that will:

- establish uniform policy and land management guidelines that promote organized use, development, and management of the Contra Loma Reservoir and the surrounding recreation area lands compatible with applicable federal and state laws;
- protect the water supply and water-quality functions of Contra Loma Reservoir;
- protect and enhance natural and cultural resources in and around the reservoir, consistent with federal law and Reclamation policies;
- provide recreational opportunities and facilities to enhance and develop management strategies, consistent with Reclamation policies, and state water policies; and
- provide guidance for future decision making.

Contra Loma Reservoir was constructed as part of the Central Valley Project and is managed by Reclamation's Mid-Pacific Region through its South-Central California Area Office. The reservoir receives water from the Contra Costa Canal and stores it until it is released back to the canal via gravity flow. The reservoir is primarily used as a regulating reservoir for peak or short-term municipal water supplies for CCWD customers, for emergency storage, and as a backup water supply during maintenance of upstream facilities. The CCWD operates and maintains the reservoir and manages its water level. EBRPD is responsible for managing the surrounding recreational lands as provided for

under a management agreement between Reclamation and EBRPD. On September 19, 1972, Reclamation transferred responsibility of land use management and development, construction, and maintenance of public recreational facilities to EBRPD. The City operates and manages the Antioch Community Park in the northwestern portion of Contra Loma under a license agreement with EBRPD, granted in January 1990. EBRPD, CCWD, and the City are the current managing partners for Contra Loma.

The management agreement between Reclamation and EBRPD expires on December 31, 2010. Reclamation issued an extension on December 6, 2010 to extend the agreement with EBRPD through completion of the RMP process, which is scheduled for early 2013. After completion of the RMP process, Reclamation will negotiate a new long-term management agreement with one or more local managing partner(s). The managing partner(s) may include EBRPD, the City, and/or other local partner(s). The RMP will provide the overall resource and recreation management direction and framework for Contra Loma and will serve as a guidance document for the local managing partner(s) for day-to-day operations and long-range planning.

The purpose of this issues and opportunities report is to provide an overview of the facilities and the natural and cultural resources that will be addressed in the RMP and to identify potential issues, constraints, and opportunities relating to management of the resources. Under each resource topic, the discussion includes a brief description or overview of the resource, identification of any gaps in information currently available, an approach to collecting the additional information, and the potential issues and opportunities that should be considered during development of the RMP. If it is anticipated that specific technical studies will be required, these are identified under the appropriate resource topic. The information presented in this report will be used to help identify issues and opportunities in developing alternatives and will become the basis for the existing conditions/affected environment chapter of the RMP and Environmental Impact Statement (EIS).

Summary of Topics and Issues Identified Through Scoping and Public Workshops

Reclamation held the first scoping meeting for the RMP/EIS on February 8, 2010, at the Nick Rodriguez Community Center in Antioch. Reclamation held a public workshop on August 4, 2010, at Sutter Elementary School in Antioch to seek ideas, concerns, and comments that will inform the development of the RMP/EIS. Reclamation also solicited written scoping comments between February 8 and 22, 2010, and solicited written comments to inform the RMP between August 4 and 31, 2010.

Topics Identified During Public Outreach

These public-outreach opportunities resulted in many written and verbal comments about management of the reservoir and recreation area and issues to consider during development of the RMP. Specific topics identified during the initial scoping period are:

- Soccer fields at Antioch Community Park
- Recreational opportunities and facilities at Contra Loma Reservoir
- General improvement and maintenance of the park
- Management agreement with EBRPD
- Water quality of the reservoir
- Fluctuations in the level of the reservoir
- Largemouth bass populations
- Invasive aquatic species
- Wildlife habitat restoration
- Wildlife habitat and movement
- East County Parks Habitat Conservation Plan

Specific additional topics identified during the August 2010 comment period are:

- Enjoyment of Contra Loma
- Water quality of the reservoir
- Dead clams and fish carcasses along the shoreline
- Relative abundance of insects and small fish along the shoreline
- Fish populations (largemouth bass and crappie)
- Fish stocking
- Algae blooms in the reservoir
- Illegal fishing (poaching)

- Fishing docks
- Weeds and tules that may hinder fishing
- Animal feces (geese, horses, dogs) near the reservoir
- Job opportunities for lifeguards and swimming instructors
- Swimming/lifeguard lessons and programs at the lagoon
- Picnic areas
- Swim lagoon size, capacity, and facilities
- Public safety services (police/fire)
- Community enrichment
- Bird and wildlife habitat
- Naturalist programs
- Educational opportunities for children
- Trail quality, condition, shade, connections
- Dog use
- Parking supply
- Expansion or renovation of facilities
- Addition of a park residence
- Restroom facilities
- Kayaking restrictions
- Mountain bike loop-trail opportunities
- Litter and clean-up
- Communications among park staff
- Swimming events in the reservoir
- Running and other community events

- Disc golf course
- Integrated pest management program
- Water infrastructure for grazing
- Team sports at Antioch Community Park
- Mix of baseball and soccer fields at Antioch Community Park
- Staffing and security at Antioch Community Park
- Cleanliness at Antioch Community Park
- Trail and grass conditions at Antioch Community Park
- Trail connections at Antioch Community Park
- Operating hours of Antioch Community Park
- Pathway lighting improvement at Antioch Community Park
- A botanical garden at Antioch Community Park

Issues Raised During Public Outreach

The following is a list of resource management issues raised by the public and the current managing partner agencies during the public outreach process. These issues should be considered during development of the RMP.

Recreational Facilities and Opportunities at Contra Loma Regional Park

Swim lagoon

- Increase the size of the swim lagoon to accommodate demand.
- Provide a safe swim area or splash pad for small children.
- Provide more shade around the swim lagoon lawn.
- Add benches in the swim lagoon area.
- Increase parking at the swim lagoon.
- Consider the effects of the swim lagoon on the visual character and peacefulness of the recreation area.

- Prohibit smoking at the lagoon and designate smoking areas down-wind from swimmers.

Fishing

- Improve shoreline access for fishing by controlling vegetation along the shoreline.
- Replace aging fishing docks.
- Modify fishing docks to allow safe, continuous fishing during reservoir drawdowns.
- Add more fishing docks, possibly on the east shore.
- Enforce poaching regulations.
- Increase fish stocking.
- Control vegetation in the reservoir.
- Repair the fish-cleaning facility.

Reservoir recreation (non-fishing)

- Ease restrictions on kayaking intended to reduce body contact with the reservoir.
- Reintroduce swimming in the reservoir.
- Reintroduce swimming events in the reservoir.

Trail system

- Improve the existing East Shore–West Shore trails loop with an all-season surface.
- Provide more shade along the trails.
- Increase availability of trails for mountain biking.
- Increase loop-trail opportunities for mountain biking.
- Create multi-use trail connectors in several locations.

Other recreation

- Install shade structures to support recreational uses and to provide shade in parking areas.
- Construct more picnic sites where useful and appropriate.

- Provide a playground structure.
- Continue or increase running events in Contra Loma.
- Continue to provide outdoor educational experiences for children.
- Consider overnight group camping as part of the current day-camp programs or for special events.
- Consider building a disc golf course.
- Consider the effects of additional improvements on the character of the recreation area.
- Ensure that improvements are consistent with EBRPD's future habitat-restoration projects and its future Habitat Conservation Plan (HCP) and Natural Community Conservation Plan (NCCP).
- Construct a fishermen's shelter.
- Increase off-leash dog areas.

Infrastructure and Administrative Facilities at Contra Loma Regional Park

Restrooms

- Provide more and better restroom facilities to accommodate existing user needs.
- Replace the existing chemical toilets with modern vault restrooms.
- Provide a restroom facility near the northwest-shore fishing dock.
- Consider installing sewer lines that connect the regional park to the City's wastewater system.

Buildings and structures

- Expand or renovate existing park offices, the EBRPD police substation, the secondary storage yard, and the buildings near the swim lagoon to better provide for public service and safety.
- Add structures and facilities for classes, including swimming and safety lessons.
- Build a new park residence.
- Expand the gravel/overflow parking areas.
- Consider paving the existing gravel parking areas.

- Consider a fueling station and storage tank at or near the maintenance yard for park staff and public safety officers.

Other infrastructure

- Consider adding a radio communication tower and other needed facilities to improve communications for EBRPD and public service providers.

- Install water infrastructure to support grazing.

Facility Management at Contra Loma Regional Park

Litter and animal feces (dogs, horses, geese)

- Increase litter cans on the east and northwest shores and the dam and along trails.

- Provide signage with telephone contact information to report litter and feces problems.

- Increase the education of park users about keeping the park clean with signage and rangers, especially in the picnic areas.

- Issue littering tickets.

- Provide stations for dog-feces bags throughout the park.

- Reduce occurrence of horse feces near the reservoir.

- Patrol and clean up trails more frequently to remove litter and feces.

Other facility management

- Continue and expand programs to manage zebra and quagga mussels, New Zealand mud snails, and carp.

- Continue to implement an integrated pest management plan (weeds, rodents, wasps).

- Clarify law enforcement and public safety roles for each managing partner agency.

- Consider a donation box for walk-in users.

- Consider increasing EBRPD's irrigation allotment of 100 acre-feet per year by 50 percent.

Recreational Facilities and Opportunities at Antioch Community Park

Soccer and baseball fields

- Increase ball fields and/or modify ball field use to meet the demand for particular sports (e.g., baseball, soccer).
- Expand soccer and multi-use areas by adding fields south of the existing fields.
- Increase the size of some soccer fields to accommodate older youths and adults (i.e., 70 yards x 110 yards).
- Reduce the focus on baseball fields and increase opportunities for mixed-use fields.
- Improve maintenance of the soccer fields to reduce drainage problems, eliminate gopher holes and uneven surfaces, and improve turf quality.
- Improve soccer fields to allow use in wet weather.
- Replace natural turf with artificial turf or a more robust grass.
- Install lighting for the soccer and multi-use fields to enable evening use throughout the year.
- Improve drainage on the south side of the southern baseball field.
- Increase parking if additional ball fields are built.

Other recreation

- Increase opportunities for community involvement through special event notices.
- Increase public input regarding marketing of recreation programs on the site.
- Increase the number of trails along the creek and riparian area and improve the interconnection between trail systems.
- Create a botanical garden in the open space adjacent to the soccer fields.
- Reduce erosion and muddy conditions in the area between the parking lot and the trail on the west side of the park.
- Improve pathway lighting.

Facility Management at Antioch Community Park

Litter, feces, and graffiti

- Take measures to reduce litter and graffiti.
- Provide bags for dog feces at stations throughout the park.

Staffing

- Increase ranger or security presence.
- Improve parking lot security to reduce car break-ins.

Other facility management

- Specify gate closure times.
- Improve the cleanliness of play structures.
- Clear the figs from the play area more regularly.

Reservoir Management and Reservoir Water Quality

Reservoir level fluctuation

- Manage reservoir levels to avoid conflict with the reproductive cycles of largemouth bass, crappie, and other fish.
- Manage reservoir levels to avoid conflict with the reproductive cycles of birds, waterfowl, and other aquatic life along the shoreline.
- Operate the reservoir in a manner that reduces occurrence of algae blooms and clam mortality along the shoreline.
- Operate the reservoir to improve recreational fishing and to increase catches.

Reservoir water quality

- Distribute water-quality sampling locations more widely around the reservoir and at varying depths.
- Reduce occurrence of animal feces (e.g., geese, horses, dogs) around the reservoir.
- Reduce occurrence or duration of fish carcasses, whether left by birds, fishermen, or nature, along the shore.
- Remove fish carcasses daily.
- Remove trash and dead tules from the reservoir when water levels are low.

Overview of Affected Environment

Contra Loma is part of the Central Valley Project and is one of EBRPD's regional parks that they currently manage on behalf of Reclamation. It encompasses approximately 776 acres of grasslands, scattered woodlands, and park facilities and includes an 80-acre reservoir on the northern edge of the Diablo mountain range in the north-central portion of Contra Costa County. Land uses in the vicinity of Contra Loma include development associated with the City of Antioch to the north and east; the City's Lone Tree Golf Course to the east; and undeveloped, rolling hills associated with the Black Diamond Mines Regional Preserve to the south and west. The Sacramento–San Joaquin Delta is less than 5 miles north of Contra Loma, and the San Francisco Bay is 30 miles west. The Contra Costa Canal forms the northern boundary.

This section of the report contains an overview of the resources and facilities at Contra Loma and identifies resource management constraints and potential opportunities for resolving the resource management issues listed in Section 2.2 above. This section is not intended to provide a detailed description of each resource topic, but to present a summary of available information on each topic. Additional details on each resource and additional discussion of potential issues, constraints, or opportunities identified through the public involvement process will be available in the resource inventory report and the RMP/EIS. Resources that are not present at Contra Loma are described below and will not be discussed in detail in subsequent documents.

Operational Conditions

Operational conditions include recreational uses, recreational and operational facilities, utilities, and public health and safety. Fishing is a primary recreational activity at Contra Loma and will be discussed in this section. The primary use of the reservoir is to meet customer water demands during shortages as discussed further below.

Summary of Current Conditions

EBRPD operates the recreational component of Contra Loma Regional Park, including reservoir recreation, and the City manages the community park. Common recreational activities at the regional park include fishing, hiking, swimming (only at the swim lagoon), windsurfing, kayaking, canoeing, picnicking, and horseback and bicycle riding. Visitation is about 160,000 annually. The regional park contains various facilities that support the recreational uses offered at the park (e.g., trails, picnic tables, food concession, parking areas, fishing docks, boat launch) and provide means to manage the land (e.g., fencing, access gate, roads). Many, but not all, of the recreational facilities are in compliance with the Americans with Disabilities Act (ADA). EBRPD has offices, maintenance equipment and facilities, and law enforcement

vehicles onsite. The regional park has potable (drinking) water, restrooms and showers with a septic tank, portable chemical toilets, electricity, telephones, and a radio communication system.

Fishing is a very popular activity at Contra Loma. The reservoir supports 14 species of fish including 8 species of game fish. EBRPD and California Department of Fish and Game plant (i.e., stock) rainbow trout and channel catfish in the reservoir. The reservoir also supports self-sustaining populations of largemouth bass, crappie, redear sunfish, and bluegill, which are also popular with anglers. A state fishing license and an EBRPD Fishing Access Permit are required for all anglers 16 years and older.

Some regional park users have expressed specific concerns related to recreational fishing. Some believe fluctuations in the reservoir level in April and May conflict with the reproductive cycles for largemouth bass, crappie, and other fish, thereby inhibiting reproduction and reducing fish populations and catches. Fish population data for the past several years would be needed to understand population trends for these species. Even with accurate trend information, it may be difficult to precisely identify the causes of population changes. Fluctuations in water level during the spawning season, water temperature, and excessive legal and illegal harvesting can all contribute to reduced fish populations.

The primary uses of the community park are baseball, softball, soccer, picnicking, group activities, and hiking. Because of the community park's proximity to the regional park, its trails serve as pathways into the regional park. The community park has two parking lots.

CCWD manages and operates the Contra Loma Reservoir for water supply and emergency storage. The Contra Loma Dam is on the northern side of the reservoir and contains a pumping system to collect water from the Contra Costa Canal. Water returns to the canal via gravity flow. Operation of the reservoir entails periodic pumping from and releases to the canal, which can cause reservoir levels to fluctuate substantially.

Potential Constraints and Opportunities

The following operational constraint must be considered when developing the RMP. Its relative level of sensitivity is shown in parentheses.

- Compliance with applicable laws, regulations, and policies (high sensitivity)

The following list describes opportunities for resolving the operational issues that should be considered when developing the RMP:

- Available space could be used to expand recreational and administrative facilities in the vicinity of the reservoir.

- Flat, disturbed grazing land east of the reservoir could be used for additional ball fields

- Existing ball fields could be reconfigured to accommodate a variety of sports.

- Underused shoreline could accommodate additional fishing docks.

- Additional fish stocking could be done.

- Fish habitat could be created or modified to increase the numbers of desired fish.

- Sewer trunk lines serving nearby City neighborhoods might accommodate park wastewater.

Approach to Resolving Issues

In addition, general information gathering via websites, agency contacts, and literature reviews will be ongoing as the RMP/EIS is developed to obtain background information on various topics relating to operational conditions. The agencies responsible for managing Contra Loma have provided documentation from previous studies and analyses, and they will continue to provide valuable information to describe and characterize the environment at Contra Loma.

With respect to the relationship between fish populations and water level fluctuations, Reclamation will review available EBRPD data to better understand population trends of potentially affected species. Even with accurate trend information, it may be difficult to precisely identify the causes of population changes without additional investigation. The time and expense of performing such investigations are likely not warranted for the purposes of the RMP. Instead, the RMP will identify cost-effective opportunities for improving the reservoir's recreational fishery, if desirable.

Natural Resources

Natural resources include climate, air quality, hydrology, water quality, geology, soils, vegetation, and wildlife. Fisheries are discussed in Section 3.1.

Summary of Current Conditions

The climate of the region is hot and dry during the summer and mild and wet during the winter. The strong predominance of westerly winds blowing through the Carquinez Strait disperses air pollutants, reducing the atmospheric potential for air pollution in the vicinity of Antioch. Federal and state air quality standards occur primarily are exceeded during meteorological conditions

conducive to high pollution levels, such as cold, windless winter nights or hot, sunny summer afternoons (Antioch 2003).

Although most of Contra Loma is relatively flat, the surrounding hills to the west create a barrier between San Francisco and the reservoir and recreation area. Some hills in Contra Loma have fairly steep slopes (greater than 10 percent grade) and, when combined with the high clay content of the soils, create unstable building conditions. The drainage pattern of the area is to the north toward the Sacramento–San Joaquin Delta. The western half of Contra Loma drains into the reservoir, while the eastern half follows the former drainage pattern of the area and flows north away from the reservoir and through the community park. Maintaining reservoir water quality is very important because of its use for water supply. Sediment and pollutants draining from the surrounding uplands have the potential to affect water quality. Litter, animal feces (e.g., cattle, dogs, wildlife), and human contact with the reservoir can also affect water quality.

Contra Loma is dominated by grasslands and the reservoir, while also supporting scattered woodlands, riparian habitat, wetlands, and landscaped areas. The less-developed areas of Contra Loma support a variety of plant and wildlife species, which may include several special-status species. Some of the special-status species that are known or suspected to occur at Contra Loma are Alameda whipsnake, California tiger salamander, burrowing owl, and San Joaquin kit fox. California quail are also present.

Potential Constraints and Opportunities

The following list describes natural resources constraints that must be considered when developing the RMP. The relative level of sensitivity is shown in parentheses.

- Comply with existing contracts/agreements with CCWD about reservoir operations (high sensitivity)
- Protect and maintain the water quality of the reservoir (high sensitivity).
- Protect the water supply function of the reservoir (high sensitivity).
- Enforce body contact restrictions for the reservoir (high sensitivity).
- Avoid conflict with EBRPD's future HCP/NCCP (high sensitivity).
- Avoid/protect wetland and riparian habitat (high sensitivity).
- Avoid/protect special-status plant and wildlife species (high sensitivity if present).

- Avoid/protect California quail habitat and EBRPD's quail habitat enhancement programs (high sensitivity).

- Avoid conflict with EBRPD's barn owl project to control pocket gophers (medium sensitivity).

- Steep slopes across much of the recreation area constrain development (high sensitivity).

- Clay soils have high degrees of shrink-swell, which make them susceptible to erosion and slumping (medium sensitivity).

- Clay soils have high runoff potential (low sensitivity).

The following list describes opportunities for resolving the natural resources management issues that should be considered when developing the RMP:

- The expansive natural areas are suitable for habitat restoration.

- EBRPD's planned HCP/NCCP may represent an opportunity to expand resource stewardship.

Approach to Resolving Issues

The primary approach to resolving issues about natural resources at Contra Loma is to compile and review available information on the resources. Existing data and reports from the agencies, personal communications with agency specialists, and literature reviews will provide the majority of the information for the RMP/EIS. To supplement this information, reconnaissance-level field surveys of Contra Loma will describe current habitat conditions, identify suitable habitat for special-status species, and identify areas in the park that might be restored or enhanced to improve habitat conditions, if needed. Focused surveys are not anticipated at this level, but may be a component of the alternatives or a requirement for subsequent plans or projects.

The information review and surveys will guide alternatives development by identifying plant and wildlife species that should be more actively managed or protected, identifying soils or geologic constraints, providing information on water-quality goals and ways to protect water quality, and providing other useful information to set the framework for overall management of Contra Loma. Public input regarding natural resources from the scoping process will also be considered, and input from technical experts will be valuable.

Socioeconomic Conditions

Socioeconomic conditions include population, demographics, socioeconomics, and environmental justice.

The purpose of the RMP is not to encourage or induce growth in nearby communities, but to manage natural, cultural, and other resources at Contra Loma. The RMP would not remove obstacles to growth in the nearby communities. By its nature, the RMP would not induce growth; therefore, growth-inducing effects will not be discussed further.

Summary of Current Conditions

Contra Costa County, one of nine counties in the San Francisco–Oakland bay area, is a fairly populous county with more than 1 million residents. The City of Antioch is located in eastern Contra Costa County and has more than 100,000 residents. The City offers a variety of employment opportunities, affordable housing, shopping, and recreational activities.

Contra Loma is entirely in the City boundary. Residential developments around Contra Loma are primarily single-family homes with some multi-family homes. Visitors to the reservoir and recreation area include local residents, Bay Area residents, and, to a lesser extent, people traveling from more than 100 miles away. Contra Loma attracts visitors of all ethnicities and backgrounds and often receives non–English-speaking visitors.

Management of the regional park is funded by EBRPD, with partial funding from Reclamation in accordance with the management agreement, and the City of Antioch funds operation of the community park. CCWD funds operation of the reservoir to maintain water quality and use it for water supply and has provided funding for some improvements at the regional park (e.g., the swim lagoon).

Potential Constraints and Opportunities

The following socioeconomic constraint must be considered when developing the RMP. Its relative level of sensitivity is shown in parentheses.

- Some park users may not be able to communicate effectively in English (medium constraint).

The following opportunity for resolving socioeconomic issues should be considered when developing the RMP:

- Increase the use of multi-lingual written and verbal communications techniques.

Approach to Resolving Issues

Few socioeconomic issues are anticipated, but those listed above will be addressed similarly to operational conditions (Section 3.1.3). Reclamation will develop a reasonable range of alternatives that considers the issues and opportunities of each resource topic and takes into account public and agency input.

Existing Land Uses and Management

Existing land uses and management topics include land use, ownership, transportation, parking access, noise, special uses, and visual resources.

No hazardous materials or cleanup sites have been reported at Contra Loma, although several sites are in various stages of cleanup throughout the City of Antioch (Department of Toxic Substances Control 2010). These sites would not be expected to affect management of Contra Loma, and the RMP would not need to address cleanup of hazardous material sites. This topic will not be discussed further.

State Routes 680 and 24 in southeastern Contra Costa County have been officially designated by the State as scenic highways. Both of these routes are on the opposite side of Mount Diablo from Contra Loma and do not offer views of Contra Loma. A segment of State Route 4 in eastern Contra Costa County is eligible for designation, but it is also distant from Contra Loma and does not offer views of the park. The RMP will not need to address management of scenic highways; therefore, this topic will not be discussed further.

Summary of Current Conditions

Contra Loma is owned by Reclamation but is managed by EBRPD, CCWD, and the City of Antioch via a subcontract from EBRPD. It is designated as open space by the City's general plan (City of Antioch 2004). Surrounding uses include residential and open space (Black Diamond Mines Regional Preserve and Lone Tree Golf Course). EBRPD adopted a land use development plan for the regional park in the mid-1970s (East Bay Regional Park District 1977). The land use plan established a natural environment unit, recreation cluster, and reclamation zone for purposes of managing the recreation area. Certain special uses, such as group or community events, are allowed with a permit.

Access to Contra Loma is via State Route 4 and surface streets in the City. Contra Loma Boulevard provides the only vehicle entrance to the regional park, and James Donlon Boulevard provides vehicle access to the community park. Multi-use trails in the vicinity connect the reservoir and recreation area to other parks and locales in the City and County. Portions of Contra Loma are fenced, the recreation area and reservoir are open to the public during daylight hours. The area immediately below (north of) the dam is restricted to authorized personnel only. Sources of noise at Contra Loma are primarily visitors, traffic, and occasional airplanes. Natural sounds, such as water, wind, and wildlife, also occur in the area.

The rolling hills and grasslands of the region create scenic views around the reservoir. The reservoir at normal water levels and riparian and woodland vegetation also contribute to the aesthetic values of the area.

Potential Constraints and Opportunities

The following land use constraints should be considered during development of the RMP. The relative level of sensitivity is shown in parentheses.

- Ensure that lighting, noise, traffic, and parking are compatible with nearby land uses (low sensitivity).
- Consider the rural open space character of a regional park (high sensitivity).

The following opportunity for resolving land use issues should be considered when developing the RMP:

- Locating additional ball fields in the land east of the reservoir and south of the existing soccer fields would reduce land use compatibility impacts for nearby residences.

Approach to Resolving Issues

Primary land use and management issues revolve around the agreements between Reclamation and the other agencies. These agreements will be a subject of discussion during development of the RMP/EIS and will need to be renewed or rewritten to meet the needs of the agencies and management strategies and objectives identified in the RMP. Other issues will be addressed similarly to operational conditions (Section 3.1.3). Reclamation will develop a reasonable range of alternatives that considers the issues and opportunities of each resource topic and takes into account public and agency input.

Cultural Resources

Cultural resources are the tangible and intangible elements of past and present human socio-cultural systems and can include sites, structures, landscapes, objects, districts, and artifacts of importance to a culture or community for traditional, religious, historical, and scientific reasons.

Indian Trust Assets are legal interests in property held in trust by the United States for Indian tribes or individuals. Examples of such assets are land, mineral rights, hunting and fishing rights, and water rights. No Indian Trust Assets are known to exist at Contra Loma; therefore, this topic will not be discussed further.

Summary of Current Conditions

Prehistoric human occupation of California dates back more than 10,000 years during the late Pleistocene Era. The earliest known occupation of the Bay Area region dates from approximately 8,000 BC to circa AD 1800 (the Historic era) and was recorded in the Los Vaqueros reservoir area approximately 11 miles southeast of Contra Loma (Milliken et al. 2007). The Karkin Costanoan (Ohlone) and Bay Miwok occupied the Contra Loma region during this period,

until the Spanish Empire expanded into the region as early as the 1760s to establish missions and convert the local people to Christianity. Several land grants were established by the Spanish during the expansion of the Spanish Empire, and these were maintained by Mexico after the missions were disbanded in the 1820s. Two land grants are in the vicinity of Contra Loma: the Rancho de los Medanos north of Contra Loma in the Antioch and Pittsburg area and the Rancho los Mejanos southeast of Contra Loma (Hulaniski 1917). The ranchos focused primarily on the hide-and-tallow trade and cattle ranching.

With the discovery of gold in the region, the 1850s were a period of rapid settlement of agricultural and industrially important lands in the Bay Area. Towns such as Antioch grew quickly, and the hinterlands around the towns became dominated by ranches and farms. In the last half of the 19th century, the main industries and economic focus of the region in and around Contra Loma were farming, ranching, and dairying (Hulaniski 1917). Several homestead patents in the park were awarded in the 1870s, and evidence of occupation may still exist. Coal mining was an important local industry between the 1860s and the 1890s. Although mining did not occur in the park boundaries, trails and roads through Contra Loma were used for travel between Antioch and the mines (e.g., wagon road, railroad).

Several cultural resource surveys and studies were conducted at Contra Loma between 1983 and 2008. The surveys covered the entire recreation area, but the most recent surveys were completed in the 1980s. Two formally recorded and archived archaeological resources (a prehistoric use site and the Contra Costa Canal) relate to Contra Loma.

The previous surveys were conducted more than 20 years ago, and site conditions since then may have changed to expose more resources or modify the conditions of the recorded sites. If cultural resources have become exposed, the proximity of recreational activities near archaeological deposits can create an atmosphere of casual souvenir taking in which people remove small artifacts (e.g., projectile points, unusual colored rocks or glass, etc.). Also, some of these resources may be in locations where future recreation and infrastructure improvements may be considered. In addition, changes in archaeological techniques and research interests, coupled with the passage of time, might bring academic and public interest to archaeological deposits that were previously overlooked.

Potential Constraints and Opportunities

The following issues and constraints regarding cultural resources should be considered during development of the RMP:

- Protect and enhance cultural resources (sensitivity to be determined).

The following opportunity for resolving cultural resource issues should be considered when developing the RMP:

- Contra Loma's history offers opportunities for interpretation and education related to cultural resources, such as through interpretive signs or kiosks.

- Interpretive opportunities could be designed around known sites to incorporate information about them while protecting them from the public.

- Natural resources such as plants of importance to local Native American groups could be promoted as areas of interest to the general public through the use of signs, or could be protected and made available for practitioners of traditional tribal practices.

Approach to Resolving Issues

Similar to natural resources, the approach for resolving issues about cultural resources at Contra Loma is to compile and review information on the resources. Because of the age of the most recent surveys, at a minimum, known archaeological sites should be revisited to monitor and record current conditions.

Conclusions and Next Steps

Conclusions

Some of the key issues and opportunities to consider regarding operational conditions are improvements to recreational facilities, expansion of recreational opportunities, and modification of park utility systems. Bilingual communications is an important key issue to consider under socioeconomic conditions, and Contra Loma's location near the City of Antioch provides an excellent opportunity to attract local and regional residents to the park. Land use and management of Contra Loma will be a primary topic for the RMP/EIS and will focus on the best ways for each agency to manage the resources and benefit the public. Coordination between the agencies will be important during development of the alternatives. Additional public involvement and outreach and collection of additional background information will provide the means necessary to develop alternatives that reflect the various options for management of operational and socioeconomic conditions and land use.

Sensitive habitats, special-status plant and wildlife species, steep slopes, and water quality are key issues to consider for management of the natural resources of Contra Loma. The Contra Loma area has a rich history with potential for the presence of resources dating from 8,000 BC to the Historic Era, and cultural resources have also been documented at Contra Loma. Much information is available about these resources, and known archaeological sites should be revisited to monitor and record current conditions.

Potential Goal Statements

Based on the preliminary issues identified through the public involvement process and this report, the following goal statements might be considered to guide development of the alternatives:

1. Promote responsible stewardship of federal land and water resources for the public benefit.

2. Protect and maintain water quality.

3. Protect and enhance the natural and cultural resources at Contra Loma.

4. Protect and maintain existing recreational uses and educational opportunities.

5. Provide for enhanced or new recreational uses and facilities that are compatible with other RMP goals.

6. Maintain the character and ambience of Contra Loma's setting.

7. Promote continued compatibility with nearby land uses.

Next Steps

On December 8, 2010, Reclamation conducted a conference call with the current managing partners to present conceptual draft alternatives packages for the RMP and solicit comments from these agencies. Written comments from these agencies are due January 7, 2011. Reclamation will consider these comments and then refine the conceptual draft alternatives packages and present them at a public workshop that will take place in February 2011. After the February public workshop, Reclamation and North State Resources will further refine the alternatives and flesh out details and descriptions for inclusion in the Draft RMP. The RMP alternatives will include different strategies and objectives to achieve the management goals and will provide a reasonable range of management opportunities to reflect public and agency input. These alternatives will then be evaluated in the EIS.

Prior to preparation of the Draft RMP, Reclamation will prepare a resource inventory report (RIR). The RIR will provide a detailed description of the resources at Contra Loma and will serve as the affected environment section of the RMP/EIS. While the RIR is being prepared, Reclamation will develop alternatives to evaluate in the RMP/EIS. In addition to the alternatives and affected environment sections, the RMP/EIS will include sections required by Reclamation and the Council on Environmental Quality for compliance with the RMP Guidebook and National Environmental Policy Act. The issues and opportunities presented in this report and identified through additional public

outreach will feed directly into the alternatives and will be summarized in the RMP/EIS. Additional opportunity for public involvement will occur when the Draft RMP/EIS is released for public review and when the RMP/EIS is finalized.

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APPENDIX B

Operations and Maintenance

Operations and Maintenance Activities

Contra Loma Regional Park

January 2014

Park-related operations and maintenance activities currently performed by the East Bay Regional Park District at Contra Loma Regional Park include the following.

- Mow annual grassland for 2-3 weeks each year for fire hazard reduction
- Mow and line trim landscaped areas
    - Mow on a weekly basis from spring to fall
    - Line trim 1-2 weeks a month from spring to summer
    - Line trim during every summer month based on noxious weed growth
- Irrigation maintenance
    - Repair pipes, valves, and sprinkler heads
    - Maintain irrigation clocks that operate the pumps in the reservoir
    - Service pumps every 4-7 years
- Remove floating debris from the reservoir daily during staff operating hours
- Pest management
    - Contract out on a monthly basis for mice, rat, and ant control
    - Ground squirrels are bated from June through September to control the population at a rate of 3-5 lbs. a month at 16 bait stations.
- Vegetation management
    - Graze 25-45 head of cattle throughout the year for fuel and noxious/invasive weed control
- Aquatic pest management
    - Perform quagga mussel inspections of all aquatic vessels and wetsuits on an daily basis throughout the year
- Infrastructure (road, utility) and facility maintenance (as needed)
    - Patch asphalt on paths, roads, and parking lots
    - Strip roadway lines
    - Add gravel to overflow lots
    - Maintain vegetation on traffic islands
    - Maintain underground potable water supply
    - Maintain flush toilets, urinals and sinks
- Trail maintenance
    - Grade trails as needed annually
    - Repair trails as needed for water diversion seasonally
    - Prune and periodically mow vegetation along trails in the spring
- Maintenance of swim lagoon infrastructure

    - Maintain recirculation pump annually or bi-annually
    - Fill cracks in deck area annually
    - Resurface the pool plaster every five year or less
    - Resurface the drainage grates every ten years or less
    - Repair the coping and tile annually
    - Service the metering pumps for pool chemicals (i.e., chlorine and acid pumps) annually
    - Replace the sand in the sand filters as necessary
    - Repair fencing surrounding the swim lagoon
    - Repair asphalt surrounding the swim lagoon
    - Repair concrete surrounding the swim lagoon
    - Replace safety mechanisms in pool area (protective devices and ADA lifts)
    - Replacement of chemtrol device as necessary
    - Replace probes for water sanitation and chemistry balance annually
    - Maintain chlorine injectors annually
- Litter and waste management
    - Remove trash from all receptacles daily (dumped into a 30-yard container that is dumped on a monthly or as-needed basis)
    - Collect recycling on a bi-weekly basis (dumped into a 20-yard container and hauled away as needed)
- Human waste management
    - Fourteen portable wooden/plastic toilets are pumped bi-weekly in the summer and weekly in the winter.
- Invasive species management and native species promotion
    - Cattle grazing is used as a management tool for invasive plant species
    - Promote native species through timely and monitored grazing

Operations and Maintenance Activities

Antioch Community Park

January 2014

Park-related operations and maintenance activities currently performed by the City of Antioch at the Antioch Community Park generally fall into four categories: maintenance of amenities/general facilities, vegetation management and upkeep, irrigation systems maintenance, and pest control.

