CHAPTER

4 RESOURCES

INTRODUCTION

Solano County's natural resources make it a great place to live or visit.

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Solano County lies at the intersection of numerous geographical and geological provinces that, together with variations in hydrology and climate, have resulted in the formation of unique and rare biological and ecological conditions and a rich diversity of native species and habitats. Solano County is home to both natural gas deposits and valuable wind resources. Its soils and water resources contribute to a rich agricultural landscape. Home to generations of people, Solano County contains both substantial historic and prehistoric sites. Preservation and sustainable use of these resources are vital to the continued benefit and enjoyment of both current and future generations. The residents of Solano County strive to act wisely as stewards of these natural resources; therefore, it is important that the General Plan's goals, policies, and programs reflect this commitment.

In 2007, the Citizens' Advisory Committee (CAC) created a vision to guide future conservation and development efforts in Solano County. The vision includes the following statements regarding the county's resources:

> *We will focus on creative and innovative solutions to meet both human needs and the needs of the natural environment. Our respect for human and environmental needs will guide our land use decisions and where development takes place… We will use our natural habitat, farmlands, and water resources to maintain separation among our cities and unincorporated communities…*
>
> *Because we value the quality of our air, soil, water, and other finite natural resources, we will continue to enhance agricultural business and preserve agricultural lands and resources. We will support practices that use renewable and recycled resources and reduce energy consumption and pollution as much as possible…*

We will provide abundant and diverse recreation opportunities that are compatible with the natural environment yet provide our residents and visitors with an opportunity to enjoy nature…

By considering human and environmental needs equally, we can create a place where people may choose to live, work, and play within close proximity; a place where nature, farmlands, and water are valued…

This vision was used to develop the three major strategic directions within the Resources chapter of the General Plan:

- preserving the county's valued natural, cultural, and scenic resources;
- enhancing and restoring the natural environment and the county's diverse landscapes; and
- ensuring sustainable provision of energy, water, and mineral resources.

The chapter serves as a comprehensive policy and strategy guide, defining the County's path toward a sustainable future.

Purpose

The purpose of the Resources chapter is to identify the goals, policies, and implementation measures that will be used by the County in day-to-day decision making to protect natural, cultural, and open space resources. The chapter focuses on conserving, preserving, and enhancing these resources to ensure a high quality of life for current and future county residents.

Scope and Content

This chapter satisfies the state's requirement that all local government general plans include a Conservation Element and an Open Space Element. The California Government Code requires a Conservation Element for the conservation, development, and use of natural resources, including water and its hydraulic force, forests, soils, rivers and other waters, harbors, fisheries, wildlife, minerals and other natural resources. Specifically, this chapter provides policies and programs to fulfill the following Conservation Element topics:

- protecting or improving water quality,
- preserving wetlands, including jurisdictional wetlands and saltwater and freshwater marshes consistent with federal and state requirements,
- protecting and developing in watersheds and aquifer recharge areas,

- conserving riparian vegetation,
- protecting special status species and their habitats,
- protecting wildlife movement corridors,
- conserving oak woodlands,
- promoting energy conservation and renewable energy, and
- implementing water conservation programs.

Remaining Conservation Element requirements are addressed in the Land use, Public Health and Safety, Agriculture, and Park and Recreation chapters.

The Open Space Element is used to manage all open space areas, including undeveloped wilderness lands and outdoor recreation uses. The California Government Code defines that open space should be preserved for the preservation of natural resources, managed production of resources, recreation, and public health and safety. Specifically, this chapter provides policies and programs to fulfill the following Open Space Element topics:

- preserving and creating community separator areas and protecting existing agricultural, open space, and recreational resources;
- protecting archaeological sites and historically or culturally important sites;
- protecting, improving, developing, and maintaining recreational trails and related facilities;
- integrating local trails with regional trail systems; and
- protecting local scenic highway corridors.

Remaining Open Space Element requirements are addressed within the Public Health and Safety, Agriculture, and Park and Recreation chapters.

This Resources chapter has three sections consisting of this introduction; the County's goals for protecting and sustainably using resources; and the context, policies, and implementation measures for each resource topic. Topics addressed in this chapter are:

- biological resources,
- marsh and delta areas,
- minerals,
- scenic resources,

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- cultural resources,
- recreational resources,
- energy resources,
- community separators, and
- water resources and quality.

Relationship to Other General Plan Chapters

State planning law requires general plans to be internally consistent, meaning that statements in one section are in agreement with all other portions of the plan. The Resources chapter contains goals, policies, and programs closely related to those contained in the Land Use, Agriculture, and Public Health and Safety chapters. However, this chapter differs by being almost exclusively oriented toward natural resources.

The Land Use chapter defines a planned land use pattern, identifying natural resource, agricultural, residential, commercial, industrial, public use, special purpose, and overlay designations. Public and private lands intended for conservation, open space, and recreational purposes are identified on the Land Use Diagram using the Water Bodies and Courses, Park and Recreation, Marsh, Watershed, Agriculture, and Public/Quasi-Public land use designations. The Land Use chapter and diagram also present three overlay designations intended to further preservation of one or more resources, including a Resource Conservation Overlay to conserve biological resources, an Agricultural Reserve Overlay to promote consolidation of agricultural conservation easements and mitigation lands, a Tri-City and County Cooperative Planning area to promote conservation of open space resources, and the Vacaville-Fairfield-Solano Greenbelt to identify protected open space.

The Agriculture chapter provides goals and policies to protect the county's farmland resources. Many similarities exist between the policies in the Resources chapter and the Agriculture chapter, including policies regarding urban-agricultural buffers created to reduce conflict between adjacent land uses and community separators used to reinforce individual identity and physical separation of communities.

The Public Facilities and Services chapter addresses supply and use of resources and essential services, whereas the Resources chapter addresses their preservation and conservation. Water facilities and service and water resources and quality are closely linked. Policies in this chapter protect the water resources that are the foundation of a public water system. Energy resources and utilities are also closely related. The Resources chapter discusses energy resources within the county and various means of energy generation and conservation, whereas energy infrastructure and supply are discussed in the Public Facilities and Services chapter.

The Public Health and Safety chapter identifies hazard-prone areas such as floodplains and seismic and geologic hazard areas. Many of these areas also contain valued resources. For example, floodplains present a hazard to human lives and structures but often contain valued habitat for diverse species. Many areas in the western hills are unsuitable for development because of steep slopes and wildfire hazards, but are valuable scenic, habitat, and agricultural resources. This chapter will address the preservation and development of resources while the Public Health and Safety chapter policies are targeted at protecting people from the hazards associated with the same areas. The goals and policies in each section target distinct issues, but are coordinated with other chapters to ensure optimal outcomes.

GOALS

The goals and accompanying policies describe outcomes consistent with the following strategic directions described within the introduction to this chapter:

- preserving of the county's valued natural, cultural, and scenic resources;
- enhancing and restoring the natural environment and the county's diverse landscapes; and
- ensuring sustainable provision of energy, water, and mineral resources.

RS.G-1: **Manage and preserve the diverse land, water, and air resources of the county for the use and enrichment of the lives of present and future generations.**

RS.G-2: **Ensure continued presence and viability of the county's various natural resources.**

RS.G-3: **Repair environmental degradation that has occurred, and seek an optimum balance between the economic and social benefits of the county's natural resources.**

RS.G-4: **Preserve, conserve, and enhance valuable open space lands that provide wildlife habitat; conserve natural and visual resources; convey cultural identity; and improve public safety.**

RS.G-5: **Ensure availability of affordable energy supplies and require efficiency and conservation measures to minimize energy consumption.**

RS.G-6: **Preserve the visual character and identity of communities by maintaining open space areas between them.**

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RS.G-7: **Ensure provision of an adequate, competitively priced and sustainable water supply and associated infrastructure to serve the needs of existing and future water users.**

RS.G-8: **Achieve ongoing coordination between land use and water supply planning.**

RS.G-9: **Protect, monitor, restore and enhance the quality of surface and groundwater resources to meet the needs of all beneficial uses.**

RS.G-10: **Foster sound management of the land and water resources in Solano County's watersheds to minimize erosion and protect water quality using best management practices and protect downstream waterways and wetlands.**

BIOLOGICAL RESOURCES

Planning Context

This section addresses biological resources and the actions that the County can take to maintain, protect, and preserve these resources. Biological resources encompass a wide range of species and natural communities found in the county, and the habitats that support them.

Fairy shrimp are a threatened species found in vernal pool areas.

The county's location at the intersection of the San Francisco Bay and the Sacramento–San Joaquin Delta (Delta) and its varied topography has created a variety of habitat types. Examples of valued habitat include extensive areas of marshland and wetlands along the Bay and Delta, forests of the Coast Range, and vernal pool complexes and riparian corridors found throughout the upland areas of the county. These habitat types support numerous species including rare or threatened animal and plant species such as the California red-legged frog, Callippe butterfly, giant garter snake, Swainson's hawk, fairy shrimp, California tiger salamander, and Boggs Lake hedge-hyssop.

The biodiversity of Solano County is notable. Forty species found within the county have been identified as rare, threatened, or species of special concern. Urban development, agriculture, roadway construction, hydrological alterations, and invasive species have had profound effects on the structure, composition, and function of ecosystems. Policies and programs directing sustainable approaches to each of these are vital to the continued viability of the county's biological resources. Biological resources also provide clean water; reduce urban heat island effects; pollinate crops and native vegetation; and fulfill cultural, spiritual, or intellectual needs.

The Delta and surrounding areas are among the most diverse ecosystems in the world. Studies comparing species richness and rarity have identified the greater San Francisco Bay region as one of the five most valuable biological areas within the United States and one of the 25 most valuable regions in the world.

Solano County has remained relatively undeveloped, with large portions of the county remaining in agriculture and open space. Sizeable areas of habitat and wildlife movement corridors allow viable populations to persist. If protected, these lands could continue to play an important role in maintaining biodiversity and ecosystem processes. Incentive-based programs, mitigation banks, conservation easements, and other land use planning tools can enable the sustained protection and enhancement of these resources.

Oak-dominated habitats support a wide variety of wildlife species; over 300 species of birds, mammals, reptiles and amphibians depend on them at some time in their life cycle.

Solano County's oak woodlands are a resource of great biological and scenic value. Oak woodlands are areas that contain native oak trees of a certain size. The woodlands provide habitat for a wide range of animal and plant species. Additionally, they moderate air and water temperatures, reduce soil erosion, facilitate nutrient cycling, and sustain water quality. Unfortunately human pressures such as development, firewood harvesting, and agricultural conversions and natural effects such as the lack of oak regeneration and Sudden Oak Death threaten oak woodlands in the county and throughout the state.

Heritage trees are scenic resources for the county's residents and visitors. They are generally defined by their size, native origin, or historical value. Although heritage trees tend to be larger native tree species, individual communities provide guidelines on how to identify such trees through a special ordinance. These trees provide a sense of place, increase the aesthetics of our communities and roadways, reduce energy costs associated with air conditioning, and increase private property values.

Related Plans, Programs, and Agencies

Many plans and programs enacted by federal, state, and local legislation relate directly to biological resources policies and programs. These plans and programs are administered by agencies with powers to enforce federal, state, and local laws.

Federal Endangered Species Act

The federal Endangered Species Act (ESA) protects certain animal and plant species. Under the ESA, species are put on lists and categorized as endangered, threatened, proposed, or candidate. Endangered species are those that are in imminent danger of extinction while threatened species are those likely to be in danger of extinction. The lists are

maintained by, and protection of these species is enforced by, the United States Fish and Wildlife Service (USFWS). Actions that may result in "take" of a species are monitored and permitted by the USFWS. Take is broadly defined as an action that would "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in such conduct" listed species. Listed species are often called special-status species. Plants are not as heavily protected as animal species and are only protected when a take occurs on federal land or by federal action.

California Endangered Species Act

The California Endangered Species Act prohibits take of any species that the California Fish and Game Commission determines to be an endangered or threatened species. Federal and state lists of threatened and endangered species are generally similar; however, a species present on one list may be absent from the other. Regulations of the California Endangered Species Act are also somewhat different from the ESA in that the state regulations include threatened and endangered plants on nonfederal lands within the definition of take.

U.S. Fish and Wildlife Service and California Department of Fish and Game

Both USFWS and the California Department of Fish and Game (DFG) enforce regulations that protect wildlife resources. Special permits are required for alteration, dredging, or any activity in a lake or stream, as well as other activities that may affect fish and game habitat. Both agencies also regulate impacts on sensitive plant and animal species as described above. Future development in Solano County that has the potential to affect wildlife habitat will be subject to the regulations of both of these federal and state agencies.

Photo by USFWS

The tiger salamander tends to breed in semipermanent wetlands and is a threatened species in California, where its historic range is now fragmented.