<u>Maintenance of Amenities/General Facilities</u>

- Cleaning, painting and repairs of picnic tables, benches, backstops, horseshoe pits, and barbecues
- Playground maintenance (remove trash, repair equipment, sand box cleaning and sweeping)
- Renovate all baseball diamonds in preparation for baseball/softball seasons by loosening, leveling, and grading compacted diamond cinder fines and clay.
- Vacuuming of artificial turf on sports fields annually
- Sweeping of the artificial turf on sports fields periodically
- Installation of decorative bark at park name sign annually
- Draining and clearing concrete lined ditches and gutters
- Sidewalk cleansing, sweeping, blowing
- Parking lot cleansing, sweeping, blowing, vacuuming
- Trash
    - Inspect and empty trash containers
    - Remove and dispose of trash/litter
    - Inspect and empty recyclables containers
- Repair of fence line and debris clearance
- Restroom maintenance
    - clean and sanitize using detergents; remove dirt, cobwebs, standing water; inspect and refill soap, tissue, and paper product dispensers; inspect and maintain toilet and sink flow; air freshening
    - Open and close restroom facilities at City-designated hours
- Remove/repair vandalized property
    - Graffiti abatement (e.g., surface removal, painting)

<u>Vegetation Management and Upkeep</u>

- Tree, shrub, and vine pruning
- Seasonal building and removal of water basins around plants

- Add/remove stakes and ties for trees as needed
- Replace decaying or dead vegetation
- Mow, edge, fertilize, and aerate grass lawns
- Mow, trim, replant ground cover (ivy, hypericum)
- Weed control and abatement: especially Digitaria (crab grass), *Poa annua* (annual bluegrass), and broadleaf weeds
- Application of fertilizers, herbicides
- Prune vegetation from line of sight obstruction at street intersections
- Disposal of grass clippings, pruned vegetation
- Blowing and raking of leaves from park premises
- Storm damage maintenance pruning and removal of vegetation

<u>Irrigation Systems Maintenance</u>

- Monitor and repair irrigation leaks or damage to hardware
- Seasonal irrigation frequency scheduling
- Flush irrigation systems
- Adjust sprinkler head heights to maximize irrigation efficiency
- Maintenance of automatic controllers
- Inspection and replacement of batteries in battery powered light and irrigation controllers

<u>Animal, Insect, and other Pest Control</u>

- Rodent (gopher, ground squirrel, tree squirrel) control
- Pest control: slugs, snails
- Maintain familiarity with Integrated Pest Management programs

APPENDIX C

Applicable Regulations

Appendix C: Applicable Regulations

Air Quality

- **The Clean Air Act of 1970, (42 US Code [USC], Sections 7401 et seq.)** regulates air emissions from area, stationary, and mobile sources. Under this law, National Ambient Air Quality Standards are established for each state by the Environmental Protection Agency (EPA) in order to protect public health and the environment (EPA 2003).

- **The General Conformity Rule (GCR) (Title 40 CFR Part 51.853)** requires that the responsible federal agency of an undertaking make a determination of conformity with the State Implementation Plan of the regional air basin. Each action must be reviewed to determine whether it (1) qualifies for an exemption listed in the GCR, (2) results in emissions that are below GCR *de minimis* emissions thresholds, or (3) would produce emissions above the GCR de minimis thresholds applicable to the specific area, requiring a detailed air quality conformity analysis.

- **The Bay Area Air Quality Management District (BAAQMD) Clean Air Plan (CAP)** is the applicable State Implementation Plan for Contra Costa County and the rest of the Bay Area. It is the most recent BAAQMD CAP approved by the EPA. The purpose of the CAP is to update the Bay Area 2005 Ozone Strategy in accordance with the requirements of the California Clean Air Act to implement "all feasible measures" to reduce ozone and to provide a control strategy to reduce ozone, particulate matter, air toxics, and greenhouse gases in a single, integrated plan.

Noise

- **43 Code of Federal Regulations (CFR Part 423.22[e][3])** prohibits disorderly conduct on Reclamation land, unreasonable noise, considering the nature of the purpose of the persons conduct, location, time of day or night, and other factors that would govern the conduct of a reasonably prudent person under the circumstances.

Water Resources

Federal Laws and Statutes

- **The Clean Water Act of 1987, as amended (33 USC, Section 1251)** establishes objectives to restore and maintain the chemical, physical, and biological integrity of the nation's water;

- **The Federal Water Pollution Control Act (33 USC, Section** 1 **1323)** requires the Federal land manager to comply with all Federal, state, and local requirements, administrative

authority, processes, and sanctions regarding the control and abatement of water pollution in the same manner and to the same extent as any nongovernmental entity;

- **The Safe Drinking Water Act (42 USC, Section 201)** is designed to make the nation's waters drinkable and swimmable. Amendments in 1996 establish a direct connection between safe drinking water and watershed protection and management;

- **The Watershed Protection and Flood Control Act of 1954**, as amended, directs the Federal government to cooperate with states and their political subdivisions, soil or water conservation districts, flood prevention or control districts, and other local public agencies to prevent erosion or flood water and sediment damage;

- **The Water Resources Research Act of 1954**, as amended, permits the Secretary of the Interior to give grants to, and cooperate with, Federal, state, and local agencies to undertake research into any water problems related to the mission of the department;

- **Executive Order 11288** requires heads of agencies to provide leadership in the field of water quality management and requires Federal facilities to develop pollution abatement plans;

- **Executive Order 11507** directs the Federal government in the design, operation, and maintenance of its facilities to provide leadership in the nationwide effort to protect and enhance the quality of air and water resources. It provides for action necessary to correct air and water pollution at existing facilities to be completed or underway by December 31, 1972, and requires surveillance to ensure that water quality standards are met;

- **Executive Order 11514, as amended by Executive Order 11991**, directs Federal agencies to provide leadership in protecting and enhancing the quality of the nation's environment to sustain and enrich human life. It provides for continued monitoring, evaluation, and control of the activities of each Federal agency, as well as development of programs and measures to protect and enhance environmental quality and to exchange data and research results and cooperate with other agencies to accomplish the goals of the National Environmental Policy Act (NEPA);

- **Executive Order 11738** directs each Federal agency to enforce the Clean Air Act and the Clean Water Act in the procurement of goods, materials, and services;

- **Executive Order 11752** mandates that Federal agencies provide national leadership to protect and enhance the quality of air, water, and land resources by complying with applicable Federal, state, interstate, and local pollution standards. This order mentions the Clean Air Act, Federal Water Pollution Control Act, Solid Waste Act, Noise Control Act, insecticide and pesticide acts, and NEPA;

- **Executive Order 11990, Protection of Wetlands**, directs Federal agencies to minimize the destruction, loss, or degradation of wetlands and to preserve and enhance the natural and beneficial value of wetlands in carrying out programs affecting land use;

- **Executive Order 12088, Federal Compliance with Pollution Control Standards**, requires all Federal agencies to comply with local standards and limitations relating to water quality. As a wastewater management agency, each Federal agency is bound to recognize and adopt the policies, goals, and standards of approved Section 208 area-wide water quality management plans in regard to those Federal lands under its jurisdiction. Each agency also must implement plan standards to the maximum extent feasible in its own planning process and management activities;

Bureau of Reclamation (Reclamation) Policies and Regulations

- **Floodplain Management Policy (CMP P01)** was established to (1) reduce the vulnerability of the nation to loss of life and property and the disruption of societal and economic pursuits caused by flooding or facility operations; and (2) sustain, restore, or enhance the natural resources, ecosystems, and other functions of the floodplain; and

- **Floodplain Management Directive and Standard (CMP 01-01)** was established to (1) reduce the vulnerability of the nation to loss of life and property and the disruption of societal and economic pursuits caused by flooding or facility operations; and (2) sustain, restore, or enhance the natural resources, ecosystems, and other functions of the floodplain.

Cultural Resources

Federal Laws and Statutes

- **An Act for the Preservation of American Antiquities [Antiquities Act of 1906] (PL 59-209; 34 Stat. 225; 16 USC, Sections 432 and 433)** made it unlawful for any person to appropriate, excavate, injure, or destroy any historic or prehistoric ruin or monument, or any object of antiquity, situated on lands owned or controlled by the Government of the United States (U.S.).

- **Historic Sites Act of 1935 (PL 74-292; 49 Stat. 666; 16 USC, Section 461)** declares a national policy to identify and preserve nationally significant "historic sites, buildings, objects and antiquities." It authorizes the National Historic Landmarks program and provides the foundation for the National Register of Historic Places (National Register) authorized in the National Historic Preservation Act of 1966. Regulations implementing the National Historic Landmarks Program are at 36 CFR Part 65.

- **National Historic Preservation Act of 1966 and amendments (PL 89-665; 80 Stat. 915; 16 USC, Section 470)** creates the National Register and extends protection to historic places of state and local as well as national significance. It establishes the Advisory Council on Historic Preservation, State Historic Preservation Officers, Tribal Preservation Officers, and a preservation grants-in-aid program. Section 106 directs Federal agencies to take into account effects of their actions ("undertakings") on properties in or eligible for the National Register.

- **National Environmental Policy Act of 1969 (PL 91-190; 83 Stat. 852; 42 USC, Section 4321)** states that it is the Federal government's continuing responsibility to use all practicable means to preserve important historic, cultural, and natural aspects of our national heritage. It

instructs Federal agencies to prepare environmental impact statements for each major Federal action having an effect on the environment.

- **Historical and Archaeological Data Preservation Act of 1974 (16 USC 469 et seq.)**, also called the Moss-Bennett Act, provides for the preservation of historic American sites, buildings, objects, and antiquities of national significance and the preservation of historical and archaeological data (including relics and specimens) that may otherwise be irreparably lost or destroyed as a result of any alteration of the terrain caused by any federal construction projects of federally licensed activity or program. The act requires a federal agency to notify the Secretary of the Interior if a project threatens the loss of destruction of significant historic or archaeological data. The NEPA lead federal agency's Section 106 compliance process provides substantially the same protection.

- **American Indian Religious Freedom Act of 1978 (PL** 1 **95-341; 92 Stat. 469; 42 USC, Section 1996)** states that "it shall be the policy of the U.S. to protect and preserve for American Indians their inherent right of freedom to believe, express, and exercise the traditional religions of the American Indian, Eskimo, Aleut, and Native Hawaiians, including but not limited to access to sites, use and possession of sacred objects, and the freedom to worship through ceremonials and traditional rites".

- **Archaeological Resources Protection Act (ARPA) of 1979 [PL 96-95; 93 Stat. 721; 16 USC, Sections 470(aa)-470(mm)], as amended (PL 100-555; PL 100-588)** expands the protections provided by the Antiquities Act of 1906 in protecting archaeological resources and sites located on public and Indian lands. ARPA has felony-level penalties for excavating, removing, damaging, altering, or defacing any archaeological resource more than 100 years of age, on public or Indian lands, unless authorized by a permit.

- **Native American Graves Protection and Repatriation Act of 1990 (PL 101-601; 25 USC, Sections 3000-3013; 104 Stat. 3048-3058)** provides for disposition of cultural items from Federal or tribal lands. The ownership or control of Native American cultural items that are excavated or discovered on Federal or tribal lands after 1990 is determined by a custody hierarchy set out in the statute.

- **Reservoir Salvage Act of 1960, as amended [16 USC, Sections 469-469(c)]** extended the Historic Sites Act of 1935. It gave the Department of the Interior, through the National Park Service, major responsibility for preserving archaeological data that might be lost specifically through dam construction.

- **Curation of Federally-Owned and Administered Archeological Collections (36 CFR, Part 79)** establishes definitions, standards, procedures, and guidelines to be followed by Federal agencies to preserve collections of prehistoric and historic material remains and associated records.

- **Determinations of Eligibility for Inclusion in the National Register (36 CFR, Part 63)** was developed to assist Federal agencies in identifying and evaluating the eligibility of properties for inclusion in the National Register.

- **National Register of Historic Places (36 CFR, Part 60)** describes the criteria for eligibility for inclusion of properties in the National Register.

- **Protection of Historic Properties (36 CFR, Part 800)** describes the Section 106 Process.

- **Public Conduct on Bureau of Reclamation Facilities, Lands, and Waterbodies (43 CFR, Part 423)** intends to maintain law and order and protect persons and property within Reclamation projects and on Reclamation facilities, lands, and waterbodies by specifying areas open and closed to public use.

- **Executive Order 13175, Consultation and Coordination with Indian Tribal Governments (65 FR 67249)** was issued to establish regular and meaningful consultation and collaboration with tribal officials in the development of Federal policies that have tribal implications. When implementing such policies, agencies shall consult with tribal officials as to the need for Federal standards and any alternatives that limit their scope or otherwise preserve the prerogatives and authority of Indian tribes.

- **Government-to-Government Relations with Native American Tribal Governments (Memorandum signed by President Clinton; April 29, 1994) (61 FR 42255)** directs Federal agencies to consult, to the greatest extent practicable and to the extent permitted by law, with tribal governments prior to taking actions that affect Federally recognized tribal governments. Federal agencies must assess the impact of Federal government plans, projects, programs, and activities on tribal trust resources and assure that tribal government rights and concerns are considered during such development.

- **Executive Order 11593, Protection and Enhancement of the Cultural Environment (36 FR 8921)**, directs Federal agencies to inventory cultural properties under their jurisdiction, to nominate to the National Register all Federally owned properties that meet the criteria, to use due caution until the inventory and nomination processes are completed, and to assure that Federal plans and programs contribute to preservation and enhancement of non-Federal properties.

- **Executive Order 13007, Indian Sacred Sites (61 FR 26771)** directs Federal agencies in managing Federal lands to 1) accommodate access to and ceremonial use of Indian sacred sites by Indian religious practitioners; and 2) avoid adversely affecting the physical integrity of such sacred sites.

- **Executive Order 13287, Preserve America 2003 (68 FR 10635)**, directs Federal agencies to improve their management of historic properties and to foster heritage tourism in partnership with local communities.

Reclamation Policies and Regulations

- **Cultural Resources Management Policy (LND-P01)** states that cultural resources are recognized as fragile, irreplaceable resources with potential public and scientific uses, and represent an important and integral part of our Nation's heritage. It is Reclamation's practice to:

1. Manage cultural resources under Reclamation jurisdiction or control according to their relative importance, to protect against impairment, destruction, and inadvertent loss, and to encourage and accommodate the uses determined appropriate through planning and public participation.

2. Manage cultural resources under cultural resource statutes and the planning and decision making processes as are followed in managing other public land resources.

3. Ensure that tribal issues and concerns are given consideration during planning and decision making, including fire management planning and decision making for specific fire management projects.

This policy is not limited to Reclamation's activities that affect Federal lands. It is the responsibility of Reclamation to assure that its actions and authorizations are considered in terms of effects on cultural resources located on non-Federal lands. Fire management planning and activities on site-specific projects that involve non-Federal land shall consider this responsibility.

- **Cultural Resources Management Directive and Standard (LND 02-01)** ensures that Reclamation manages its cultural resources according to Federal legislative mandates and in a spirit of stewardship; clarifies Reclamation's roles and responsibilities related to cultural resources; and provides direction for consistent implementation of Reclamation's cultural resources management responsibilities.

- **Inadvertent Discovery of Human Remains on Reclamation Lands (LND 07-01)** establishes procedures for compliance with federal statutes when inadvertent (i.e., unplanned) discoveries of human remains occur on Reclamation lands.

Biological Resources

Federal Laws and Statutes

- **Fish and Wildlife Coordination Act of 1934** requires consultation with fish and wildlife agencies (federal and state) whenever the waters or channels of a body of water are modified by a department or agency of the U.S, with a view to the conservation of wildlife resources. It provides that land, water and interests may be acquired by Federal construction agencies for wildlife conservation and development.

- **Sikes Act of 1974** directs the Secretaries of Interior and Agriculture to, in cooperation with the State agencies, develop, maintain, and coordinate programs for the conservation and rehabilitation of wildlife, fish, and game. Such conservation and rehabilitation programs shall include, but are not limited to, specific habitat improvement projects and related activities and adequate protection for species considered threatened or endangered.

- **North American Waterfowl Management Plan of 1986** was signed between Canada and the U.S. and aims to conserve migratory birds throughout the continent. Further, it sets population goals for waterfowl and provides guidance as to how these goals can be achieved.

- **Federal Endangered Species Act of 1973** provides a program for the conservation of threatened and endangered plants and animals and the habitats in which they are found. It is designed to protect critically imperiled species from extinction due to "the consequences of economic growth and development untempered by adequate concern and conservation".

- **Migratory Bird Treaty Act of 1918 and amendments** establishes a Federal prohibition, unless permitted by regulations, to “pursue, hunt, take, capture, kill, attempt to take, capture or kill, possess, ... any migratory bird . . . or any part, nest, or egg of any such bird.” An amendment was passed in 1972 to include owls, hawks, and other birds of prey.

- **Bald Eagle Protection Act of 1940** provides for the protection of the bald eagle and the golden eagle by prohibiting, except under certain specified conditions, the taking, possession and commerce of such birds.

- **Federal Noxious Weed Act of 1974** provides for the control and management of nonindigenous weeds that injure or have the potential to injure the interests of agriculture and commerce, wildlife resources, or the public health. Under this Act, the Secretary of Agriculture was given the authority to designate plants as noxious weeds, and inspect, seize and destroy products, and to quarantine areas, if necessary to prevent the spread of such weeds.

- **Executive Order 13112 Invasive Species (64 FR 2793)**, signed in 1999, directs Federal agencies to prevent the introduction of invasive species and provide for their control and to minimize the economic, ecological, and human health impacts that invasive species cause. To do this, the Executive Order established the National Invasive Species Council; currently there are 13 Departments and Agencies on the Council.

Reclamation Policies and Regulations

- **Implementation of the Cost-Sharing Authorities for Recreation and Fish and Wildlife Enhancement Directive and Standard (LND 01-01)** establishes Reclamation’s approach to implementing the cost sharing authorities for recreation and fish and wildlife enhancement facilities. This cost sharing may include planning, developing, operating, maintaining, and replacing recreation and fish and wildlife enhancement facilities on lands and waterbodies under Reclamation jurisdiction.

- **Reclamation Policy for Consultation under the Endangered Species Act of 1973, as amended (ENV P04)** describes Reclamation’s role in consultations required by the Endangered Species Act.

- **Wetlands Mitigation and Enhancement Policy (LND P03)** establishes policy for Reclamation to use in determining appropriate mitigation for all actions affecting wetlands. Encourage activities protecting, preserving, and enhancing wetlands.

Indian Trust Assets

Federal Laws and Statutes

- **Executive Order 13175, Consultation and Coordination with Indian Tribal Governments (65 FR 67249)**, was issued to establish regular and meaningful consultation and collaboration with tribal officials in the development of Federal policies that have tribal implications. When implementing such policies, agencies shall consult with tribal officials as to the need for Federal standards and any alternatives that limits their scope or otherwise preserves the prerogatives and authority of Indian tribes.

- **Government-to-Government Relations with Native American Tribal Governments (Memorandum signed by President Clinton; April 29, 1994) (61 FR 42255)** directs Federal agencies to consult, to the greatest extent practicable and to the extent permitted by law, with tribal governments prior to taking actions that affect Federally recognized tribal governments. Federal agencies must assess the impact of Federal government plans, projects, programs, and activities on tribal trust resources and assure that tribal government rights and concerns are considered during such development.

Department of Interior Directives

- **Secretarial Order No. 3175, Departmental Responsibilities for Indian Trust Resources**, requires Interior bureaus and offices to consult with the recognized tribal government with jurisdiction over the trust property that a proposal may affect.

- **Secretarial Order No. 3206, American Indian Tribal Rights, Federal –Tribal Trust Responsibilities, and the Endangered Species Act,** clarifies the responsibilities of the Interior agencies with regard to the effects of Endangered Species Act compliance actions that affect, or may affect, Indian lands, tribal trust resources, or the exercise of American Indian tribal rights. Interior agencies will carry out their responsibilities in a manner that harmonizes the Federal trust responsibility to tribes, tribal sovereignty, and statutory missions of the departments, and that strives to ensure that Indian tribes do not bear a disproportionate burden for the conservation of listed species.

- **Secretarial Order No. 3215, Principles for the Discharge of the Secretary's Trust Responsibility**, provides guidance to the employees of the Department of the Interior who are responsible for carrying out the Secretary's trust responsibility as it pertains to Indian Trust Assets.

- **Departmental Manual 512 DM Chapter 2, Departmental Responsibilities for Indian Trust Resources**, establishes the policies, responsibilities, and procedures for operating on a government-to-government basis with Federally-recognized Indian tribes for the identification, conservation, and protection of American Indian and Alaska Native trust resources to ensure the fulfillment of the Federal Indian Trust Responsibility.

Reclamation Policies and Regulations

- **Indian Policy of the Bureau of Reclamation** affirms that Reclamation will comply with both the letter and the spirit of Federal laws and policies relating to Indians; acknowledge

and affirm the special relationship between the United States and Federally recognized Indian tribes; and actively seek partnerships with Indian tribes to ensure that tribes have the opportunity to participate fully in the Reclamation program as they develop and manage their water and related resources.

- **Bureau of Reclamation Protocol Guidelines: Consulting with Indian Tribal Governments** provides guidance on the protocol for conducting consultation and maintaining government to government relationships with Indian tribes.

- **Bureau of Reclamation Indian Trust Asset Policy and Guidance** is described in a 1993 Memorandum outlining NEPA Handbook Procedures to Implement Indian Trust Asset Policy.

Land Management

Land Use

Federal Laws and Statutes

- **The Recreation and Public Purposes Act of 1926, as amended**, authorizes the sale or lease of public lands for recreational or public purposes to State and local governments and to qualified nonprofit organizations. Examples of typical uses under the act are historic monument sites, campgrounds, schools, fire houses, law enforcement facilities, municipal facilities, landfills, hospitals, parks, and fairgrounds;

- **The Reclamation Project Act of 1939; as amended**, provides a feasible and comprehensive plan for the variable payment of construction charges on U.S. reclamation projects, to protect the investment of the U.S. in such projects, and for other purposes;

- **Land and Water Conservation Fund Act of 1965, as amended**, purposes are to assist in preserving, developing, and assuring accessibility to all citizens of the U.S. of present and future generations and visitors who are lawfully present within the boundaries of the U.S. such quality and quantity of outdoor recreation resources as may be available and are necessary and desirable for individual active participation in such recreation and to strengthen the health and vitality of the citizens of the U.S. by (1) providing funds for and authorizing Federal assistance to the States in planning, acquisition, and development of needed land and water areas and facilities and (2) providing funds for the Federal acquisition and development of certain lands and other areas.

- **Federal Land Transaction Facilitation Act of 2000 (FLTFA)** allows the Department of the Interior agencies and the U.S. Forest Service to use the proceeds from sales of Bureau of Land Management (BLM) lands to acquire inholdings in national parks, national wildlife refuges, national forests and BLM and designated areas, including the National Landscape Conservation System. FLTFA provides federal agencies with an important funding source to complement the Land and Water Conservation Fund, land exchanges, and other federal programs. It is a self-funded program requiring no additional appropriations;

- **The Condemnation Act of 1888, as amended**, authorized the condemnation of lands for sites for public buildings, and other purposes;

- **The Engle Act of 1958** provides that withdrawals, reservations, or restrictions of more than five thousand acres of public lands of the United States for certain purposes shall not become effective until approved by Act of Congress, and for other purposes;

- **The Federal Power Act of 1920, as amended**, provides for cooperation between the Federal Energy Regulatory Commission and other Federal agencies, including resource agencies, in licensing and relicensing power projects;

- **The Carey Act of 1894, as amended**, provided for the transfer to Western states of U.S.-owned desert lands on the condition that they be irrigated. It allowed private companies in the U.S. to erect irrigation systems in the western semi-arid states, and profit from the sales of water;

- **43 CFR, Part 402: Sale of Lands in Federal Reclamation Projects** regulates the sale of certain classes of lands that are subject to the reclamation laws and that may be sold under The Act of May 20, 1920, The Act of May 16, 1930, and The Act of March 31, 1950;

- **43 CFR, Part 420: Off-road vehicle use** establishes regulations for off-road vehicle use on reclamation lands to protect the land resources, to promote the safety of all users, to minimize conflict among the various users, and to ensure that any permitted use will not result in significant adverse environmental impact or cause irreversible damage to existing ecological balances; and

- **43 CFR, Part 429: Procedure to process and recover the value of rights-of-use and administrative costs incurred in permitting such use** purpose is to set fourth procedures for Reclamation to recover the value of rights-of-use interests granted to applicants, and for the collection of administrative costs associated with the issuing of rights-of-use over land administered by Reclamation.

Reclamation Policies and Regulations

- **Land Withdrawals, Withdrawal Reviews and Withdrawal Revocations Directive and Standard (LND 03-01)** was established to provide direction for the management of various aspects of land withdrawals in conjunction with the needs of an authorized Bureau of Reclamation project. This Directive and Standard sets basic standards and provides information on current applicable Federal laws, regulations, and policies for land withdrawals, withdrawal management including modifications and extensions, and withdrawal revocations;

- **Real Estate Appraisal Directive and Standard (LND 05-01)** sets forth procedures and provides information to ensure compliance with appropriate authorities and regulations. This Directive and Standard clearly articulates the real property appraisal processes, specifically as they relate to Reclamation's program needs;

- **Land Acquisition Directive and Standard (LND 06-01)** provides direction for the acquisition of land or interests in land by Reclamation and the management of those acquisitions in compliance with existing law and Department of the Interior requirements;

- **Land Use Authorizations Directive and Standard (LND 08-01)** provides standard procedures for issuing use authorization documents such as easements, leases, licenses, and permits which allow others to use Reclamation lands and interests in its lands, facilities, and water surfaces;

- **Land Disposal Directive and Standard (LND 08-02)** prescribes the procedures, methods, and criteria for disposing of Reclamation lands excluding title transfer of project facilities under specific authorizing legislation;

- **Real Property Management Records Directive and Standard (LND 09-01)** establishes the requirements for maintenance of records for Federal land and interests in land under Reclamation's jurisdiction; and

- **Payments in Lieu of Taxes (PILT) Directive and Standard (LND 09-02)** purpose is threefold: (a) to define the responsibility of Reclamation for reporting those PILT entitlement acres located within Reclamation's project boundaries, where appropriate; (b) to ensure there is no multiple reporting or lack of reporting of PILT entitlement acres by Reclamation or between Reclamation and other Federal agencies; and (c) to outline how various land categories must be coded in Foundation Information for Real Property Management to meet Reclamation's reporting requirements under the PILT Act and its regulations.

Concessions

Reclamation Policies and Regulations

- **Concessions Management Policy (LND P02)** defines the Bureau of Reclamation's responsibility for the museum property it owns, controls, or administers on behalf of the U.S. Government in accordance with Federal laws, regulations, and Department of the Interior policies. The benefit of this Policy is improved accountability through accuracy and consistency in managing Reclamation's museum property, and completion of required administrative actions in Reclamation's Museum Property Program. It also provides increased opportunities for public access to, and use of, Reclamation's museum property;

- **Concessions Management by Reclamation Directive and Standard (LND 04-01)** sets forth the directives and standards for planning, development, and management of concessions at Reclamation projects; and

- **Concessions Management by Non-Federal Partners Directive and Standard (LND 04-02)** establishes minimum approval standards for all new, modified, or renewed non-Federal concession contracts.

Facilities Management

Reclamation Policies and Regulations

- **Environmental Management Systems Policy (LND P05)** defines Reclamation's responsibility for the museum property it owns, controls, or administers on behalf of the U.S. Government in accordance with Federal laws, regulations, and Department of the Interior policies. This improves accountability through accuracy and consistency in managing Reclamation's museum property, and completion of required administrative actions in

Reclamation's Museum Property Program. It also provides increased opportunities for public access to, and use of, Reclamation's museum property;

- **Emergency Management Policy (FAC P01)** provides for the safety of the public and protect environmental resources from incidents at Reclamation facilities by (1) taking reasonable and prudent actions necessary to ensure timely notification to potentially affected jurisdictions of such incidents so that warning and evacuation of the public can be accomplished; and (2) defining program needs and requirements essential to maintain self-regulation by line managers, be responsive to public safety, and satisfy legal requirements during operations or emergency incidents at our facilities;

- **Hazardous Waste and Materials Management Policy (ENV P01)** establishes the requirements and responsibilities for the management of hazardous waste generated by Reclamation at Reclamation facilities and the remediation of hazardous waste sites on Reclamation lands. This policy deals with hazardous materials only where required by related hazardous waste management regulations;

- **Pollution Prevention-Hazardous and Solid Waste Minimization Directive and Standard (ENV 02-03)** establishes methods to minimize hazardous and solid waste produced at Reclamation facilities; and

- **Emergency Management Directive and Standard (FAC 01-01)** provides for the safety of the public and protect environmental resources from incidents at our facilities by (1) taking reasonable and prudent actions necessary to ensure timely notification to potentially affected jurisdictions of such incidents so that warning and evacuation of the public can be accomplished; and (2) defining program needs and requirements essential to maintain self-regulation by line managers, be responsive to public safety, and satisfy legal requirements during operations or emergency incidents at Reclamation facilities.

Fire Management

Federal Laws and Statutes

- **Timber Protection Act of September 20, 1922 (42 Stat. 857; 16 USC, Section 594)** authorizes the Secretary of the Interior is authorized to protect and preserve, from fire, disease, or the ravages of beetles, or other insects, timber owned by the U.S. upon the public lands, national parks, national monuments, Indian reservations, or other lands under the jurisdiction of the Department of the Interior owned by the U.S., either directly or in cooperation with other departments of the Federal Government, with States, or with owners of timber; and appropriations are authorized to be made for such purposes;

- **Reciprocal Fire Protection Act of May 27, 1955 [69 Stat. 66; 42 USC, Sections 1856 and 1856(a)]** charges each agency head with the duty of providing fire protection for any property of the U.S. and is authorized to enter into a reciprocal agreement, with any fire organization maintaining fire protection facilities in the vicinity of such property, for mutual aid in furnishing fire protection for such property and for other property for which such organization normally provides fire protection;

- **Economy Act of June 30, 1932 (47 Stat. 417; 31 USC, Section 686)** allows the head of an agency or major organizational unit within an agency to place an order with a major organizational unit within the same agency or another agency for goods or services if: (a) amounts are available; (b) the head of the ordering agency or unit decides the order is in the best interest of the U.S. Government; (c) the agency or unit to fill the order is able to provide or get by contract the ordered goods or services; and (d) the head of the agency decides ordered goods or services cannot be provided by contract as conveniently or cheaply by a commercial enterprise;

- **Disaster Relief Act, Section 417 (PL 93-288)** provides an orderly and continuing means of assistance by the Federal Government to State and local governments in carrying out their responsibilities to alleviate the suffering and damage which result from such disasters by: (1) revising and broadening the scope of existing disaster relief programs; (2) encouraging the development of comprehensive disaster preparedness and assistance plans, programs, capabilities, and organizations by the States and by local governments; (3) achieving greater coordination and responsiveness of disaster preparedness and relief programs; (4) encouraging individuals, States, and local governments to protect themselves by obtaining insurance coverage to supplement or replace governmental assistance; (5) encouraging hazard mitigation measures to reduce losses from disasters, including development of land use and construction regulations; and (6) providing Federal assistance programs for both public and private losses sustained in disasters;

- **The Multiple-Use Sustained-Yield Act of June 12, 1960** authorizes and directs that the national forests be managed under principles of multiple use and to produce a sustained yield of products and services;

- **The Forest and Rangeland Renewable Resources Planning Act of August 17, 1974** provides for the Forest Service, Department of Agriculture, to protect, develop, and enhance the productivity and other values of certain of the Nation's lands and resources, and for other purposes;

Department of Interior Directives

- **1998 Departmental Manual 620 Chapter 1, Wildland Fire Management General Policy and Procedures.**

Transportation

Federal Laws and Statutes

- **Highway Safety Act of 1966, as amended**, provides for a coordinated national highway safety program through financial assistance to the States to accelerate highway traffic safety programs and for other purposes; and

- **Surface Transportation Act of 1978 and 1982, as amended**, authorizes appropriations for construction of certain highways in accordance with title 23, USC, for highway safety, for mass transportation in urban and rural areas, and for other purposes.

Range Management

Federal Laws and Statutes

- **The Taylor Grazing Act of 1934 (43 USC, Section 315)** states "[T]he Secretary of the Interior is authorized, in his discretion, by order to establish grazing districts or additions thereto…of vacant inappropriate and unreserved lands from any part of the public domain…which in his opinion are chiefly valuable for grazing and raising forage crops[.]…" The act also provides for the classification of lands for particular uses;

- **The Public Rangelands Improvement Act of 1978 (43 USC, Section 1901)** provides that the public rangelands be managed so that they become as productive as feasible in accordance with management objectives and the land use planning process established pursuant to 43 USC, Section 1712; and

- **43 CFR, Part 4100 (Grazing Regulations)** provides uniform guidance for administration of grazing on the public lands exclusive of Alaska.