Oak Woodlands Conservation Act

California's Oak Woodlands Conservation Act acknowledges the importance of private land stewardship to the conservation of the state's valued oak woodlands. The act established the California Oak Woodlands Conservation Program, which aims to conserve oak woodlands existing in the state's working landscapes by providing education and incentives to private landowners. The program provides technical and financial incentives to private landowners to protect and promote biologically functional oak woodlands.

Solano Multi-Species Habitat Conservation Plan

The Bureau of Reclamation, Solano County Water Agency (SCWA), and its eight member agency contracts, including the City of Vacaville, the City of Fairfield, Suisun City, the City of Vallejo, the Solano Irrigation District, and the Maine Prairie Water District, have agreed to implement conservation measures to ensure the protection of threatened and endangered species and their habitat within the SCWA service area. The SCWA and member agencies developed the Solano Multi-Species Habitat Conservation Plan (HCP) for use within the Solano Project's contract service area and other participating areas of the county. The HCP is intended to support the issuance of an incidental take permit under the ESA for activities associated with future water use in these areas. HCP participants also intend to secure incidental take authorizations from DFG for state-listed species.

Swainson's hawks breed in dry grasslands, and its habitat is found throughout Solano County. It is listed as a threatened species in California.

Photo by USFWS

The HCP establishes a framework for complying with federal and state regulations for endangered species while accommodating future urban growth, development of infrastructure, and ongoing operations and maintenance activities associated with flood control, irrigation facilities, and other public infrastructure undertaken by or under the permitting authority/control of the HCP participants within the plan area. Covered activities under the HCP include development; irrigation district service area inclusions, expansions, and annexations; operation and maintenance activities of public facilities; recreation facilities and management; management, enhancement, habitat restoration/ construction, monitoring, scientific collection, and associated compatible activities on designated reserves; mitigation sites/banks; open space lands and adjacent lands; and relocation of covered species.

The California red-legged frog is a threatened species in Solano County. A recovery plan focusing on the critical habitat areas was created by the USFWS.

Photo by USFWS

The data used within the General Plan to delineate habitat and natural communities are derived from the HCP. While the HCP identifies both priority and nonpriority habitat areas, the General Plan considers only the priority habitat areas for conservation and preservation. These include the following:

- **California red-legged frog critical habitat and core recovery areas:** The recovery plan for the California red-legged frog published by USFWS designated portions of two recovery areas and critical habitats within Solano County. These consist of areas located in the hills west of Green Valley and the Tri-City and

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County Cooperative Planning Area and in the Lake Berryessa area located in the extreme northwestern corner of the County.

- **Callippe butterfly priority conservation areas:** These consist of areas where the species is known to occur and additional areas that contain three habitat conditions necessary to support this species: Johnny Jump-up plants, adult nectar plants, and ridgelines or hilltop topography. The priority conservation areas are primarily located within the Tri-City and County Cooperative Planning Area east of Vallejo and Benicia.

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Habitat for the Callippe butterfly, an endangered species, is found in the western portion of the county.

- **Giant garter snake priority conservation areas:** These consist of areas in the eastern portion of the county that contain priority habitat for giant garter snake populations. The snakes use dense aquatic vegetation in freshwater marshes, oxbows, and backwaters of creeks as their primary habitat, though they can also be found in and adjacent to irrigation canals that support cattails or bulrushes. Additionally, upland areas are necessary so that the snakes can escape during flood periods.

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Giant garter snakes are found in the county's agricultural wetlands and other waterways. They are listed as a threatened species by the USFWS.

- **High value vernal pool conservation areas:** These consist of areas within the county characterized by seasonal wetlands that form in soil that cannot absorb the water because of dense clays or pans below the surface. These are primarily located in the Jepson Prairie area east of Fairfield and north of Vacaville between the English Hills and Interstate 505.

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The Bogg's Lake hedge hyssop is listed as a *species of concern* by the USFWS and as *endangered* by the California Department of Fish and Game. It is found extensively across the Jepson Prairie growing in the clay deposits of vernal pools.

- **Priority habitat corridors:** These consist of linear habitat areas that connect two or more larger blocks of habitat. These corridors are proposed to conserve the viability of target wildlife populations in the habitat blocks.

- **Suisun Marsh Protection Plan Primary Management Zone:** Development in the Suisun Marsh Protection Plan Primary Management Zone is restricted by the *Suisun Marsh Protection Plan* administered by the San Francisco Bay Conservation and Development Commission (BCDC) and DFG.

These habitat areas are mapped in Figure RS-1. The priority habitat areas were used to create the Resource Conservation Overlay shown in Figure RS-2 and discussed in the Land Use chapter. The overlay indicates general locations of priority habitat and provides both opportunities and restrictions regarding the use of the underlying properties. The HCP also identifies priority wildlife movement corridors; however, because the specific locations of the corridors are uncertain, the corridors were not included in the Resource Conservation Overlay. Wildlife corridors are linear habitat areas that maintain "connectivity" and allow for the movement of species between remaining priority habitat areas. Because habitat is fragmented throughout the county, these corridors are essential to the long-term survival of many of the target species. The County will determine the specific locations and boundaries of these corridors in the future. The corridors must provide contiguous blocks of habitat, large and complex enough to maintain connectivity for the target species and natural communities. The County will consider these corridors during project review.

Policies

RS.P-1: Protect and enhance the county's natural habitats and diverse plant and animal communities, particularly occurrences of special-status species, wetlands, sensitive natural communities, and habitat connections.

RS.P-2: Manage the habitat found in natural areas and ensure its ecological health and ability to sustain diverse flora and fauna.

RS.P-3: Focus conservation and protection efforts on high-priority habitat areas depicted in Figure RS-1.

RS.P-4: Together with property owners and federal and state agencies, identify feasible and economically viable methods of protecting and enhancing natural habitats and biological resources.

RS.P-5: Protect and enhance wildlife movement corridors to ensure the health and long-term survival of local animal and plant populations. Preserve contiguous habitat areas

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to increase habitat value and to lower land management costs.

RS.P-6: Protect oak woodlands and heritage trees and encourage the planting of native tree species in new developments and along road rights-of-way.

Implementation Programs

Regulations

RS.I-1:	Establish a resource mitigation overlay district within the Zoning Ordinance to site and permit mitigation banks. The ordinance should include incentives to focus mitigation banks within the Resource Conservation Overlay areas.
Related Policies:	RS.P-1, RS.P-3
Agency/Department:	Department of Resource Management
Funding Source:	General Fund
Time Frame:	By 2011

RS.I-2: Use the Resource Conservation Overlay on the Land Use Diagram to identify areas of the county with high-priority needs for biological resource management. Areas covered by the Resource Conservation Overlay are intended to provide options to establish mitigation banks for biological impacts generated outside the overlay district. Land use designations within the Resource Conservation Overlay are restricted to Agriculture, Marsh, Watershed, and Park and Recreation. The Resource Conservation Overlay shall be located within important biological or physical areas and habitats identified by the HCP and deemed suitable by the Solano County Board of Supervisors. Areas contained within the Resource Conservation Overlay include high-priority resources defined in Figure RS-1 or subsequent updates.

The Resource Conservation Overlay contains the following resources:

- California red-legged frog critical habitat and core recovery areas
- Callippe butterfly priority conservation areas
- Giant garter snake priority conservation areas

- Priority habitat corridors
- Vernal pool conservation areas
- *Suisun Marsh Protection Plan* primary management zone

Update the Zoning Ordinance to incorporate provisions of the Resource Conservation Overlay.

Related Policies: RS.P-1, RS.P-3

Agency/Department: Department of Resource Management

Funding Source: General Fund

Time Frame: Ongoing

RS.I-3: Develop and adopt an ordinance to protect oak woodlands as defined in Senate Bill (SB) 1334 and heritage oak trees.

Define heritage trees as the following: (a) trees with a trunk diameter of 15 inches or more measured at 54 inches above natural grade, (b) any oak tree native to California, with a diameter of 10 inches above natural grade, or (c) any tree or group of trees specifically designated by the County for protection because of its historical significance, special character or community benefit. As regards heritage oak trees, this ordinance should include:

- rules regarding the removal, pruning, or disturbance of the critical root zone of a heritage tree;
- replacement ratio for healthy tree removal; and
- enforcement mechanisms for unlawful removal of trees.

As regards oak woodlands, the ordinance should include:

- lists of targeted tree species and age classes;
- guidance to minimize the fragmentation of oak woodlands and provide linkages and corridors between stands; and
- requirements for the preparation of oak woodland management plans, which will be required for all development, agricultural uses

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(including grazing), and timber/fire wood collection within the county's oak woodlands.

Related Policies: RS.P-1, RS.P-2, RS.P-6

Agency/Department: Department of Resource Management

Funding Source: General Fund

Time Frame: By 2011

RS.I-4: Develop a program and ordinance to allow voluntary transfers of development rights from a property or properties located within a targeted resource area to a property or properties within designated receiving areas (areas more appropriate for development) where similar resource conflicts would not occur. Transfers of development rights would be possible on a voluntary basis from any designated sending area within the Resource Conservation Overlay.

This program should be developed in coordination with similar programs in the Agriculture and Land Use chapters; Program AG.I-18 and Program SS.I-1.

Related Policies: RS.P-1, RS.P-3

Agency/Department: Department of Resource Management

Funding Source: General Fund

Time Frame: Ongoing

Funding, Physical Improvements, and Capital Projects

RS.I-5: Develop a roadside tree program to plant and maintain native trees along road right-of-ways. Encourage private groups, nonprofits, and individuals to participate in native tree planting efforts through donations of time, trees, or funding.

Related Policy: RS.P-6

Agency/Department: Department of Resource Management

Funding Source: General Fund; Volunteers; Nonprofits

Time Frame: By 2011

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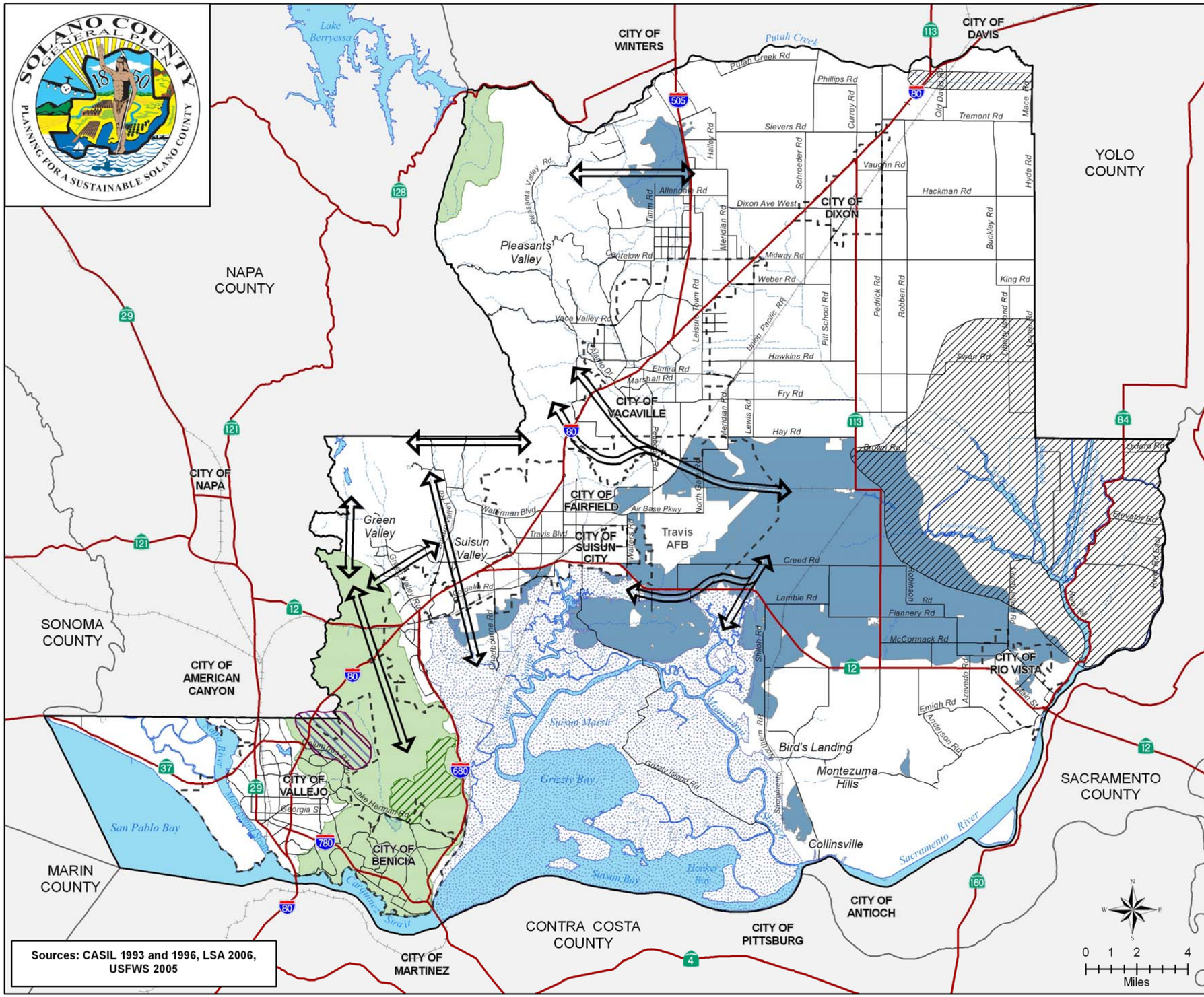
Figure RS-1

Priority Habitat Areas



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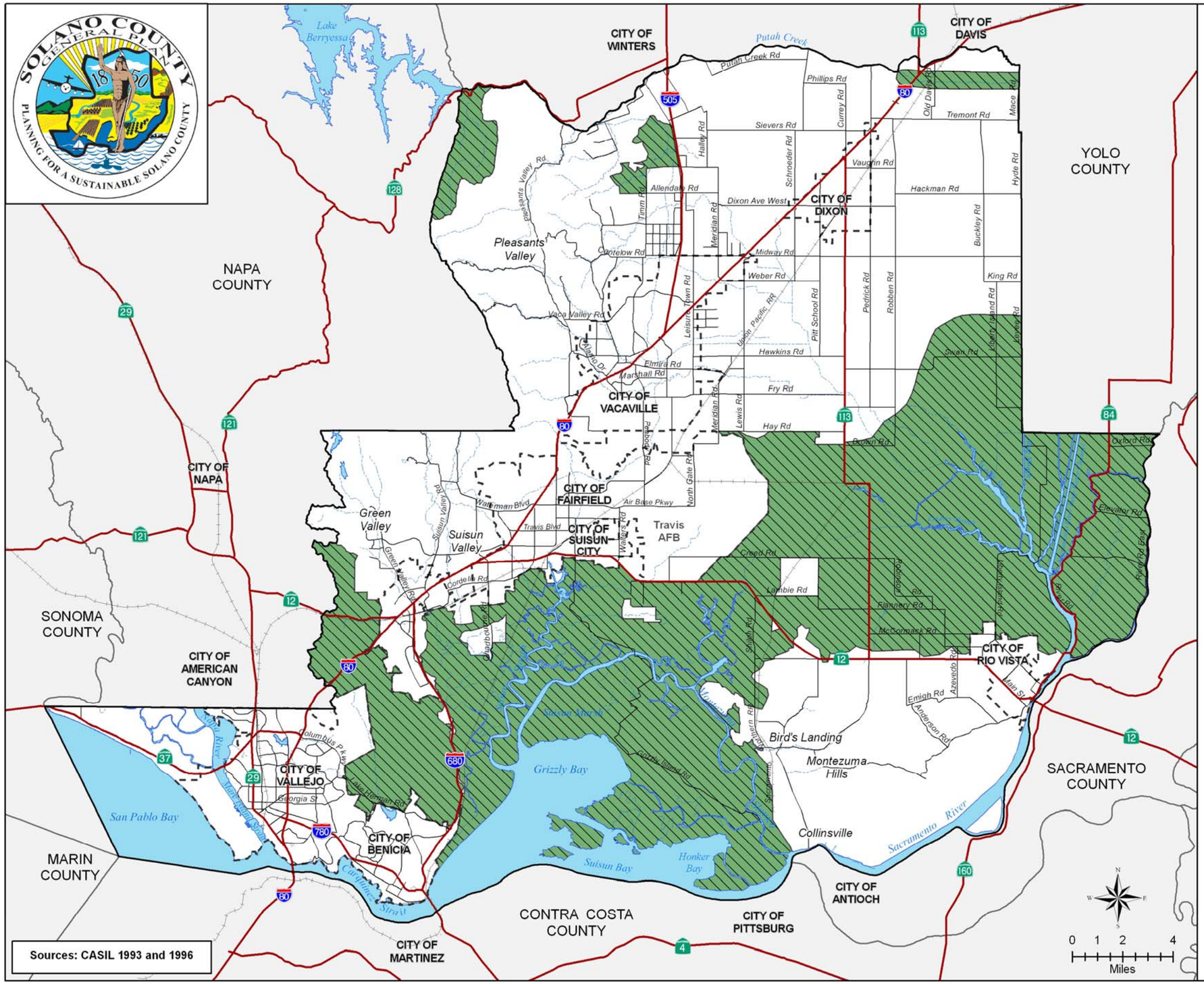

Solano County General Plan

Figure RS-2

Resource Conservation Overlay

Legend

- Resource Conservation Overlay

Basemap Layers

- Roadways
- Highways
- Railroads
- Streams and Creeks
- Major Water Features
- Municipal Service Areas
- Adjacent Counties

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Development Review

RS.I-6:	Require all discretionary development proposals (with the exception of agricultural uses) within the Resource Conservation Overlay to submit an assessment that evaluates site conditions and potential project-related impacts on the targeted resource(s) of concern. The site assessment shall be prepared by a qualified professional approved by Solano County. The assessment shall be paid for by the applicant. The assessment will be used to (1) determine if the project will create negative impacts on the viability of the targeted resource and (2) determine the appropriate measures to avoid or mitigate such impacts.
Related Policies:	RS.P-1, RS.P-3
Agency/Department:	Department of Resource Management
Funding Source:	Project Applicant
Time Frame:	Ongoing

RS.I-7:	Require certain findings by the Board of Supervisors to allow General Plan Amendments within the Resource Conservation Overlay that redesignate land from the Agriculture, Marsh, Watershed, or Park and Recreation designations to a use other than those listed above. To approve such redesignation, the Board of Supervisors must make one or more of the following findings: ▪ the site conditions (vegetation types, soils, topography) are not suitable as habitat for the target resource(s) identified in the Resource Conservation Overlay; ▪ the characteristics and size of the subject property make it unsuitable for conservation of the target resource; or ▪ no other lands with the requested land use classification are available for the proposed project.
Related Policies:	RS.P-1, RS.P-3
Agency/Department:	Department of Resource Management
Funding Source:	General Fund
Time Frame:	Ongoing

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RS.I-8:	Require the planting of shade and roadside trees in development projects for aesthetic, air quality, and other associated benefits. Encourage the use of native tree species, especially native oaks. Create development standards to ensure appropriate placement, care, and maintenance. The County shall evaluate the feasibility of planting of roadside trees as part of major County road improvement projects.
Related Policy:	RS.P-6
Agency/Department:	Department of Resource Management
Funding Source:	General Fund
Time Frame:	Ongoing

Ongoing Planning Efforts, Public Outreach and Education

RS.I-9:	Together with DFG, USFWS, Solano Water Agency and other agencies, determine and map critical wildlife movement and habitat corridors and riparian buffer areas. Ensure that the areas are sufficient in size to maintain landscape ecological functions and viable populations. Add the mapped critical corridors to the Resource Conservation Overlay.
Related Policy:	RS.P-5
Agency/Department:	Department of Resource Management
Funding Source:	General Fund
Time Frame:	Ongoing

Coordination with Other Agencies and Organizations

RS.I-10:	Develop an agricultural riparian incentive program that encourages farmers and ranchers and other landowners to maintain or create riparian habitat along streams, creeks, canals, and wetlands. Collaborate with other agencies and organizations (Including, but not limited to Solano Land Trust, RCD, Department of Fish and Game, Central Valley Regional Water Quality Control Board (RWQCB), Farm Bureau, Bay Delta Authority, Ducks Unlimited, Sierra Club, Audubon Society) to develop funding mechanisms, including grant funds, to support long-term riparian conservation and restoration efforts. The program should fund wildlife-compatible

fencing of sensitive riparian areas. The program should also develop strategies to pay farmers and ranchers for habitat protection. Strategies could include payment for ecosystems services provided, purchase of conservation easements, or fee simple purchase of riparian areas.

Related Policy: RS.P-1

Agency/Department: Department of Resource Management

Funding Source: General Fund, Grant funds

Time Frame: Ongoing

RS.I-11: Together with landowners, land trusts, and agencies, explore habitat preservation alternatives, such as:

- voluntary acquisition of development rights or conservation easements;
- developing mitigation banks, especially within Resource Conservation Overlay areas;
- providing outreach to landowners within the Resource Conservation Overlay regarding benefits of conservation easements;
- promoting agricultural practices compatible with habitat protection;
- allowing income-generating uses on agricultural lands that can support farmers who protect habitat lands; and
- promoting eco-tourism to generate revenues to support habitat protection and keep agriculture viable.

Related Policies: RS.P-1, RS.P-2, RS.P-3, RS.P-4

Agency/Department: Department of Resource Management; Solano County Water Agency; Resource Conservation Districts

Funding Source: General Fund, Grant funds

Time Frame: Ongoing

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MARSH AND DELTA AREAS

Planning Context

Solano County contains extensive marshlands critical to the health and vitality of the estuary ecosystem in the San Francisco Bay and Sacramento–San Joaquin Delta (Bay-Delta). The county is home to the largest contiguous brackish water marsh remaining on the west coast of North America and encompasses more than 10 percent of California's remaining natural wetlands. These areas provide habitat for a diverse number of species and also provide valuable ecosystem services. The county's marsh and Delta areas serve as the resting and feeding ground for thousands of waterfowl migrating on the Pacific Flyway and support 80 percent of the state's commercial salmon fishery by providing important tidal rearing areas for juvenile fish.

Related Plans, Programs, and Agencies

This section describes the plans, programs, and legislative acts that direct Solano County in the protection of its marshes and Delta area. The General Plan must be consistent with these, as well as with the implementation programs referenced below.

Suisun Marsh Protection Act

In 1974, the California Legislature passed the Suisun Marsh Protection Act, designed to preserve Suisun Marsh from residential, commercial, and industrial development. The act directs BCDC and DFG to prepare a protection plan for Suisun Marsh "to preserve the integrity and assure continued wildlife use" of the marsh. The objectives of the protection plan are to preserve and enhance the quality and diversity of the Suisun Marsh's aquatic and wildlife habitats and to ensure retention of upland areas adjacent to the marsh in uses compatible with its protection.

Suisun Marsh Local Protection Program

Under the Suisun Marsh Protection Act, Solano County and other agencies having jurisdiction within the Suisun Marsh were required to bring their policies, regulations, programs and operating procedures into conformity with the provision of the Suisun Marsh Protection Act and the Suisun Marsh Protection Plan through the preparation of a Local Protection Program. Solano County's component of the Local Protection Program includes, General Plan policies and other polices, programs and regulations to preserve and enhance the wildlife habitat of the Suisun Marsh and to assure retention of upland areas adjacent to the marsh in uses compatible with its protection.

Delta Protection Act

The Delta Protection Act of 1992 established the Delta Protection Commission (DPC). DPC is a state agency with jurisdiction over the Primary Zone of the Delta, which is located in five counties: Solano, Yolo, Sacramento, San Joaquin, and Contra Costa. DPC is charged with the task of preparing a regional plan to address land uses and resource management for the Delta area. Key land uses identified in the legislation include agriculture, wildlife habitat, and recreation. DPC adopted its *Land Use and Resource Management Plan for the Primary Zone of the Delta* on February 23, 1995. The plan was forwarded to the five counties for incorporation into their general plans and zoning ordinances. The counties will then carry out the plan through their day-to-day activities.

White Slough Specific Plan

In 1991 the McAteer-Petris Act was amended to authorize the development of a specific area plan for White Slough by the City of Vallejo and Solano County. The *White Slough Specific Plan* aims to provide orderly, long-range conservation, use, and management of the natural, scenic, and recreational resources of White Slough. The plan includes the permanent protection and enhancement of 336 acres of tidal wetlands within White Slough and 132 acres of tidally influenced areas in South White Slough. The plan limits fill to 13 acres or less related to improvements of SR 37. The plan also aims to provide flood protection to upland areas and provide water quality protection and enhancement measures.

Napa Sonoma Marsh Restoration Project

In a collaborative effort, the U.S. Army Corps of Engineers, the California Coastal Conservancy, and DFG are managing a restoration project for 9,460 acres of wetlands and associated habitats within the former Cargill salt pond complex located to the north and northwest of Mare Island in Solano, Napa, and Sonoma Counties. The project will protect and enhance extensive habitat for endangered species, migratory waterfowl and shorebirds, and fish and other aquatic species; improve water quality and productivity in the Napa River and San Francisco Bay; and provide open space and recreational opportunities.