Public Safety

Federal Laws and Statutes

- **The Federal Water Pollution Control Act of 1977 (33 USC, Section 1323)** requires Federal land managers to comply with all Federal, state, and local requirements, administrative authority, process, and sanctions regarding the control and abatement of water pollution in the same manner and to the same extent as any nongovernmental entity;

- **The Clean Water Act of 1972, as amended (33 USC, Section 1251)** establishes objectives to restore and maintain the chemical, physical, and biological integrity of the nation's water;

- **The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended (42 USC, Sections 9601 et seq.),** also known as Superfund, is primarily intended to address risks posed to human health and welfare or the environment resulting from releases or potential releases of hazardous substances. Other key acts related to CERCLA include the following:

  - **Emergency Planning and Community Right-to-Know Act of 1986** amends CERCLA (42 USC, Section 11001) and adds sections 120 and 121 dealing with Federal facilities

  - **Community Environmental Response Facilitation Act of 1992** amends CERCLA Section 120(h) (42 USC, Section 9620);

  - **Pollution Prevention Act of 1990 (42 USC, Section 13101)** sets a national policy that pollution should be prevented or reduced at the source whenever feasible; pollution that cannot be prevented should be recycled in an environmentally safe manner, whenever feasible; pollution that cannot be prevented or recycled should be treated in an environmentally safe manner whenever feasible; and disposal or other release into the environment should be employed only as a last resort and should be conducted in an environmentally safe manner;

- **Resource Conservation and Recovery Act of 1976 (RCRA), as amended (42 USC, Sections 5 6901 et seq.)** purposes are to protect human health and the environment from the potential hazards of waste disposal, to conserve energy and natural resources, to reduce the amount of waste generated, and to ensure that wastes are managed in an environmentally sound manner. RCRA regulates the management of solid waste (e.g., garbage), hazardous waste, and underground storage tanks holding petroleum products or certain chemicals;

- **Toxic Substances Control Act of 1976 (15 USC, Sections 2601 et seq.)** allows EPA to regulate new commercial chemicals before they enter the market, to regulate existing chemicals (1976) when they pose an unreasonable risk to health or to the environment, and to regulate their distribution and use;

- **Federal Insecticide, Fungicide, and Rodenticide Act of 1975 (7 USC, Sections 136 et seq.)** sets up the basic U.S. system of pesticide regulation to protect applicators, consumers, and the environment;

- **Clean Air Act of 1970, as amended (42 USC, Sections 7401 et seq.)** purposes are: (1) to protect and enhance the quality of the Nation’s air resources so as to promote the public health and welfare and the productive capacity of its population; (2) to initiate and accelerate a national research and development program to achieve the prevention and control of air pollution; (3) to provide technical and financial assistance to State and local governments in connection with the development and execution of their air pollution prevention and control programs; and (4) to encourage and assist the development and operation of regional air pollution prevention and control programs;

- **Safe Drinking Water Act of 1974, as amended (42 USC, Sections 300 et seq.)** ensures the quality of Americans' drinking water. Under this Act, EPA sets standards for drinking water quality and oversees the states, localities, and water suppliers who implement those standards;

- **Hazardous Materials Transportation Act amendments of 1976 and 1990 (49 USC, Sections 1801 et seq.)** purpose is to provide adequate protection against the risks to life and property inherent in the transportation of hazardous material in commerce;

- **Executive Order 11514, Protection and Enhancement of Environmental Quality, 18 March 5, 1970**, sets a national policy to provide leadership in protecting and enhancing the quality of the Nation's environment to sustain and enrich human life. Federal agencies shall initiate measures needed to direct their policies, plans and programs so as to meet national environmental goals;

- **National Oil and Hazardous Substances Pollution Contingency Plan (40 CFR, Part 20 300)** purpose is to provide the organizational structure and procedures for preparing for and responding to discharges of oil and releases of hazardous substances, pollutants, and contaminants;

- **Occupational Safety and Health Act of 1970, as amended**, assures safe and healthful working conditions for working men and women; by authorizing enforcement of the standards developed under the Act; by assisting and encouraging the States in their efforts to assure safe and healthful working conditions; by providing for research, information, education, and training in the field of occupational safety and health; and for other purposes; and

- **Lead-based Paint Poisoning Prevention Act, as amended**, purposes are: (1) to develop a national strategy to build the infrastructure necessary to eliminate lead-based paint hazards in all housing as expeditiously as possible; (2) to reorient the national approach to the presence of lead-based paint in housing to implement, on a priority basis, a broad program to evaluate and reduce lead-based paint hazards in the Nation's housing stock; (3) to encourage effective action to prevent childhood lead poisoning by establishing a workable framework for lead-based paint hazard evaluation and reduction and by ending the current confusion over reasonable standards of care; (4) to ensure that the existence of lead-based paint hazards is taken into account in the development of Government housing policies and in the sale, rental, and renovation of homes and apartments; (5) to mobilize national resources expeditiously, through a partnership among all levels of government and the private sector, to develop the most promising, cost-effective methods for evaluating and reducing lead-based paint hazards; (6) to reduce the threat of childhood lead poisoning in housing owned, assisted, or transferred by the Federal Government; and (7) to educate the public concerning the hazards and sources of lead-based paint poisoning and steps to reduce and eliminate such hazards.

Reclamation Policies and Regulations

- **Hazardous Waste and Materials Management Policy (ENV P01)** establishes the requirements and responsibilities for the management of hazardous waste generated by Reclamation at Reclamation facilities and the remediation of hazardous waste sites on Reclamation lands. This policy deals with hazardous materials only where required by related hazardous waste management regulations;

- **Pest Management Policy (ENV P02)** establishes policy for the management of pests on Reclamation lands. Reclamation is responsible for the identification and proper management of pests on Reclamation lands and at Reclamation-owned facilities in accordance with the national policies set out in the Federal Insecticide, Fungicide, and Rodenticide Act, Federal Noxious Weed Act, Carlson-Foley Act, and applicable State and local laws and standards;

- **Occupational Safety and Health Program Policy (SAF P01)** sets forth Reclamation-specific policy for the implementation and administration of an effective safety and health program. This includes safe and healthful working conditions and facilities to protect persons from injury/illness, to prevent accidental damage to facilities, and to prevent public exposure to unsafe conditions;

- **Pest Management/Resource Protection (Integrated Pest Management) Program Directive and Standard (ENV 01-01)** provides directives and standards for Reclamation personnel involved with the implementation of Pest Management/Resource Protection plans for the operation and maintenance of Reclamation lands and facilities;

- **Public Notification of Aerial Pesticide Applications on Lands Managed Directly by Reclamation Directive and Standard (ENV 01-02)** provides directives and standards for Reclamation personnel involved in aerial applications of pesticides to lands managed directly by Reclamation;

- **Pollution Prevention-Hazardous and Solid Waste Minimization Directive and Standard (ENV 02-03)** establishes methods to minimize hazardous and solid waste produced at Reclamation facilities;

- **Emergency Management Directive and Standard (FAC 01-01)** provides for the safety of the public and protect environmental resources from incidents at our facilities by (1) taking reasonable and prudent actions necessary to ensure timely notification to potentially affected jurisdictions of such incidents so that warning and evacuation of the public can be accomplished; and (2) defining program needs and requirements essential to maintain self-regulation by line managers, be responsive to public safety, and satisfy legal requirements during operations or emergency incidents at Reclamation facilities; and

- **Hazardous Materials Directive and Standard (FAC 01-03)** provides for the safety of the public and protect environmental resources from incidents at our facilities by defining program needs and requirements essential to maintain self-regulation by line managers, be responsive to public safety, and satisfy legal requirements during operations or emergency incidents at Reclamation facilities.

Visitor Use and Recreation

Federal Laws and Statutes

- **Procedure to process and recover the value of rights-of-use and administrative costs incurred in permitting such use (43 CFR, Part 429)** intends to meet the requirements of the Independent Offices Appropriation Act [31 USC, Section 483(a)] and Departmental Manual Part 346, Chapters 1.6 and 4.10, to set forth procedures for Reclamation to recover the value of rights-of-use interests granted to applicants, and for the collection of administrative costs associated with the issuing of rights-of-use over lands administered by Reclamation;

- **Reclamation Recreation Management Act of 1992** is an amendment to the Federal Project Recreation Act of 1965, PL 89-72, that provides up to 50 percent Federal cost sharing for the planning, construction, and operation and maintenance of recreation facilities with non-Federal public entities. It also provides 75 percent Federal cost sharing with non-Federal partners for fish and wildlife enhancement and up to 50 percent of the operation and maintenance of such facilities. Non-Federal public entities that have agreed to manage developed facilities and lands at Reclamation projects are to work with local Reclamation offices to identify proposed projects for funding. Congressional funds are appropriated annually and distributed for selected sites;

- **Public conduct on Reclamation lands and projects (43 CFR, Part 423)**, **e**stablished on April 17, 2002, is meant to maintain law and order and protect persons and property on

Reclamation lands and at Reclamation projects. This statute at the time of authorization honored all designated closures and special use areas on Reclamation property.

- **The Reclamation Act of 1902, as amended** set aside Federal money to irrigate lands in the West to promote farming and vested Reclamation with the authority to operate water projects;

- **36 CFR, Part 71, Recreation Fees**, specifies the criteria under which recreation fees may be charged on Federal lands. Fees must be entrance fees, daily recreation use fees, or special use permit fees. Areas with recreational facilities provided at Federal government expense are eligible to charge use fees;

- **43 CFR, Part 24, Department of the Interior Fish and Wildlife Policy: State- Federal Relationships**, establishes policy on intergovernmental cooperation for the management, use, and preservation of fish and wildlife resources;

- **The Federal Water Project Recreation Act of 1965, as amended**, mandates that planning for any Federal water resource project must address opportunities for recreation and fish and wildlife enhancement;

- **The Land and Water Conservation Fund Act of 1964** directed the Secretary of the Interior to inventory, evaluate and classify outdoor recreation facilities, and formulate and maintain a comprehensive nationwide outdoor recreation plan;

- **PL 106-206, Commercial Filming**, established the requirement of a permit and reasonable fee for filming on lands under the supervision of the Secretary of Interior or Secretary of Agriculture;

- **Americans with Disabilities Act of 1990** prohibits private employers, state and local governments, employment agencies and labor unions from discriminating against persons with physical disabilities; and

- **Office of Management and Budget Circular A-025, Revised 1993** establishes Federal policy regarding fees assessed for Government services and for sale or use of Government goods or resources. It provides information on the scope and types of activities subject to user charges and on the basis upon which user charges are to be set. Finally, it provides guidance for agency implementation of charges and the disposition of collections.

Socioeconomics and Environmental Justice

Federal Laws and Statutes

- **Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations** requires that Federal Agencies make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations;

Reclamation Policies and Regulations

- **Compliance with Civil Rights Laws and Regulations Directive and Standard (PEC 10-25)** states that the contractor must comply with Title VI of the Civil Rights Act of 164, the Rehabilitation Act of 1973, the Age Discrimination Act of 1975, and any other applicable civil rights laws. Contractors must also comply with any implementing regulations or guidelines imposed by the U.S. Department of the Interior and/or Reclamation. Any complaints of discrimination against the contractor will be investigated by the Contracting Officer's Office of Civil Rights;

- **Public Civil Rights Policy (CRM P01)** establishes and conveys the policy of Reclamation's prohibition against discrimination in its programs, services and activities: (a) receiving Federal financial assistance; or (b) conducted by, or on behalf of, Reclamation. The benefits of this Policy are ensuring compliance, operational effectiveness, and consistency in implementing Federal Public Civil Rights laws and regulations of the Department of the Interior, Department of Justice, and Reclamation; and

- **The Accessibility Program, or Nondiscrimination on the Basis of Disability in Federally Conducted Programs, Activities, and Services (CRM 03-01)** standardizes and clarifies requirements to ensure compliance with nondiscrimination laws covering persons who have disabilities for consistent implementation throughout Reclamation. The benefits of this Directive and Standard are twofold: (1) public access to, and benefit from, programs, activities and services; and (2) clarification of roles and responsibilities.

Paleontological Resources

Federal Laws and Statutes

- **PL 111-011, Omnibus Public Land Management Act of 2009** requires the Department of the Interior to manage and protect paleontological resources on Federal land using scientific principles and expertise.

APPENDIX D

Public Meeting Notices, Materials, and Summaries

News Release

RECLAMATION
Managing Water in the West

Mid-Pacific Region
Sacramento, CA

MP-10-015

Media Contact: Pete Lucero, 916-978-5100, plucero@usbr.gov

For Release On: January 25, 2010

Reclamation to Hold Public Scoping Meeting on a Proposed RMP/EIS for Contra Loma Reservoir and Recreation Area

The Bureau of Reclamation will hold a Public Scoping Meeting on Monday, February 8, 2010, to solicit comments on the preparation of a Resource Management Plan (RMP) and Environmental Impact Statement (EIS) for the Contra Loma Reservoir and Recreation Area (CLRRA). The EIS will be developed consistent with requirements of the National Environmental Policy Act. A Notice of Intent to prepare the RMP/EIS was published in the Federal Register on November 12, 2009.

Located in Antioch, California, Contra Costa County, Contra Loma Reservoir is part of the Central Valley Project and is managed by the Mid-Pacific Region's South-Central California Area Office. The CLRRA is operated and maintained by the East Bay Regional Park District (EBRPD) under a Management Agreement with Reclamation. The Management Agreement includes multiple subleases issued by EBRPD that will expire on December 31, 2010. The EBRPD is interested in renewing the CLRRA Management Agreement with Reclamation.

The RMP/EIS would establish uniform policy and land management guidelines that promote an organized use, development, and management of the Contra Loma Reservoir and the surrounding recreational area lands compatible with applicable Federal and State laws. The RMP would incorporate all information pertinent to the future guidance of the CLRRA and would serve as the basis for future decisionmaking for the area. Through the scoping meeting, Reclamation will solicit public input on concerns, issues, and alternatives to be addressed in the RMP/EIS. The meeting will be held:

Monday, February 8, 2010, 6:30-8:30 p.m.
Nick Rodriguez Community Center
City of Antioch Recreation Department
213 F Street, Antioch, CA 94509

For additional information, please contact Ms. Sheryl Carter at Reclamation's South-Central California Area Office at 559-487-5299 (TTY 1-800-735-2929) or e-mail scarter@usbr.gov, or Mr. Scott Goebl, North State Resources, at 916-446-2566, extension 202.

# # #

Reclamation is the largest wholesale water supplier and the second largest producer of hydroelectric power in the United States, with operations and facilities in the 17 Western States. Its facilities also provide substantial flood control, recreation, and fish and wildlife benefits. Visit our website at http://www.usbr.gov.

Minutes
Public Scoping Meeting

Contra Loma Reservoir and Recreation Area RMP/EIS
@ Nick Rodriguez Community Center
February 8, 2010
630 pm – 830 pm

Attendees

Project Team:

Sheryl Carter, Reclamation

Rain Healer, Reclamation

Scott Goebl, North State Resources (NSR)

Leslie Wagner, NSR

See sign-in sheet for public attendees.

Format of Meeting

NSR (Scott Goebl) introduced the project team and welcomed the attendees to the meeting. He provided a presentation on the project and purpose of the RMP/EIS and explained the intent of the scoping meeting. Following the presentation, the public was invited to ask questions and provide verbal comments. Comment forms were available for people wishing to submit written comments.

Verbal Comments

Most of the comments received at the meeting were focused on the need for improved and additional soccer fields at the Antioch Community Park. Several comments were also received on improving recreational opportunities at Contra Loma Reservoir. The comments from individuals are summarized in the following table.

Commenter	Comment Summary
Roy Immekus, DYSL	▪ Community growth needs to be considered to ensure enough ball fields are available for youth into the future. ▪ The City does not currently have enough ball fields for youth soccer. ▪ The area south of the existing fields at the community park should be considered for expansion of the soccer fields at the park. ▪ Ball fields require little to establish—just a flat area and grass.

Commenter	Comment Summary
	▪ Current use of the soccer fields at the park includes 60-150 children each weekday and approximately 400 children on Saturdays. ▪ Some children must travel to Pittsburg to play because of fields in Antioch being unavailable. ▪ DYSL wants all children to have the opportunity to play, but does not want them to have to travel outside the community to play. ▪ Youth baseball is also sometimes restricted at the park because there are not enough fields. ▪ The City wants the opportunity to expand the fields and extend its agreement to continue maintaining the park.
Paul Adler, Supervisor Glover's Office (Contra Costa County)	▪ The County recommends renewing the agreement with the City. ▪ Soccer fields should be expanded and have turf instead of grass. ▪ Increased youth sport opportunities would benefit the community. ▪ The park improvements would be consistent with ongoing infrastructure and Highway 4 improvements being implemented by the County.
Tom Menell	▪ Fields in Antioch close when it rains, and youth must drive to Danville or other communities to play. ▪ Turf surface is preferred to allow all-weather play, and it has low water needs. ▪ Fields in Brentville are also used on occasion if the fields in Antioch are not available. ▪ Fields are not always watered due to water supply shortages, which poses a hazard to players because of dry or barren patches and uneven surfaces.
Dee Vieira	▪ Teams are not able to practice enough because local fields are not always available. ▪ Fields in poor condition create safety concerns. ▪ No current turf fields exist in Antioch; turf fields would expand opportunities for youth practice.
Allen Payton, Turf and Track Group	▪ Turf surface should be considered for safety reasons. It requires little maintenance and provides year-round opportunities.

Commenter	Comment Summary
Manny Flores, Antioch Parks and Recreation Commission	▪ Existing fields pose safety concerns—potholes, gopher holes, uneven surfaces, slopes, dry grass. ▪ Opportunities appear to be available at the regional park to provide more fields for the community park. ▪ Use of turf could alleviate safety concerns.
Will Linville, DYSL	▪ Turf fields are recommended to alleviate safety concerns. ▪ As a soccer coach, Will would like to see turf fields at the park to expand opportunities for youth sports. ▪ Lights on fields would also provide more opportunities for playing. ▪ Available land near the community park should not be used for another purpose that could permanently convert it into a non-compatible use, resulting in the lost opportunity to expand soccer fields. ▪ DYSL's goal is to provide opportunities for more children to play soccer. ▪ Existing fields could be replaced with turf, but expansion on available land should also be considered. ▪ Youth are not currently able to practice in evenings (after dark) or if it rains because the fields at the community park are shut down. This forces kids to leave the area in order to get more playing opportunities. ▪ Turf would expand opportunities for soccer, softball, and football and provide year-round opportunities.
Dave Sanderson, City of Antioch	▪ The City is currently applying to put turf and lights at the existing soccer fields at the community park. ▪ The City is working with EBRPD to implement the upgrades. ▪ These field improvements would help, but they would not expand opportunities, which are needed to provide more children with the opportunity to play locally.
Shari Gayle	▪ Water quality is a concern in the reservoir. ▪ Invasive species, such as carp and mussels, are also a concern. ▪ CCWD is aware of the issues with zebra and quagga mussels and New Zealand mud snails.

Commenter	Comment Summary
	▪ Carp are currently removed annually when biologists survey the reservoir during draw downs. ▪ The current economy increases the potential for pests to be introduced to the reservoir. ▪ Carp is a concern, but not necessarily a major issue. ▪ Mussels may clog the outlet pipes. ▪ Reclamation programs to manage mussels will need to be considered.
Douglas Young	▪ Largemouth bass may be affected by reservoir draw downs, resulting in a reduced bass population, which affects the recreational fishery. ▪ The timing of the draw downs may coincide with bass spawning and may prevent bass from spawning. ▪ A study should be done to evaluate these effects.
Janet Gomes, EBRPD	▪ Additional fishing docks are needed to support the fishermen. ▪ Opportunities should be provided for children to fish and use the reservoir. ▪ Organized group camps would be beneficial for boyscouts and other children's groups. ▪ A year-round surface should be considered for the lake trail because of inaccessibility during wet weather (muddy conditions).

RECLAMATION
Managing Water in the West

The U.S. Bureau of Reclamation invites you to a

Public Workshop for the Contra Loma Reservoir and Recreation Area Resource Management Plan

Wednesday, August 4, 2010
6:00 – 9:00 pm

Sutter Elementary School • 3410 Longview Road • Antioch, CA 94509

The U.S. Bureau of Reclamation is preparing a Resource Management Plan (RMP) for the Contra Loma Reservoir and Recreation Area (Contra Loma), which includes the Contra Loma Regional Park and the Antioch Community Park.
This is your chance to help guide the future management of recreational uses and natural, cultural, and water resources at Contra Loma.

As public participants, you will have the opportunity to:

- **Learn** about the planning and environmental review process
- **Identify** key resource or land use issues at Contra Loma
- **Provide opinions** about the recreational uses and facilities now at Contra Loma Regional Park and the Antioch Community Park
- **Identify** opportunities for improving resource management and recreational experiences

The success of the Contra Loma Resource Management Plan depends on public involvement. Attend the workshop to share your thoughts and ideas!

Beverages and light snacks will be provided.

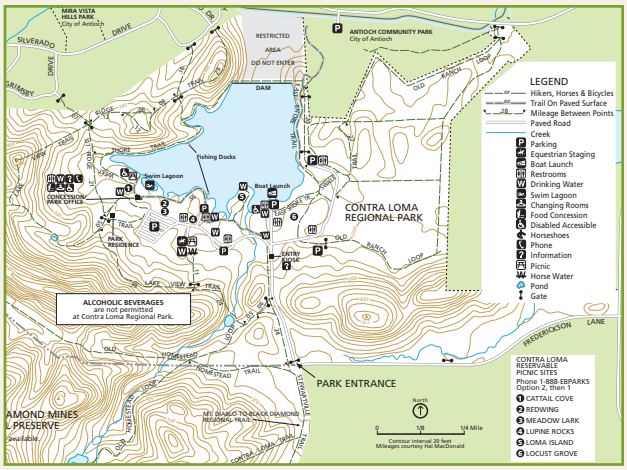
For more information about the public workshop, please contact Ben Gettleman at 415-391-7900, bgettleman@kearnswest.com or visit www.ebparks.org/planning. For more information about the RMP process, please contact Sheryl Carter at 559-487-5299, scarter@usbr.gov.

U. S. Department of the Interior
Bureau of Reclamation

What is the Contra Loma Reservoir and Recreation Area?

The Contra Loma Reservoir and Recreation Area encompasses an 80-acre reservoir, the 780-acre Contra Loma Regional Park and the Antioch Community Park. The area is owned by the U.S. Bureau of Reclamation (Reclamation) and managed by the East Bay Regional Park District (EBRPD), the Contra Costa Water District (CCWD) and the City of Antioch.

The reservoir regulates peak and short-term water supplies and provides emergency storage for CCWD customers throughout central and eastern Contra Costa County. The reservoir is managed and operated by CCWD. The facilities at the regional park, managed by the EBRPD, offer a variety of recreational uses, such as fishing, picnicking, hiking, wildlife observation, and swimming, and local residents use the Community Park for soccer, baseball or softball, walking, and picnicking.



What plan is being developed for Contra Loma?

Reclamation is preparing a Resource Management Plan (RMP) for Contra Loma. The RMP will be the guide for future land and water resources management decisions at Contra Loma. The RMP is intended to establish uniform policy and land management guidelines that promote organized use, development, and management of Contra Loma while protecting water quality, water supply, and natural and cultural resources. Reclamation will also prepare an Environmental Impact Statement (EIS) to evaluate the environmental effects of implementing the RMP. The RMP and EIS will be prepared as a single document. A draft of the RMP/EIS will be available for public review by the fall of 2012.

What is the format of the August 4th workshop?

The workshop will begin with an overview presentation by the project team, followed by an opportunity for participants to visit topic stations (including current and future uses, natural resources, and others), learn more about the process, and submit comments on those topics.

Why should I attend?

Engaged participation by the public, user organizations, and agencies is critical to the success of this planning effort. Your ideas, concerns, and comments will inform the development of the RMP/EIS for management of Contra Loma's valuable resources.

What if I can't attend the workshop in person?

If you are not able to attend the workshop, the presentation and meeting materials will be available at *www.ebparks.org/planning*. You may provide your comments, questions and concerns on these issues to Ben Gettleman at: (415) 391-7900, bgettleman@kearnswest.com.

A second public workshop will take place in the winter of 2010 to summarize the results of the public involvement process, to present possible alternatives for the RMP, and seek comments about those alternatives. Visit the program website for more details as they become available: *www.ebparks.org/planning*.

RECLAMATION
Managing Water in the West

Notice of Public Workshop

Wednesday, August 4, 2010
6:00 – 9:00 pm

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The U.S. Bureau of Reclamation (Reclamation) invites you to attend a public workshop to inform the development a Resource Management Plan (RMP) for the Contra Loma Reservoir and Recreation Area (Contra Loma), which includes Contra Loma Regional Park and Antioch Community Park.

As public participants, you will have the opportunity to:

- **Learn** about the planning and environmental review process
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This is your chance to help guide the future management of recreational uses and natural, cultural, and water resources at Contra Loma. Attend the workshop to share your thoughts and ideas!

For more information about the public workshop, please contact Ben Gettleman at 415-391-7900, bgettleman@kearnswest.com or visit www.ebparks.org/planning. For more information about the RMP process, please contact Sheryl Carter at 559-487-5299, scarter@usbr.gov.

RECLAMATION
Managing Water in the West

Contra Loma Reservoir and Recreation Area Resource Management Plan Public Workshop

Wednesday, August 4, 2010

Sutter Elementary School • Antioch, CA

FINAL MEETING SUMMARY

I. Workshop Purpose

A public workshop was convened by the U.S. Bureau of Reclamation (Reclamation) on August 4, 2010 in Antioch, California to solicit input for development of a Resource Management Plan (RMP) for the Contra Loma Reservoir and Recreation Area (Contra Loma). The purpose of the public workshop was to provide an overview of the planning and environmental review process, identify key resource and land use issues, solicit input (i.e., comments and information) about Contra Loma, and identify opportunities, and constraints to manage the resources at Contra Loma. The workshop agenda is attached as Appendix A.

II. Welcome and Project Overview

Sheryl Carter, Reclamation, welcomed participants and provided an overview of Reclamation and the RMP process. Ms. Carter noted the following key points: Reclamation owns Contra Loma and manages it in partnership with the City of Antioch, East Bay Regional Park District (EBRPD), and Contra Costa Water District (CCWD); the current management agreement with EBRPD will expire in December 2010, and a new agreement will be needed that incorporates decisions in the RMP; and the goal of the workshop is to solicit comments on how the public would like to see Contra Loma and its resources managed in the future.

Scott Goebl, NSR, further described Contra Loma, its managing partners, and the RMP process. Mr. Goebl clarified that Contra Loma includes three main areas: Antioch Community Park, Contra Loma Reservoir, and Contra Loma Regional Park. He also noted the following key points regarding the current management and use of Contra Loma: Antioch Community Park is managed by the City of Antioch, and it includes many recreational opportunities including softball fields, picnic areas, and trails; the reservoir is operated by CCWD and its main purpose is to supply drinking water (and therefore water quality is the highest priority); and Contra Loma Regional Park is managed by EBRPD and provides recreational activities including a swim lagoon, fishing, and hiking.

Mr. Goebl clarified that the RMP is a land use management plan that will guide the future management of resources of this area for at least the next 10 years and that the input received at this workshop would inform the development of RMP alternatives. He added that these alternatives would be available for review at a second public workshop planned for January 2011, and that based on public comments received at that time, the alternatives are expected to be refined to three alternative management scenarios.

[1] This summary represents Kearns & West's efforts to synthesize the input received by workshop participants as well as the responses provided by project staff. This report focuses on summarizing the public's input on key issues; it is not intended to serve as a transcript of all issues discussed or points made.

U. S. Department of the Interior
Bureau of Reclamation

III. Workshop Topic Stations

Ben Gettleman, Kearns & West, explained the structure and flow of the four topic stations. He noted that at each station, participants would be asked to provide feedback on what is working (priorities), what is not working (concerns), and how it could be improved (opportunities). Each topic station was staffed by a lead and at least one representative from the managing partner agency to answer questions about the RMP process or the area being managed.

Topic Station	Topic	Station Lead	Partner Representative
1	RMP/EIS Process	Scott Goebl (NSR)	
2	Contra Loma Regional Park	Leslie Wagner (NSR)	Anne Rivoire (EBRPD) and other EBRPD staff
3	Contra Loma Reservoir	Sheryl Carter (Reclamation)	Fran Garland (CCWD)
4	Antioch Community Park	Rebecca Gaertner (NSR)	Lonnie Karste (City of Antioch)

The public comments received at each topic station are summarized below:

1. RMP/EIS Process

A. *What is working (priorities)?*

- Sincere appreciation and enjoyment of the park.

B. *What is not working (concerns)?*

- One commentor recently observed an abundance of dead clams around the reservoir shoreline. The commentor is concerned that the dead clams are an indication of poor water quality.
- Over the past 2 years, fewer dragonflies and small fish have been observed along the shoreline.
- Fish catches appear to be down recently.
- Water levels appear to be lower recently.
- Black bass and crappie populations appear to be decreasing. Water level fluctuations may be inhibiting regeneration. These fish lay eggs on the reservoir bottom in April/May. Lowering the reservoir level below the level of the eggs causes egg mortality.
- Algae blooms appear in backwater areas. They are unsightly and promote neglect.
- Apparent abundance of animal feces (geese, horses, dogs) is noticeable around the reservoir, which could reduce reservoir water quality. The feces is unsightly and promotes neglect of reservoir and recreational area.

C. *How could it be improved (opportunities)?*

- Water quality sampling locations should be distributed more widely around the reservoir.
- Maintain water level at a constant elevation in April/May to allow black bass and crappie eggs to hatch. After April/May water level fluctuations would not affect these fish.
- One solution to the feces issue would include abundant signage with telephone contact information to report problems. Suggest placing at least 10 dog feces bag stations throughout the park and adding more garbage cans on NW shore, east shore and dam.

2. Contra Loma Regional Park

A. *What is working (priorities)?*

- Job opportunities – L.G./swim instructors (EBRPD)
- Swimming lessons
- Jr. lifeguard program
- Swimming test – maintains safety
- Swim instructors – very helpful
- Picnic areas – kept clean
- Management of capacity in lagoon area
- Swim program
  - Keeping children safe/life skills
  - A place for families to bond
  - Job placement (JG's)
- Public safety (police/fire) coverage
- Jr. lifeguard program builds self worth and confidence for children

- Community enrichment
- Friday naturalist programs
- Trail quality (much improved)
- Great park for dogs

B. What is not working (concerns)?

- The trails around the west shore get muddy.
- More shade is needed around the lawn at the swim lagoon.
- There is not enough parking at lagoon.
- The swim lagoon is too small.
- There are not enough restroom facilities.
- Children ages 0-5 need a separate safe pool for improved safety (or a portion of existing lagoon should be roped off for toddlers ages 0-5).
- Animal (dog/horse) feces is noticeable along trails around the reservoir.
- There is not enough shade along the trails.
- There is not enough defined off-leash dog areas.
- Horses near the reservoir may pose water quality concerns (feces)
- Restrictions on kayaking to reduce human contact are too severe.
- There are limited mountain bike loop trail opportunities.

C. How could it be improved (opportunities)?

- Placing gravel along the west shore trails could keep them from getting muddy.
- More trees around the park, and especially on the west shore would increase shade.
- Add building/facilities for classes and better bathrooms.
- Expand gravel/overflow parking.
- Have more public clean-up days.
- Issue more littering tickets.
- Add a secure locked “donation box” for walk-ins.
- Expand lagoon or add additional swim areas.
- Improve communication between kiosk attendants/lagoon kiosk attendant/lifeguards/rangers and naturalist programs.
- Create multi-use trail connectors in the following locations:
    - Between the bulletin board at the stop sign area and the gravel road
    - Between the boat ramp and the creek side bridge along the water
    - A full circle around the island (should be gravel)
    - Bewteen the boat ramp and the east shore trail
    - At the entrance road
- Make lagoon “non-smoking only” and designate smoking area down-wind from swimmers.
- Patrol and clean up trails at least daily to remove feces/garbage.
- Place more garbage cans along trails.
- Place at least 10 dog feces bag stations at garbage cans and along trails.
- Improve signs about cleaning up feces,,using large text that is easy to understand.
- Plant trees along trails for shade.
- Designate more off-leash dog areas, perhaps including:
    - A dog park within the park
    - An off-leash area SE of the reservoir in the grassy area (#1 or #2)[2]
- Educate users about keeping the park clean, especially the picnic areas.
- Use rangers to patrol and talk to users about keeping the park clean. Consider using bilingual rangers.
- Add more signs to clean up picnic areas. These signs should:
    - Be at each table
    - Be bilingual
    - Notify park users about about fines/non-compliance
- Expand trails available to mountain bikes,

[2] See Appendix B: Map of Contra Loma Regional Park. Participants were able to number areas of the map to comment on.

3. Contra Loma Reservoir

A. *What is working (priorities)?*
- Water and open space matter to:
  - People: health, fitness, spirituality, fun
  - Flora & fauna: habitats, ecosystems
- The lagoon's separation from the reservoir maintains the primary objective of maintaining water quality.

B. *What is not working (concerns)?*
- Lake levels are inconsistent and no warning or notification is provided about fluctuations.
- Trash is exposed or trapped during low water levels.
- Algae is observed on the lake and the shore.
- Fish carcasses are observed along shore, possibly left by birds, fishermen, or nature.
- Restrictions on kayaking to reduce human contact are too severe.

C. *How could it be improved (opportunities)?*
- Consider removing trash and dead tules from the reservoir when water levels are low.
- Remove fish carcasses daily.
- Explain the source of the algae and whether it is caused by neglect.
- Clean up will prevent bad odors from algae and reduce the appearance of neglect.
- Relax restrictions on kayaking.

4. Antioch Community Park

A. *What is working (priorities)?*
- The park is clean and well-maintained in general. Some exceptions include garbage, excrement, and graffiti.
- The park offers abundant team sports with good schedules.
- The facilities are effectively used.
- There is great shade at picnic and play areas.

B. *What is not working (concerns)?*
- There should be less focus on baseball fields and more focus on mixed-use fields. The third baseball diamond should be converted to a multi-use field.
- There is a lack of community presence (e.g., not enough sign-up sheets for special events)
- There is a lack of ranger presence.
- There are not enough garbage bins along the dam.
- There is a lack of dog-waste bags.
- There should be more public input regarding marketing of recreation programs on the site.
- Play structure cleanliness could be improved.
- Car break-ins have increased recently.
- The area between the parking lot and the trail on the west side of the park is unfinished and suffers from erosion.
- The grass area on the west side of the park is not complete and becomes muddy.
- Gate closure times should be specific.
- The gate attendant can be grumpy.
- The soccer fields should be better maintained to address drainage, gophers, and turf quality.
- The soccer fields are not usable in wet weather
- The soccer and multi-use fields are not lighted, which limits use in the winter.

C. *How could it be improved (opportunities)?*
- Reduce flooding at map location #1[3].
- Increase police patrols in parking lots.
- Increase trails along the creek and riparian area and improve interconnection between trail systems.
- Improve playground cleanliness, possibly with power washing.
- Eliminate the playground sand or replace the sand with clean sand
- Increase police presence.
- Improve muddy areas with grass or gravel.
- Clear figs on the play area more regularly.