Delta Vision and Strategic Plan

Delta Vision is a state-sponsored process that intends to identify a strategy for managing the Sacramento–San Joaquin Delta as a sustainable ecosystem that would continue to support the environmental and economic functions critical to the people of California.

The Delta Strategic Plan will contain implementation recommendations of the Delta Vision Committee including changes in the use of land and water resources, services to be provided within the Delta, governance, funding mechanisms and ecosystem management practices. The final Delta Strategic Plan will be submitted to the Governor and Legislature by December 31, 2008. The 2008 Solano County General Plan may need to

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be amended to comply with the Delta Strategic Plan and related legislation.

General Marsh-Delta Policies

RS.P-7: Preserve and enhance the diversity of habitats in marshes, delta to maintain these unique wildlife resources.

RS.P-8: Protect marsh waterways, managed wetlands, tidal marshes, seasonal marshes, and lowland and grasslands because they are critical habitats for marsh-related wildlife and are essential to the integrity of the marshes.

RS.P-9: Encourage restoration of historic marshes to wetland status, either as tidal marshes or managed wetlands. When managed wetlands are no longer used for waterfowl hunting, restore them as tidal marshes.

Suisun Marsh Policies

The Marsh designation has been applied to the Suisun Marsh on the Land Use Diagram. This designation is designed to preserve and enhance the quality and diversity of marsh habitats. Uses in marsh designated areas should be restricted to aquatic and wildlife habitat; marsh-oriented recreational uses; agricultural activities compatible with the marsh environment and which protect the habitat value of marsh areas; and educational and scientific research opportunities and resources.

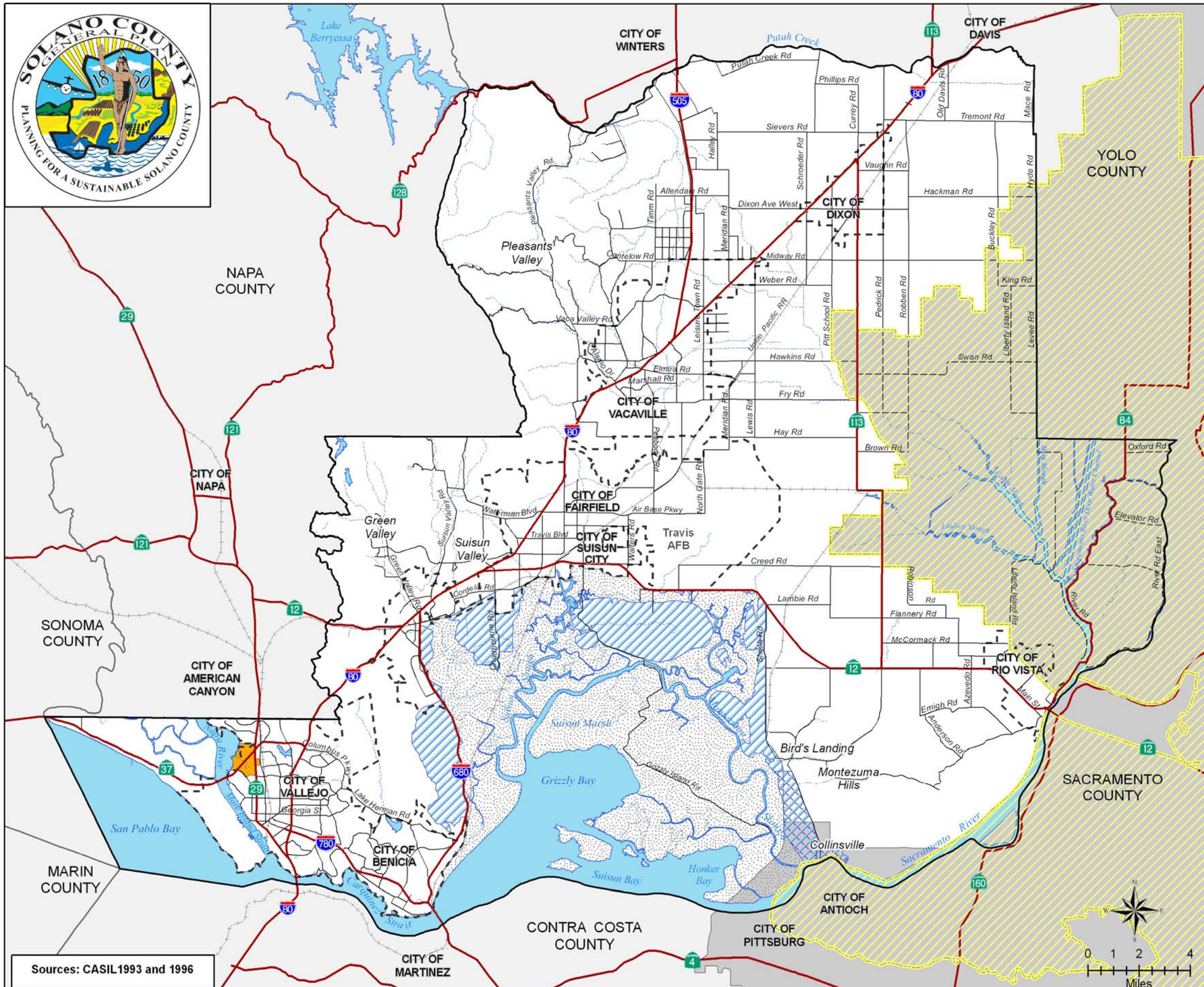
The Primary Management Area as established in the Suisun Preservation Act of 1977 is shown in Figure RS-3. This area consists of tidal marshes, seasonal marshes, managed wetlands, and lowland grasslands. It is the intent for this area to remain in its existing marsh and related uses as provided for in the Suisun Marsh Local Protection Program. The Secondary Management area established in the 1977 Act and shown in Figure RS-3 is designated for agricultural use. This area consists of upland grasslands and agricultural lands and serves as a significant buffer to the wetland areas. The Secondary Management Area is designed to assure retention of upland areas adjacent to the marsh in uses compatible with its protection as provided for in the Suisun Marsh Local Protection Program. The County has applied Marsh Preservation and Limited Agricultural zoning districts to the Primary and Secondary Management Areas, consistent with the General Plan.

In addition to the Suisun Marsh, a number of important habitat areas also exist along the county's significant water courses. The plan seeks to preserve the water quality and riparian habitat of these watercourses through the control of erosion, sedimentation and runoff resulting from adjacent use and development.

Solano County General Plan

Figure RS-3

Delta and Marsh Protection Areas



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Areas west of I-680 and outside the boundaries of the City of Fairfield are excluded from the land use restrictions which the Act places upon the buffer, except for watercourse protection and erosion and sediment control provisions.

Under the Suisun Marsh Local Protection Program, all public and private management and development activities within the Primary and Secondary Management areas of the Suisun Marsh shall be consistent with the policies and provisions of the Suisun Marsh Protection Plan as adopted by the San Francisco Bay Conservation and Development Commission. The Marsh designation in the Water Related Industry Reserve area, a part of the secondary management area of the Suisun Marsh Protection Plan, will be managed in the same fashion as if it were a part of the primary management area of the Suisun Marsh Protection Plan.

The following policies are a part of the County's component of the Suisun Marsh Local Protection Program. More specific General Plan policies in the Local Protect Program that apply to the Suisun Marsh area are provided in Appendix C.

The following policies apply specifically to the Suisun Marsh area. These policies are more specific than the balance of the General Plan to address the requirements of the *Suisun Marsh Protection Plan* and the Suisun Marsh Protection Act of 1977.

RS.P-10: The County shall preserve and enhance wherever possible the diversity of wildlife and aquatic habitats found in the Suisun Marsh and surrounding upland areas to maintain these unique wildlife resources.

RS.P-11: The County shall protect its marsh waterways, managed and natural wetlands, tidal marshes, seasonal marshes and lowland grasslands which are critical habitats for marsh-related wildlife.

RS.P-12: Existing uses should continue in the upland grasslands and cultivated areas surrounding the critical habitats of the Suisun Marsh in order to protect the Marsh and preserve valuable marsh-related wildlife habitats. Where feasible, the value of the upland grasslands and cultivated lands as habitat for marsh-related wildlife should be enhanced.

RS.P-13: Agriculture within the Primary Management Area of the Suisun Marsh should be limited to activities compatible with, or intended for, the maintenance or improvement of wildlife habitat. These include extensive agricultural uses such as grain production and grazing. Intensive agricultural activities involving removal or persistent plowing of natural vegetation and maintenance of fallow land during part of the year should not be permitted.

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RS.P-14: Agricultural uses consistent with protection of the Suisun Marsh, such as grazing and grain production, should be maintained in the Secondary Management Area. In the event such uses become infeasible, other uses compatible with protection of the Marsh should be permitted.

RS.P-15: In marsh areas, the County shall encourage the formation and retention of parcels of sufficient size to preserve valuable tidal marshes, seasonal marshes, managed wetlands and contiguous grassland areas for the protection of aquatic and wildlife habitat.

RS.P-16 The County shall ensure that development in the County occurs in a manner which minimizes impacts of earth disturbance, erosion and water pollution.

RS.P-17: The County shall preserve the riparian vegetation along significant County waterways in order to maintain water quality and wildlife habitat values.

RS.P-18: The County shall ensure that public access at appropriate locations is provided and protected along the county's significant waterways within the Suisun Marsh.

RS.P-19: Within the watershed of the Suisun Marsh, the County shall encourage sound agricultural practices which conserve water quality and the riparian vegetation.

Sacramento–San Joaquin Delta Policies

The following policies apply specifically to the Delta area. These resource policies are more specific to address the requirements of the *Delta Protection Plan*.

RS.P-20: The goals, policies, and provisions of the Land Use and Resource Management Plan for the Primary Zone of the Delta are incorporated by reference. Ensure that all public and private management and development activities within the Primary Zone of the Delta are consistent with the goals, policies and provisions of the Land Use and Resource Management Plan for the Primary Zone of the Delta as adopted and as may be amended by the Delta Protection Commission.

RS.P-21: Preserve and protect the natural resources of the Delta including soils and riparian habitat. Lands managed primarily for wildlife habitat should be managed to provide inter-related habitats.

RS.P-22: Promote seasonal flooding and agricultural practices on agricultural lands in cooperation with landowners that

incorporated "best management practices" to maximize wildlife use of lands in the Delta.

RS.P-23: Ensure that extension of new utilities and infrastructure facilities, including those that support uses and development outside the Delta is consistent with the Land Use and Resource Management Plan for the Primary Zone of the Delta. Where construction of new utility and infrastructure facilities is appropriate, the effects of such new construction on the integrity of levees, wildlife, and agriculture activities shall be minimized to the extent feasible.

RS.P-24: Protect the unique character and qualities of the Primary Zone by preserving the cultural heritage and the strong agricultural base.

RS.P-25: Support long-term viability of commercial agriculture and discourage inappropriate development of agricultural lands within the Delta. Prohibit new residential, commercial, and industrial uses inconsistent with the Land Use and Resource Management Plan for the Primary Zone of the Delta.

RS.P-26: Promote continued recreational use of the land and waters of the Delta, including fishing and boating; ensure needed recreational facilities are constructed, maintained, and supervised; protect landowners from unauthorized recreational uses on private lands; and maximize dwindling public funds for recreation by promoting public private partnerships and multiple uses of Delta lands consistent with the Land Use and Resource Management Plan for the Primary Zone of the Delta.

RS.P-27: Support the improvement and long-term maintenance of Delta levees to preserve land areas and channel configurations in the Delta by coordinating permit reviews, and guidelines for levee maintenance; supporting development of a long-term funding program for levee maintenance; protecting levees in emergency situations; and giving levee rehabilitation and maintenance priority over other uses of levee areas.

RS.P-28: Protect long-term water quality in the Delta in coordination with water agencies at local, state, and federal levels for designated beneficial uses, including agriculture, municipal, water-dependent industrial, water-contact recreation, boating and fish and wildlife habitat.

RS.P-29: Support marine patrol, boater education, and safety programs to the extent financially feasible and in coordination with the U.S. Coast Guard and state and local agencies with jurisdiction with the Delta.

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In addition to the specific Delta policies, the Agriculture chapter has a number of policies similar to the agricultural policies in the Delta Plan. The Agriculture chapter identifies 10 agricultural regions based on the Agriculture Futures Study completed by UC Davis Agricultural Issues Center. They include Ryer Island area and the Elmira and Maine Prairie area a portion of which is in the Primary Delta. Pursuant to Agriculture chapter implementation programs, strategic plans will be prepared for each agricultural region through a community based process that will address the specific issues for each region.