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[3] See Appendix C: Map of Antioch Community Park.

- Improve pathway lighting.
- Create a botanical garden in the open space adjacent to the soccer fields.
- Expand the area for soccer and multi-use fields by adding fields to the south.
- Install lighting on the soccer/multi-use fields.
- Install synthetic fields for all-weather use
- Improve maintenance of existing soccer fields
- Replace the existing natural turf on soccer fields with Bermuda or other more robust turf.

IV. Workshop Recap and Next Steps

Following the topic station session, the leads for each station reported back to the group on key themes.

1. **RMP/EIS:** There were general concerns about water quality issues, citing increased sightings of dead clams on the shoreline and fewer sightings of insects and small fish. The suggestion to keep the reservoir's water level steady in April/May was also noted.
2. **Contra Loma Regional Park:** Participants enjoy the park in general, particularly the swimming area and job opportunities. This park could benefit from improved trails, picnic areas, and additional signage.
3. **Contra Loma Reservoir:** This area is used a lot and is important. People wanted to know more about when water levels will change and whether this reservoir is regularly patrolled or cleaned.
4. **Antioch Community Park:** This park is well maintained and enjoyed by users. Participants would like to see the trails better connected, the multi-use facilities and areas increased, and police presence increased.

Comments during this round will be received until August 31, 2010. To receive a Comment Form or additional information, please email or call Ben Gettleman: bgettleman@kearnswest.com, (415) 391-7900. A second public workshop is planned for January 2011, where Reclamation will solicit feedback on the alternative RMP packages.

Public Workshop Agenda

Wednesday, August 4, 2010 • 6:00 – 9:00 pm

Sutter Elementary School • 3410 Longview Road • Antioch, CA 94509

Workshop Goals

During the workshop, public participants will:

- **Learn** about the planning and environmental review process
- **Identify** key resource or land use issues at Contra Loma
- **Provide opinions** about the recreational uses and facilities now at Contra Loma Regional Park and the Antioch Community Park
- **Identify** opportunities for improving resource management and recreational experiences

Workshop Agenda

5:30 pm – 6:00 pm: Registration

6:00 pm – 6:15 pm: Welcome and Project Overview

The project team will provide an overview of the management plan and environmental review processes. They will also outline the flow of the workshop.

6:15 pm – 8:30 pm: Workshop Topic Stations

Workshop attendees will visit the topic stations and provide comments. The project team and managing partner agency staff will be available at each station to discuss specific aspects of Contra Loma, to answer questions and to receive your feedback.

Topic Stations:

- Station 1: Contra Loma RMP/EIS Process
- Station 2: Contra Loma Regional Park
- Station 3: Contra Loma Reservoir
- Station 4: Antioch Community Park

8:30 pm – 9:00 pm: Report Back and Next Steps

Key themes and issues from each topic station will be shared with the larger group. The project team will also discuss next steps and future opportunities for public involvement.

Background

The U.S. Bureau of Reclamation (Reclamation) is preparing a Resource Management Plan (RMP) for the Contra Loma Reservoir and Recreation Area (Contra Loma), which includes the Contra Loma Regional Park and the Antioch Community Park. The RMP is intended to establish uniform policy and land management guidelines that promote organized use, development, and management of Contra Loma while protecting water quality, water supply, and natural and cultural resources.

Contra Loma Regional Park

Source: EBRPD 2010, NSR 2010

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North State Resources, Inc.

Antioch Community Park

Source: EBRPD 2010, NSR 2010

G:\Projects\30019_Contra_Loma\GIS\Working_Mxds\30019_Station_4_Map.mxd 2010-07-26 edouglas

North State Resources, Inc.

Workshop Attendees

Name	Organization/Affiliation
Martha Parsons	Antioch City Council
Lonnie Karste	City of Antioch
Brian Hooker	Congressman Garamendi
Fran Garland	Contra Costa Water District
Scott Bartlebaum	Delta Youth Soccer League
Neal Fujita	East Bay Regional Park District
Nancy Kalser	East Bay Regional Park District
Matt Medison	East Bay Regional Park District
Dan McCormick	East Bay Regional Park District
Paul Miller	East Bay Regional Park District
Anne Rivoire	East Bay Regional Park District
Anne Scheer	East Bay Regional Park District
Dania Stoneham	East Bay Regional Park District
Jeff Wilson	East Bay Regional Park District
Ben Gettleman	Kearns & West (Facilitation support)
Christine Lim	Kearns & West
Rebecca Gaertner	North State Resources
Scott Goebl	North State Resources
Leslie Wagner	North State Resources
Rich Brownley	Participant
Daniel Herzberg	Participant
Steve Lucky	Participant
Janet Ray	Participant
Cort Wilcox	Participant
Christina Wilcoy	Participant
Cuiqui Hernandez	St. Anthony Church
Nely Rubio	St. Anthony Church
Maricelo Reynoso	St. Anthony Church
Sheryl Carter	U.S. Bureau of Reclamation
Dan Broin	Village Community Resource Center
Eric Hoffman	Village Community Resource Center
Anthony Murillo	Village Community Resource Center

News Release

RECLAMATION
Managing Water in the West

Mid-Pacific Region
Sacramento, CA

MP-11-022

Media Contact: Pete Lucero, 916-978-5100, plucero@usbr.gov

For Release On: February 24, 2011

Reclamation Announces Scoping Meeting on Management Plan for Contra Loma Reservoir and Recreation Area

The Bureau of Reclamation will hold a public meeting on the scope of issues related to a Resource Management Plan and Environmental Impact Statement for the Contra Loma Reservoir and Recreation Area.

The East Bay Regional Park District operates the area in Contra Costa County for Reclamation under an interim agreement and has requested a renewal of that plan. A Resources Management Plan (RMP) addresses the resources of an area and provides future objectives, goals and management direction on recreational lands. An environmental impact statement must be prepared on an RMP.

The public meeting will be in:

Antioch
Thursday, March 3, 2011
6 p.m.-8 p.m.
Prewett Family Park and Community Center
4701 Lone Tree Way, Antioch, CA 94531

For additional information, please call Sheryl Carter at Reclamation's South-Central California Area Office at 559-487-5299 (TDD 1-800-735-2929).

# # #

Reclamation is the largest wholesale water supplier and the second largest producer of hydroelectric power in the United States, with operations and facilities in the 17 Western States. Its facilities also provide substantial flood control, recreation, and fish and wildlife benefits. Visit our website at http://www.usbr.gov.

RECLAMATION
Managing Water in the West

The U.S. Bureau of Reclamation invites you to a

Public Workshop for the Contra Loma Reservoir and Recreation Area Resource Management Plan

Thursday, March 3, 2011
6:00 – 8:00 pm

Prewett Family Park & Community Center • 4701 Lone Tree Way • Antioch, CA 94531

The U.S. Bureau of Reclamation is preparing a Resource Management Plan (RMP) to guide future management of the Contra Loma Reservoir and Recreation Area (Contra Loma), which includes Contra Loma Regional Park and Antioch Community Park. The March 3 workshop is another chance to help guide the future management of recreational uses and natural, cultural, and water resources at Contra Loma.

As workshop participants, you will have the opportunity to:

- **Learn** about the process and timeline for Contra Loma planning and environmental review
- **Understand** how community input has helped inform the process to date
- **Provide input** on possible future actions and how they relate to uses, including recreation
- **Identify** additional opportunities for improving resource management and recreational experiences at Contra Loma

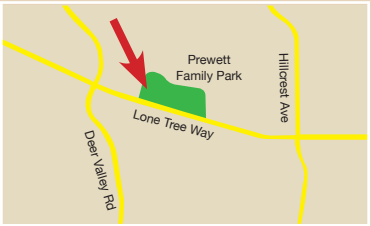
The continued success of Contra Loma management depends on your involvement.

Attend the workshop to share your thoughts and ideas!

If you plan on attending, please **RSVP** by **Monday, February 28th** to Christine Lim at 415-391-7900, *clim@kearnswest.com*

Beverages and light snacks will be provided.

Workshop Location



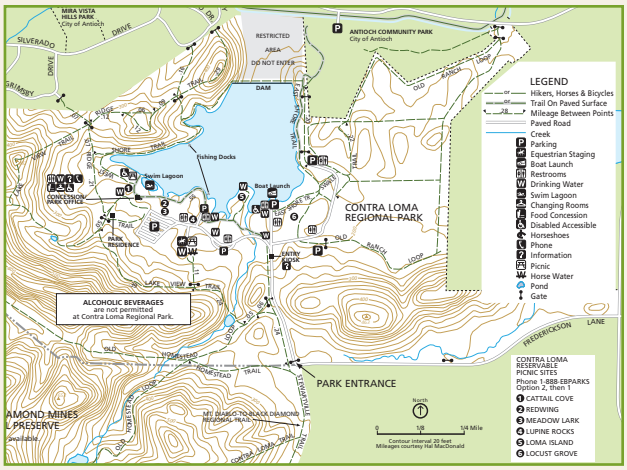
For more information about the public workshop, please contact Christine Lim at 415-391-7900, *clim@kearnswest.com* or visit *www.ebparks.org/planning#contraloma*. For more information about the RMP process, please contact Sheryl Carter at 559-487-5299, *scarter@usbr.gov*.

U. S. Department of the Interior
Bureau of Reclamation

What is the Contra Loma Reservoir and Recreation Area?

The Contra Loma Reservoir and Recreation Area encompasses an 80-acre reservoir, the 780-acre Contra Loma Regional Park and Antioch Community Park. The area is owned by the U.S. Bureau of Reclamation (Reclamation) and managed by the East Bay Regional Park District (EBRPD), the Contra Costa Water District (CCWD) and the City of Antioch.

The reservoir regulates peak and short-term water supplies and provides emergency storage for CCWD customers throughout central and eastern Contra Costa County. The reservoir is managed and operated by CCWD. The facilities at the regional park, managed by the EBRPD, offer a variety of recreational uses, such as **fishing, picnicking, hiking, wildlife observation, and swimming**, and local residents use the Community Park for **soccer, baseball or softball, walking, and picnicking**.



What plan is being developed for Contra Loma?

Reclamation is preparing a Resource Management Plan (RMP) for Contra Loma. The RMP will be the guide for future land and water resources management decisions at Contra Loma. The RMP is intended to establish uniform policy and land management guidelines that promote organized use, development, and management of Contra Loma while protecting water quality, water supply, and natural and cultural resources. Reclamation will also prepare an Environmental Impact Statement (EIS) to evaluate the environmental effects of implementing the RMP. The RMP and EIS will be prepared as a single document.

What is the purpose of the March 3 workshop?

Over the past year, members of the public and managing partner agencies have provided Reclamation with ideas, concerns, and comments that have helped inform the development of the RMP. Based on this information, Reclamation has developed conceptual draft packages of future actions, or alternatives, to be included in the RMP. This workshop provides an opportunity to learn about the conceptual draft alternatives and to provide additional input. Following the workshop, Reclamation will further refine and flesh out the details and descriptions of the alternatives, and prepare the full draft RMP which will be circulated for public review and comment by the fall of 2012.

What is the format of the March 3 workshop?

The workshop will begin with an overview presentation of the RMP development process, including public comments to date. This will be followed by break-out stations where members of the public can provide input on the draft actions and alternatives being considered for inclusion in the draft RMP.

Why should I attend?

Engaged participation by the public, user organizations, and agencies is critical to the success of this planning effort. Your ideas, concerns, and opinions will continue to inform the development of the RMP/EIS for management of Contra Loma's valuable resources.

What if I can't attend the workshop in person?

If you are not able to attend, materials from the workshop will be available at *www.ebparks.org/planning#contraloma*. You are encouraged to provide your ideas, questions and concerns on these issues to Christine Lim at: (415) 391-7900, *clim@kearnswest.com*.

Contra Loma Reservoir and Recreation Area Resource Management Plan Public Workshop

Thursday, March 3, 2011
Prewett Family Park and Community Center
Antioch, CA

MEETING SUMMARY[1]

Summary

I. Workshop Purpose

A public workshop was convened by the U.S. Bureau of Reclamation (Reclamation) on March 3, 2011 in Antioch, California to solicit input for the development of a Resource Management Plan (RMP) for the Contra Loma Reservoir and Recreation Area (Contra Loma). The purpose of the workshop was to provide an overview of the planning and environmental review process, share how community input has informed the process to date, solicit input (i.e., comments and information) on possible future management actions, and identify additional opportunities to improve the management of resources at Contra Loma. The workshop agenda is attached as Appendix A.

II. Welcome and Project Overview

Sheryl Carter, Reclamation, welcomed participants and provided an overview of Reclamation and the RMP process. Ms. Carter noted that Reclamation owns Contra Loma and manages it in partnership with the City of Antioch, East Bay Regional Park District (EBRPD), and the Contra Costa Water District (CCWD), and that new agreements will be established that incorporate recommendations from the RMP.

Scott Goebl, NSR, further described Contra Loma, its managing partners, and the RMP process. Mr. Goebl clarified that Contra Loma includes three main areas: Antioch Community Park, Contra Loma Reservoir, and Contra Loma Regional Park. He also noted the following key points regarding the current management and use of Contra Loma: Antioch Community Park is managed by the City of Antioch, and it includes many recreational opportunities including softball fields, picnic areas, and trails; the reservoir is operated by CCWD and its main purpose is to supply drinking water (and therefore water quality is the highest priority); and Contra Loma Regional Park is managed by EBRPD and provides recreational activities including a swim lagoon, fishing, and hiking.

Mr. Goebl clarified that the RMP will provide guidance for the future management of resources to achieve the desired future condition of the project area. He added that the RMP primarily focuses on protecting water supply, water quality and natural resources, and that enhancing recreational uses is a secondary emphasis.

[1] This summary represents Kearns & West's efforts to synthesize the input received by workshop participants. This report focuses on summarizing the public's input on key issues; it is not intended to serve as a transcript of all issues discussed or points made.

Mr. Goebl noted that, to date, the RMP has been informed by feedback from two public workshops, input from managing partner agencies, and additional research on existing environmental resources and facilities. This information has been considered against a set of planning criteria to develop conceptual, draft management actions which can be implemented to meet the goals of the RMP.

The 71 conceptual, draft management actions are packaged into three conceptual draft alternatives:

1. "No Action" Alternative: Continues current management practices with no substantive changes.
2. Enhanced Alternative: Enhances current recreation, with minimal changes to Contra Loma's aesthetic character.
3. Expanded Alternative: Expands recreation substantially with new infrastructure; this alternative would include management actions from the Enhanced Alternative as well.

Mr. Goebl shared that the RMP will have a preferred alternative, which could be one of the alternatives listed above or a combination of alternatives. The outcome will depend on the findings of the related environmental processes, public comments and input from managing partners. He added that the RMP is a planning level document, not a project level document, and that specific descriptions and improvements will not be defined at this stage.

Mr. Goebl stated that the purpose of this workshop was to receive comments on the draft alternatives before they are further developed. Regarding the project timeline, Mr. Goebl shared that the next revision of the draft RMP alternatives will be available for public comment in December 2012, and that the draft Environmental Impact Statement (EIS) for these alternatives will be available for public comment in January 2013. Based on this feedback, a preferred RMP alternative will be identified in January 2013, leading to the development of a final RMP and EIS.

III. Workshop Comment Stations

Ben Gettleman, Kearns & West, explained the structure and flow of the comment stations.

Station 1: Review Input Receive to Date
Participants were asked to review comments provided to date and provide input on whether the management action adequately addresses the corresponding comment, and whether the management action could be revised to better address the comment.

Station 2: Provide Input on Draft Management Actions
Participants reviewed the management actions under the three different management alternatives. They were asked to provide feedback on whether they supported the management action, how the management action could be improved, and what additional management actions should be considered.

The public comments received are summarized below:

Station 1 Comments

- Trail safety should be increased through bicycle patrols or call boxes.
- A disc golf course should be considered because people would use it.

Station 2: Common Alternative Comments

- Advertisement of the different events taking place at Contra Loma should be better coordinated.
- **MA 6**: One central phone number for the Contra Loma area should be established; it is currently unclear which agency should be called to report an issue.
- **MA 7**: Enforce self-pay entrance fees.
- **MA 8**: Work with city volunteers to address litter, waste and graffiti.

Station 2: Enhanced Alternative Comments

- **MA 35**: Provide a separate, small child area during high volume days.

Station 2: Expanded Alternative Comments

- Additional signage of trails, distances, and locations are needed.
- Spanish speaking staff should always be present during the summer months to assist guests.
- The snack bar should also supply pampers, a first aid kit, etc.
- Security cameras should be installed throughout Contra Loma, but particularly in the most heavily trafficked areas.
- **MA 54**: Additional docks are needed, and not just for fishermen's use.

IV. Next Steps

Workshop participants were encouraged to contact Scott Goebl with additional comments and questions (Goebl@nsrnet.com, (916) 717-9069). Project information and materials will be available on the project website:www.usbr.gov/mp/nepa/nepa_projdetails.cfm?Project_ID=639.

Appendix A: Public Workshop Agenda

Public Workshop Agenda

Thursday, March 3, 2011 • 6:00 – 8:00 pm

Prewett Family Park and Community Center • 4701 Lone Tree Way • Antioch, CA 94531

Workshop Goals
During the workshop, public participants will:

- **Learn** about the process and timeline for Contra Loma planning and environmental review
- **Understand** how community input has helped inform the process to date
- **Provide input** on possible future actions and how they relate to uses, including recreation
- **Identify** additional opportunities for improving resource management and recreational experiences at Contra Loma

Workshop Agenda

5:30 pm – 6:00 pm: Registration

6:00 pm – 6:15 pm: Welcome and Project Overview
The project team will provide an overview of the Resource Management Plan development process and the purpose of the workshop. They will also outline the flow of the workshop.

6:15 pm – 8:00 pm: Workshop Stations
Workshop attendees will visit comment stations and provide input on the draft management actions. The project team will be available to provide additional detail, to answer questions and to receive feedback.

Comment Stations:

- Station 1: Summary of Input Received
    - Attendees will review comments provided to date and how they were addressed.
- Station 2: Input on Draft Management Actions
    - Attendees will review draft management actions and provide input on how they could potentially be revised or improved.

Workshop Agenda
The U.S. Bureau of Reclamation (Reclamation) is preparing a Resource Management Plan (RMP) for the Contra Loma Reservoir and Recreation Area (Contra Loma), which includes the Contra Loma Regional Park and the Antioch Community Park. The RMP is intended to establish uniform policy and land management guidelines that promote organized use, development, and management of Contra Loma while protecting water quality, water supply, and natural and cultural resources.

Appendix B: Workshop Attendees

Name	**Organization/Affiliation**
Tina Wehrmeister	City of Antioch
Vincent Manuel	City of Antioch Planning Commission
Fran Garland	Contra Costa Water District
Scott Bartlebaum	Delta Youth Soccer League
Julie Bondurant	East Bay Regional Park District
Paul Miller	East Bay Regional Park District
Dania Stoneham	East Bay Regional Park District
Jeff Wilson	East Bay Regional Park District
Ben Gettleman	Kearns & West
Christine Lim	Kearns & West
Brandon Amrhein	North State Resources
Scott Goebl	North State Resources
Satinder Malhi	Office of Senator Mark DeSaulnier
Paul Adler	Office of Supervisor Federal Glover
Eloine Chapman	Resident
Christina Wilcox	Resident
Cort Wilcox	Resident
Sheryl Carter	U.S. Bureau of Reclamation

APPENDIX E

Contra Loma Resource Management Plan Preliminary Draft Alternatives

Contra Loma Resource Management Plan Preliminary Draft Alternatives

1. Introduction

1.1 Resource Management Plan Overview

The U.S. Bureau of Reclamation (Reclamation) is developing a Resource Management Plan (RMP) for the Contra Loma Reservoir and Recreation Area (Contra Loma) in Antioch, Contra Costa County, California. The Contra Loma RMP will be a long-term plan to guide management of the reservoir, recreation area, and surrounding lands owned by Reclamation. The RMP is being developed based on a comprehensive inventory of environmental resources and facilities; input from the current managing partners (i.e., the East Bay Regional Park District [EBRPD], City of Antioch [the City], and Contra Costa Water District [CCWD]); and input from the public. The primary emphasis of the RMP is to protect water supply, water quality, and natural resources, while enhancing recreational uses.

The overall objective of this RMP is to establish a set of management objectives, goals, and actions to be implemented by Reclamation, either directly or through its management agreement(s) that will:

1. Establish uniform policy and land management guidelines that promote an organized use, development, and management of the Contra Loma Reservoir and the surrounding recreational area lands compatible with applicable federal and state laws.

2. Protect the water supply and water quality functions of Contra Loma Reservoir.

3. Protect and enhance natural and cultural resources in and around the reservoir, consistent with federal law and Reclamation policies.

4. Provide recreational opportunities and facilities consistent with EBRPD's current management strategies, Reclamation policies, and state water policies.

5. Provide guidance for future decision making.

1.2 Purpose of the Preliminary Draft Alternatives

Reclamation has drafted planning criteria that help establish the sideboards and parameters for development of the RMP and help highlight major areas of concern, management objectives for the RMP, and goals that will provide overall guidance for the RMP management direction and actions. Reclamation has also drafted three conceptual RMP alternatives. Reclamation sought technical comments from EBRPD, the City, and CCWD (i.e., the current managing partners) on the draft planning criteria, draft

management objectives, draft goals, and the draft alternatives before presenting them to the public at a workshop to be held on March 3, 2011. The alternatives are conceptual at this stage, and are not intended to include substantial detail. After receiving comments from the current managing partners and the public, Reclamation will develop the draft alternatives in more detail, and circulate the draft RMP for public comment together with the Environmental Impact Statement (EIS) that will evaluate the environmental effects of each alternative.

2. Draft Planning Criteria, Objectives, and Goals

2.1 Draft Planning Criteria

As described in Reclamation's RMP Guidebook, planning criteria are short and concise statements that help establish the sideboards and parameters for development of the RMP and help highlight major areas of concern. Planning criteria are intended to assist Reclamation in formulating and selecting combinations of land uses and management actions that will be considered in the RMP. Reclamation has drafted the following planning criteria for the Contra Loma RMP.

- Protect the water supply and water quality functions of the reservoir
- Protect and enhance natural resources
- Protect cultural resources
- Recognize community concerns and values about Contra Loma
- Encourage an appropriate range of recreational uses
- Ensure consistency with federal policies, laws, and regulations
- Protect public health and safety
- Limit alternatives to those with reasonable certainty that:
  - the management actions can be implemented within the 20-year planning period;
  - Reclamation or managing partner(s) can fund the management actions; and
  - Reclamation or managing partner(s) are committed to seeking financial, program, and staffing resources necessary to implement the management actions.

2.2 Draft Management Objectives

The overall objective of this RMP is to establish a set of management objectives, goals, and actions to be implemented by Reclamation, either directly or through its management agreement(s) that will:

- Establish uniform policy and land management guidelines that promote an organized use, development, and management of the Contra Loma Reservoir and the surrounding recreational area lands compatible with applicable federal and state laws.

- Protect the water supply and water quality functions of Contra Loma Reservoir.

- Protect and enhance natural and cultural resources in and around the reservoir, consistent with federal law and Reclamation policies.

- Provide recreational opportunities and facilities consistent with EBRPD's current management strategies, Reclamation policies, and state water policies.

- Provide guidance for future decision making.

Reclamation has drafted the following management objectives to fulfill the purpose and meet the overall objective of the RMP:

- Develop and implement a comprehensive land use strategy considering uses of Contra Loma and adjacent lands.

- Identify long-term resource programs and implementation policies to manage and develop recreational, natural, and cultural resources.

- Identify opportunities and develop partnerships for managing recreational and natural resources.

- Develop strategies and approaches to protect and preserve the natural, recreational, and cultural resources.

- Provide adequate public safety and security measures for protection of visitors and resources.

- Determine the opportunities for new or enhanced recreation facilities that are needed based on demand.

2.3 Draft Goals

Reclamation has drafted the following primary goals of the Contra Loma RMP to provide overall guidance for the RMP management direction and actions. The degree to which the various RMP alternatives meet these goals will be described in RMP/EIS.

- Promote responsible stewardship of federal land and water resources for the public benefit.
- Protect and maintain water quality.
- Protect and enhance the natural and cultural resources at Contra Loma.
- Protect and maintain existing recreational uses and educational opportunities.
- Provide for enhanced or new recreational uses and facilities that are compatible with other RMP goals.
- Maintain the character and ambience of Contra Loma's setting.
- Promote continued compatibility with nearby land uses.

3. Formulation of Alternatives

3.1 Introduction

This section describes the conceptual draft RMP alternatives designed to address the planning issues, opportunities, and constraints at Contra Loma. Reclamation's intent is to develop a broad range of management actions to address alternatives that would represent the varied interests pertaining to Contra Loma. The No Action Alternative and two action alternatives are as follows:

- No Action (Alternative 1)—This alternative manages land and activities with the continuation of current management practice.
- Enhanced Recreation and Facilities (Alternative 2)—This alternative enhances recreation opportunities and existing facilities, but limits expansion of recreation and facilities to minimize changes to park character and adverse effects on natural resources.
- Expanded Recreation and Facilities (Alternative 3)—This alternative emphasizes expanded recreation opportunities and facilities.

Several management actions would be common to all alternatives. Unique management actions for each alternative are detailed in Sections 4.3 through 4.4.

3.2 Roles of Reclamation and Local Managing Partner(s)

Reclamation will negotiate a long-term agreement with one or more local managing partner(s) for Contra Loma. The local managing partner(s) will have overall responsibility for managing public access, recreation, infrastructure and public services, and natural resources in Contra Loma, excluding the dam. Responsibilities for dam and reservoir operations are subject to a separate contract between Reclamation and CCWD; therefore, these operations would not be affected by the RMP. The RMP will provide the overall resource and recreation management direction and framework for Contra Loma. It will be a guidance document for the local managing partner(s) for day-to-day operations and long-range planning.

Reclamation will have overall responsibility for ensuring that all actions in Contra Loma by Reclamation and its managing partner(s) are consistent with the RMP. The managing partner(s) must ensure that its actions in managing Contra Loma and associated land, recreation facilities, and infrastructure, are consistent with the RMP.

The agreement with managing partner(s) will require that the managing partner(s) use the RMP as the primary land use, natural resource, and recreation management guidance document to be followed during the management of Contra Loma. A term of the agreement will specify that any other agreements affecting management of Contra Loma that preceded the RMP will be not be changed or invalidated by the RMP, and that any agreements that occur after the agreement, or any new agreement, will include the RMP or an amended RMP (if modified by Reclamation).

3.3 Implementation Approach

The RMP will be implemented through recommendations for specific management actions and improvement projects.

3.3.1 Management Actions and Projects

The RMP includes recommendations for various resource management actions and facility improvement projects. These are specific actions that may be implemented at Contra Loma to meet the RMP goals. These management actions and projects are defined at a conceptual or programmatic level in the RMP. More detailed descriptions of the actions and project will be developed during the planning horizon of the RMP. The responsibility for funding, designing, and implementing (or constructing) the management actions and improvement projects will be specified in a long-term agreement with the local managing partner(s).

It should be noted that the RMP will not require the local managing partner(s) to implement all the recommended management actions and facility improvements. Implementation of some management actions, however, may be required. The local managing partner(s) will have the option of implementing the optional management actions and improvements based on considerations of the following factors: (1) sufficient public demand, (2) sufficient staffing and funding to manage any new or modified facilities in accordance with the RMP, and (3) potential for increased public benefits and use. New facilities or activities allowed under the RMP may also be discontinued in the future at the discretion of the local managing partner(s) if demand decreases, the activity is not economically viable, new security or safety considerations arise, and/or unforeseen significant environmental impacts occur that cannot be mitigated.

It should be noted that the local managing partner(s) will be required to conduct an appropriate site specific environmental review for most of the new or expanded recreational activities or facilities identified in the RMP such as new sports fields at the Antioch Community Park or new sewer lines to connect the regional park sanitary facilities to the City's wastewater treatment system. The project-specific environmental documentation would need to be prepared to meet National Environmental Policy Act (NEPA) requirements because the projects would occur on federal land, and may need to satisfy California Environmental Quality Act (CEQA) requirements if the projects are partially funded or managed by the local managing partner(s).

3.3.2 Amendments to the RMP

Reclamation can amend the RMP at any time if the need arises. Conditions that may require an amendment could include, but are not limited to, (1) changed environmental conditions; (2) unforeseen events; (3) changes in policies and land use plans that have been determined to be infeasible, impractical, or have undesirable consequences; and (4) change in applicable laws and regulations. Reclamation would initiate the amendment process, which would include appropriate NEPA environmental review tiered from this document.

The RMP can be updated to reflect any changed environmental or institutional circumstances; and new laws, regulations, or policies; and changes in Contra Loma operations. Reclamation would conduct public meetings and an environmental review when updating the RMP.

4. Preliminary Draft Alternatives

4.1 Common Infrastructure, Operational Improvements, and Management Actions for All Alternatives

Each alternative has different components and management actions that would achieve the objectives of that alternative. However, several components and management actions are common to all alternatives. These are consistent with the current resource and recreation management direction and practices at Contra Loma and are listed in this section. The remaining management actions are listed as they apply to each alternative.

4.1.1 Administrative and Operational Activities

All RMP alternatives include the following administrative and operational activities.

Facilities Management at Contra Loma Regional Park

Litter and Waste

1. Continue to implement a litter and waste reduction program to effectively meet demand. Elements of this program will include staff outreach and public education, routine litter and nuisance pickup and removal, and availability of sufficient litter cans and dog feces bag stations. Elements of this program will be modified or expanded as necessary to meet demand.

Other Facility Management

2. Continue to perform routine maintenance and repairs of existing facilities.

3. Continue programs to manage zebra and quagga mussels, New Zealand mud snails, and carp. Elements of this program will be modified or expanded as necessary.

4. Continue to implement pesticide management plans, and an integrated pest management plan for weeds, pest rodents, and wasps.

5. Continue to implement plans for fire and emergency preparedness and to provide public safety through EBRPD's police and fire departments. Continue to operate the existing EBRPD police substation and Fire Station 8 at Contra Loma and continue to provide lifeguard services at the swim lagoon with emergency response capability at Contra Loma reservoir.

6. Clarify law enforcement and public safety roles for each managing partner agency.

7. Consider adding new donation boxes for walk-in users at key locations.

Facilities Management at Antioch Community Park

Litter, Waste, and Graffiti

8. Continue to implement a litter, waste, and graffiti reduction program to effectively meet demand. Elements of this program will include staff outreach and public education, routine litter pickup and removal, availability of sufficient litter cans and dog feces bag stations, and prompt graffiti removal. Elements of this program will be modified or expanded as necessary to meet demand.

Staffing

9. Continue routine police patrols or implement other measures needed to provide sufficient security.

Recreational Facilities and Opportunities at Contra Loma Regional Park

Swim Lagoon

10. Continue to operate the swim lagoon with a capacity for 1,500 people, including the grass area adjacent to the lagoon and within the lagoon area fence.

Fishing

11. Continue to provide a recreational fishing program in the reservoir, and manage fish populations through fish planting (i.e., stocking) programs.

12. Continue to enforce poaching regulations.

Other Recreation

13. Continue to allow boating and windsurfing on the reservoir consistent with current park rules.

14. Continue to operate, manage, and maintain the existing trail system throughout park for hiking, equestrian, and bicycle use.

15. Continue to provide opportunities for wildlife viewing, photography, and painting.

16. Continue to provide recreation programs including low-income youth swim programs, junior lifeguard programs, Girl Scout and Boy Scout events, fishing derbies, outdoor educational experiences for children, cross-country running meets, fundraiser events, and similar programs.

Natural Resource Management and Protection

17. Continue to perform botanical surveys, to inventory and assess special-status plants within Contra Loma.

18. Continue to develop and implement habitat enhancement programs to protect special-status species likely to occur at the park. Such species may include burrowing owl, loggerhead shrike, California tiger salamander, San Joaquin kit fox, tri-colored blackbird, and white-tailed kite.

19. Continue to implement habitat restoration and improvement activities including quail habitat enhancement projects and installation of bat houses and avian nest boxes.

20. Improvements will be consistent with laws and regulations that govern the protection of natural and cultural resources within Contra Loma.

21. Improvements will be consistent with future EBRPD habitat restoration projects and the HCP/NCCP.

4.1.2 Management Actions for Alternative 1: No Action (Status Quo)

Objectives

Under this alternative, the current resource and recreation management direction and practices at Contra Loma would continue unchanged, consistent with EBRPD's current Reservoir Area Management plan (RAMP; dated 1975), the current management agreement between Reclamation and EBRPD, the license agreement between EBRPD and the City, and EBRPD land use plans pertaining to Contra Loma. The local managing partner(s) would implement and manage the administrative and operational activities listed in Section 4.1.1, however, no additional management actions would be implemented. The managing partner(s) would be allowed to implement any of these activities that do not require permits or environmental review under NEPA or CEQA without the need for additional review or authorization by Reclamation or CCWD. This alternative addresses certain public comments that no further substantive improvements will be made at Contra Loma.

4.1.3 Management Actions for Alternative 2: Enhanced Recreation and Facilities

Objectives

The objective of this alternative is to enhance current recreational uses and facilities at Contra Loma to fulfill the evolving needs of the public who recreate at Contra Loma and to implement several basic infrastructure improvements while minimizing changes to Contra Loma's aesthetic character and adverse effects on natural resources. Alternative 2 involves no major expansion of recreational facilities, and would therefore retain more undeveloped land within the regional park than Alternative 3 (Expanded Recreation and Facilities).

Management Actions and Improvements at Contra Loma Regional Park

Restrooms

22. Provide more and better restroom facilities to accommodate existing and future user needs.

23. Replace the existing chemical toilets with modern vault restrooms.

24. Provide a restroom facility near the northwest shore fishing dock.

25. Consider installing sewer lines that connect the regional park to the City's wastewater system.

Buildings and Structures

26. Expand or renovate the existing park offices, the EBRPD police substation, the secondary storage yard, and the buildings near the swim lagoon to better provide for public service and safety.

27. Add structures and facilities for classes, including swim and safety lessons, near the swim lagoon.

28. Build a new park residence near the park office.

29. Expand gravel/overflow parking.

30. Pave some existing gravel parking areas.

31. Add a fueling station and storage tank at or near the maintenance yard for park staff and public safety officers.

Other Infrastructure

32. Add a radio communication tower and other needed facilities to improve communications for EBRPD and public service providers. This tower will be sited and designed in a manner that minimizes aesthetic impacts on the park character.

33. Install water infrastructure to support grazing.

34. Comply with Americans with Disabilities Act (ADA) accessibility requirements for future improvements at the Regional Park. Continue implementation of an ADA facility retrofit program that includes replacing, retrofitting, and restructuring many of the park facilities to meet the current standards of the ADA requirements.

Recreational Facilities and Opportunities at Contra Loma Regional Park

Swim Lagoon

35. Provide a safe swim area or splash pad for small children.

36. Provide more shade around the swim lagoon lawn.

37. Add benches in the swim lagoon area.

38. Prohibit smoking at the lagoon and designate smoking areas down-wind from swimmers.

Fishing

39. Replace aging fishing docks.

40. Modify or reconstruct existing fishing docks to allow safe, continuous fishing use during reservoir drawdowns.

41. Increase fish stocking.

42. Control vegetation within the reservoir to enhance the fishing experience.

43. Repair or reconstruct the fish cleaning facility.

Trail System

44. Improve the existing East Shore-West Shore trails loop with an all-season surface.

Other Recreation

45. Construct more picnic sites where useful and appropriate.

Facilities Management at Contra Loma Regional Park

46. Increase EBRPD's irrigation allotment of 100 acre-feet per year by 50%.

47. Remove trash and dead tules from the reservoir when water levels are low.

Recreational Facilities and Opportunities at Antioch Community Park

Sports Fields

48. When new or modified sports fields are planned, the types of sports desired by the public will be considered. Mixed-use sports fields will be considered.

49. Improve maintenance of the existing soccer fields to reduce drainage problems, eliminate gopher holes and uneven surfaces, and improve turf quality.

50. Improve existing soccer fields to allow use in wet weather.

51. Improve drainage on the south side of the southern sports field while reducing impacts on the adjacent riparian habitat.

Other Facility Management

52. Comply with ADA accessibility requirements for future improvements at the Community Park..

4.2 Management Actions for Alternative 3: Expanded Recreation and Facilities

Objectives

The objective of this alternative is to expand recreational uses and facilities to accommodate increasing demand, especially for additional all-weather sports fields, while protecting natural and cultural resources.

This alternative is included to demonstrate a scenario in which recreational uses and facilities at Contra Loma are substantially expanded while still meeting the RMP goals related to protection of natural and cultural resources to the extent feasible. This alternative builds upon and is in addition to the management actions listed under Alternative 2.

Recreational Facilities and Opportunities at Contra Loma Regional Park

Swim lagoon

53. Increase the size of the swim lagoon, if needed to accommodate increased demand.

Fishing

54. Add more fishing docks if needed to accommodate increased demand, possibly on the east shore.

55. Improve shoreline access for fishing by managing shoreline vegetation in areas not used for wildlife nesting or breeding.

56. Construct a fishermen's shelter.

Trail System

57. Plant shade trees along trails.

58. Increase the number and length of trails available for mountain biking.

59. Increase loop trail opportunities for mountain biking.

60. Create multi-use trail connectors in several locations.

Other Recreation

61. Install shade structures to support recreational uses and to provide shade in parking areas. Some shade structures may include solar panels that would supplement the Regional Park's energy needs.

62. Provide a playground structure.

63. Consider overnight group camping as part of the current day camp programs or special events that require event-specific EBRPD authorization, oversight, and regulation.

Recreational Facilities and Opportunities at Antioch Community Park

Sports Fields

64. Expand the area for multi-use sports fields by adding fields directly south of the two existing soccer fields on the east side of the community park. This would require expansion of the community park boundaries south into the Regional Park and adjustment of the boundary between the two parks.

65. Increase parking if additional sports fields are built.

66. Increase the size of some soccer fields to accommodate older youth and adults (i.e., 70 yards x 110 yards).

67. Replace or install natural turf with artificial turf or a more robust grass.

68. Install lighting for the unlit sports fields to enable evening use throughout the year.

Other Recreation

69. Increase trails along the creek and riparian area and improve interconnection between trail systems.

70. Create a botanical garden in the open space adjacent to the soccer fields.

Reservoir Management and Reservoir Water Quality

Reservoir Level Fluctuation

71. EBRPD and CCWD will work together toward developing a plan for managing reservoir levels in a manner that reduces conflict with the reproductive cycle for fish, birds, waterfowl, and other aquatic life along the shoreline; reduces occurrence of algae blooms and clam mortality along shoreline; and improves recreational fishing and increase catches. The plan will be consistent with the RMP management objective of protecting the water supply and water quality functions of Contra Loma Reservoir.

APPENDIX F

Biological Resources

Representative Photos of Contra Loma's Biological Resources

Photo 1. Annual grassland

Photo 2. Valley foothill riparian in Antioch Community Park

Photo 3. Urban habitat at the swim lagoon

Photo 4. Barren habitat on the dam crest

Photo 5. Annual grassland and blue oak woodland

Photo 6. Riverine habitat running through annual grassland

Photo 7. Fresh emergent wetlands along reservoir shoreline

Photo 8. Lacustrine habitat

Photo 9. Quail habitat restoration

Photo 10. Stinkbells (*Fritillaria agrestis*) with maturing fruit

Database Accessed April 24, 2013

U.S. Fish & Wildlife Service

Sacramento Fish & Wildlife Office

Federal Endangered and Threatened Species that Occur in or may be Affected by Projects in the Counties and/or U.S.G.S. 7 1/2 Minute Quads you requested

Document Number: 130424031040

Database Last Updated: September 18, 2011

Quad Lists

Listed Species

Invertebrates

- Branchinecta conservatio
  - Conservancy fairy shrimp (E)
- Branchinecta longiantenna
  - longhorn fairy shrimp (E)
- Branchinecta lynchi
  - Critical habitat, vernal pool fairy shrimp (X)
  - vernal pool fairy shrimp (T)
- Desmocerus californicus dimorphus
  - valley elderberry longhorn beetle (T)
- Lepidurus packardi
  - vernal pool tadpole shrimp (E)

Fish

- Hypomesus transpacificus
  - Critical habitat, delta smelt (X)
  - delta smelt (T)

- Oncorhynchus mykiss
    - Central Valley steelhead (T) (NMFS)
- Oncorhynchus tshawytscha
    - Central Valley spring-run chinook salmon (T) (NMFS)
    - winter-run chinook salmon, Sacramento River (E) (NMFS)

Amphibians

- Ambystoma californiense
    - California tiger salamander, central population (T)
- Rana draytonii
    - California red-legged frog (T)

Reptiles

- Masticophis lateralis euryxanthus
    - Alameda whipsnake [=striped racer] (T)
    - Critical habitat, Alameda whipsnake (X)
- Thamnophis gigas
    - giant garter snake (T)

Birds

- Rallus longirostris obsoletus
    - California clapper rail (E)
- Sternula antillarum (=Sterna, =albifrons) browni
    - California least tern (E)

Mammals

- Vulpes macrotis mutica
    - San Joaquin kit fox (E)

Plants

- Amsinckia grandiflora
    - large-flowered fiddleneck (E)
- Lasthenia conjugens
    - Contra Costa goldfields (E)

Quads Containing Listed, Proposed or Candidate Species:

ANTIOCH SOUTH (464A)

County Lists

No county species lists requested.

Key:

- (E) Endangered - Listed as being in danger of extinction.
- (T) Threatened - Listed as likely to become endangered within the foreseeable future.
- (P) Proposed - Officially proposed in the Federal Register for listing as endangered or threatened.
- (NMFS) Species under the Jurisdiction of the National Oceanic & Atmospheric Administration Fisheries Service. Consult with them directly about these species.
- Critical Habitat - Area essential to the conservation of a species.
- (PX) Proposed Critical Habitat - The species is already listed. Critical habitat is being proposed for it.
- (C) Candidate - Candidate to become a proposed species.
- (V) Vacated by a court order. Not currently in effect. Being reviewed by the Service.
- (X) Critical Habitat designated for this species

Important Information About Your Species List

How We Make Species Lists

We store information about endangered and threatened species lists by U.S. Geological Survey 7½ minute quads. The United States is divided into these quads, which are about the size of San Francisco.

The animals on your species list are ones that occur within, or may be affected by projects within, the quads

covered by the list.

- Fish and other aquatic species appear on your list if they are in the same watershed as your quad or if water use in your quad might affect them.
- Amphibians will be on the list for a quad or county if pesticides applied in that area may be carried to their habitat by air currents.
- Birds are shown regardless of whether they are resident or migratory. Relevant birds on the county list should be considered regardless of whether they appear on a quad list.

Plants

Any plants on your list are ones that have actually been observed in the area covered by the list. Plants may exist in an area without ever having been detected there. You can find out what's in the surrounding quads through the California Native Plant Society's online Inventory of Rare and Endangered Plants.

Surveying

Some of the species on your list may not be affected by your project. A trained biologist and/or botanist, familiar with the habitat requirements of the species on your list, should determine whether they or habitats suitable for them may be affected by your project. We recommend that your surveys include any proposed and candidate species on your list.
See our Protocol and Recovery Permits pages.

For plant surveys, we recommend using the Guidelines for Conducting and Reporting Botanical Inventories. The results of your surveys should be published in any environmental documents prepared for your project.

Your Responsibilities Under the Endangered Species Act

All animals identified as listed above are fully protected under the Endangered Species Act of 1973, as amended. Section 9 of the Act and its implementing regulations prohibit the take of a federally listed wildlife species. Take is defined by the Act as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect" any such animal.

Take may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or shelter (50 CFR §17.3).

Take incidental to an otherwise lawful activity may be authorized by one of two procedures:

- If a Federal agency is involved with the permitting, funding, or carrying out of a project that may result in take, then that agency must engage in a formal consultation with the Service.
- During formal consultation, the Federal agency, the applicant and the Service work together to avoid or minimize the impact on listed species and their habitat. Such consultation would result in a biological opinion by the Service addressing the anticipated effect of the project on listed and proposed species. The

opinion may authorize a limited level of incidental take.

- If no Federal agency is involved with the project, and federally listed species may be taken as part of the project, then you, the applicant, should apply for an incidental take permit. The Service may issue such a permit if you submit a satisfactory conservation plan for the species that would be affected by your project.
- Should your survey determine that federally listed or proposed species occur in the area and are likely to be affected by the project, we recommend that you work with this office and the California Department of Fish and Game to develop a plan that minimizes the project's direct and indirect impacts to listed species and compensates for project-related loss of habitat. You should include the plan in any environmental documents you file.

Critical Habitat

When a species is listed as endangered or threatened, areas of habitat considered essential to its conservation may be designated as critical habitat. These areas may require special management considerations or protection. They provide needed space for growth and normal behavior; food, water, air, light, other nutritional or physiological requirements; cover or shelter; and sites for breeding, reproduction, rearing of offspring, germination or seed dispersal.

Although critical habitat may be designated on private or State lands, activities on these lands are not restricted unless there is Federal involvement in the activities or direct harm to listed wildlife.

If any species has proposed or designated critical habitat within a quad, there will be a separate line for this on the species list. Boundary descriptions of the critical habitat may be found in the Federal Register. The information is also reprinted in the Code of Federal Regulations (50 CFR 17.95). See our Map Room page.

Candidate Species

We recommend that you address impacts to candidate species. We put plants and animals on our candidate list when we have enough scientific information to eventually propose them for listing as threatened or endangered. By considering these species early in your planning process you may be able to avoid the problems that could develop if one of these candidates was listed before the end of your project.

Species of Concern

The Sacramento Fish & Wildlife Office no longer maintains a list of species of concern. However, various other agencies and organizations maintain lists of at-risk species. These lists provide essential information for land management planning and conservation efforts. More info

Wetlands

If your project will impact wetlands, riparian habitat, or other jurisdictional waters as defined by section 404 of the Clean Water Act and/or section 10 of the Rivers and Harbors Act, you will need to obtain a permit from the U.S. Army Corps of Engineers. Impacts to wetland habitats require site specific mitigation and monitoring. For questions

regarding wetlands, please contact Mark Littlefield of this office at (916) 414-6520.

Updates

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed and candidate species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be July 23, 2013.

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad is (Antioch South (3712187))

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Ambystoma californiense California tiger salamander	G2G3 S2S3	Threatened Threatened	CDFW_SSC-Species of Special Concern IUCN_VU-Vulnerable	50 900	1067 S:31	3	13	2	0	1	12	9	22	30	0	1
Amsinckia grandiflora large-flowered fiddleneck	G1 S1	Endangered Endangered	Rare Plant Rank - 1B.1	1,150 1,200	8 S:3	0	0	0	0	2	1	2	1	1	0	2
Andrena blennospermatis Blennosperma vernal pool andrenid bee	G2 S2	None None		900 900	15 S:1	0	0	0	0	0	1	1	0	1	0	0
Anniella pulchra pulchra silvery legless lizard	G3G4T3T4Q S3	None None	CDFW_SSC-Species of Special Concern USFS_S-Sensitive	80 450	91 S:3	1	0	0	0	0	2	2	1	3	0	0
Anomobryum julaceum slender silver moss	G4G5 S2	None None	Rare Plant Rank - 2B.2		13 S:1	0	0	0	0	0	1	1	0	1	0	0
Antrozous pallidus pallid bat	G5 S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFS_S-Sensitive WBWG_H-High Priority	780 780	402 S:1	0	0	0	0	0	1	1	0	1	0	0
Arctostaphylos auriculata Mt. Diablo manzanita	G2 S2	None None	Rare Plant Rank - 1B.3	600 1,150	17 S:6	0	3	2	0	0	1	3	3	6	0	0
Athene cunicularia burrowing owl	G4 S2	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFWS_BCC-Birds of Conservation Concern	60 300	1844 S:11	5	2	3	0	0	1	0	11	11	0	0
Atriplex depressa brittlescale	G2Q S2.2	None None	Rare Plant Rank - 1B.2	160 210	61 S:2	0	0	1	0	0	1	1	1	2	0	0
Atriplex joaquinana San Joaquin spearscale	G2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive	160 250	109 S:5	0	1	1	2	0	1	3	2	5	0	0

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Blepharizonia plumosa big tarplant	G1 S1	None None	Rare Plant Rank - 1B.1	300 600	48 S:12	1	6	2	0	1	2	3	9	11	1	0
Branchinecta lynchi vernal pool fairy shrimp	G3 S2S3	Threatened None	IUCN_VU-Vulnerable	220 330	611 S:4	0	0	3	0	0	1	0	4	4	0	0
Buteo swainsoni Swainson's hawk	G5 S2	None Threatened	ABC_WLBCC-Watch List of Birds of Conservation Concern BLM_S-Sensitive IUCN_LC-Least Concern USFS_S-Sensitive USFWS_BCC-Birds of Conservation Concern	50 685	2132 S:3	0	2	1	0	0	0	0	3	3	0	0
California macrophylla round-leaved filaree	G2 S2	None None	Rare Plant Rank - 1B.1 BLM_S-Sensitive	170 600	155 S:7	0	1	0	0	1	5	2	5	6	1	0
Calochortus pulchellus Mt. Diablo fairy-lantern	G2 S2	None None	Rare Plant Rank - 1B.2	495 1,110	40 S:5	1	0	0	1	0	3	1	4	5	0	0
Cryptantha hooveri Hoover's cryptantha	GH SH	None None	Rare Plant Rank - 1A	30 30	3 S:1	0	0	0	0	1	0	1	0	0	1	0
Emys marmorata western pond turtle	G3G4 S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_VU-Vulnerable USFS_S-Sensitive	290 900	1135 S:3	0	1	0	0	0	2	2	1	3	0	0
Eriogonum truncatum Mt. Diablo buckwheat	G2 S2	None None	Rare Plant Rank - 1B.1	350 350	6 S:2	0	0	0	0	0	2	2	0	1	1	0
Eschscholzia rhombipetala diamond-petaled California poppy	G1 S1	None None	Rare Plant Rank - 1B.1 BLM_S-Sensitive	30 30	10 S:1	0	0	0	0	1	0	1	0	0	1	0
Helianthella castanea Diablo helianthella	G2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive	600 1,600	96 S:6	1	3	0	0	0	2	0	6	6	0	0
Helminthoglypta nickliniana bridgesi Bridges' coast range shoulderband	G3T1 S1	None None	IUCN_DD-Data Deficient	1,950 1,950	6 S:1	0	0	0	0	0	1	1	0	1	0	0
Hesperolinon breweri Brewer's western flax	G2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive	850 850	24 S:3	0	0	0	0	0	3	0	3	3	0	0

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

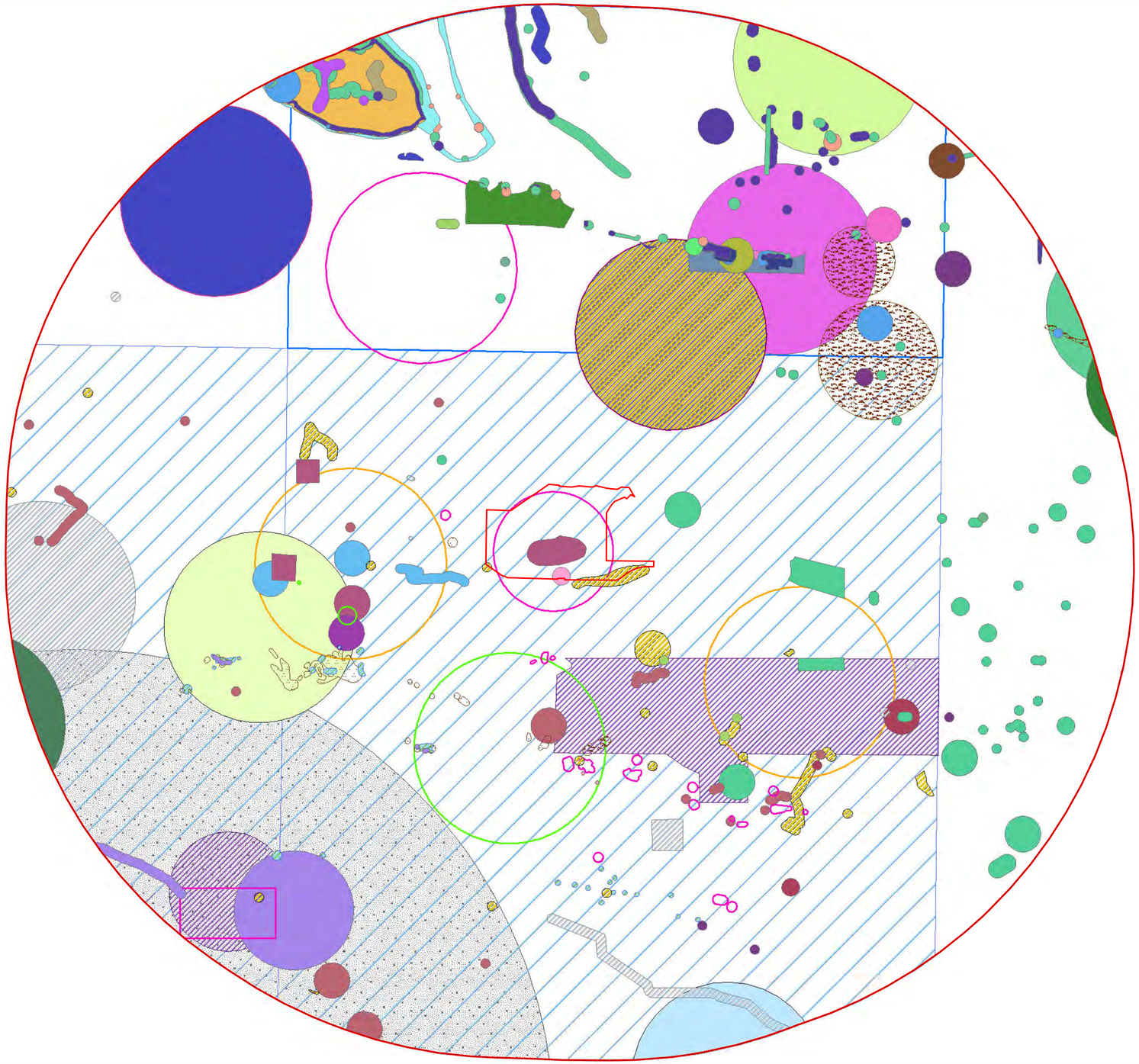
Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Lasiurus blossevillii western red bat	G5 S3?	None None	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFS_S-Sensitive WBWG_H-High Priority	15 15	119 S:1	0	0	0	0	0	1	0	1	1	0	0
Lasthenia conjugens Contra Costa goldfields	G1 S1	Endangered None	Rare Plant Rank - 1B.1	50 50	33 S:1	0	0	0	0	1	0	1	0	0	0	1
Lepidurus packardi vernal pool tadpole shrimp	G3 S2S3	Endangered None	IUCN_EN-Endangered	330 330	274 S:1	0	0	1	0	0	0	0	1	1	0	0
Linderiella occidentalis California linderiella	G3 S2S3	None None	IUCN_NT-Near Threatened	240 260	384 S:2	0	0	0	0	0	2	0	2	2	0	0
Lytta molesta molestan blister beetle	G2 S2	None None		400 400	17 S:1	0	0	0	0	0	1	1	0	1	0	0
Madia radiata showy golden madia	G2 S2	None None	Rare Plant Rank - 1B.1 BLM_S-Sensitive	250 250	52 S:2	0	0	0	0	0	2	2	0	2	0	0
Malacothamnus hallii Hall's bush-mallow	G2Q S2	None None	Rare Plant Rank - 1B.2		37 S:1	0	0	0	0	0	1	1	0	1	0	0
Masticophis lateralis euryxanthus Alameda whipsnake	G4T2 S2	Threatened Threatened		305 915	145 S:7	1	5	0	0	0	1	1	6	7	0	0
Navarretia nigelliformis ssp. radians shining navarretia	G4T2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive	260 560	64 S:2	0	0	1	0	0	1	0	2	2	0	0
Perognathus inornatus inornatus San Joaquin pocket mouse	G4T2T3 S2S3	None None	BLM_S-Sensitive	500 750	109 S:3	1	2	0	0	0	0	3	0	3	0	0
Rana draytonii California red-legged frog	G4T2T3 S2S3	Threatened None	CDFW_SSC-Species of Special Concern IUCN_VU-Vulnerable	130 935	1335 S:17	2	9	3	0	0	3	4	13	17	0	0
Senecio aphanactis chaparral ragwort	G3? S2	None None	Rare Plant Rank - 2B.2	1,000 1,000	47 S:1	0	0	0	0	0	1	1	0	1	0	0
Taxidea taxus American badger	G5 S4	None None	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	179 280	470 S:3	0	0	2	0	0	1	0	3	3	0	0

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Viburnum ellipticum oval-leaved viburnum	G5 S2.3	None None	Rare Plant Rank - 2B.3		29 S:1	0	0	0	0	0	1	1	0	1	0	0
Vulpes macrotis mutica San Joaquin kit fox	G4T2T3 S2S3	Endangered Threatened		220 750	961 S:6	0	4	0	0	0	2	5	1	6	0	0



- Study Area
- 5-mile Buffer
- Alameda whipsnake
- American badger
- Antioch Dunes anthicid beetle
- Antioch Dunes buckwheat
- Antioch Dunes evening-primrose
- Antioch Dunes halcitid bee
- Antioch andrenid bee
- Antioch efferian robberfly
- Antioch multilid wasp
- Antioch specid wasp
- Blennosperma vernal pool andrenid bee
- Bolander's water-hemlock
- Brewer's western flax
- California black rail
- California red-legged frog
- California tiger salamander
- Coastal Brackish Marsh
- Contra Costa goldfields
- Contra Costa wallflower
- Delta tule pea
- Diablo helianthella
- Hall's bush-mallow
- Hoover's cryptantha
- Hurd's metapogon robberfly
- Kings River buckwheat
- Lange's metalmark butterfly
- Mason's lilaeopsis
- Middlekauff's shieldback katydid
- Mt. Diablo buckwheat
- Mt. Diablo fairy-lantern
- Mt. Diablo manzanita
- Sacramento perch
- San Joaquin dune beetle
- San Joaquin kit fox
- San Joaquin pocket mouse
- Stabilized Interior Dunes
- Suisun Marsh aster
- Suisun song sparrow
- Swainson's hawk
- big tarplant
- burrowing owl
- caper-fruited tropidocarpum
- chaparral ragwort
- curved-foot hygrotus diving beetle
- diamond-petaled California poppy
- double-crested cormorant
- giant garter snake
- large-flowered fiddleneck
- redheaded sphecid wasp
- round-leaved filaree
- salt-marsh harvest mouse
- saltmarsh common yellowthroat
- shining navarretia
- showy golden madia
- silvery legless lizard
- slender silver moss
- soft bird's-beak
- vernal pool fairy shrimp
- vernal pool tadpole shrimp
- western red bat
- white-tailed kite

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North State Resources, Inc.

Appendix F.3.2
CNDDB Occurrences Within 5-Miles

California Native Plant Society Inventory of Rare and Endangered Plants

Antioch South, California USGS Quadrangle Plus the Eight Surrounding Quadrangles

Scientific Name	Common Name	Family	Lifeform	Rare Plant Rank	State Rank	Global Rank	State Listing Status	Federal Listing Status	Lowest Elevation	Highest Elevation	CA Endemic
Amsinckia grandiflora	large-flowered fiddleneck	Boraginaceae	annual herb	1B.1	S1	G1	CE	FE	275 m	550 m	yes
Androsace elongata ssp. acuta	California androsace	Primulaceae	annual herb	4.2	S3.2?	G5?T3T4			150 m	1200 m	
Anomobryum julaceum	slender silver moss	Bryaceae	moss	2B.2	S2	G4G5			100 m	1000 m	
Arabis blepharophylla	coast rockcress	Brassicaceae	perennial herb	4.3	S3.3?	G3			3 m	1100 m	yes
Arctostaphylos auriculata	Mt. Diablo manzanita	Ericaceae	perennial evergreen shrub	1B.3	S2	G2			135 m	650 m	yes
Arctostaphylos manzanita ssp. laevigata	Contra Costa manzanita	Ericaceae	perennial evergreen shrub	1B.2	S2	G5T2			500 m	1100 m	yes
Astragalus tener var. tener	alkali milk-vetch	Fabaceae	annual herb	1B.2	S2	G2T2			1 m	60 m	yes
Atriplex cordulata var. cordulata	heartscale	Chenopodiaceae	annual herb	1B.2	S2.2?	G3T2			0 m	560 m	yes
Atriplex coronata var. coronata	crownscale	Chenopodiaceae	annual herb	4.2	S3.2	G4T3			1 m	590 m	yes
Atriplex depressa	brittlescale	Chenopodiaceae	annual herb	1B.2	S2.2	G2Q			1 m	320 m	yes
Atriplex joaquinana	San Joaquin spearscale	Chenopodiaceae	annual herb	1B.2	S2	G2			1 m	835 m	yes

Blepharizonia plumosa	big tarplant	Asteraceae	annual herb	1B.1	S1	G1			30 m	505 m	yes
Calandrinia breweri	Brewer's calandrinia	Montiaceae	annual herb	4.2	S3.2?	G4			10 m	1220 m	
California macrophylla	round-leaved filaree	Geraniaceae	annual herb	1B.1	S2	G2			15 m	1200 m	
Calochortus pulchellus	Mt. Diablo fairy-lantern	Liliaceae	perennial bulbiferous herb	1B.2	S2	G2			30 m	840 m	yes
Calochortus umbellatus	Oakland star-tulip	Liliaceae	perennial bulbiferous herb	4.2	S3.2	G3			100 m	700 m	yes
Campanula exigua	chaparral harebell	Campanulaceae	annual herb	1B.2	S2.2	G2			275 m	1250 m	yes
Centromadia parryi ssp. congdonii	Congdon's tarplant	Asteraceae	annual herb	1B.1	S2	G4T2			0 m	230 m	yes
Chloropyron molle ssp. molle	soft bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	1B.2	S1	G2T1	CR	FE	0 m	3 m	yes
Cicuta maculata var. bolanderi	Bolander's water-hemlock	Apiaceae	perennial herb	2B.1	S2	G5T3T4			0 m	200 m	
Collomia diversifolia	serpentine collomia	Polemoniaceae	annual herb	4.3	S3.3	G3			300 m	600 m	yes
Convolvulus simulans	small-flowered morning-glory	Convolvulaceae	annual herb	4.2	S3.2	G3			30 m	700 m	
Cordylanthus nidularius	Mt. Diablo bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	1B.1	S1	G1	CR		600 m	800 m	yes
Cryptantha hooveri	Hoover's cryptantha	Boraginaceae	annual herb	1A	SH	GH			9 m	150 m	yes
Delphinium californicum ssp. interius	Hospital Canyon larkspur	Ranunculaceae	perennial herb	1B.2	S2?	G3T2?			195 m	1095 m	yes

Delphinium recurvatum	recurved larkspur	Ranunculaceae	perennial herb	1B.2	S3	G3			3 m	790 m	yes
Didymodon norrisii	Norris' beard moss	Pottiaceae	moss	2B.2	S3S4	G3G4			600 m	1973 m	
Dirca occidentalis	western leatherwood	Thymelaeaceae	perennial deciduous shrub	1B.2	S2S3	G2G3			25 m	425 m	yes
Downingia pusilla	dwarf downingia	Campanulaceae	annual herb	2B.2	S2	G2			1 m	445 m	
Eriogonum nudum var. psychicola	Antioch Dunes buckwheat	Polygonaceae	perennial herb	1B.1	S1	G5T1			0 m	20 m	yes
Eriogonum truncatum	Mt. Diablo buckwheat	Polygonaceae	annual herb	1B.1	S2	G2			3 m	350 m	yes
Eriophyllum jepsonii	Jepson's woolly sunflower	Asteraceae	perennial herb	4.3	S3	G3			200 m	1025 m	yes
Erysimum capitatum var. angustatum	Contra Costa wallflower	Brassicaceae	perennial herb	1B.1	S1	G5T1	CE	FE	3 m	20 m	yes
Eschscholzia rhombipetala	diamond-petaled California poppy	Papaveraceae	annual herb	1B.1	S1	G1			0 m	975 m	yes
Fritillaria agrestis	stinkbells	Liliaceae	perennial bulbiferous herb	4.2	S3.2	G3			10 m	1555 m	Yes
Fritillaria liliacea	fragrant fritillary	Liliaceae	perennial bulbiferous herb	1B.2	S2	G2			3 m	410 m	Yes
Galium andrewsii ssp. gatense	phlox-leaf serpentine bedstraw	Rubiaceae	perennial herb	4.2	S3.2	G5T3			150 m	1450 m	Yes
Helianthella castanea	Diablo helianthella	Asteraceae	perennial herb	1B.2	S2	G2			60 m	1300 m	Yes

Hesperevax caulescens	hogwallow starfish	Asteraceae	annual herb	4.2	S3.2	G3			0 m	505 m	Yes
Hesperolinon breweri	Brewer's western flax	Linaceae	annual herb	1B.2	S2	G2			30 m	900 m	Yes
Hibiscus lasiocarpos var. occidentalis	woolly rose-mallow	Malvaceae	perennial rhizomatous herb	1B.2	S2	G5T2			0 m	120 m	Yes
Isocoma arguta	Carquinez goldenbush	Asteraceae	perennial shrub	1B.1	S1	G1			1 m	20 m	Yes
Lasthenia conjugens	Contra Costa goldfields	Asteraceae	annual herb	1B.1	S1	G1		FE	0 m	470 m	Yes
Lathyrus jepsonii var. jepsonii	Delta tule pea	Fabaceae	perennial herb	1B.2	S2.2	G5T2			0 m	4 m	Yes
Lilaeopsis masonii	Mason's lilaeopsis	Apiaceae	perennial rhizomatous herb	1B.1	S2	G2	CR		0 m	10 m	Yes
Limosella australis	Delta mudwort	Scrophulariaceae	perennial stoloniferous herb	2B.1	S2	G4G5			0 m	3 m	
Madia radiata	showy golden madia	Asteraceae	annual herb	1B.1	S2	G2			25 m	1215 m	Yes
Malacothamnus hallii	Hall's bush-mallow	Malvaceae	perennial evergreen shrub	1B.2	S2	G2Q			10 m	760 m	Yes
Monardella antonina ssp. antonina	San Antonio Hills monardella	Lamiaceae	perennial rhizomatous herb	3	S3?	G4T3Q			500 m	1000 m	Yes
Monolopia gracilens	woodland woolythreads	Asteraceae	annual herb	1B.2	S2S3	G2G3			100 m	1200 m	Yes
Navarretia gowenii	Lime Ridge navarretia	Polemoniaceae	annual herb	1B.1	S1	G1			180 m	305 m	Yes
Navarretia heterandra	Tehama navarretia	Polemoniaceae	annual herb	4.3	S3.3	G3			30 m	1010 m	

Navarretia nigelliformis ssp. nigelliformis	adobe navarretia	Polemoniaceae	annual herb	4.2	S3.2	G4T3			100 m	1000 m	yes
Navarretia nigelliformis ssp. radians	shining navarretia	Polemoniaceae	annual herb	1B.2	S2	G4T2			76 m	1000 m	Yes
Neostapfia colusana	Colusa grass	Poaceae	annual herb	1B.1	S2	G2	CE	FT	5 m	200 m	Yes
Oenothera deltoides ssp. howellii	Antioch Dunes evening-primrose	Onagraceae	perennial herb	1B.1	S1	G5T1	CE	FE	0 m	30 m	Yes
Phacelia phacelioides	Mt. Diablo phacelia	Boraginaceae	annual herb	1B.2	S1	G1			500 m	1370 m	Yes
Plagiobothrys hystriculus	bearded popcorn-flower	Boraginaceae	annual herb	1B.1	S2	G2			0 m	274 m	Yes
Potamogeton zosteriformis	eel-grass pondweed	Potamogetonaceae	annual herb	2B.2	S2.2?	G5			0 m	1860 m	
Ranunculus lobbii	Lobb's aquatic buttercup	Ranunculaceae	annual herb	4.2	S3.2	G4			15 m	470 m	
Sanicula saxatilis	rock sanicle	Apiaceae	perennial herb	1B.2	S2	G2	CR		620 m	1175 m	Yes
Senecio aphanactis	chaparral ragwort	Asteraceae	annual herb	2B.2	S2	G3?			15 m	800 m	
Senecio hydrophiloides	sweet marsh ragwort	Asteraceae	perennial herb	4.2	S2S3	G4G5			0 m	2800 m	
Streptanthus albidus ssp. peramoenus	most beautiful jewel-flower	Brassicaceae	annual herb	1B.2	S2.2	G2T2			94 m	1000 m	Yes
Streptanthus hispidus	Mt. Diablo jewel-flower	Brassicaceae	annual herb	1B.3	S1	G1			365 m	1200 m	Yes
Symphyotrichum lentum	Suisun Marsh aster	Asteraceae	perennial rhizomatous herb	1B.2	S2	G2			0 m	3 m	Yes

Triquetrella californica	coastal triquetrella	Pottiaceae	moss	1B.2	S1	G1		10 m	100 m	
Tropidocarpum capparideum	caper-fruited tropidocarpum	Brassicaceae	annual herb	1B.1	S1	G1		1 m	455 m	Yes
Viburnum ellipticum	oval-leaved viburnum	Adoxaceae	perennial deciduous shrub	2B.3	S2.3	G5		215 m	1400 m	

Suggested Citation

California Native Plant Society (CNPS). 2013. Inventory of Rare and Endangered Plants (online edition, v8-02). California Native Plant Society. Sacramento, CA. Accessed on Monday, August 12, 2013.