White Slough Specific Plan Area Policies

The following policies apply specifically to the *White Slough Specific Plan* area. These resource policies are proposed to address the requirements of the *White Slough Specific Plan*.

RS.P-30: Ensure that marsh restoration activities and land use development within the White Slough area is consistent with the *White Slough Specific Plan*.

RS.P-31: Facilitate the acquisition of remaining privately owned parcels/development rights within the *White Slough Specific Plan* area.

Napa Sonoma Marsh Restoration Project Policy

RS.P-32: Require marsh restoration activities and land use development within the Napa Sonoma Marsh Restoration Project area to be consistent with the requirements of the Napa Sonoma Marsh Restoration Project.

Implementation Programs

Regulations

RS.I-12 Review and update the Solano County component of the *Suisun Marsh Local Protection Program* in coordination with the San Francisco Bay Conservation and Development Commission. The guidelines and standards identified in current policies should be incorporated into the County Zoning Ordinance and development guidelines. The update will address General Plan policies and other policies, programs and regulations within the local protection program.

Related Policies: RS.P-10 to RS.P-19, RS.P-57, RS.P-58

Agency/Department: Department of Resource Management

Funding Source: General Fund

Time Frame:	2011

RS.I-13:	Incorporate wind turbine guidelines, addressing development of wind turbines in the Suisun Marsh, into the County code and development guidelines. Wind turbines were not addressed in the *Suisun Marsh Protection Plan*.
Related Policy:	RS.P-14
Agency/Department:	Department of Resource Management
Funding Source:	General Fund
Time Frame:	Ongoing

Ongoing Planning Efforts, Public Outreach and Education

RS.I-14:	Promote seasonal flooding and agricultural practices on agricultural lands in cooperation with landowners to maximize wildlife use of lands in the Delta. Explore incentive programs to encourage land owner participation.
Related Policies:	RS.P-8, RS.P-22
Agency/Department:	Department of Resource Management
Funding Source:	General Fund
Time Frame:	Ongoing

Coordination with Other Agencies and Organizations

RS.I-15:	Coordinate with existing plans and programs regarding the San Francisco Bay, Sacramento River, Sacramento–San Joaquin Delta, and adjacent marsh areas including: ▪ the *Suisun Marsh Protection Plan,* ▪ the Napa Sonoma Marsh Restoration Project, ▪ the CALFED Bay-Delta Protection Program, and ▪ White Slough Specific Plan – Complete the exchange of land between the City of Vallejo and the County through the annexation and deannexation of lands as set forth in the *White Slough Specific Plan* and change land use designations as called for in the *White Slough Specific Plan*.
Related Policies:	RS.P-7 to RS.P-32
Agency/Department:	Department of Resource Management
Funding Source:	General Fund
Time Frame:	Ongoing

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MINERALS

Planning Context

Solano County is rich in a number of nonfuel mineral resources. Mineral resources mined or produced within Solano County include mercury, sand and gravel, clay, stone products, calcium, and sulfur. Policies regarding the extraction of natural gas may be found later in this chapter, under the Energy Resources and Conservation section.

Figure RS-4 shows the locations of mineral resource zones in Solano County. Known mineral resource zones (MRZs) are located to the northeast of Vallejo, to the south and southeast of Green Valley, in areas south and east of Travis Air Force Base, and in pockets located within both Vacaville and Fairfield. Stone, gravel, sand, and clay mines are spread out around the county. Most of the mercury mines are clustered in or near the Sulfur Springs Mountain Range east of the City of Vallejo. Mercury mines include the St. Johns Mine, Hastings Mine, Borges Prospect, Brownlie Property, Vallejo, and one unnamed location. MRZs are classified by the State Geologist on the basis of geologic factors and may fall into one of four general classifications (MRZ-1 through MRZ-4). MRZ-3 zones occur throughout the county while only one MRZ-2 zone is mapped near Vallejo and Benicia. MRZ-2 zones have the highest probability of having significant mineral deposits, while MRZ-3 zones are likely to have mineral deposits which may or may not be significant.

Policies related to mineral resources facilitate the extraction of known mineral deposits, prevent the encroachment of incompatible uses adjacent to such deposits, and require mines to conduct their operations in a manner compatible with the health, safety, and welfare of county residents and surrounding land uses.

Related Plans, Programs, and Agencies

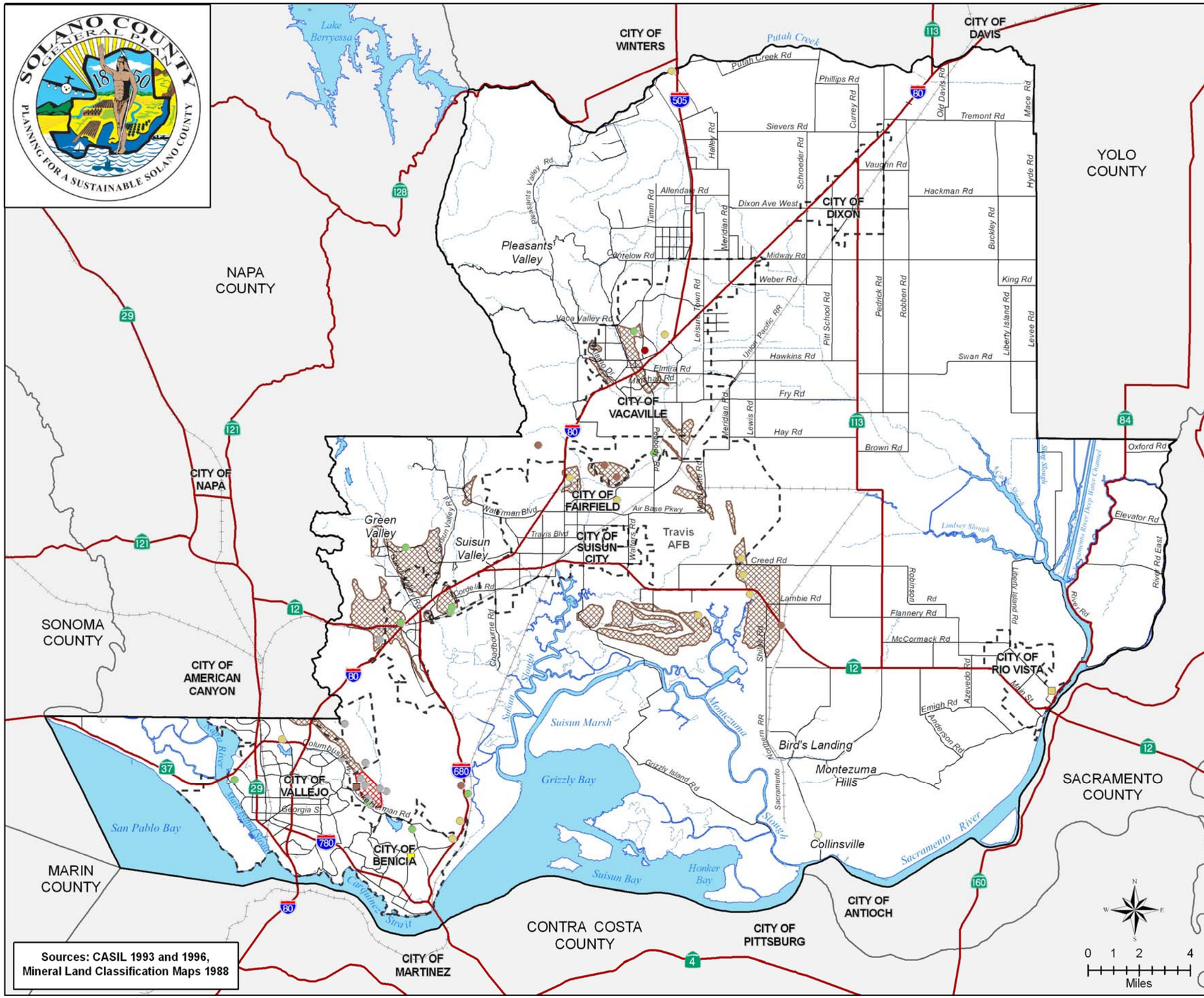
Surface Mining and Reclamation Act of 1975

The California Surface Mining and Reclamation Act of 1975 (SMARA) requires that all jurisdictions incorporate mapped mineral resources designations approved by the State Mining and Geology Board within their general plans. These resources are identified on Figure RS-4. SMARA was enacted to limit new development in areas with important mineral deposits.

Solano County General Plan

Figure RS-4

Mineral Resources



Legend

Active Mines & Mineral Processing Plants (2003)

- Crushed Stone
- Sand and Gravel
- Sulfur

Mine Locations (Mineral Resources Data System)

- Mercury
- Calcium
- Clay
- Mercury
- Sand and Gravel
- Stone
- Stone - Crushed/Broken
- Stone - Dimension

Mineral Resource Zones (SMARA, SR 146)

- MRZ-2: Areas where adequate information indicates that significant mineral deposits are present, or where it is judged that a high likelihood for their presence exists
- MRZ-3: Areas containing mineral desposits, the significance of which cannot be evaluated from available data

Basemap Layers

- Roadways
- Highways
- Railroads
- Streams and Creeks
- Major Water Features
- Municipal Service Areas
- Adjacent Counties

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Policies

RS.P-33:	The County shall preserve, for future use, areas with important mineral resources by preventing residential, commercial, and industrial development that would be incompatible with mining practices to the extent feasible.
RS.P-34:	Ensure that mineral extraction operations are performed in a manner compatible with land uses on the site and surrounding area and do not adversely affect the environment. At the end of such operations, ensure that the site is restored to conform with Surface Mining and Reclamation Act requirements and to a use compatible with surrounding land uses.

Implementation Programs

Regulations

RS.I-16:	Designate land uses in mineral areas appropriately to ensure compatibility between mineral extraction and surrounding uses.
Related Policies:	RS.P-33
Agency/Department:	Department of Resource Management
Funding Source:	General Fund
Time Frame:	Ongoing

Development Review

RS.I-17:	Evaluate impacts related to extracting mineral resources from new areas as part of the required permitting process to ensure that remediation occurs after minerals are extracted. Comply with regulations found in the Surface Mining and Reclamation Act.
Related Policy:	RS.P-34
Agency/Department:	Department of Resource Management
Funding Source:	Project Applicant
Time Frame:	Ongoing

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RS.I-18:	Create a mechanism by which owners of lands designated as containing important mineral resources can demonstrate to the County that mineral resources are not present, or are not economically feasible, and amend the designation.
Related Policy:	RS.P-33
Agency/Department:	Department of Resource Management
Funding Source:	General Fund
Time Frame:	Ongoing

Ongoing Planning Efforts, Public Outreach and Education

RS.I-19:	Remain aware of studies that may reveal the presence of additional, economically viable sources of mineral resources in the County.
Related Policy:	RS.P-33
Agency/Department:	Department of Resource Management
Funding Source:	General Fund
Time Frame:	Ongoing

SCENIC RESOURCES

Planning Context

The county's agricultural landscapes, the delta and marshlands, and the oak and grass covered hills offer an abundance of scenic vistas. This scenery is an important factor in sustaining a high quality of life for the county's residents. Human activity can have both positive and negative effects on the landscape. While extensive growth occurred during recent decades and as a result certain scenic resources have been lost or obscured, the county retains a wealth of intact viewsheds. Preserving the county's valued landscapes in the future will require continued application of appropriate land use policies and development standards that respect this context.

The county's scenic resources policies and programs work in two ways. First, they protect valued landscape features found throughout the county and second, they ensure that new urban or rural development within the scenic roadway corridors is developed in a manner that respects and maintains the integrity of the viewsheds.

Related Plans, Programs, and Agencies

County area and specific plans contain language aimed at preserving, conserving, and enhancing visual resource values within the target planning area. The plans identify viewsheds or general scenic resources to be protected or improved. Plans that discuss visual resource protection explicitly include the *Tri-City and County Cooperative Plan for Agriculture and Open Space Preservation*.

Tri-City and County Cooperative Plan for Agriculture/Open Space Preservation

One of the primary objectives of the Tri-City and County Cooperative Plan is to conserve and enhance visual resources within the plan area. The plan contains policies and measures that restrict development and the extension of infrastructure into the area of valued open space between Vallejo, Benicia and Fairfield. The plan also contains area specific policies specific to siting wind turbines. These policies aim to limit the visual impact of wind energy development. The full text of the plan is contained in Chapter 11.

Policies

RS.P-35:	Protect the unique scenic features of Solano County, particularly hills, ridgelines, wetlands, and water bodies.
RS.P-36:	Support and encourage practices that reduce light pollution and preserve views of the night sky.
RS.P-37:	Protect the visual character of designated scenic roadways.