Review of Regionally Occurring Special-Status Plant Species

COMMON NAME (SCIENTIFIC NAME)	STATUS[1] FED/ST/RPR	GENERAL HABITAT DESCRIPTION	PERIOD OF IDENTIFICATION	POTENTIAL TO OCCUR AT THE SITE [2]
large-flowered fiddleneck (Amsinckia grandiflora)	FE/SE/1B.1	Cismontane woodland, Valley and foothill grassland; elevation 902 - 1804 feet	Apr-May	**NO.** The site does not provide suitable habitat. There is only one known existing population and one known surviving reintroduced population of this species – neither are in the vicinity of the site.
slender silver moss (Anomobryum julaceum)	--/--/2.2	Broadleafed upland forest, Lower montane coniferous forest, North Coast coniferous forest/damp rock and soil on outcrops, usually on roadcuts; elevation 328 - 3280 feet	Year-round	**NO.** The site does not provide suitable habitat.
Mt. Diablo manzanita (Arctostaphylos auriculata)	--/--/1B.3	Chaparral(sandstone), Cismontane woodland; elevation 442.8 - 2132 feet	Jan-Mar	**NO.** The site does not provide suitable habitat.
Contra Costa manzanita (Arctostaphylos manzanita ssp. laevigata)	--/--/1B.2	Chaparral(rocky); elevation 1640 - 3608 feet	Jan-Mar(Apr)	**NO.** The site does not provide suitable habitat.
pallid manzanita (Arctostaphylos pallida)	FT/SE/1B.1	Siliceous shale, sandy or gravelly soils within Broadleafed upland forest, Closed-cone coniferous forest, Chaparral, Cismontane woodland, Coastal scrub; elevation 607 - 1526 feet	Dec-Mar	**NO.** The site does not provide suitable habitat.
alkali milk-vetch (Astragalus tener var. tener)	--/--/1B.2	Playas, Valley and foothill grassland(adobe clay), Vernal pools/alkaline; elevation 3.28 - 196.8 feet	Mar-Jun	**NO.** The site does not provide suitable habitat.
heartscale (Atriplex cordulata)	--/--/1B.2	Chenopod scrub, Meadows and seeps, Valley and foothill grassland(sandy)/saline or alkaline; elevation 3.28 - 1230 feet	Apr-Oct	**NO.** The site does not provide suitable habitat.
brittlescale (Atriplex depressa)	--/--/1B.2	Chenopod scrub, Meadows and seeps, Playas, Valley and foothill grassland, Vernal pools/alkaline, clay; elevation 3.28 - 1049.6 feet	Apr-Oct	**NO.** The site does not provide suitable habitat.
San Joaquin spearscale (Atriplex joaquiniana)	--/--/1B.2	Chenopod scrub, Meadows and seeps, Playas, Valley and foothill grassland/alkaline; elevation 3.28 - 2738.8 feet	Apr-Oct	**NO.** The site does not provide suitable habitat.

COMMON NAME (SCIENTIFIC NAME)	STATUS[1] FED/ST/RPR	GENERAL HABITAT DESCRIPTION	PERIOD OF IDENTIFICATION	POTENTIAL TO OCCUR AT THE SITE [2]
big tarplant (Blepharizonia plumosa)	--/--/1B.1	Valley and foothill grassland; elevation 98.4 - 1656.4 feet	Jul-Oct	**LOW**. The site has suitable foothill grassland habitat.
round-leaved filaree (California macrophylla)	--/--/1B.1	Cismontane woodland, Valley and foothill grassland/clay; elevation 49.2 - 3936 feet	Mar-May	**LOW**. The site has suitable foothill grassland habitat and clay soils.
Mt. Diablo fairy-lantern (Calochortus pulchellus)	--/--/1B.2	Chaparral, Cismontane woodland, Riparian woodland, Valley and foothill grassland; elevation 98.4 - 2755.2 feet	Apr-Jun	**LOW**. The site has suitable foothill grassland habitat.
chaparral harebell (Campanula exigua)	--/--/1B.2	Chaparral(rocky, usually serpentinite); elevation 902 - 4100 feet	May-Jun	**NO.** The site does not provide suitable habitat.
pink creamsacs (Castilleja rubicundula ssp. rubicundula)	--/--/1B.2	Chaparral (openings), Cismontane woodland, Meadows and seeps, Valley and foothill grassland/serpentinite; elevation 66 – 2,986 feet	April - June	**NO.** The site does not provide suitable habitat.
Congdon's tarplant (Centromadia parryi ssp. congdonii)	--/--/1B.2	Valley and foothill grassland(alkaline); elevation 3.28 - 754.4 feet	May-Oct (Nov)	**NO.** The site does not provide suitable habitat.
Bolander's water-hemlock (Cicuta maculata var. bolanderi)	--/--/2.1	Marshes and swamps. Coastal, fresh or brackish water; elevation 0 - 656 feet	Jul-Sep	**NO.** The site does not provide suitable habitat.
soft bird's-beak (Cordylanthus mollis ssp. mollis)	FE/SR/1B.2	Marshes and swamps (coastal salt); elevation 0 - 9.84 feet	Jul-Nov	**NO.** The site does not provide suitable habitat.
Mt. Diablo bird's-beak (Cordylanthus nidularius)	--/SR/1B.1	Chaparral(serpentinite); elevation 1968 - 2624 feet	Jul-Aug	**NO.** The site does not provide suitable habitat.
Hoover's cryptantha (Cryptantha hooveri)	--/--/1A	Inland dunes, Valley and foothill grassland(sandy); elevation 29.52 - 492 feet	Apr-May	**NO.** The site does not provide suitable habitat.
Hospital Canyon larkspur (Delphinium californicum ssp. interius)	--/--/1B.2	Chaparral(openings), Cismontane woodland(mesic); elevation 754.4 - 3591.6 feet	Apr-Jun	**NO.** The site does not provide suitable habitat.
recurved larkspur (Delphinium recurvatum)	--/--/1B.2	Chenopod scrub, Cismontane woodland, Valley and foothill grassland/alkaline; elevation 9.84 - 2460 feet	Mar-Jun	**NO.** The site does not provide suitable habitat.

COMMON NAME (SCIENTIFIC NAME)	STATUS[1] FED/ST/RPR	GENERAL HABITAT DESCRIPTION	PERIOD OF IDENTIFICATION	POTENTIAL TO OCCUR AT THE SITE [2]
Norris' beard moss (Didymodon norrisii)	--/--/2.2	Cismontane woodland, Lower montane coniferous forest/intermittently mesic, rock; elevation 1968 - 6471.44 feet	Year-round	**NO.** The site does not provide suitable habitat.
western leatherwood (Dirca occidentalis)	--/--/1B.2	Broadleafed upland forest, Closed-cone coniferous forest, Chaparral, Cismontane woodland, North Coast coniferous forest, Riparian forest, Riparian woodland/mesic; elevation 164 - 1295.6 feet	Jan-Mar (Apr)	**NO.** The site does not provide suitable habitat.
dwarf downingia (Downingia pusilla)	--/--/2.2	Valley and foothill grassland(mesic), Vernal pools; elevation 3.28 - 1459.6 feet	Mar-May	**NO.** The site does not provide suitable habitat.
Brandegee's eriastrum (Eriastrum brandegeeae)	--/--/1B.2	Chaparral, Cismontane woodland/volcanic, sandy; elevation 1000.4 - 3378.4 feet	Apr-Aug	**NO.** The site does not provide suitable habitat.
Antioch Dunes buckwheat (Eriogonum nudum var. psychicola)	--/--/1B.1	Inland dunes; elevation 0 - 65.6 feet	Jul-Oct	**NO.** The site does not provide suitable habitat.
Kings River buckwheat (Eriogonum nudum var. regirivum)	--/--/1B.2	Cismontane woodland (carbonate, rocky); elevation 492 - 984 feet	Aug-Nov	**NO.** The site does not provide suitable habitat.
Mt. Diablo buckwheat (Eriogonum truncatum)	--/--/1B.1	Chaparral, Coastal scrub, Valley and foothill grassland/sandy; elevation 9.84 - 1148 feet	Apr-Sep (Nov-Dec)	**NO.** The site does not provide suitable habitat.
Contra Costa wallflower (Erysimum capitatum var. angustatum)	FE/SE/1B.1	Inland dunes; elevation 9.84 - 65.6 feet	Mar-Jul	**NO.** The site does not provide suitable habitat.
diamond-petaled California poppy (Eschscholzia rhombipetala)	--/--/1B.1	Valley and foothill grassland (alkaline, clay); elevation 0 - 3198 feet	Mar-Apr	**NO.** The site does not provide suitable habitat.
stinkbells (Fritillaria agrestis)	--/--/4.2	Chaparral, Cismontane woodland, Pinyon and juniper woodland, Valley and foothill grassland/ Clay, sometimes serpentinite; elevation 33 – 5,100 feet	Mar - Jun	**HIGH**. A known population of this species has been surveyed by the East Bay Regional Park botanist every year since 1998. Plants have been observed every year except 2001.
fragrant fritillary (Fritillaria liliacea)	--/--/1B.2	Cismontane woodland, Coastal prairie, Coastal scrub, Valley and foothill grassland/often serpentinite; elevation 9.84 - 1344.8 feet	Feb-Apr	**NO.** The site does not provide suitable habitat.

COMMON NAME (SCIENTIFIC NAME)	STATUS[1] FED/ST/RPR	GENERAL HABITAT DESCRIPTION	PERIOD OF IDENTIFICATION	POTENTIAL TO OCCUR AT THE SITE [2]
Diablo helianthella (Helianthella castanea)	--/--/1B.2	Broadleafed upland forest, Chaparral, Cismontane woodland, Coastal scrub, Riparian woodland, Valley and foothill grassland; elevation 196.8 - 4264 feet	Mar-Jun	**LOW**. EBRMD has documented plants at Clayton Ranch.
Brewer's western flax (Hesperolinon breweri)	--/--/1B.2	Chaparral, Cismontane woodland, Valley and foothill grassland/usually serpentinite; elevation 98.4 - 2952 feet	May-Jul	**NO.** The site does not provide suitable habitat.
woolly rose-mallow (Hibiscus lasiocarpos var. occidentalis)	--/--/1B.2	Marshes and swamps(freshwater); elevation 0 - 393.6 feet	Jun-Sep	**NO.** The site does not provide suitable habitat.
Santa Cruz tarplant (Holocarpha macradenia)	FT/SE/1B.1	Clay or sandy soils within Coastal prairie, Coastal scrub, Valley and foothill grassland; 30 – 720 feet	June-Oct	**NO.** The site does not provide suitable habitat.
Carquinez goldenbush (Isocoma arguta)	--/--/1B.1	Valley and foothill grassland (alkaline); elevation 3.28 - 65.6 feet	Aug-Dec	**NO.** The site does not provide suitable habitat.
Contra Costa goldfields (Lasthenia conjugens)	FE/--/1B.1	Cismontane woodland, Playas(alkaline), Valley and foothill grassland, Vernal pools/mesic; elevation 0 - 1541.6 feet	Mar-Jun	**NO.** The site does not provide suitable habitat. Plant is extirpated from region. Not reported since 1895.
Delta tule pea (Lathyrus jepsonii var. jepsonii)	--/--/1B.2	Marshes and swamps(freshwater and brackish); elevation 0 - 13.12 feet	May-Jul (Sep)	**NO.** The site does not provide suitable habitat.
Mason's lilaeopsis (Lilaeopsis masonii)	--/SR/1B.1	Marshes and swamps (brackish or freshwater), Riparian scrub; elevation 0 - 32.8 feet	Apr-Nov	**NO.** The site does not provide suitable habitat.
Delta mudwort (Limosella subulata)	--/--/2.1	Marshes and swamps; elevation 0 - 9.84 feet	May-Aug	**NO.** The site does not provide suitable habitat.
showy golden madia (Madia radiata)	--/--/1B.1	Cismontane woodland, Valley and foothill grassland; elevation 82 - 2952 feet	Mar-May	**NO.** The site provides suitable general habitat, however, the last CNDDB observation in the county occurred in 1941.
San Antonio Hills monardella (Monardella antonina ssp. antonina)	--/--/3	Chaparral, Cismontane woodland; elevation 1640 - 3280 feet	Jun-Aug	**LOW**. The site has limited suitable woodland habitat.

COMMON NAME (SCIENTIFIC NAME)	STATUS[1] FED/ST/RPR	GENERAL HABITAT DESCRIPTION	PERIOD OF IDENTIFICATION	POTENTIAL TO OCCUR AT THE SITE [2]
Hall's bush-mallow (Malacothamnus hallii)	--/--/1B.2	Chaparral, Coastal scrub; elevation 32.8 - 2492.8 feet	May-Sep (Oct)	**NO.** The site does not provide suitable habitat.
woodland woolythreads (Monolopia gracilens)	--/--/1B.2	Broadleafed upland forest openings, Chaparral openings, Cismontane woodland, North Coast coniferous forest openings, Valley and foothill grassland/serpentine; elevation 328 - 3936 feet	Mar-Jul	**NO.** The site does not provide suitable habitat.
Lime Ridge navarretia (Navarretia gowenii)	--/--/1B.1	Chaparral; elevation 590.4 - 1000.4 feet	May-Jun	**NO.** The site does not provide suitable habitat.
Colusa grass (Neostapfia colusana)	FT/SE/1B.1	Vernal pools(adobe, large); elevation 16.4 - 656 feet	May-Aug	**NO.** The site does not provide suitable habitat.
Antioch Dunes evening-primrose (Oenothera deltoides ssp. howellii)	FE/SE/1B.1	Inland dunes; elevation 0 - 98.4 feet	Mar-Sep	**NO.** The site does not provide suitable habitat.
Mt. Diablo phacelia (Phacelia phacelioides)	--/--/1B.2	Chaparral, Cismontane woodland/rocky; elevation 1640 - 4493.6 feet	Apr-May	**NO.** The site does not provide suitable habitat.
bearded popcorn-flower (Plagiobothrys hystriculus)	--/--/1B.1	Valley and foothill grassland(mesic), Vernal pool margins/often vernal swales; elevation 0 - 898.72 feet	Apr-May	**NO.** The site does not provide suitable habitat.
slender-leaved pondweed (Potamogeton filiformis)	--/--/2.2	Marshes and swamps (assorted shallow freshwater); elevation 984 - 7052 feet	May-Jul	**NO.** The site does not provide suitable habitat.
eel-grass pondweed (Potamogeton zosteriformis)	--/--/2.2	Marshes and swamps(assorted freshwater); elevation 0 - 6100.8 feet	Jun-Jul	**NO.** The site does not provide suitable habitat.
rock sanicle (Sanicula saxatilis)	--/SR/1B.2	Broadleafed upland forest, Chaparral, Valley and foothill grassland/rocky; elevation 2033.6 - 3854 feet	Apr-May	**NO.** The site does not provide suitable habitat.
chaparral ragwort (Senecio aphanactis)	--/--/2.2	Chaparral, Cismontane woodland, Coastal scrub/sometimes alkaline; elevation 49.2 - 2624 feet	Jan-Apr	**NO.** The site does not provide suitable habitat.
most beautiful jewel-flower (Streptanthus albidus ssp. peramoenus)	--/--/1B.2	Chaparral, Cismontane woodland, Valley and foothill grassland/serpentinite; elevation 308.32 - 3280 feet	(Mar) Apr-Sep (Oct)	**NO.** The site does not provide suitable habitat.

COMMON NAME (SCIENTIFIC NAME)	STATUS[1] FED/ST/RPR	GENERAL HABITAT DESCRIPTION	PERIOD OF IDENTIFICATION	POTENTIAL TO OCCUR AT THE SITE [2]
Mt. Diablo jewel-flower (Streptanthus hispidus)	--/--/1B.3	Chaparral, Valley and foothill grassland/rocky; elevation 1197.2 - 3936 feet	Mar-Jun	**NO.** The site does not provide suitable habitat.
Suisun Marsh aster (Symphyotrichum lentum)	--/--/1B.2	Marshes and swamps(brackish and freshwater); elevation 0 - 9.84 feet	May-Nov	**NO.** The site does not provide suitable habitat.
coastal triquetrella (Triquetrella californica)	--/--/1B.2	Coastal bluff scrub, Coastal scrub/soil; elevation 32.8 - 328 feet	year-round	**NO.** The site does not provide suitable habitat.
caper-fruited tropidocarpum (Tropidocarpum capparideum)	--/--/1B.1	Valley and foothill grassland(alkaline hills); elevation 3.28 - 1492.4 feet	Mar-Apr	**NO.** The site does not provide suitable habitat.
oval-leaved viburnum (Viburnum ellipticum)	--/--/2.3	Chaparral, Cismontane woodland, Lower montane coniferous forest; elevation 705.2 - 4592 feet	May-Jun	**NO.** The site does not provide suitable habitat.

[1] Federal Codes: FE = Federally Listed Endangered; FT = Federally Listed Threatened
State Codes: SE = State-listed Endangered; ST = State-listed Threatened
California Rare Plant Rank (RPR) Codes:
List 1B Plants rare, threatened, or endangered in California and elsewhere.'
List 2 Plants rare, threatened, or endangered in California but more common elsewhere.'
List 3 Plants about which we need more information, review list'
Extensions
.3 Not very endangered in California
.2 Fairly endangered in California
.1 Seriously endangered in California

[2] NO = The project site and immediate vicinity do not support suitable habitat for the species, and/or the project does not have the potential to significantly impact the species.
LOW = The project site and immediate vicinity provide only limited or marginal habitat, or may be outside the characteristic range and/or very rare in project region.
MEDIUM = The project site and/or immediate vicinity provides suitable, but not ideal habitat conditions. Species not observed within the project site.
HIGH = The project site and/or immediate vicinity provides ideal habitat conditions. Species observed in project site or known to occur in the project area.

Plant Species Observed at the Contra Loma Regional Park
Field visit dates: October 20 and 22, 2010, and March 30, 2011

SCIENTIFIC NAME	COMMON NAME	FAMILY	NATIVE/ NON-NATIVE[1]
Achillea millefolium	yarrow	Asteraceae	Native
Achyrachaena mollis	blow-wives	Asteraceae	Native
Aesculus californica	California buckeye	Hippocastanaceae	Native
Amsinckia menziesii var. intermedia	common fiddleneck	Boraginaceae	Native
Avena barbata	slender wild-oat	Poaceae	Cal-IPC [Moderate]
Baccharis salicifolia	mule fat	Asteraceae	Native
Brassica nigra	black mustard	Brassicaceae	Cal-IPC [Moderate]
Brodiaea coronaria	early harvest brodiaea	Liliaceae	Native
Bromus diandrus	ripgut brome	Poaceae	Cal-IPC [Moderate]
Bromus hordeaceus	soft brome	Poaceae	Not native
Bromus madritensis	foxtail chess	Poaceae	Cal-IPC [High]
Capsella bursa-pastoris	shepherd's purse	Brassicaceae	Not native
Castilleja exserta	purple owl's clover	Scrophulariaceae	Native
Centaurea solstitialis	yellow star-thistle	Asteraceae	Cal-IPC [High]; CDFA [C]
Cerastium glomeratum	sticky mouse-eared chickweed	Caryophyllaceae	Not native
Chamomilla suaveolens	pineapple weed	Asteraceae	Not native
Chlorogalum angustifolium	narrow-leaved soap plant	Liliaceae	Native
Cirsium vulgare	bull thistle	Asteraceae	Cal-IPC [Moderate]; CDFA [C]
Claytonia perfoliata	miner's lettuce	Portulacaceae	Native
Conium maculatum	poison hemlock	Apiaceae	Cal-IPC [Moderate]
Cyperus eragrostis	tall flatsedge	Cyperaceae	Native
Dichelostemma capitatum	blue dicks	Liliaceae	Native
Erodium cicutarium	red-stemmed filaree	Geraniaceae	Not native
Erodium moschatum	white-stemmed filaree	Geraniaceae	Not native
Fritillaria agrestis	stinkbells	Liliaceae	Native
Galium aparine	goose grass	Rubiaceae	Native
Geranium dissectum	cut-leaved geranium	Geraniaceae	Not native
Geranium molle	dove's foot geranium	Geraniaceae	Not native
Grindelia camporum	great valley gumweed	Asteraceae	Native
Holocarpha virgata	narrow tarplant	Asteraceae	Native
Hordeum jubatum	foxtail barley	Poaceae	Native
Hypochaeris glabra	smooth cat's-ear	Asteraceae	Not native
Juglans californica var. hindsii	northern California black walnut	Juglandaceae	Native
Juncus balticus	Baltic rush	Juncaceae	Native
Lepidium nitidum	shining pepper grass	Brassicaceae	Native
Lolium multiflorum	Italian ryegrass	Poaceae	Cal-IPC [Moderate]

SCIENTIFIC NAME	COMMON NAME	FAMILY	NATIVE/ NON-NATIVE[1]
Lupinus bicolor	miniature lupine	Fabaceae	Native
Lupinus succulentus	arroyo lupine	Fabaceae	Native
Lythrum hyssopifolium	hyssop loosestrife	Lythraceae	Cal-IPC [Limited]
Malva neglecta	common mallow	Malvaceae	Not native
Marah fabaceus	California man-root	Cucurbitaceae	Native
Myriophyllum spicatum	Eurasian milfoil	Haloragaceae	Cal-IPC [High]; CDFA [C]
Paspalum dilatatum	dallis grass	Poaceae	Not native
Plagiobothrys fulvus	fulvous popcorn flower	Boraginaceae	Native
Quercus douglasii	blue oak	Fagaceae	Native
Quercus lobata	valley oak	Fagaceae	Native
Quercus wislizenii	interior live oak	Fagaceae	Native
Ranunculus occidentalis	western buttercup	Ranunculaceae	Native
Rubus discolor	himalayan blackberry	Rosaceae	Cal-IPC [High]
Rumex crispus	curly dock	Polygonaceae	Not native
Salix laevigata	red willow	Salicaceae	Native
Sanicula bipinnata	poison sanicle	Apiaceae	Native
Scirpus acutus var. acutus	tule	Cyperaceae	Native
Silene gallica	windmill pink	Caryophyllaceae	Not native
Silybum marianum	milk thistle	Asteraceae	Cal-IPC [Limited]
Toxicodendron diversilobum	poison oak	Anacardiaceae	Native
Trifolium variegatum	white-tipped clover	Fabaceae	Native
Triteleia laxa	Ithuriel's spear	Liliaceae	Native
Typha latifolia	common cattail	Typhaceae	Native
Vulpia myuros	rattail fescue	Poaceae	Not native
Xanthium strumarium	cocklebur	Asteraceae	Native

[1] Native status of plants is based on *The Jepson Manual* (Hickman 1993). Additionally, Cal-IPC and CDFA ratings are shown in brackets for non-native plants included in the *California Invasive Plant Inventory* (Cal-IPC 2006) or listed as noxious weeds by the California Department of Food and Agriculture (CDFA)(California Department of Food and Agriculture 2011).

References:

Cal-IPC. 2006. California invasive plant inventory: Cal-IPC publication 2006-02.

California Department of Food and Agriculture. 2011. Encycloweedia: data sheets. Available online at http://www.cdfa.ca.gov/phpps/ipc/weedinfo/winfo_table-sciname.htm (accessed 10/18/11)

Observed Wildlife Within Contra Loma

COMMON NAME	SCIENTIFIC NAME
Allen's hummingbird	*Selasphorus Sasin*
American coot	*Fulica americana*
American crow	*Corvus brachyrhynchos*
American kestrel	*Falco sparverius*
American robin	*Turdus migratorius*
Black phoebe	*Sayornis nigricans*
Black-tailed Jackrabbit	*Lepus californicus*
Brewer's blackbird	*Euphagus cyanocephalus*
Brown pelican	*Pelecanus occidentalis*
Bullfrog	*Rana catesbeiana*
California ground squirrel	*Spermophilus beecheyi*
Canada goose	*Branta canadensis*
Common merganser	*Mergus merganser*
Common raven	*Corvus corax*
Coyote	*Canis latrans*
Desert cottontail	*Sylvilagus audubonii*
Double-crested cormorant	*Phalacrocorax auritus*
Eastern gray squirrel	*Sciurus carolinensis*
European starling	*Sturnus vulgaris*
Gray fox	*Urocyon cinereoargenteus*
Great blue heron	*Ardea herodias*
Great egret	*Ardea alba*
Grebe	*Aechmophorus occidentalis*
Hose sparrow	*Passer domesticus*
House finch	*Carpodacus mexicanus*
Largemouth bass	*Micropterus salmoides*
Mallard	*Anas platyrhynchos*
Mourning dove	*Zenaida macroura*
Northern flicker	*Colaptes auratus*
Northern mockingbird	*Mimus polyglottos*
Pacific treefrog	*Pseudacris regilla*
Red tailed hawk	*Buteo jamaicensis*
Red-shouldered hawk	*Buteo lineatus*
Red-winged blackbird	*Agelaius phoeniceus*
Rock dove	*Columba livia*
Song sparrow	*Melospiza melodia*
Tarantula	*Aphonopelma iodius*
Turkey vulture	*Cathartes aura*
Western bluebird	*Sialia mexicana*
Western fence lizard	*Sceloporus occidentalis*
Western meadowlark	*Sturnella neglecta*
Western scrub jay	*Aphelocoma californica*
White-tailed kite	*Elanus leucurus*

APPENDIX G

Comment Letters and Responses to Comments on the Draft RMP/EIS

Appendix G: Comment Letters and Responses to Comments on the Draft RMP/EIS

G.1 Introduction

In May 2014, the U.S. Department of the Interior, Bureau of Reclamation (Reclamation) circulated a Draft Environmental Impact Statement (EIS) that was prepared to describe the potential environmental impacts of the implementing the Contra Loma Reservoir and Recreation Area Resource Management Plan (RMP). The purpose of the RMP/EIS is to provide a program and set of policy guidelines necessary to encourage orderly use, development, and management of the Contra Loma Reservoir and Recreation Area (Contra Loma), which encompasses an 80-acre reservoir and approximately 661 acres of surrounding land, including the Contra Loma Regional Park and the Antioch Community Park. The RMP/EIS, which has a planning horizon of 25 years, addresses the following needs:

- Ensure timely delivery of high-quality water to water users while enhancing natural resources and recreational opportunities;
- Provide recreational opportunities to meet the demands of a growing, diverse population;
- Ensure recreational diversity and the quality of the recreational experience;
- Protect natural and cultural resources, while educating the public to their value and good stewardship; and
- Provide the framework for establishing a new management agreement with a managing partner.

The RMP was developed and combined with the EIS to comply with the National Environmental Policy Act (NEPA).

G.1.1 Public Comment Period

The public comment period for the Draft RMP/EIS began on May 19 and ended on July 2, 2014. During the comment period, the Draft RMP/EIS was available for review at Reclamation's online Natural Resource library; the Reclamation Mid-Pacific Regional Library in Sacramento, CA; the Reclamation South-Central California Area Office in Fresno, CA; the City of Antioch Public library; and on the project website:

http://www.usbr.gov/mp/nepa/nepa_projdetails.cfm?Project_ID=6396

Written comments on the Draft RMP/EIS were submitted by federal and local agencies and members of the public. The comments, along with responses from Reclamation, are presented in Sections G.2 through G.4 of this appendix.

G.1.2 Public Hearing

A public hearing for the Draft RMP/EIS was held on Monday May 19th, from 5:30 to 7:30 PM at the Prewett Family Park & Community Center, 4701 Lone Tree Way, Antioch, CA 94509. The hearing was advertised by Notice of Availability in the Federal Register; by press releases mailed to the public; and by public notices on the Reclamation website, in the East County Times and Antioch Press, and on the City of Antioch website and East Bay Regional Parks website on May 2, 2014. Sixteen people attended the hearing.

The purpose of the hearing was to present an overview of the Draft RMP/EIS and to allow the public to submit verbal or written comments on the document and analysis. A slideshow was presented to summarize the objectives of the RMP/EIS and the alternatives. Spoken comments received during the hearing were transcribed verbatim and are replicated and responded to in Section G.4. No written comments were received during the public hearing.

G.2 Comments from Federal Agencies

Letter F-1 U.S. Environmental Protection Agency, Kathleen M. Goforth

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105

JUL 1 2014

David Woolley
Bureau of Reclamation
U.S. Department of the Interior
1243 N. Street, SCC-431
Fresno, CA 93720

Subject: Draft Resource Management Plan and Environmental Impact Statement for Contra Loma Reservoir and Recreation Area, Contra Costa County, California (CEQ# 20140143)

Dear Mr. Woolley:

The U.S. Environmental Protection Agency has reviewed the above-referenced document pursuant to the National Environmental Policy Act, Council on Environmental Quality regulations (40 CFR Parts 1500-1508), and our NEPA review authority under Section 309 of the Clean Air Act.

The Contra Loma Resource Management Plan will establish management objectives, guidelines, and actions for the Contra Loma Reservoir and Recreation Area for the next 25 years. EPA supports the development of a comprehensive RMP to guide future management actions. EPA commends the efforts by the Bureau of Reclamation to address key resource management issues such as (1) the increasing demand for use of the trail system, swimming lagoon, and recreational facilities, and (2) protection of the water supply and quality of the reservoir. We support current programs at Contra Loma that the Draft RMP/EIS indicates will continue, including body contact restrictions on reservoir use, litter and waste reduction programs, continued prevention of zebra and quagga mussel infestation, and prohibitions on public use of gasoline-powered engines on the reservoir.

While there are positive management goals proposed in the RMP/EIS, we have rated the Draft EIS as Environmental Concerns – Insufficient Information (EC-2) (see the enclosed "Summary of Rating Definitions"). The rating is due to our concerns regarding potential impacts to air, water and biological resources from proposed recreation enhancements and construction activities. Our enclosed detailed comments identify the need for additional information regarding these resources and provide recommendations to reduce potential impacts. While we recognize the programmatic nature of this Draft RMP/EIS, we recommend the Final RMP/EIS provide more specific information regarding these matters (as well as climate change, grazing, naturally occurring asbestos, renewable energy use, funding, and enforcement) to ensure all relevant issues and effects are considered during development of the RMP/EIS.

We appreciate the opportunity to review this Draft RMP/EIS. When the Final RMP/EIS is released for public review, please send one hard copy and one CD ROM to the address above (mail code: ENF-4-2). If you have questions, please contact me at (415) 972-3521, or Tom Plenys, the lead reviewer for this project. Tom can be reached at (415) 972-3238 or plenys.thomas@epa.gov.

Sincerely,

Kathleen Martyn Goforth
Manager
Environmental Review Section

Enclosures: EPA's Summary of EPA Rating Definitions
EPA's Detailed Comments

SUMMARY OF EPA RATING DEFINITIONS*

This rating system was developed as a means to summarize the U.S. Environmental Protection Agency's (EPA) level of concern with a proposed action. The ratings are a combination of alphabetical categories for evaluation of the environmental impacts of the proposal and numerical categories for evaluation of the adequacy of the Environmental Impact Statement (EIS).

ENVIRONMENTAL IMPACT OF THE ACTION

"LO" (Lack of Objections)

The EPA review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

"EC" (Environmental Concerns)

The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce the environmental impact. EPA would like to work with the lead agency to reduce these impacts.

"EO" (Environmental Objections)

The EPA review has identified significant environmental impacts that should be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

"EU" (Environmentally Unsatisfactory)

The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potentially unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the Council on Environmental Quality (CEQ).

ADEQUACY OF THE IMPACT STATEMENT

"Category 1" (Adequate)

EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis or data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

"Category 2" (Insufficient Information)

The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analysed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses, or discussion should be included in the final EIS.

"Category 3" (Inadequate)

EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analysed in the draft EIS, which should be analysed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the NEPA and/or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

*From EPA Manual 1640, Policy and Procedures for the Review of Federal Actions Impacting the Environment.

Air Quality

The Draft Resource Management Plan/Environmental Impact Statement does not evaluate whether the direct and indirect emissions from the federal action conform to the applicable State Implementation Plan (SIP) as required by the General Conformity Rule (40 CFR 93.150).

Recommendations:

- Include in the Final RMP/EIS a description of the General Conformity regulatory framework and how it applies to the proposed Resource Management Plan and future project-specific implementation. The Final EIS should demonstrate conformity for all pollutants for which Contra Costa County and the Bay Area Air Quality Management District are in nonattainment or maintenance status.
- If analysis of general conformity to the SIP is more appropriate at the project-specific analysis level, we recommend the Final RMP/EIS include a specific commitment to future project-specific general conformity analysis. F-1-1
- Update, as necessary, the Final RMP/EIS to reflect the latest state and federal attainment designations for air quality.

Contra Loma Reservoir and the study area are located in nonattainment areas for federal and state ozone and particulate matter standards (p. 3-78). Facility improvements and construction proposed under the two action alternatives (Alternatives 2 and 3) would result in mechanical ground-disturbing activities that could generate dust and create conditions conducive to wind erosion (p. 4-75). Additionally, PM and ozone precursors generated during RMP construction activities could contribute to the existing violations of PM in the Bay Area and could exceed state ambient air quality standards (p. 4-78).

We note the Draft EIS mentions adherence to all BAAQMD control strategies for reducing air pollutants, such as dust control measures, and measures for reducing greenhouse gas emissions recommended in BAAQMD's 2010 Clean Air Plan. The Draft RMP/EIS does not, however, specify the measures that will be required, nor is an analysis provided to support the conclusion that impacts to air quality would be minor for either action alternative. Similarly, the Draft RMP/EIS indicates efforts to reduce tailpipe emissions and diesel exhaust produced by combustion engines would be included in all construction activities at Contra Loma; however, no specifics are provided.