Implementation Programs

Regulations

RS.I-20:	Amend the Zoning Ordinance to: ▪ Include the area, policies and programs of the *Tri-City and County Cooperative Plan for Agriculture and Open Space Preservation*. ▪ Regulate construction on steep slopes. This would include slope/density provisions that reduce allowable density based on the steepness of slopes.

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- Direct the use of lighting fixtures that reduce glare and light pollution. The ordinance should provide standards for the type and location of lighting fixtures in development projects.
- Regulate construction on ridge lines.

Related Policy: RS.P-35

Agency/Department: Department of Resource Management

Funding Source: General Fund

Time Frame: Ongoing

RS.I-21: Preserve the visual character of scenic roadways as shown in Figure RS-5 through design review, designating alternate routes for faster traffic, regulating off-site advertising, limiting grading in the view corridor through the grading ordinance, limiting travel speeds, and providing pullover areas with trash and recycling receptacles.

Related Policy: RS.P-37

Agency/Department: Department of Resource Management

Funding Source: General Fund

Time Frame: Ongoing

Development Review

RS.I-22: In new developments, require the use of fixtures that direct light toward target areas and shield it from spillage.

Related Policy: RS.P-36

Agency/Department: Department of Resource Management

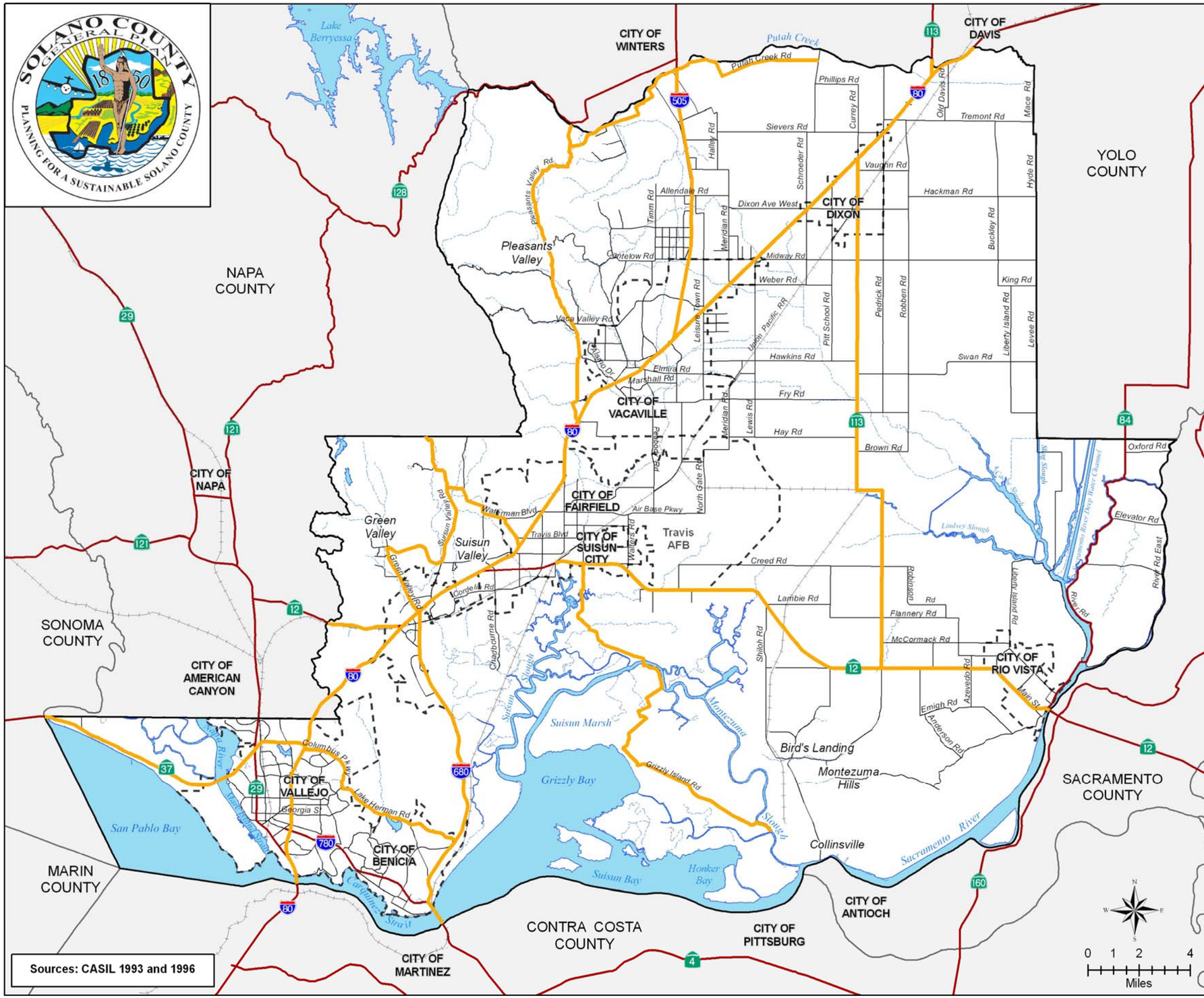
Funding Source: Project Applicant

Time Frame: Ongoing

Solano County General Plan

Figure RS-5

Scenic Roadways



Legend

- Scenic Roadways

Basemap Layers

- Roadways
- Highways
- Railroads
- Streams and Creeks
- Major Water Features
- Municipal Service Areas
- Adjacent Counties

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Ongoing Planning Efforts, Public Outreach and Education

RS.I-23:	Provide education on light pollution and how individuals and development proposals may decrease impacts.
Related Policy:	RS.P-36
Agency/Department:	Department of Resource Management
Funding Source:	General Fund
Time Frame:	Ongoing

Coordination with Other Agencies and Organizations

RS.I-24:	Promote continued interjurisdictional cooperation and coordination of resource and land use planning of the Cooperative Planning Area through the continued operation of the Tri-City and County Cooperative Planning Group.
Related Policy:	RS.P-35
Agency/Department:	Department of Resource Management
Funding Source:	General Fund
Time Frame:	Ongoing

CULTURAL RESOURCES

Planning Context

Cultural resources include the archaeological and historic sites that provide the county's modern day residents a connection to the past and a sense of place. A variety of policies and implementation programs are needed to protect these resources from destruction by development, infrastructure extensions, modernization, and the more subtle but persistent effects of time and erosion.

Archeological evidence demonstrates that humans have lived in the region from at least the Lower Archaic period that occurred between 10,000 and 6,000 years Before Present. Prehistoric sites have been discovered throughout the county that contain shell mounds, milling sites, pottery, and worked stone artifacts. Historic records are available that describe the indigenous peoples at the time of European contact. The majority of the county was inhabited by a loosely associated group who referred to themselves as the Patwin. A small area of the eastern portion of the county may have been inhabited by the Plains Miwok.

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The California Native American Heritage Commission has identified the presence of an area of traditional, religious, and cultural importance to Native Americans within the county. While the specific location of the sacred area cannot been divulged in order to protect the site, the County will work with interested Native American groups in order to explore management strategies regarding the site.

Historic sites relevant to different time periods are found throughout the county. The Rancho period occurred in the mid-1800s when Mexican settlers constructed missions and forts in the region. Much of Solano County was divided into land grants, which were primarily used as cattle ranches for the hide- and tallow-based economy. American settlers arrived concurrently and began farming and ranching in the county's rich soils. As time progressed, numerous communities were established around the county. Many of the cities and the communities' villages exhibit historical features from the late 1800s and early 1900s including neighborhoods with small-block street-grid patterns and architectural styles that range from Italianate to vernacular cottages.

Two primary issues affect the maintenance and preservation of the county's cultural resources. The first issue is the need to continue to improve consultation with Native American groups regarding the protection of traditional cultural places and sacred sites in the context of land use decisions. In order to effectively protect such areas, the County intends to consult with Native American groups and carry out the following tasks:

- Create a dialogue between County and tribal governments in order to identify cultural places and consider such sites in land use planning decisions.
- Develop a program to systematically avoid conflicts with Native American cultural places by ensuring that local and tribal governments are provided with information early in planning processes.
- Evaluate the potential for permanently protecting certain Native American cultural places by designating them as open space.
- Develop proper management and treatment plans for cultural places.
- Develop a program to enable tribes to manage their cultural places.

The second issue focuses on the opportunity to leverage the county's historic capital for use in economic pursuits, particularly those relating to tourism. Potential exists to create a "string-of-pearls" consisting of portions of cities and unincorporated towns and areas of the county that seek to build around their history. This strategy could be a great compliment to ongoing agri-tourism efforts elsewhere in the county.

Related Plans, Programs, and Agencies

California Environmental Quality Act
The California Environmental Quality Act (CEQA) states that it is the policy of the State of California to "take all action necessary to provide the people of this state with...historic environmental qualities...and preserve for future generations examples of the major periods of California history." If an impact on a historical or archaeological resource is significant, CEQA requires feasible measures to minimize the impact. Mitigation of significant impacts must lessen or eliminate the physical impact that the project will have on the resource. CEQA requires that all feasible mitigation be undertaken even if it does not mitigate impacts to a less-than-significant level.

California Senate Bill 18
California SB 18 (2004) requires that local governments (city and county) consult with Native American groups to aid in the protection of traditional Native American cultural places through local land use planning. The intent of SB 18 is to provide California Native American groups with an opportunity to participate in local land use decisions at an early stage to protect or mitigate impacts on cultural places. SB 18 requires local governments to consult with Native American groups before adopting and amending both general plans and specific plans.

Policies

RS.P-38:	Identify and preserve important prehistoric and historic structures, features, and communities.
RS.P-39:	Tie historic preservation efforts to the County's economic development pursuits, particularly those relating to tourism.
RS.P-40:	Consult with Native American governments to identify and consider Native American cultural places in land use planning.

Implementation Programs

Development Review

RS.I-25:	Require cultural resources inventories of all new development projects in areas identified with medium or high potential for archeological or cultural resources. Where a preliminary site survey finds medium to high potential for substantial archaeological remains, the County shall require a mitigation plan to protect the resource before issuance of permits. Mitigation may include:

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- Having a qualified archaeologist present during initial grading or trenching (monitoring);
- Redesign of the project to avoid archaeological resources (this is considered the strongest tool for preserving archaeological resources);
- Capping the site with a layer of fill; and/or
- Excavation and removal of the archaeological resources and curation in an appropriate facility under the direction of a qualified archaeologist.
- Alert applicants for permits within early settlement areas to the potential sensitivity. If significant archaeological resources are discovered during construction or grading activities, such activities shall cease in the immediate area of the find until a qualified archaeologist can determine the significance of the resource and recommend alternative mitigation.

Related Policies: RS.P-38, RS.P-40

Agency/Department: Department of Resource Management

Funding Source: Project Applicant

Time Frame: Ongoing

Coordination with Other Agencies and Organizations

RS.I-26: Work with federal and state agencies to identify, evaluate, and protect the county's important historic and prehistoric resources. Programs administered by such agencies may include:

- California Historic Landmarks
- California Points of Historical Interest
- California Register of Historic Resources
- National Register of Historic Places
- State Historic Building Code

Related Policies: RS.P-38, RS.P-40

Agency/Department: Department of Resource Management

Funding Source: Project Applicant

Time Frame: Ongoing

Ongoing Planning Efforts, Public Outreach and Education

RS.I-27:	Refer to the state Senate Bill 18 guidelines and requirements regarding cultural resources. Programs the County will engage in may include: ▪ ensuring local and Native American governments are provided with information early in the planning process, ▪ working with Native American governments to preserve and protect Native American cultural sites by designating them as open space where possible, ▪ providing management and treatment plans to preserve cultural places, and ▪ working with Native American groups to manage their cultural places.
Related Policy:	RS.P-40
Agency/Department:	Department of Resource Management
Funding Source:	General Fund
Time Frame:	Ongoing

RS.I-28	Protect and promote the county's historic and prehistoric resources by: ▪ providing educational programs to the public, staff, and commissions that promote awareness of the county's history and the value in preserving historic or prehistoric resources; and ▪ exploring and developing historic or prehistoric sites that can be used appropriately as visitor-oriented destinations.
Related Policy:	RS.P-38
Agency/Department:	Department of Resource Management
Funding Source:	General Fund
Time Frame:	Ongoing

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RS.I-29:	Develop historic preservation programs and development guidelines to prevent the loss of significant historic buildings and structures. This should be done in conjunction with Program SS.I-16.
Related Policy:	RS.P-38
Agency/Department:	Department of Resource Management
Funding Source:	General Fund
Time Frame:	Ongoing

RECREATIONAL RESOURCES

Planning Context

The County's park and recreation facilities and programs are created to provide residents and visitors with opportunities for both active and passive recreation. Additionally they can provide further protection of natural resources as a complement to city and state parks and other protected open spaces in the county.