Recommendations:

Specify, in the Final RMP/EIS, the BAAQMD control strategies and mitigation measures that will be required to reduce air quality impacts and greenhouse gas emissions from future actions proposed by this RMP. In addition to meeting all applicable local, state, and federal requirements, we recommend the Final RMP/EIS include an appendix listing all mitigation measures to consider when designing specific construction projects. Possible measures to include, as part of this appendix, are listed below: F-1-2

F-1-2 Cont.

Fugitive Dust Source Controls:

- Stabilize heavily used unpaved construction roads with water, non-toxic soil stabilizer or soil weighting agent that will not result in loss of vegetation, or increase other environmental impacts.
- During grading, use water, as necessary, on disturbed areas in construction sites to control visible plumes.
- Vehicle Speed
  - Limit speeds to 25 miles per hour on stabilized unpaved roads as long as such speeds do not create visible dust emissions.
  - Limit speeds to 10 miles per hour or less on unpaved areas within construction sites on un-stabilized (and unpaved) roads.
  - Post visible speed limit signs at construction site entrances.
- Inspect and wash construction equipment vehicle tires, as necessary, so they are free of dirt before entering paved roadways, if applicable.
- Use sandbags or equivalent effective measures to prevent run-off to roadways in construction areas adjacent to paved roadways. Ensure consistency with the project's Storm Water Pollution Prevention Plan, if such a plan is required for the project.
- Stabilize disturbed soils (after active construction activities are completed) with water, a non-toxic soil stabilizer, soil weighting agent, or other approved soil stabilizing method.
- Cover or treat soil storage piles, as well as disturbed areas that remain inactive for longer than 10 days, with appropriate dust suppressant compounds. Provide vehicles (used to transport solid bulk material on public roadways) with covers.
- Use wind erosion control techniques (such as windbreaks, water, chemical dust suppressants, and/or vegetation) where soils are disturbed in construction, access and maintenance routes, and materials stock pile areas. Keep related windbreaks in place until the soil is stabilized or permanently covered with vegetation.

Mobile and Stationary Source Controls:

- If practicable, lease new, clean equipment meeting the most stringent of applicable Federal[1] or State Standards.[2] In general, commit to the best available emissions control technology. Tier 4 engines should be used for project construction equipment to the maximum extent feasible.[3]
- Where Tier 4 engines are not available, use construction diesel engines with a rating of 50 horsepower (hp) or higher that meet, at a minimum, the Tier 3 California Emission Standards for Off-Road Compression-Ignition Engines,[4] unless such engines are not available.
- Where Tier 3 engine is not available for off-road equipment larger than 100 hp, use a Tier 2 engine, or an engine equipped with retrofit controls to reduce exhaust emissions of nitrogen oxides and diesel particulate matter to no more than Tier 2 levels.

[1] EPA's website for nonroad mobile sources is http://www.epa.gov/nonroad/.
[2] For California, see ARB emissions standards, see: http://www.arb.ca.gov/msprog/offroad/offroad.htm.
[3] Diesel engines < 25 hp rated power started phasing in Tier 4 Model Years in 2008. Larger Tier 4 diesel engines will be phased in depending on the rated power (e.g., 25 hp - <75 hp: 2013; 75 hp - < 175 hp: 2012-2013; 175 hp - < 750 hp: 2011 - 2013; and ≥ 750 hp 2011- 2015).
[4] As specified in California Code of Regulations, Title 13, section 2423(b)(1)

F-1-2 Cont.

- Consider using electric vehicles, natural gas, biodiesel, or other alternative fuels during construction, clean up and maintenance phases to reduce the project's criteria and greenhouse gas emissions.
- Plan construction scheduling to minimize vehicle trips.
- Limit idling of heavy equipment to less than 5 minutes and verify through unscheduled inspections.
- Maintain and tune engines per manufacturer's specifications to perform at California Air Resources Board and/or EPA certification levels; prevent tampering, and conduct unscheduled inspections to ensure these measures are followed.

Administrative controls:

- Develop a construction traffic and parking management plan that maintains traffic flow, and plan construction to minimize vehicle trips.
- Identify any sensitive receptors in the project area, such as children, elderly, and the infirm, and specify the means by which impacts to these populations will be minimized (e.g., locate construction equipment and staging zones away from sensitive receptors and building air intakes).
- Include provisions for monitoring fugitive dust in the fugitive dust control plan and initiate increased mitigation measures to abate any visible dust plumes.

Water Resources

Clean Water Act Permitting and Section 404

Some of the construction activities proposed under the action alternatives may require permitting under the Clean Water Act, including compliance with Section 404. Per the Draft RMP/EIS, 8 acres of fresh emergent wetlands and 2 acres of seasonal wetlands are within the study area (p. 3-36 and 3-40). The descriptions and locations of aquatic, wetland and riparian habitats are based on reconnaissance-level surveys performed in October 2010, which did not include a formal delineation of these features or a determination of the Army Corps of Engineers jurisdictional status (p. 3-35).

The Draft EIS indicates that the jurisdictional boundaries and wetland classifications of the aquatic features at Contra Loma are subject to refinement "if or when" a formal delineation is performed (p. 3-35). We recognize Mitigation Measure – Vegetation 1 states that, if deemed necessary by Reclamation, the local managing partner(s) proposing a construction activity will perform a delineation of wetland and riparian vegetation and describe all areas classified as Waters of the U.S. (p. 4-54).

Recommendations:

F-1-3

- Include in the Final RMP/EIS, as part of Mitigation Measure Vegetation-1, the commitment to avoid and minimize impacts to Waters of the US to the maximum extent practicable per the Clean Water Act Section 404(b)(1) Guidelines.
- Clarify, in the Final RMP/EIS, whether Reclamation intends to pursue compensatory mitigation, as referenced in Mitigation Measures-Vegetation 1 and 2, at locations on or offsite, and discuss the feasibility of such compensatory mitigation.

F-1-3 Cont.

- Discuss, in the Final RMP/EIS, what permits under the Clean Water Act would be required for each type of activity proposed under each alternative evaluated in the RMP/EIS.
- Incorporate, in the Final RMP/EIS, a tabular summary of all mitigation measures proposed.

Water Supply and Drawdown Effects

Contra Loma Reservoir is operated and managed by the Contra Costa Water District under contract to Reclamation and is a component of Reclamation's Central Valley Project. Given the importance of the Contra Loma Reservoir as a drinking water source, as well as increasing concerns with water quality and quantity in California due to climate change, drought and other factors, protecting the reservoir's water quality and supply is a key concern to EPA.

The volume of water pumped from the reservoir to irrigate the Contra Loma Regional Park might be increased from 100 acre-feet per year to 150 acre-feet per year under the action alternatives. This water would be purchased from CCWD, if the requested water is available (p. 4-30). This increase in irrigation water of 50 acre-feet would represent a net additional reservoir drawdown of approximately one foot, occurring most likely during the hot months of July and August. The Draft RMP/EIS indicates the additional reservoir drawdown would cause a small decrease in the reservoir's wetted perimeter adjacent to existing wetland vegetation at the reservoir high water mark, resulting in a minor impact to wetland vegetation resources that would not occur under the No Action Alternative (p. 4-51).

Recommendations:

- Quantify, in the Final RMP/EIS, the expected change in reservoir water levels during the course of a year and the reservoir high water mark under Alternatives 2 & 3 as compared to the No Action Alternative. Include estimates of the expected wetland acreages to be impacted for each alternative.
- Discuss, in the Final RMP/EIS, whether Reclamation would expect the growth of vegetation or wetlands in the reservoir perimeter area exposed as a result of the reservoir drawdown (i.e., is there any reason that wetlands could not form around the perimeter of the reservoir after drawdown). F-1-4
- Include, in the Final RMP/EIS, a discussion of any potential for reductions of water volumes allocated to the Contra Loma Reservoir from the Bay Delta that could occur under the Central Valley Project. Discuss the potential ramifications on municipal water supply and whether reservoir water would still be used for irrigation needs, as proposed, if the allocation decreases.

Water Quality

As discussed in the Draft EIS/RMP, water quality impacts to the reservoir could result from unauthorized human contact, increased volume of animal and human waste, increased boating activities, sediment from trail use, and construction runoff (p. ES-14). We also note that total coliform levels have often exceeded standards, and E. coli and fecal coliform have occasionally exceeded standards (p. 3-34). Approximately 38 percent of the samples collected at the former beach and 59 percent of the samples collected at the dam contained total coliform levels above the standard. F-1-5

F-1-5 Cont.

Recommendations:

- Provide quantitative information, in the Final RMP/EIS, on impacts to water quality for each alternative.
- Discuss, in the Final RMP/EIS, potential actions to be included in this RMP to reduce total coliform, E. coli and fecal coliform exceedances.

Grazing

Grazing is currently allowed on the 454 acres of rolling grasslands surrounding the reservoir in accordance with the current grading license (p. 3-2). The Draft EIS/RMP indicates cattle are not allowed near the reservoir in order to protect water quality. We note one small ephemeral stream flows through the southern part of the grazed area into the reservoir, and could transport fecal matter and sediment directly into the reservoir (p. 3-31). While there is a general description of the effects of grazing on riparian habitat (p. 4-50), there does not appear to be an evaluation of potential grazing effects on other resources, such as water quality, nor an analysis of how increases or changes in grazing under various alternatives would alter impacts.

F-1-6

Recommendations:

- Include, in the Final RMP/EIS, additional detailed information on existing cattle grazing in the study area (e.g., on- and off-dates, number of animal units, pasture locations, rotation frequency and methods), and the effects of grazing on existing and future resource conditions. Of specific interest is whether cattle grazing at current and/or proposed levels may have water quality and habitat effects.
- Clarify, in the Final RMP/EIS, whether Management Action 51 would permit grazing livestock on approximately 3 acres of annual grassland immediately adjacent to the reservoir, as depicted in Figure 2-1. Describe potential impacts to water quality in the reservoir that may result.

Climate Change

The Draft RMP/EIS provides little detail about how climate change may affect the study area. The EPA believes that the long duration of this management plan (most likely two or three decades), and the warming anticipated to occur in the study area, as described in the Draft RMP/EIS (p. 3-81), warrants the inclusion of a climate change mitigation and adaptation plan in the Final RMP/EIS.

F-1-7

Recommendations:

- Include in the Final RMP/EIS, a discussion of climate change and its potential effects on the study area, implementation of the RMP, and impacts of the proposed actions. Of specific interest are potential effects on Contra Loma Reservoir water levels, recreational carrying capacity, fire and invasive species management, and ability to operate consistent with the purpose of Contra Loma Reservoir for water supply.
- Include, as part of the discussion, a short summary of applicable climate change studies, including their findings on potential environmental and water supply effects and their recommendations for addressing these effects.
- Describe any measures that would be undertaken to improve the adaptability and resilience of the proposed project to climate change.

Renewable Energy

Proposed improvements to the recreational facilities and the Community Park include two new lighted sports fields. Power would be provided by PG&E, which already provides electrical power to the Community Park, including the three lighted sports fields, and the Regional Park (p. 4-32). To help meet the increased demand for energy, Alternative 3 would include installation of solar panels on shade structures or buildings. Energy derived from these solar panels would be used to supplement the park's energy needs, including powering the water pumps at the swim lagoon.

Recommendations:

F-1-8

- Quantify, in the Final RMP/EIS, the increased energy demand for each action alternative as compared to the No Action Alternative.
- Consider, in the Final RMP/EIS, adopting a commitment to supply renewable energy necessary to meet 100% of the operational electricity needs for each action alternative.
- Discuss, in the Final RMP/EIS, opportunities to utilize renewable energy produced onsite, or through procurement from PG&E, to meet 100% of the current and future electricity needs of the Contra Loma Reservoir and Recreation Area.

Naturally Occurring Asbestos

Asbestos-bearing ultramafic rocks are found in at least 44 of California's 58 counties. Disturbance of rocks and soils that contain naturally occurring asbestos (NOA) can result in the release of asbestos fibers to the air and exposure to the public. Asbestos is a known human carcinogen and represents a potential human health risk for those exposed while using roads or trails where it occurs. For information on the occurrence of NOA and health impacts, see EPA's NOA webpage at: http://www.epa.gov/asbestos/pubs/clean.html. The Draft RMP/EIS does not indicate whether NOA has been identified in the study area. Nor does it evaluate potential risks to current and future visitors who may be exposed to NOA on existing and proposed trails and roads through recreational activities.

Recommendations:

F-1-9

- Determine whether or not NOA is present on trails or roads within the study area. Assess the potential for exposure to elevated levels of NOA from common activities such as hiking, mountain biking, camping, and patrols and road maintenance activities. Provide information in the Final RMP/EIS.
- If NOA is found to be present, review the California Air Resources Board regulations and guidance at http://www.arb.ca.gov/toxics/asbestos/asbestos.htm, which address California's Asbestos Airborne Toxic Control Measures for Surfacing Applications that apply to unpaved roads.
- Evaluate existing trails and roads for sediment production and drainage in areas where NOA is likely to be present.
- If appropriate, post signs informing visitors that NOA is present, what the risks are, and how visitors can avoid exposure.
- If appropriate, these measures should be incorporated into the Preferred Alternative in the Final RMP/EIS and committed to in the Record of Decision.

Biological Resources

The Draft RMP/EIS does not include an evaluation of potential impacts on habitat fragmentation or the disruption of wildlife corridors from increased recreational activity, an expanded trail system and associated infrastructure construction. EPA is concerned with potential impacts to biological resources from increased noise, human presence and activities, habitat fragmentation, and disruption of wildlife corridors.

Fourteen special-status wildlife species have the potential to occur in Contra Loma, including three federally-listed threatened, and one federally-listed endangered, species (Table 3-7). Development needed to accommodate the projected regional population growth would convert a substantial amount of vacant land to urban uses. Such development would remove a substantial amount of native and non-native vegetation, increasing habitat fragmentation. These actions could result in major adverse cumulative impacts on vegetation (p. 4-54).

Recommendations:

- Provide additional data and analysis, in the Final RMP/EIS, to support the statement that mitigation measures would protect special-status wildlife species and their habitats and reduce impacts from RMP activities to a no impact or minor impact level (p. 4-62). For example, summarize studies and data regarding the noise and human presence level of tolerance of typical wildlife species such as deer, coyote, eagles, other raptors, and the San Joaquin kit fox.
- F-1-10 Describe and evaluate the potential for habitat fragmentation and disruption of wildlife corridors from the proposed increased recreational use and infrastructure under each alternative.
- Include, in the Final RMP/EIS as part of Mitigation Measure Wildlife-1 and 2, a clear commitment to consult with US Fish and Wildlife Service on any site-specific environmental analyses when specific construction activities are proposed.

Use of Herbicides

Text on p. 4-50 states that pesticide management plans are subject to review and approval by Reclamation prior to implementation. Reconnaissance surveys identified 23 invasive and/or noxious non-native plant species occurring at Contra Loma.

Recommendations:

- Specify, in the Final RMP/EIS, herbicides that would be used in the study area.
- Provide information on human health impacts associated with exposure to the specific herbicides that would be used.
- Provide information on environmental impacts associated with specific herbicides that would be used, including impacts to non-target organisms, federally-listed species, ground water, surface water, and soils. For more information on potential effects a pesticide may have to a listed species, go to: www.epa.gov/espp/litstatus/effects/index.htm
- F-1-11 Commit to specific best practices for herbicide use to protect human health and the environment.
- Consider, and provide information regarding, alternatives to herbicides for controlling invasive species.

Mass Transportation

Both action alternatives described in the Draft RMP/EIS would result in increased visitation and an increase in the number of vehicles using park roads, parking areas and public roads to access Contra Loma (p. ES-11). Further, the City's population is expected to increase by 15 percent (15,900 people) between 2010 and 2025.

Recommendation:

F-1-12

- Consider promoting mass transportation to provide access to Contra Loma Recreation Area in the Final RMP/EIS. Electric or hybrid shuttles could be a valuable service for park visitors and reduce air pollution. If mass transportation is found to be infeasible, explain why.

Enforcement and Funding

The Draft RMP/EIS includes some procedures for monitoring and enforcement to help ensure that the RMP is followed. For example, under all alternatives, the local managing partner(s) would continue to support and complement CCWD's programs to prevent zebra and quagga mussel infestation to ensure water quality impacts from invasive species are minor (p. 4-41).

Recommendations:

F-1-13

- Commit, in the Final RMP/EIS, to allocating funding and providing detailed plans for on-going, project-specific monitoring of visitor use and environmental impacts.
- Commit to allocating funding and providing detailed plans to enforce park visitor rules defined in the RMP.

Responses to Comment Letter F-1

F-1-1 General Conformity
While emissions calculations cannot be done at this time due to the programmatic nature of the analysis, individual projects or actions that are proposed under the RMP will be required to demonstrate compliance with the Bay Area Air Quality Management District (BAAQMD) Clean Air Plan (CAP) and make a determination of conformity. A description of General Conformity and how it applies to the RMP is provided below. This information has also been summarized in Appendix C, Applicable Regulations.

The Clean Air Act requires that non-attainment and maintenance areas (with respect to the National Ambient Air Quality Standards) prepare State Implementation Plans (SIPs) to achieve the standards. Federal actions need to demonstrate conformity to any SIPs for the regional air basin. The applicable SIP in Contra Costa County is the most recent BAAQMD CAP approved by the United States Environmental Protection Agency (EPA) plus all BAAQMD rules and regulations approved by the EPA.

The General Conformity Rule (GCR) (Title 40 CFR Part 51.853) requires that the responsible federal agency of an undertaking make a determination of conformity with the SIP. Each action must be reviewed to determine whether it: (1) qualifies for an exemption listed in the GCR, (2) results in emissions that are below GCR *de minimis* emissions thresholds, or (3) would produce emissions above the GCR *de minimis* thresholds applicable to the specific area, requiring a detailed air quality conformity analysis.

Contra Costa County has been designated as marginal non-attainment for the federal 8-hour ozone and moderate non-attainment for particulate matter (less than 2.5 micrometers). The applicable GCR *de minimis* threshold for both ozone and PM2.5 is 100 tons/year.

The Final RMP/EIS has been changed to reflect the latest state and federal attainment designations for air quality (see Section 3.13.2). Section 4.12.7 has been changed to include mitigation measures to address construction-related emissions and reductions in GHG emissions. These measures will be incorporated into proposed projects or actions, as appropriate, to minimize air quality impacts and ensure conformity with the SIP.

F-1-2 Control Strategies and Mitigation
The Contra Loma RMP/EIS is a program-level document, and no information about individual projects is currently available to quantify emissions from facilities improvements or increased use. The EPA-recommended measures were incorporated into Mitigation Measures Air Quality-1 and 2 in revised Section 4.12.7. More specific measures may be identified in subsequent analyses for individual projects.

A summary of applicable air quality regulations is found in Appendix C, Applicable Regulations.

F-1-3 Water Resources
Mitigation Measure Vegetation-1 in Section 4.8.8 has been modified to require the avoidance and minimization of impacts to waters of the United States in accordance with the Clean Water Act Section 404(b)(1) Guidelines.

The location of compensatory mitigation will be determined on a project-by-project basis. If suitable areas are present at Contra Loma to create wetlands or other habitat, they will be identified during the project-specific analysis. Otherwise, off-site mitigation banks or other acceptable mitigation will be used.

F-1-4 Water Supply and Drawdown Effects

Reservoir water levels under Alternatives 2 and 3 would fluctuate throughout the year, similar to current conditions and the No-Action Alternative. An additional summer-only drawdown of reservoir water under Alternative 3, if pursued, could result in up to 50 acre-feet of water being withdrawn for irrigation purposes, resulting in a decrease in water levels of up to 1 foot during the summer (primarily July and August). This additional drawdown would expose about 5,300 linear feet or about 0.12 acre of additional shoreline adjacent to wetland vegetation. This discussion has been expanded in Section 4.8.6.

Water allocations come from the Central Valley Project/Bay Delta, as discussed in Section 3.5.1. An analysis of impacts to allocations from the Central Valley Project is outside the scope of this EIS and is covered in Reclamation's operations. Allocations typically change annually based on hydrologic conditions and regulatory constraints. Water allocations and their effects on reservoir levels would be the same under all of the Alternatives.

F-1-5 Water Quality

As described for Management Action 55 in Section 2.7.3, detailed analysis of impacts to water quality from construction-related activities will need to be assessed on a project specific basis, once details on individual projects or actions are known, and standard best management practices would be implemented to minimize water quality impacts. Operation-related impacts would be similar to current conditions, and current restrictions and programs in place to minimize water quality impacts from recreational activities at Contra Loma would continue to be implemented, as discussed in Section 4.7.3. Contra Costa Water District (CCWD) will continue monitoring water quality and will coordinate with Reclamation and the State Water Resources Control Board, as appropriate, to identify measures to reduce total coliform, E. coli, and fecal coliform levels in the reservoir. Grazing activities are currently set back from the reservoir by a 500- to 1,000-foot buffer zone to reduce potential fecal matter from entering the water, as discussed in Section 3.8.1, and Management Action 35 would be implemented to control grazing-related impacts to water quality through the use of retention basins that would reduce bacterial inflow to the reservoir.

F-1-6 Grazing

As described in Section 3.2.1, grazing is currently allowed on 454 acres, rotating between multiple enclosures, with a livestock carrying capacity of 389 animal unit months. The effects of proposed changes to livestock grazing on water quality are discussed in Sections 4.7.5 and 4.7.6, and the effects on vegetation are discussed in Section 4.8.5 and 4.8.6. As noted in Section 4.7.5, "the changes to the grazing areas would not be located within the reservoir's watershed, so grazing in those areas would not affect reservoir water quality."

F-1-7 Climate Change and Greenhouse Gases

This discussion presents some regulatory and policy background on greenhouse gas (GHG) emissions and climate change.

Assembly Bill 32

In September 2006, Governor Arnold Schwarzenegger signed Assembly Bill (AB) 32, the California Climate Solutions Act of 2006. AB 32 requires that statewide GHG emissions be reduced to 1990 levels by 2020. This reduction will be accomplished through an enforceable statewide cap on GHG emissions that was phased in starting in 2012.

To effectively implement the cap, AB 32 directs the California Air Resources Board (CARB) to develop and implement regulations to reduce statewide GHG emissions from stationary sources. AB 32 also specifies that regulations adopted in response to AB 1493, which called for CARB to develop and implement regulations to reduce GHGs emitted from passenger vehicles, be used to address vehicular GHG emissions. However, AB 32 also includes language stating that if the AB 1493 regulations cannot be implemented, then CARB should develop new regulations to control vehicle GHG emissions under the authorization of AB 32.

AB 32 requires that CARB adopt a quantified cap on GHG emissions representing 1990 emissions levels and disclose how it arrives at the cap; institute a schedule to meet the emissions cap; and develop tracking, reporting, and enforcement mechanisms to ensure that the state achieves the reductions in GHG emissions necessary to meet the cap. AB 32 also includes guidance to institute emissions reductions in an economically efficient manner and conditions to ensure that businesses and consumers are not unfairly affected by the reductions.

Scoping Plans

CARB is the lead agency for implementing AB 32, which set the major milestones for establishing the program. AB 32 requires the CARB to prepare a Scoping Plan containing the main strategies that will be used to achieve reductions in GHG emissions in California.

Climate Change

Because of their impacts to climate change, GHG emissions are now subject to mandatory reporting. CARB sets forth standards and significance criteria address climate change impacts from GHG emissions. Mandatory reporting for compliance with CARB GHG significance thresholds, which are sector-specific in terms of what types of activities generate the GHG emissions facilitate meeting EPA emissions goals.

Reclamation has been tasked with assessing the potential impacts of climate change and how these changes might affect water operations, hydropower, flood control, and fish and wildlife. The Reclamation Mid-Pacific Region is currently coordinating several studies, including the Sacramento and San Joaquin Basins Study, which assesses risks to future water supplies, while analyzing a wide range of adaptive and mitigation strategies according to projected future demand. The results of these studies will be used to guide future management of water projects in California and will be considered in planning and NEPA-compliance documents, as appropriate.

Global Climate Change and RMP Future Conditions

California water planners are concerned about climate change and its potential effects on the state’s water resources. There are many potential ways in which climate change can affect the water resources, including changes to precipitation as well as increases in extreme wet and dry

conditions, decreased snowpack, variability in annual runoff, sea-level rises, and ecosystem challenges.

These changes will increase the vulnerability of California's water resources and might require changes to the current operations procedures. The California Department of Water Resources (DWR) is currently addressing the issues of global climate change and the impacts it will have on water resources, in accordance with Executive Order S-3-05. The Executive Order established GHG emissions targets for California and required biennial reports on potential climate change effects in several areas, including water resources. The DWR released the state's California Water Plan Update 2005 that examined potential climate changes impacts to California's water management systems, and presented resource management strategies to deal with the potential impacts. The DWR adopted the California Water Plan Update 2009 in March 2010. This plan looks at emerging effects of climate change on the state's water resources and builds upon the managements strategies laid out in the California Water Plan Update 2005.

The DWR released a technical memorandum report called Progress on Incorporating Climate Change into Management of California's Water Resources in July 2006. The technical memorandum examined the present progress and future directions for the topic. It focused on assessment methodologies and preliminary study results. The technical memorandum primarily focused on the potential effects of climate change in the Central Valley water management systems. The available data at this time are insufficient to estimate the effects of global climate change on the water levels, recreational carrying capacity, changes to the ecosystem, and water supply needs at Contra Loma reservoir. However, the technical memorandum looks at overall trends in regions of California close to Contra Loma reservoir.

Three potential climate change effects could affect water availability and future ecosystem conditions at Contra Loma reservoir:

- Changes in precipitation and runoff
- Increased future demand for drinking water and agricultural needs
- Possible effects to the aquatic ecosystem and endangered species

The technical memorandum lays out direct correlations between decreased snowpack and global climate change. However, because the inflow of water into Contra Loma reservoir is not the result of snowpack, this effect will not be an issue.

Changes in Precipitation and Runoff

The technical memorandum presented various climate studies that analyzed the trends in total annual precipitation in the western United States. The National Weather Service's Climate Prediction Center provided data showing that the annual precipitation has increased in much of California, the Colorado Basin, and the West since the mid-1960s. The technical memorandum also analyzed data collected by former state climatologist James Goodridge. The technical memorandum looked at statewide annual average precipitation from 1890-2002.

It appears that there may have been an upward trend in the state's precipitation over the last 50 years. However, when the data are sorted into three regions by latitude as follows: North (from California-Oregon border to 39 degrees latitude); Central (39 to 35 degrees latitude); and South

(from 35 degrees latitude to the California-Mexico border), the data analysis shows that the annual precipitation tends to decrease with decreasing latitude. Therefore, precipitation in the central and the southern portion of the state appear to have slightly decreasing trends from 1890 to 2002. According to this analysis, Contra Loma reservoir would fall into the central portion based on its latitude and would have experienced decreasing precipitation in recent years.

Additional predictions about the effects of climate change on California's water resources typically consider periods on the order of 40 to 50 years. According to an October 2008 DWR report, "Based upon historical data and modeling, DWR projects that the Sierra snowpack will experience a 25 to 40 percent reduction from its historic average by 2050" (Department of Water Resources 2008: Managing an Uncertain Future, Climate Change Adaptation Strategies for California's Water, October). These projections are over 40 years in the future and represent a wide percentage range for snowpack reduction. Another DWR document, the April 2008 Climate Change Adaption White Paper, states: "The climate patterns that these systems were based upon are different now – and continue to change at an accelerated pace. Global climate change has resulted in less predictable precipitation and runoff patterns" (Department of Water Resources 2008).

While the Sierra Nevada contains the snowpack that most of California depends on, the predictions apply to a very large area. In a third study, two model scenarios project both wetter and drier conditions relative to current climate. In regard to the model scenarios, the study states: "Impacts under either projection case cannot be regarded as more likely than the other. The range of assessed impacts is too broad to guide selection of mitigation projects" (Brekke et al. 2004: Climate Change Impacts Uncertainty for Water Resources in the San Joaquin River Basin, California *In* Journal of the American Water Resources Association, February). With predictions on such large scales, and with such high levels of uncertainty, the relative size of the activities and facilities envisioned under the RMP is too small and the planning horizon of the RMP is too short to make predictions that would be accurate enough to apply to water inflow in the RMP planning horizon.

Future Water Demand

California's water supply future will be determined by two principal factors, the conditions of the state's water resources and water demand. Water demand factors that would be directly affected by climate change would be potential changes in evapotranspiration and environmental water demand in California. Evapotranspiration refers to the vaporization of water from soil and plant surfaces (i.e., evaporation) and vaporization that occurs in plants leaves with water diffusing through pores to the ambient air (i.e., transpiration). The technical memorandum stated that increased temperatures will increase the evapotranspiration rates and related water demand where other factors remain unchanged. Since the water from Contra Loma reservoir is used partly for agricultural purposes, an increase in evapotranspiration could mean an increase in agricultural water demand. In addition, the technical memorandum states that the domestic water use typically increases with increasing temperature. The water at Contra Loma reservoir is also used for drinking water purposes. Global climate might cause an increase in drinking water demand, thereby possibly affecting the water demand and related levels at Contra Loma.

Aquatic Ecosystem Changes
The DWR 2006 technical memorandum estimates that increased air temperatures as the result of climate change will likely cause increases in water temperatures at California's lakes and waterways. Increased water temperatures might affect the aquatic ecosystem, especially for aquatic species that are sensitive to changes in water temperature. Increases in water temperature might also cause a decrease in dissolved oxygen demand concentrations, which would likely increase production of algae and some aquatic weeds. According to the technical memorandum, when the water source does not come from snowpack, the water temperature will likely be warmer in the dry season than at present. Climate change could make the waters too warm for fish acclimated to cooler temperatures in the summer. The increase in water temperatures might make it difficult for the fish to survive.

The future effect of global climate change on Contra Loma reservoir cannot be predicted with any accuracy. The potential effects listed above may occur, but it is not possible at this time to estimate when they might occur or whether they would occur within the planning horizon of this RMP.

Fire Management
In a manner similar to predictions for water resources, predictions have been made for the effect of Climate Change on California's vegetative communities. These projections are over large areas and habitat types. In a document published by CalFire in 2003 titled "Forests and Climate Change," predictions were made about the future distribution and health of California's forests:

"Evaluations of these potential impacts of climate change are based on modeled scenarios and therefore contain significant uncertainties in quantification and relationship of variables. However, the basic premise is that climate change can alter both the function of forests and other natural processes" (California Department of Forestry, Forest and Range Assessment Program 2003: The Changing California: Forest and Range 2003 Assessment, Chapter 5, p.134). While computer models can aid in predicting future forest patterns based on climate, the predictions carry a certain amount of error and the predictions cover the entire State of California.

With predictions on such large scales as discussed for water resources, the relative size of this project is too small and the time period in which it would take place is too short to make predictions for the Plan Area. However, while the impacts from climate change on the Plan Area may be too difficult to predict on such a small time scale and in such a small area, adaptive management will be employed. Adaptive management by definition is the linking of new data to actions and measures to achieve the overall project goals.

Additional Potential Greenhouse Gas Mitigation Measures
The following lists present some examples of feasible measures that could be implemented to reduce CO2 emissions from vehicles and boats. The measures are categorized as passenger vehicles and park maintenance and infrastructure. These measures would be evaluated for applicability as each project gets funded and planned and could be included as mitigation at the project-level analysis.

Passenger Vehicles

- Limit trailhead access by vehicle
- Limit parking expansion to the existing parking areas
- Prohibit motorized dirt bikes
- Give reservation preference to visitors with hybrid or high fuel economy vehicles
- Improve vehicle access/alleviate congestion near park entrances
- Add dedicated lane for existing campers returning to camp

Park Maintenance and Infrastructure

- High-efficiency lighting
- Tank-less water heaters
- Solar panels for power
- Clean park maintenance fleet vehicles (electric vehicles, golf carts, or CNG)
- Use electric-powered landscaping/maintenance equipment

If funding is available, several energy-saving measures currently in use in "green" buildings and housing could be implemented in the park infrastructure to reduce GHG emissions. High-efficiency lighting could replace incandescent bulbs, tank-less water heaters would reduce energy loss from conventional hot water tanks, and solar panels could be constructed for power needs within the park. In addition, park maintenance vehicles could be electric, use compressed natural gas fuel, or at least be hybrid.

F-1-8 Renewable Energy

Future energy needs are not quantifiable at this time, and the ability to acquire energy from renewable sources is not currently known. These items will be considered at the project-level of analysis. As discussed above, Reclamation will consider ways to use renewable energy and offset operational demands for electricity in cooperation with its local management partner(s).

F-1-9 Naturally Occurring Asbestos

No naturally occurring asbestos or ultramafic rock has been identified in the vicinity of Contra Loma reservoir (Department of Conservation, Division of Mines and Geology, Open-File Report 2000-19, August).

F-1-10 Biological Resources

Contra Loma is currently being used for recreational purposes, and many of impacts to biological resources already occur. Alternatives 2 and 3 would have similar operation-related impacts as the No-Action Alternative, but more temporary impacts would result from the construction activities for individual projects. The mitigation measures are designed to help reduce those impacts by conducting focused surveys for special-status species, designing projects to avoid sensitive areas or habitat for special-status species, and identifying ways to protect species or their habitat during construction. Sections 4.9.1, 4.9.5, and 4.9.6 have been revised to include discussions of potential impacts to wildlife corridors or impacts relating to habitat fragmentation caused by expansion of recreation facilities. Mitigation Measures Wildlife-1 and 2 in Section 4.9.8 have been modified to include a commitment to coordinate with the U.S. Fish and Wildlife Service on

projects that could affect federally listed species and with the California Department of Fish and Wildlife on projects that could affect other special-status species.

F-1-11 Use of Herbicides

Sections 3.1.1, 4.8.4, 4.9.8 and 4.10.3 and Management Action-19 have been modified to reflect details on the herbicides that may be used in the Plan Area, to identify human health impacts and environmental impacts associated with exposure to those herbicides, to commit to specific best practices for herbicide use, and to provide alternatives to herbicide use.

F-1-12 Mass Transportation

Access to mass transportation is available through the Tri Delta Transit system, which serves the communities surrounding Contra Loma. Currently, direct service into the Plan Area is not available; however, bus service is available to the adjacent neighborhood in Antioch.

F-1-13 Enforcement and Funding

Enforcement

Measures to enforce RMP guidelines will be provided in the Management Agreement(s) to be negotiated in accordance with the RMP/EIS. The Agreement(s) would require the local managing partner to provide compliance and implementation of Reclamation-approved guidelines. Such compliance issues will be included in the project specific environmental documents before implementation of a major activity. If the project is approved, then the local manager has the responsibility to comply with the RMP/EIS guidelines and requirements of the subsequent environmental analysis.

Funding

Reclamation is the lead federal agency, and the local land managing partner(s) for Plan Implementation will be determined through a solicitation process. Demand and available funding will dictate which proposed action(s) in the Preferred Alternative (Alternative 3) will be implemented. Funding sources may include a cost-share with the local managing partner(s).

G.3 Comments from Regional Agencies

Letter R-1 East Bay Regional Parks, Julie Bondurant

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June 26, 2014

Bureau of Reclamation
c/o Leslie Perry
2020 L Street, Suite 340
Sacramento, CA 95811

Re: Contra Loma Reservoir and Recreation Area Draft Resource Management Plan/Draft Environmental Impact Statement

Ms. Perry:

R-1-1 The East Bay Regional Park District (EBRPD) recommends that the Bureau of Reclamation adopt the *Expanded Recreation and Facilities (Alternative 3)* described in the Contra Loma Reservoir and Recreation Area Draft Resource Management Plan/Draft Environmental Impact Statement (RMP/EIS). Adoption of this alternative will provide EBRPD the greatest flexibility for expanding recreation opportunities and facilities, while incorporating the current management actions and programs associated with the *No Action (Alternative 1 – Status Quo)*, and improvements identified under the *Enhanced Recreation and Facilities (Alternative 2)*.

R-1-2 Alternative 3 would enable the EBRPD to continue with its current management practices at Contra Loma as described under the *No Action (Alternative 1 – Status Quo)* scenario. These daily operations and administration of the park facilities include litter and waste management, routine maintenance and repairs of existing facilities, including the swim lagoon and all the associated facilities, and a trail system for hiking, equestrian and bicycle use. Existing police and fire services and emergency response protocols would also be supported under this scenario. Current reservoir recreational programs including fishing, windsurfing, limited boating use, youth-oriented recreation programs, and opportunities for passive recreational opportunities such as wildlife viewing, photography and painting would continue. Resource management programs that would be retained under this scenario include zebra and quagga mussel prevention programs, nonaquatic integrated pest management programs, hazardous waste/spill prevention programs, and natural resource management and protection programs. Additional retained programs include habitat restoration and improvement activities such as quail habitat enhancement and installation of bat houses and avian nest boxes. In addition, adoption of *Alternative 3* would allow for the grazing program to continue, consistent with EBRPD's *Wildland Management Policies and Guidelines* (2001).

R-1-3 Adoption of *Alternative 3* would enable the District to enhance, replace or upgrade existing recreational facilities and install new facilities to expand and complement existing uses and facilities as outlined in *Enhanced Recreation and Facilities(Alternative 2)*. These facilities include: restrooms, sewer lines, park offices, the police substation, and a secondary storage yard. This alternative allows for new buildings near the swim lagoon including structures and facilities for swim and safety classes, a "safe swim" area or splash pad for small children, and more shade structures and benches. In addition, a park residence, parking areas, fueling station and fuel storage tank, a radio communication tower, water infrastructure (e.g., water lines, spigots, pumps, troughs), a storm water retention basin, ADA compliance improvements, call boxes and/or security cameras, donation boxes for walk-in users, fishing docks and other improvements at the boat launch area, paving the shoreline loop trail, additional trail signs, and additional picnic sites would all be incorporated

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R-1-3 Cont. under this scenario. Also, the adoption of the *Expanded Recreation and Facilities (Alternative 3)* would accommodate increases in fish stocking and a boundary line adjustment between the Regional Park and the Community Park to facilitate land and resource management practices.

R-1-4 The adoption of the *Expanded Recreation and Facilities (Alternative 3)* will enable the EBRPD to expand existing recreational uses and facilities and to install new facilities that will enhance recreational opportunities for Contra Loma Park visitors. New recreation and operations facilities identified and described in the RMP *Alternative 3* include: a fishermen's shelter, a playground structure, a disc golf course, new multi-use sports fields, and expansion of the swim lagoon and the trail system; including a fitness course along the shoreline trail. Other examples include, planting shade trees, installing shade structures and solar panels, and fish habitat improvements to increase fish populations. This alternative would also accommodate overnight group camping as part of current day camp programs or other special events. Infrastructure improvements included under this option would allow the EBRPD to install solar panels to supplement the Regional Park's energy needs and purchase additional reservoir water from Contra Costa Water District to meet increased demand for irrigation water for landscaping in the park.

Thank you for giving the EBRPD the opportunity to review, and provide input on, the Contra Loma RMP/EIS as this document will serve as the guidance document in the development of a long-term agreement between the Bureau of Reclamation and EBRPD for managing, operating, and maintaining public access, recreation, infrastructure, public services (including public safety and law enforcement), and natural resources in Contra Loma. In closing, from the EBRPD's perspective, it is important that *Alternative 3* is adopted so that the EBRPD will have the greatest latitude to develop programs to enhance the resources at Contra Loma and meet future needs of park visitors and staff over the duration of this long-term planning document.

Sincerely,

Julie Bondurant
Senior Park Planner

Response to Comment Letter R-1

R1-1 to R-1-4

Close coordination with the local managing partners and the continuity of successful operations at Contra Loma are important to guiding long-term programmatic decisions for Reclamation. Reclamation has identified Alternative 3, *Expanded Recreation and Facilities*, as the Preferred Alternative in the Final EIS, as it will allow its managing partner(s) the most flexibility in providing recreational opportunities at Contra Loma. Reclamation's decision of which action to take for the RMP will be documented in a Record of Decision no sooner than 30 days after the release of the Final EIS.

G.4 Comments from Individuals

G.3.1 Individual Public Comments (General Topics)

Letter I-1 Sheila Otis

My family have enjoyed Conta Loma for 35 years. We love the natural quiet setting. The wild life is plentiful. We want it to remain just the way it is for our grandchildren to grow up enjoying. The only improvement I would like to see is the path paved all the way around. The gravel makes it difficult to push a stroller and elderly people to walk on. Other than that, a few more trees to shade to beautiful walk around the lake. We love the lake. We raised our two boys fishing and swimming there. Now we are retired and we walk it daily. I hope you consider my suggestions. Sincerely,

Shiela L. Otis

Response to Comment Letter I-1

Your comment is appreciated. Reclamation has identified Alternative 3, *Expanded Recreation and Facilities*, as its Preferred Alternative in the Final EIS. Under this alternative, Reclamation, and its local managing partner(s) will consider the feasibility of expanding trails along with additional parking areas to accommodate a variety of users. Individual projects will be considered in response to visitor input.

Letter I-2 Mark Spencer

Although I was not able to attend the recent meeting held in Antioch this week, I would support alternative number 2 to enhance the overall park. I enjoy the facility however, the park could use some improvements. at bare minimum an all-weather surface trail around the reservoir would be a great improvement.
Thank you for allowing me to comment

Mark Spencer

Response to Comment Letter I-2

Your suggestion is acknowledged. Please see response to comment letter I-1.

Letter I-3 John D. Thomas

As an Antioch, CA resident and frequent user of Contra Loma Reservoir/Community Park facilities, I just want to comment that I would like to see the recreational facilities enhanced by turning the creekbed/wooded area south of the current ball field #3 into a walking/running area for the many residents who are unable to use the walkway that currently leads at an extremely steep angle uphill from the community park to the reservoir/dam. There is a growing elderly population and planned senior housing development nearby along the canal at James Donlon and Tabora which will no doubt add even more use of the park facilities by people with physical/health limitations who need an easy walking area away from the main streets and crowded sports fields. An additional picnic area in the wooded area would also be a great enhancement. Still another useful enhancement would be a dog park area. Personally, I think there are enough sports fields already and that consideration should be given to serving other parts of the population.

Thank you for your consideration of my thoughts.

John D Thomas

Response to Comment Letter I-3

Your suggestion is acknowledged. Please see response to comment letter I-1.

G.3.2 Individual Public Comments (Disc Golf)

Comment Letters I-4 through I-27 Multiple Commenters

Gonzalo Arestizabal

I am an avid disc golfer and would encourage any new course development. Disc golf is a healthy and peaceful activity that is also affordable for a middle class person like myself. That's why it has revitalized parks like pier park in Oregon, and strives at spots like Rocklin where they have a pro shop and everything. We are glad to help with landscape. and delighted to donate to any course improvements. Sincerely Gonzalo Arestizabal.

George Astin

I'm writing to say how thrilled my family is to hear that disc golf is an activity now being considered for our Regional Parks. We are an active family and have been involved in playing and promoting disc golf since the early 90's. I was a part of the team that brought the proposals for disc golf courses to the cities of Martinez and Walnut Creek. Walnut Creek Disc Golf Course in Walden Park is an unmitigated success story of self-guided recreational activity in a previously unused park space. Martinez is in the final stages of approving a course at Hidden Lakes Park. I can go on and on about the growth of the sport and its benefits (free to play, encourages outdoor exercise, very low maintenance costs long term etc etc) but there are probably a dozen other letters saying the same thing. My friends and family are also avid users of the Regional Park System. living less than a mile from Castle Rock and having grown up in Briones. We would love to be able to play disc golf in some of these great parks and would be encouraged to visit parks that had courses installed.

Please keep up the momentum and good work!

Matt Brenner

As an avid Disc Golfer and fan of the sport I want to thank you for considering a new Disc Golf Course in your city Park. Disc Golf is a fun family friendly sport that offers the challenge of playing a competitive sport, without the financial commitment that traditional golf does. This sport is not limited by $, socio economic status, etc. It is an accessible sport that anyone can play and enjoy. Ive been playing for 20 years and have watched my friends and their kids get introduced to the game they now love and appreciate. Now they are spreading the love of the game to their friends. Its a growing sport. You are smart to introduce it to you parks. Its a no brainer. Look at the popularity of the sport in Golden Gate Park in SF to find a model that you can deliver in your city park.

Matthew Campbell

I am a member of the Silicon Valley Disc Golf Club truly enjoy the game. I have been playing about 7 years and enjoy travelling to some of the courses in the local area. I think it would be a great idea to add a disc golf course to Contra Loma Regional Park. I recall Park De La Raza in San Jose before it was a disc golf course. You had grafitti, gang violence and riff raff present at all times to a point where anyone not gang related was afraid to go there. Now that a disc golf course has been put in all of the riff faff is completely elimitated to a point where the local neighbors have written recommendation letters to us to develop more parks in the area. Some of the things the members do is hold seminars to help girl scouts, boy scouts, or groups from companies learn the game. We also help plant trees, garden the area, eliminate fire hazards, etc. I believe a disc golf park in Contra Loma Regional Park will be a great addition. The game is inexpensive to play and the members are glad to help keep the park looking good.

Thank you for reading this.

Hunter Canfield

I am writing to you regarding the proposed Disc Golf course at Contra Loma Regional Park in Antioch, California. As a new disc golf player, I am hopeful that the proposal will become a reality. In our area today, the most "local" courses that don't require driving over a bridge to get to, are Walden Park in Walnut Creek, and Moraga Community Park, in Moraga. Both parks offer the ability for other activities, as well as disc golf, and both are 9 basket courses. It would be really great to have a course in Antioch that people could play, as there is not another course close by.
I hope that the East Bay Regional Park District will consider the addition of the Disc Golf course at Contra Loma Regional Park.
Thank you in advance for your consideration.
Sincerely,
Hunter Canfield

Michael Capeto

I am writing to you regarding the proposed Disc Golf course at Contra Loma Regional Park in Antioch, California. As an avid disc golf player, I am hopeful that the proposal will become a reality. In our area today, the most "local" courses that don't require driving over a bridge to get to, are Walden Park in Walnut Creek, and Moraga Community Park, in Moraga. Both parks offer the ability for other activities, as well as disc golf, and both are 9 basket courses. It would be really great to have a course in Antioch that people could play, as there is not another course close by. I hope that the East Bay Regional Park District will consider the addition of the Disc Golf course at Contra Loma Regional Park. Thank you in advance for your consideration.

Sincerely, Michael Capeto

James Cole

Bring disc golf to anitoch , my family would appreciate it. there are no courses within 15 miles of Anitoch.

James

Case Conover

Just a quick note to express my support for a new disc golf course there in Antioch!
It is a fun, cheap, healthy, all-ages activity with low impact on the land; easy to maintain.

would definitely get me out to that park!

all my best from berkeley,
Case

Michael Degnan

I wanted to take a moment to voice my support for the installation (or at least exploration) of a disc golf course at Contra Loma Regional Park. Disc golf is a sport whose popularity is rapidly increasing across many age groups and demographics. It is minimally impactful on the environment and encourages healthy lifestyles. Lastly, disc-golfers are stewards of the environment, and our community of volunteers will be an asset for both EBRPD and BoR. To wit: our volunteer efforts have helped maintain the disc golf course at Golden Gate Park, an area which -- prior to the course's installation -- was inhabited by transients and trouble-makers. These days that section of the park is full of trails, retaining walls, and is raked/seeded/watered by volunteers. You can expect similar commitment from our community at Contra Loma.

Thanks for your time.

Michael Degnan

Rich Dietrich

Hi. My name is Rich Dietrich D-I-E-T-R-I-C-H. I'm actually a veterinarian. I live in Brentwood. I want to talk on behalf of the disc golf aspect of it. I love the outdoors, I love to hike and walk. I'm a veterinarian. I love the animals and the wildlife, but I found disc golf to be a wonderful outdoor activity for people of all ages. I don't represent any specific group, but I go with a group of friends and family. We travel all around California just to go to disc golf courses. Around here the closest one is Moraga, nine-hole course, that is not kept up very well. It's very steep in some areas. There's a new one that opens in Walnut Creek, the old local park. It's very crowded. Not really enough room there for disc golf, so it's kind of a hazard for the people walking around in that area. But Contra Loma has a lot of open space that would fit the disc golfing, very little disruptions to the environment, very inexpensive to build and set up.

In Lodi, an Eagle Scout, that was his project; to build a new 18-hole course out there, and he accomplished that with a lot of donations and things. Right now we travel to Stockton most of the time to play disc golf. Again, I'm 57, it's great, it's cheap, great activity. Most of the people I've dealt with are wonderful people out there. We do get a lot of older people out there, but there are a lot of young people. Kids in our area just don't get outside enough to start with, any activity, team play. We've also had a lot of -- disc golf was used for different fundraisers and things, cancer and things, to raise money for cancer. There's a lot of uses. I think the only major impact, obviously, you should have some restrooms, some outhouses in the area and a few garbage cans here and there so people have someplace to put things.

But, like I say, a lot of the peripheral land out there doesn't have a lot of uses besides wildlife and walking and stuff, but even then if you don't have trails, per se, you're not going to walk around those areas.

I just heard about this meeting this morning. I asked our local Brentwood area, has anybody talked about disc golf course out at Round Valley or some of the other places, and it comes up occasionally, but there were no active people doing anything about it.

So if you've never tried disc golf, give it a try and you might be all for it.

Craig Dreschner

I am writing to you regarding the proposed Disc Golf course at Contra Loma Regional Park in Antioch, California.

As an avid disc golf player, I am hopeful that the proposal will become a reality. In our area today, the most "local" courses that don't require driving over a bridge to get to, are Walden Park in Walnut Creek, and Moraga Community Park, in Moraga. Both parks offer the ability for other activities, as well as disc golf, and both are 9 basket courses. It would be really great to have a course in Antioch that people could play, as there is not another course close by.

I hope that the East Bay Regional Park District will consider the addition of the Disc Golf course at Contra Loma Regional Park.

Thank you in advance for your consideration.

Kyle Dreschner

I am writing to you regarding the proposed Disc Golf course at Contra Loma Regional Park in Antioch, California.
As a new disc golf player, I am hopeful that the proposal will become a reality. In our area today, the most "local" courses that don't require driving over a bridge to get to, are Walden Park in Walnut Creek, and Moraga Community Park, in Moraga. Both parks offer the ability for other activities, as well as disc golf, and both are 9 basket courses. It would be really great to have a course in Antioch that people could play, as there is not another course close by.
I hope that the East Bay Regional Park District will consider the addition of the Disc Golf course at Contra Loma Regional Park.
Thank you in advance for your consideration.

Kyle Deschner

Eric Etu

As the Bureau of Reclamation considers future uses of Contra Loma Regional Park, I wanted to write today to express support for installing a disc golf course in the Park.

I left my job in early August to head back east to care for my terminally-ill father, until he passed away a few weeks later. I returned home to Walnut Creek in late September, just as Walnut Creek was installing a 9-hole disc golf course in Walden Park. I barely knew what disc golf was - but unemployed, saddened from the loss of my father and in need of some exercise after a month of southern cooking - I decided to give it a try. It proved to be a panacea for my woes. Getting outside, getting some exercise, and meeting new friends in the area were all helpful in helping me cope with my loss. Disc golf also kept me busy while I was looking for new job, helped me meet new friends - and yes, helped me lose a few pounds too. Today, I play every single weekend. I play in my father's old hiking boots.

Nine months later, I've been very impressed with the sport of disc golf. First and foremost, it's very accessible: it's easy to learn, fun for all ages, and the equipment is inexpensive, making disc golf

accessible to people from all walks of life. Economically, disc golf courses are inexpensive to install, require almost no maintenance, and have an extremely low environmental impact. Perhaps the best economic argument in favor of installing a disc golf course, however, is that you can locate a disc golf course on almost any type of land - and actually, my favorite disc golf courses are situated on hilly, rocky land (for the added challenge) - land that could be used for few other productive purposes.

Finally, disc golf players are ardent supporters of the growth of the sport; local clubs of volunteers often construct the courses themselves (such as at Walnut Creek), help keep the courses clean, and even work to raise funds for installing new courses. I too would be happy to support a possible new course at Contra Loma Regional Park in any of these ways.

Thank you for consideration, and please feel free to contact me if you have any questions.

Eric Etu

Greg Goben

My name is Greg Goben and I have been an avid disc golfer for the past 19+ years here in Sonoma County. I am also a member of our local disc golf club, the United Flyers Of Sonoma (UFOS), the oldest active disc golf club in the nation, founded on the campus of Sonoma State University in 1976.
I am writing to you in regards to the Bureau of Reclamation and East Bay Regional Parks District decision to update their Resource Management Plan and for the consideration of adding the sport of disc golf to this plan.
Here in the North bay, the UFOS club has been instrumental in supporting the sport of disc golf by working with city, county and federal agencies to install a total of 5 disc golf courses. These courses can be found in the City of Petaluma, two regional parks within the Sonoma County Regional Park system, a regional park within the Marin County Parks system and at Lake Sonoma, which is managed by the U.S. Army Corp of Engineers.
The club has successfully provided all of the initial funds and volunteer efforts to purchase and install each of these courses. It is one of the only forms of public recreation where players initially provide 100% of the cost and time to install the necessary elements needed for all to enjoy.
One of the parks where the club installed an 18-hole course, Crane Creek Regional Park, saw it's parking revenues increase so much that the park moved from one of the lowest revenue generating parks, out of 25, to one of the top 5. Recently the club was approved to install a new course within one of the park systems newest, Taylor Mountain Regional Park. Our oldest course was installed in 1997 at Stafford Lake Park in Marin County and is considered one of the top courses on the West Coast.
From my observation and participation within the sport, I have witnessed it's explosion across the country. There are now over 3,000 courses in all 50 states and hundreds more around the world. It is a sport that can appeal to all age groups and demographics. I recently turned 51 years old and I have no desire to stop playing. I also introduced the sport to my Uncle several years ago when he retired and at 75 years old, he plays in over 15 tournaments a year all across the country. Since taking up the sport, I have participated in 3 World Championships (Des Moines, IA; Kalamazoo, MI; Kansas City, MO), dozens of tournaments and played courses in 21 states. My goal is to play in the other 29 states as well.
I am just one of thousands of avid players across the country who believe that disc golf will one day be an Olympic sport. Please consider adding this rewarding recreational activity to your Resource Management Plan and allow for the installation of a course at Contra Loma Regional Park.
Please feel free to contact me if you would like to further discuss my involvement in the sport. Thank you for considering disc golf as an addition to your future park and recreational plans.

Sincerely,
Greg Goben
Rohnert Park, CA
Professional Disc Golf Association member #15490
Board Member of the United Flyers Of Sonoma

Jennifer Kearns

I am writing to you regarding the proposed Disc Golf course at Contra Loma Regional Park in Antioch, California.

As a new disc golf player, I am hopeful that the proposal will become a reality. In our area today, the most "local" courses that don't require driving over a bridge to get to, are Walden Park in Walnut Creek, and Moraga Community Park, in Moraga. Both parks offer the ability for other activities, as well as disc golf, and both are 9 basket courses. It would be really great to have a course in Antioch that people could play, as there is not another course close by.

I hope that the East Bay Regional Park District will consider the addition of the Disc Golf course at Contra Loma Regional Park.

Thank you in advance for your consideration.

Jennifer Kearns

Steve Keller

I would like to express my support for a disc golf course in Contra Loma Regional Park. Disc golf is an amazing family friendly, cheap, healthy, outdoor recreation option.

Thank You,

Steve Keller

Corey Kohler

Please put in a 18-27 hole disc golf course out there, low maintenance and fun for all ages and skill levels.
Thank you, corey

George Marx

I'm a 60 year old guy that has been playing disc golf for just a few years. For me, it's a better form of exercise and relaxation than regular golf. And at least as challenging.

I'm a member of the San Francisco Disc Golf Club, and enjoy that course immensely. But I live in El Cerrito, and have been hoping to hear that an East Bay park would consider putting in a course out here. And so I'm writing to you in hopes that you will consider that many of us old guys will also play, in addition to the college crowd.

Thanks for your time,
George
Michigan '81

Haley McArtor

Greetings,

As a Disc Golfer for over 8 years, I've realized that I never cease to enjoy the relaxed, yet challenging aspect of the sport. Additionally, I enjoy the diversity of players the life time sport supports, and the opportunity to be in nature at the same time. I enjoy playing different courses and I appreciate that they are usually in community parks and look forward to more being established for the public. Additionally, I recently won my first tournament at La Raza park in San Jose, so I am inspired to play more at different courses. Most importantly, I'd like to participate in the establishment and building of a local course. Simply, I appreciate your time, and I hope that we are able to bring a course to the Contra Loma park soon. Please feel free to contact me via e-mail at (REMOVED) or phone number at (REMOVED), if you have any questions or remarks.

Much appreciation,

Haley McArtor

Glenn Murray

I am contacting you to express my support for a new disc golf course at Contra Loma Park. My name is Glenn Murray. I play disc golf and I live in Pinole. I recently won the California State Amateur Championship for 50 and older players and I have very few courses to play and practice in Contra Costa County. The East Bay is probably the worst urban area in the U.S. to be a disc golfer. We travel to SF; Santa Cruz; the Central Valley; Lake Tahoe; etc. to play. A new 18 or 27 hole course is long overdue for the East Bay.
Disc golf courses are inexpensive to install and maintain. Disc golf is growing faster than any other sport in the U.S. currently. Cities like Portland, Oregon have many, many more courses than the Bay. Disc golf has minimal environmental impact and has proven to be an appropriate use of Open Space by multiple governmental entities. A potential new course at Contra Loma would be welcomed by the entire Bay Area Disc Golf community.

We appreciate your consideration and look forward to working with your organization to make it happen should the project be approved.

Thank You,

Glenn Murray

Viento Nieto

I would visit and use a disc golf course at Contra Loma Park. I think it's a great place for a course and it would benefit the local community as a recreational asset as well as draw players from all around the bay area.

Thanks for your consideration.

-Viento Nieto

Dino Papagni

Disc golf builds community and adds to an individuals over well being and health!

Thanks

Adam Smith

I would like to express my support for a new disc golf course at Contra Loma park!!!

PLEASE!PLEASE!PLEASE!!!!!

Scott Snyder

Hello,

I'm writing to express the support of the installation of a Disc Golf Course at Contra Loma Park.

Disc Golf is an inexpensive recreation that can be joined by all walks of life. It is a low-impact actively and can be maintained with minimal funding. If parking is charged for entering the park it could also become a source of income for the Rec. department.

Please consider this fast evolving activity and bring more people to the parks.

Thank you

Scott Snyder

Response to Comment Letters I-4 through I-27

Your comments are appreciated and acknowledged. Reclamation has identified Alternative 3, *Expanded Recreation and Facilities* as its Preferred Alternative in the Final EIS. Under this alternative, a disc golf course, among other recreational improvements, will be under consideration and subject to separate project-specific review.

G.5 Comments from Public Hearing

Comment 1 Rich Dietrich (member of the public, representing disc golf)

RICH DIETRICH

Hi. My name is Rich Dietrich D-I-E-T-R-I-C-H. I'm actually a veterinarian. I live in Brentwood. I want to talk on behalf of the disc golf aspect of it. I love the outdoors, I love to hike and walk. I'm a veterinarian. I love the animals and the wildlife, but I found disc golf to be a wonderful outdoor activity for people of all ages. I don't represent any specific group, but I go with a group of friends and family. We travel all around California just to go to disc golf courses. Around here the closest one is Moraga, nine-hole course, that is not kept up very well. It's very steep in some areas. There's a new one that opens in Walnut Creek, the old local park. It's very crowded. Not really enough room there for disc golf, so it's kind of a hazard for the people walking around in that area. But Contra Loma has a lot of open space that would fit the disc golfing, very little disruptions to the environment, very inexpensive to build and set up.

In Lodi, an Eagle Scout, that was his project; to build a new 18-hole course out there, and he accomplished that with a lot of donations and things. Right now we travel to Stockton most of the time to play disc golf. Again, I'm 57, it's great, it's cheap, great activity. Most of the people I've dealt with are wonderful people out there. We do get a lot of older people out there, but there are a lot of young people. Kids in our area just don't get outside enough to start with, any activity, team play. We've also had a lot of -- disc golf was used for different fundraisers and things, cancer and things, to raise money for cancer. There's a lot of uses. I think the only major impact, obviously, you should have some restrooms, some outhouses in the area and a few garbage cans here and there so people have someplace to put things.

But, like I say, a lot of the peripheral land out there doesn't have a lot of uses besides wildlife and walking and stuff, but even then if you don't have trails, per se, you're not going to walk around those areas.

I just heard about this meeting this morning. I asked our local Brentwood area, has anybody talked about disc golf course out at Round Valley or some of the other places, and it comes up occasionally, but there were no active people doing anything about it.

So if you've never tried disc golf, give it a try and you might be all for it.

Response to Comment 1

Your comments are appreciated and acknowledged. Please see response to comment letters I-4 to I-27.

Comment 2 Mary Engleton (member of the public)

MARY ENGLETON

Hi, my name is Mary Engleton E-N-G-L-E-T-O-N. I am a resident of Antioch. I represent no one in particular. I like to hike at Contra Loma, also Black Diamond. I would like someone to speak about how much it cost and who's paying because none of that was mentioned. I know federal government, it's always easy to spend other people's money. Is there a budget? Do we get some of it? Does it have to be spent, or is it just -- these are some of the wish lists things. How is it -- who makes the decision? Where does it come from? You people were a group that was hired to put it together; is that correct? I just want to make sure I'm -- up here in my head -- that I have all of the people right; is that correct?

MARY ENGLETON: So the federal government hired you to present the Action Plan or the three types of action plans that are considered?

MARY ENGLETON: Who would then say which one would be picked? Then, the costs? Would be nice to have some conversation about it, and I do like the park. I have no idea how many people use it. That kind of thing would be interesting to know for the general public. How many people go and use the pool? I personally think that whole pool thing was a bad idea 14 years ago or whenever they put it in. I don't know how many people use it. I don't know if it's economically easy for the people in Antioch or Pittsburg or whoever to participate in the park and the picnic areas. I've been there a few times for picnics.

So those are the kind of questions that I would, at least, like answers to. When we will hear the answers? I have no idea unless they're going to be in another document. That's it for me.

MARY ENGLETON: Just one comment- the document is also available, if you go to the East Bay Regional Park District website, and you can click on it and have it uploaded from there too.

Response to Comment 2

Your comments are acknowledged. Reclamation, as the decision-maker, has identified Alternative 3, *Expanded Recreation and Facilities* as its Preferred Alternative in the Final EIS. Reclamation will identify its selected alternative in the Record of Decision and will select a local management partner(s) to assist with implementation of the alternative and management of Contra Loma. The annual operating budget for Contra Loma is determined by the Federal government and will vary depending on which alternative is selected and which management actions or individual projects are being implemented. Reclamation has considered past, current, and future uses of Contra Loma when developing the alternatives evaluated in the RMP/EIS and will continue responding to visitor demand and preferences in identifying new projects to implement for the benefit of visitors. Use of the swim lagoon has been very popular since its construction; visitation to the lagoon currently numbers around 60,000 annually and is expected to increase (see Section 3.6.3, Table 3-2).

Comment 3 Michael Kean (member of the public)

MICHAEL KEAN

Hello. My name is Michael Kean, K-E-A-N. I live at (REMOVED) in Antioch, three words. I don't formally represent any group, but I am a volunteer with the Boy Scouts, and I do a lot of scouting volunteerism. First off, thanks. I see there's plenty of East Bay Parks people here. You guys do a great job. I love the parks. I wish we had plenty more of them. My comment would be, I think it would be really nice if we could have a group camping area set up. I personally volunteer and organize Camporees for the Boy Scouts which involve 1- or 200 people from our district which is Pittsburg, Antioch, Bay Point, Brentwood, et cetera. Often, we have to go to Bort Meadows to get a large East Bay Park campsite. There's Homestead Valley in Briones which isn't super usable. It doesn't have great facilities; Round Valley, great campsite but it's very small, and it's about three or four miles in a big hill, hard for a big group. Ditto for the two backpacking camps in East Bay Black Diamond. I love those places, they're really cool, but they're not great for large groups. I think before the pool opens or after the season ends, it would be very doable to have the picnic area be set up as a campground for large groups. I know I don't represent the Boy Scouts officially or anything, but we would be very happy and comply with all sorts of rules. We don't want anything running off into the drinking water, and we would make sure to have fires contained. We wouldn't leave trash on the ground, no brown water. We'd be happy to deal with all of that. So I'm sorry I missed the presentation. I saw an article in the paper on Sunday. I think you guys are great for giving us parks. The more the merrier, and, yeah, I'd like to have a large group campsite.

I'll finish by saying our last activity was at Brannan Island. It cost us $1,400 to rent that place out. It was ten sites. I think it was supposed to be good for 180 people, and we were just -- yeah, 30 people at the six sites. It wasn't enough parking. We had to get overflow of parking, and it was kind of cramped for us. There you go. I think I've made my point. So Mark Twain said, "Better to remain silent and be thought a fool then open your mouth and prove it." Since you're not taking questions, ta da.

Response to Comment 3

Your comments are appreciated and acknowledged. Reclamation has identified Alternative 3, *Expanded Recreation and Facilities* as its Preferred Alternative in the Final EIS. Under this alternative Reclamation will consider the feasibility of expanding camping opportunities through its day-camp program.

Comment 4 Michael Pruett (member of the public)

MICHAEL PRUETT

My name is Michael Pruett, P-R-U-E-T-T. I don't represent anyone. I live in Antioch. I love to walk around the reservoir, maybe, two or three times a week. I also enjoy fishing. I enjoy taking young people out to go fishing, and they really enjoy when they catch fish, so that's nice. We've been here for 18 years, and one thing I've noticed lately is there's a certain kind of water plant that is choking the reservoir. It looks like somebody took their aquarium and dumped it out and whatever plant it was took over. So when you try to fish there, you can throw out your line, and when you pull it in, you're going to get hooked up in this. A lot of times you'll break your line, so very difficult to fish.

There's one place where it's easy to fish and that is the dock between Contra Loma Island. There's a point there and there's a dock, and if that dock gets out far enough and into deep enough water that when you cast your line out, you're in deep enough water. You don't get hung up, and I've taken a bunch of kids out there before, and they've all caught fish, and they've been really happy, so it's a good experience. I have walked around there when the water has been down. Maybe they drain the lake about halfway down. That was maybe five or more years ago when I saw that, and that killed all of the weeds. The tulles were okay. They came back fine, but those weeds make it almost impossible to fish.

So if you're going to build new fishing docks, I would say that they're not going to be fun places to fish unless you get rid of the weeds, and that's my main point.

Response to Comment 4

Your comments are appreciated and acknowledged. Reclamation has identified Alternative 3, *Expanded Recreation and Facilities* as its Preferred Alternative in the Final EIS. Under this alternative Reclamation will consider the feasibility of a new fishing pier and fisherman's shelter, along with measures that address invasive aquatic plant species.

Comment 5 Dave Walters (member of the public)

Dave Walters

DAVE WALTERS: Good evening. My name is Dave Walters W-A-L-T-E-R-S. Are you David Woolley? I came in late.

DAVE WALTERS: All right, fine. I know you're not supposed to answer any questions, but involving the EIR, I haven't seen it. Are there maps in there indicating that the proposed developments are going to be, the minimum, the maximum, the progression, you say, over 25 years?

DAVE WALTERS: Is this in conjunction with the

Contra Loma Water District?

DAVE WALTERS: Well, they own the reservoir, and they were the ones that violated the drawing, the water from the reservoir, during some high-water usage times, and then the law got changed, so now they draw on the reservoir all the time, and I just wondered if in

some way the water district and the Bureau of Reclamation are kind of in bend together in what's going to ultimately happen to the reservoir and the similarities around it. I guess the EIR might say something to that effect, right?

DAVE WALTERS: These things go on for quite a long time until all of a sudden these workshops pop up on us and it's too late to do anything. You might want to talk your brains out, but nothing happens.

DAVE WALTERS: One last comment about the incorporation of the Contra Loma Reservoir into the Antioch City Park is that I don't know how many people have been by the City Park, but it's a city park. Can you get to the baseball diamond? No. Can you get to the soccer field? No. These are all privileged activities, and if this migrates into Contra Loma, maybe it's going to be "no" there too. So thanks Scott.

Response to Comment 5

Your comments are acknowledged. The relationship between Reclamation and CCWD is explained in Sections 1.1 and 1.2 of the RMP/EIS and maps depicting the alternatives described in the RMP/EIS are in Chapter 2. Reclamation will select a local managing partner(s) for implementation of the RMP and will work closely with them to identify projects to implement in response to visitor demand and preferences.