Solano County maintains three regional parks. Lake Solano Park is located at the base of the coast range foothills west of Winters and at the north end of the county along Putah Creek. The park contains a campground, picnic sites, group picnic facilities, a free boat launch for nonpowered vessels, parking, and public restrooms. Sandy Beach Park is located near Rio Vista on the Sacramento River. The park has a boat-launch ramp, campsites, picnic grounds, a hiking trail, roads for bicycling and driving, a beach, and volleyball and horseshoe pitch courts. A third regional park, Belden's Landing Water Access Facility, is located southeast of Suisun City in the Montezuma Slough/Grizzly Island area. The day-use facility includes a boat-launch ramp, a fishing pier, restrooms, and parking. Rockville Hills Regional Park is located in the unincorporated area but is owned and managed by the City of Fairfield. No neighborhood or community parks are located in the unincorporated area.

High quality and extensive recreational resources can greatly add to residents' quality of life. The County has the opportunity to expand its recreational resources by creating a connected trail network, improved bicycle routes, and additional parks and fishing access points. A second opportunity exists if federal, state, County, and city agencies coordinate efforts to implement recommendation and programs in the Park and Recreation chapter. Such coordination could result in greater recreation opportunities for the region's residents.

This section does not replace the Park and Recreation Element contained in Chapter 10 of this document. The policies and programs described below provide additional guidance on the development and management of parks, open space, and other recreational facilities.

These policies are intended to complement and support the policies contained in the Park and Recreation chapter.

Related Plans, Programs, and Agencies

Bay Trail Plan

Under SB 100 the Association of Bay Area Governments developed the *Bay Trail Plan*. The Bay Trail is planned to be a 400-mile, multi-use trail that will, when complete, encircle San Francisco Bay, linking the shorelines of 47 cities and nine counties. Currently, 290 miles of Bay Trail are complete. The trail is required to:

- provide connections to existing park and recreation facilities,
- create links to existing and proposed transportation facilities, and
- be planned in such a way as to avoid adverse effects on environmentally sensitive areas.

Implementation of the *Bay Trail Plan* will rely on Solano County to on coordinate with the Association of Bay Area Governments, neighboring jurisdictions, property owners, land trusts, and other stakeholders.

Bay Area Ridge Trail Plan

The Bay Area Ridge Trail is envisioned as a more than 500-mile trail in the hills surrounding the San Francisco Bay Area that would serve hikers, trail runners, mountain bikers, and equestrians. The Bay Area Ridge Trail Council is a nonprofit organization that promotes, plans, acquires, builds, and maintains the trail. At the time of writing, 300 miles have been constructed and the council is working with landowners and regional and local government to close existing gaps.

Policies

RS.P-41: Provide trail links and an integrated trail system to connect people to accessible open spaces and to regional trail routes.

RS.P-42: Encourage the use of existing natural and human-made corridors such as creeks, railroad rights of way, and corridors when creating future bike path and trail alignments.

RS.P-43: Support countywide recreation planning.

RS.P-44: Support the provision of public lands for use in a trail network and where private land is necessary for creating connections for bike path or trail alignments. Work collaboratively with property owners to secure easements across private lands.

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RS.P-45: Support the completion of regional trails that link destinations within Solano County and beyond, including the San Francisco Bay Trail, the Bay Area Ridge Trail and *Carquinez Trust Trail Plan*.

RS.P-46: Encourage local farmers and ranchers to incorporate recreational and educational activities that provide visitor-oriented opportunities into agricultural land, in areas deemed appropriate for such opportunities.

RS.P-47: Require recreational uses to be established in a manner compatible with agricultural activities or that minimizes an adverse impact on agriculture.

RS.P-48: Maintain and expand public access and recreational activities within the Suisun Marsh consistent with applicable marsh policies and the protection of wildlife resources.

Implementation Programs

Funding, Physical Improvements, and Capital Projects

RS.I-30:	Acquire land within Suisun Marsh to provide for increased public duck hunting and additional refuge areas for waterfowl during the hunting season. Prioritize acquisition of those lands not now operated as managed wetlands.
Related Policy:	RS.P-48
Agency/Department:	Department of Resource Management
Funding Source:	Grant funds
Time Frame:	Ongoing

RS.I-31:	Seek funding to purchase land for public recreation and access to Suisun Marsh for such uses as fishing, boat launching, nature study, and for scientific and educational uses. These areas should be located on the outer portions of Suisun Marsh near the population centers and easily accessible from existing roads. Improvements for public use should be consistent with protection of wildlife resources.
Related Policy:	RS.P-48
Agency/Department:	Department of Resource Management
Funding Source:	General Fund
Time Frame:	Ongoing

RS.I-32:	Provide and encourage signage on roads leading into Suisun Marsh and maintained litter receptacles at major public use areas to prevent littering and vandalism of public and private property.
Related Policy:	RS.P-48
Agency/Department:	Department of Resource Management
Funding Source:	General Fund
Time Frame:	Ongoing

Ongoing Planning Efforts, Public Outreach and Education

RS.I-33:	Review and consider recommendations under the *Solano Open Space Implementation Strategy*, in coordination with the Solano County Land Trust
Related Policies:	RS.P-41, RS.P-42, RS.P-43, RS.P-44, RS.P-45, RS.P-46, RS.P-47, RS.P-48
Agency/Department:	Department of Resource Management
Funding Source:	General Fund
Time Frame:	Ongoing

RS.I-34: Look for successful examples of regional recreation planning or regional facilities and use those examples to influence future efforts. Such examples could include:

- *Tri-City and County Cooperative Plan for Agriculture and Open Space Preservation;*
- Green Valley Bike Path—a popular trail in Solano County;
- Sonoma County Agricultural and Open Space Preservatin District— a countywide open space district using a variety of tools to acquire land that is used as open space for a variety of reasons, including recreation;
- Marin County Open Space District—a countywide open space district using a variety of tools to acquire land that is used as open space for a variety of reasons, including recreation; and
- East Bay Regional Park District.

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Related Policies: RS.P-41, RS.P-43

Agency/Department: Department of Resource Management

Funding Source: General Fund

Time Frame: Ongoing

RS.I-35: Monitor levels of use in the Suisun Marsh to ensure that use intensity is compatible with other recreation activities and with protection of the Suisun Marsh environment.

Related Policy: RS.P-48

Agency/Department: Department of General Services; State Department of Fish and Game; Suisun Resource Conservation District; Bay Conservation and Development Commission

Funding Source: General Fund

Time Frame: Ongoing

Coordination with Other Agencies and Organizations

RS.I-36: Coordinate with cities, regional organizations, and neighboring counties to prepare a countywide trails plan to complete countywide and regional trail systems. These include pedestrian, bike, and equestrian trails; the regional Bay Area Ridge Trail; and Bay Trail.

Related Policies: RS.P-41, RS.P-42, RS.P-44, RS.P-45, TC.P-25

Agency/Department: Department of Resource Management; Department of General Services

Funding Source: General Fund

Time Frame: Ongoing

ENERGY RESOURCES AND CONSERVATION

This section discusses the identification of energy sources and the conservation and use of energy in Solano County. Other policies related to energy conservation, including land use patterns that decrease automobile use, are located in the Land Use chapter.

Planning Context

Energy resources are essential to achieving a high quality of life for county residents. Residents, workers, and visitors use energy resources in their daily lives in transportation, work, recreation, and relaxation. Transportation-related activities use the most energy, the majority of which is nonrenewable fossil fuels imported from outside the county. Fossil fuels are known to cause air pollution and climate change and are becoming an increasingly expensive and problematic fuel source. To ensure the availability and affordability of energy resources in the future, the County will need to increase the development of renewable energy sources and energy conservation. Solano County has been a leader in renewable energy production and will continue to increase its use of wind, solar, and other alternatives to fossil fuels.

Energy Resources

A variety of existing and potential sources of energy are located in Solano County. This section describes these resources, their roles in the county, and opportunities for development.

Fossil fuels, primarily in the form of gasoline and natural gas, currently produce the majority of the energy used in Solano County. While fossil fuels have been relatively inexpensive and readily available over the last 50 years, prices have increased dramatically over the last few years. Over the life of the General Plan, it is likely that environmental regulations, climate change strategies, national security requirements, and the depletion of the earth's oil reserves may cause fossil fuels to become a substantially more expensive and less viable fuel source. While fossil fuels are currently an important part of Solano's energy sources, alternatives to this type of energy are key to ensuring energy resources for the future.

No power plants powered by fossil fuels are located in Solano County, but three that provide a portion of the county's electricity are nearby. They are the Potrero Power Plant in San Francisco, the Pittsburg Power Plant in Pittsburg, and the Contra Costa County Power Plant in Antioch. All are powered primarily by natural gas.

Natural gas is harvested throughout Solano County and contributes to the economy in various ways. Most of the new gas retrieval is taking place in proven gas fields, though field boundaries are being extended when new drilling proves successful. Natural gas fields in Solano County are located

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in the Denverton Creek field, East Dixon, Lindsey Slough, Van Sickle Island, Elkhorn Slough, Davis Southeast, Saxon, Ryer Island, Suisun Bay, the Rio Vista field and other parts of the county. One substantial natural gas storage area exists in the county at Kirby Hill.

Natural gas is a common fuel for commercial, industrial, and residential uses as well as electricity production. Natural gas is produced in Solano County and throughout California, though the majority is imported from other countries. Natural gas consumption in Solano County and the United States in general is expected to increase as it burns cleaner and causes relatively less-harmful pollution than other fossil fuels like coal and oil. While natural gas reserves are predicted to last slightly longer than oil reserves, natural gas is not a permanent fuel source, contributes to global warming, and cannot increase over the long run.

Though California has not recently experienced a natural gas shortage, the possibility of a shortage exists in the event of a colder-than-average winter, increased demand in other states, or a natural disaster. Both California and Solano County need to expand their ability to determine the adequacy of natural gas infrastructure and likelihood of peak demand spikes in the event of a shortage.

Gasoline is an important source of energy in the county as well, primarily for transit and automobiles. Essentially all of Solano County's petroleum is imported. However, substantial operations for refining petroleum are active in the county, including the Valero refinery in Benicia, and are important contributors to energy production and the local economy. While refinery operations are likely to continue throughout the life of the General Plan, the anticipated decline in fossil fuel production and use will eventually require that more renewable sources of energy production replace both the economic and energy-producing role of the refinery.

Solano County does not currently have a nuclear power plant. Concerns with waste disposal, safety in the event of a disaster, and radiation have made nuclear power unattractive to decision-makers as a source of future energy production; therefore, the County does not encourage the development of nuclear power plants.

Wind energy converts the movement of wind to electricity through mechanical wind turbines. Wind electricity can be generated both on a small scale in agricultural and residential land and on a large scale through wind farms. Climatic conditions have blessed Solano County with excellent wind energy resources, and the county is one of five major utility-scale producers of wind energy in California.

While the county has extensive wind energy resources, numerous environmental concerns remain related to wind turbines. The biggest of these issues is the potential for bats and birds to be caught in the turbines and killed. A number of design improvements which have become standard practice have reduced these potential effects on bat and bird populations.

The County has identified the Collinsville-Montezuma Hills south of SR 12 as the primary wind resource area in the county. Noncommercial accessory wind turbine installations are allowed with a building permit in any agricultural or natural resource zoning district. These types of installations are defined as less than 100 feet in height, with a total rated power output of 100 kilowatts or less. The guidelines and standards found within the General Plan implementation programs are directed at commercial, nonaccessory wind turbine installations. Agricultural lands within the county are particularly appropriate for wind harvesting as turbines generally do not interfere with daily agricultural operations and can provide additional revenue on these properties.

Wind energy development is inappropriate in certain areas of the county, in order to protect public health and safety and natural resources. These areas are urban areas, the Suisun Marsh Primary Management Area, the Stebbins Cold Canyon Natural Area, San Pablo Bay National Wildlife Refuge, and the Jepson Prairie preserve owned by the Solano Land Trust.

In other areas of the county, wind energy development will be processed under the normal use permit procedure. Additional documentation may be required due to lack of existing data. Wind energy development, depending on size and location of the project, may require both wind resource verification and an environmental impact report to meet CEQA requirements. The County incorporates by reference the most up-to-date mapping of wind resource areas available from the California Energy Commission, or subsequent agency, into the General Plan. Applicants seeking permits for commercial wind turbine installations shall be required to demonstrate that the wind resource in their area is adequate using the mapping, wind studies and technology current to their permit application. Any future development of wind energy must be consistent with Airport Land Use Plans and air operations of Travis Air Force Base and the Rio Vista Airport.

Solar energy uses the heat of the sun to produce electricity or to directly heat buildings or water. Solano County has numerous opportunities for the development of solar energy. Some small solar development has occurred throughout the county, including the Solano County Government Center. Solar energy is more practical on a smaller scale as it is space-intensive, and Solano County will continue to promote residential and commercial solar development in the future.

Hydroelectric facilities use rivers, streams, irrigation canals, and water treatment plants to generate electricity. Solano County contains some hydroelectric facilities, though most electricity production occurs at the Monticello Dam. The detrimental environmental effects of large dams make future large hydroelectric projects unlikely, but potential exists for development of additional small-scale hydroelectric projects in the county.

Geothermal power uses heat from below the earth's surface to produce electricity or to heat buildings and water systems. This type of power generation produces very little air pollution, is extremely reliable, and can

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be used on a variety of scales including residential heating systems and large power plants that provide large amounts of electricity.

While geothermal power is currently being used in other parts of California, the potential for its use in Solano County is still largely unknown. Federal and state geologic surveys have not indicated that Solano County possesses any high-temperature resources useful for geothermal power production, but the potential for the discovery of geothermal resources remains.

Transformation projects, also known as resource recovery projects or "waste-to-energy" development, convert agriculture byproducts and municipal wastes to fuel or electricity. The transformation projects' primary purpose is to dispose of waste, but as waste decomposes, it releases a variety of gases that can be harvested for energy. Solano County currently produces large volumes of agricultural byproducts, much of which are disposed of by open burning. Transformation plants could be an alternative method of disposal, which would be beneficial in energy production and in the reduction of emissions associated with open burning.

Energy Efficiency Programs

Increasing efficiency, along with producing more renewable sources of energy, will assist the county in reducing its reliance on fossil fuels. The County has taken steps toward energy conservation in the construction of green County buildings such as the Solano County Government Center. Additional steps include reducing energy consumption in all new and existing residential, commercial, and industrial development. Conservation is best achieved by reducing electricity use through energy efficient appliances, solar orientation of buildings, and reduction in private automobile use through land use and transportation policies that encourage fewer and shorter vehicle trips. Energy conservation has numerous benefits beyond environmental stewardship, including financial savings for individual businesses and families.

Related Plans, Programs, and Agencies

The California Legislature has become increasingly interested in reducing the emissions from burning fossil fuels. Assembly Bill 32, passed in 2006, requires that California reduce carbon dioxide emissions to 1990 levels by 2020. While this legislation has profound energy implications, it has left many of the details of implementation to local jurisdictions and the private sector. Energy conservation measures and renewable energy sources will help Solano County to do its part to fulfill the requirements of Assembly Bill 32. A variety of state and national programs are relevant to reducing Solano County's energy use, and to developing renewable energy. These programs are referenced in the "Policies" and "Implementation Programs" sections.

Title 24

Title 24 in the California Code of Regulations delineates energy efficiency standards for residential and nonresidential buildings. The standards are updated periodically to incorporate new energy-efficient building technologies and methods.

Energy Star

Energy Star is a joint program of the United States Environmental Protection Agency and the Department of Energy. The program establishes criteria for energy efficiency for household products and labels energy efficient products with the Energy Star seal. Homes can be qualified as Energy Star homes as well if they meet efficiency standards. In California, Energy Star homes must use at least 15 percent less energy than the Title 24 regulations, pass the California Energy Star Homes Quality Insulation Installation Thermal Bypass Checklist Procedures, have Energy Star windows, and have minimal duct leakage.

Leadership in Energy and Environmental Design

Leadership in Energy and Environmental Design (LEED) is a program of the United States Green Building Council. Green buildings are LEED certified based on criteria for energy efficiency, environmental design, indoor environmental quality, water savings, and materials selection.

Community Choice Aggregation

Community Choice Aggregation permits any jurisdiction to aggregate the electric loads of residents, businesses, and public facilities to facilitate the purchase and sale of electrical energy, while each customer is given an opportunity to leave their community's aggregation program and thereby continue to be served by the incumbent distribution utility. The establishment of a Community Choice Aggregation program allows a jurisdiction greater choice in the source of its power, allows the purchase of renewable energy to increase, and does not necessarily increase the cost of electricity for its constituents.

Policies

RS.P-49:	Ensure energy conservation and reduced energy demand in the county through required use of energy-efficient technology and practices.
RS.P-50:	Provide incentives for city and county residents and businesses to produce and use renewable sources of energy.
RS.P-51:	Promote Solano County as a model for energy efficiency and green building.

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RS.P-52: Ensure adequate and affordable supplies of energy to meet the energy needs of the county.

RS.P-53: Enable renewable energy sources to be produced from resources available in Solano County, such as solar, water, wind, and biofuels to reduce the reliance on energy resources from outside the county.

RS.P-54: Reduce Solano County's reliance on fossil fuels for transportation and other energy-consuming activities.

RS.P-55: Require responsible extraction, storage, and transportation of natural gas resources that minimize the impact on the natural environment.

RS.P-56: Provide information, marketing, training, and education to support reduced energy consumption, the use of alternative and renewable energy sources, green building practices, recycling, and responsible purchasing.

RS.P-57: Encourage the use of technology or siting to minimize adverse impacts from energy production facilities on the environment, including wildlife and agricultural resources.

RS.P-58: Require the siting of energy facilities in a manner compatible with surrounding land uses and in a manner that will protect scenic resources.

RS.P-59: Encourage on-site renewable energy production and use and energy conservation measures.

Implementation Programs

Regulations

RS.I-37: Amend and maintain the Zoning Ordinance to guide the siting of commercial, nonaccessory wind turbine installations. Include the following standards into the ordinance:

- Require a minimum setback of 1,000 feet or three times total turbine height, whichever is greater, from a dwelling unit, residential building site, or land zoned for residential uses.

- Require a minimum setback of three times total turbine height from any zoning district (other than residential) which does not allow wind turbines.

- Require a minimum setback of three times total turbine height from any property line, public

roadway, transmission facility, or railroad. This minimum setback may be waived in the case of wind farms located on adjacent parcels, provided an agreement has been reached between the neighboring property owners.

- Require a setback of 1/4 mile from the right-of-way of any scenic roadway.

- In the Cordelia Hills, wind energy development shall be set back to those areas which are beyond the sight of existing residential neighborhoods and areas planned for residential development, and set back to areas beyond view from I-80 and I-680. No turbine shall be sited within this zone.

- Define noncommercial wind energy generators as "wind-driven machines" that convert wind energy into production of electrical power for the primary purpose of on-site use and not for resale, that are 100 feet or less in height, and that have a total rated power output of 100 kilowatts or less.

- Establish a procedure for plan check and testing of wind electric generators prior to use permit or building permit approval. Certification of all detailed plans for electrical systems, electrical substations, support towers, and foundations by California licensed professional engineers shall be required. Performance testing of wind turbine generators shall be required to ensure against catastrophic failure.

- Include commercial wind turbine development as a permitted use in the following zone districts:

  - Exclusive Agricultural (A)
  - Limited Agricultural (A-L)
  - Water-Dependent Industrial (r-WD)
  - Limited Manufacturing (M-L)
  - General Manufacturing (M-G)
  - Watershed and Conservation (W)

- Non-commercial wind energy development shall be allowed in districts as currently provided for in the ordinance.

Related Policies: RS.P-22, RS.P-37

Agency/Department: Department of Resource Management

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Funding Source: General Fund

Time Frame: By 2011

RS.I-38: Require all new and remodeled residential, commercial, industrial, institutional, and civic construction to exceed current (2008) Title 24 state energy-efficiency requirements by at least 20 percent, and require that all new residential homes and major renovations comply with the guidelines for the California Energy Star Homes Program. If the state increases the requirements of Title 24, examine the feasibility of increasing County energy efficiency requirements. Adopt an energy efficiency ordinance that requires upgrades as a condition of issuing permits for substantial remodels or additions. Require disclosure of the energy consumption of a home during the sale or lease of a residence or building.

Related Policies: PF.P-3 RS.P-49, RS.P-50, RS.P-51, RS.P-52, RS.P-54, RS.P-56

Agency/Department: Department of Resource Management

Funding Source: General Fund

Time Frame: By 2011

RS.I-39: Restrict construction and drilling in tidal marsh and managed wetland areas to occur only during the dry months of the years to ensure these activities will not disturb wintering waterfowl.

Related Policies: RS.P-57, RS.P-58

Agency/Department: Department of Resource Management

Funding Source: General Fund

Time Frame: Ongoing

Funding, Physical Improvements, and Capital Projects

RS.I-40: Require all County operations to use renewable energy for 50 percent or more of their energy needs.

Related Policies: RS.P-51, RS.P-57

Agency/Department: Department of Resource Management

Funding Source: General Fund

Time Frame: Ongoing

RS.I-41: Require that all new County buildings and major renovations and additions achieve LEED certification or meet equivalent performance standards. A LEED Silver certification level and reduced operational costs are preferred outcomes.

Related Policies: RS.P-49, RS.P-50, RS.P-51, RS.P-52, RS.P-54, RS.P-56

Agency/Department: Department of General Services

Funding Source: General Fund

Time Frame: Ongoing

RS.I-42: Replace existing County vehicles with alternative fuel vehicles such as electric, hybrids, natural gas, and fuel cell powered vehicles. New County vehicles must be alternative fuel vehicles.

Related Policies: RS.P-49, RS.P-50, RS.P-51, RS.P-52, RS.P-54, RS.P-56

Agency/Department: Department of General Services

Funding Source: General Fund

Time Frame: Ongoing

RS.I-43: Seal abandoned gas wells in accordance with Division of Oil and Gas regulations. Remove the drilling or production facilities and revegetate the surface area with native vegetation within one growing season after abandonment.

Related Policies: RS.P-55

Agency/Department: Department of Resource Management

Funding Source: Project Applicants

Time Frame: Ongoing

RS.I-44: Partner with community services agencies to fund energy efficiency projects, including heating, ventilation, air conditioning, lighting, water heating equipment, insulation, and weatherization for low-income residents.

Related Policies: RS.P-49, RS.P-50, RS.P-59

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Agency/Department: Department of Resource Management

Funding Source: General Fund, community services agencies

Time Frame: Ongoing

RS.I-45: Execute an Energy Savings Performance Contract with a private entity to retrofit public buildings. This type of contract allows the private entity to fund all energy improvements in exchange for a share of the energy savings over a period of time.

Related Policies: RS.P-49, RS.P-51, RS.P-59

Agency/Department: Department of Resource Management

Funding Source: General Fund

Time Frame: Ongoing

Development Review

RS.I-46: Require residential development of more than six units to participate in the California Energy Commission's New Solar Homes Partnership and to construct LEED-certified units or meet equivalent performance standards. For new affordable housing projects, performance standards shall be established pursuant to the requirements of the funding source(s). Require new construction or major renovation of commercial and industrial buildings over 10,000 square feet in size to incorporate renewable energy generation to provide the maximum feasible amount of the project's energy needs. Commercial buildings shall incorporate renewable energy generation to provide at least 20 percent of the project's needs.

Related Policies: RS.P-50, RS.P-59

Agency/Department: Department of Resource Management

Funding Source: Project Applicants

Time Frame: Ongoing

RS.I-47: Require the use of Energy Star rated appliances and the most energy-efficient Energy Star rated water heaters and air conditioning systems that are feasible in the construction of new homes, in all substantial remodels when appliances are being replaced, and in any case where a permit is

needed to install or replace appliances (e.g., water heaters, air conditioning).

Related Policy: RS.P-49

Agency/Department: Department of Resource Management

Funding Source: Project Applicants

Time Frame: Ongoing

RS.I-48: Require all commercial, institutional, and industrial development to reduce potential urban heat island effect by using U.S. EPA–Energy Star rated roofing materials and light colored paint, using light colored paving materials for internal roads and parking, and using shade trees to shade south and west sides of new or renovated buildings and to achieve a minimum of 50 percent shading for all parking lots surfaces. Continue to ensure compliance with existing state building requirements for energy-conserving roofing materials on nonresidential buildings in new construction and reroofing. Amend the County Zoning Ordinance to encompass these requirements.

Related Policy: RS.P-49

Agency/Department: Department of Resource Management

Funding Source: Project Applicants

Time Frame: By 2011

RS.I-49: Require all off-road diesel powered vehicles used for construction to be newer model, low-emission vehicles, or use retrofit emission control devices, such as diesel oxidation catalyst and diesel particulate filters verified by the California Air Resources Board.

Related Policy: RS.P-54

Agency/Department: Department of Resource Management

Funding Source: Project Applicants

Time Frame: Ongoing

RS.I-50: During review of wind turbine generator proposals, consider the following:

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- Wind turbine generators shall not be located in areas that conflict with the mission of Travis Air Force Base or other air operation facilities.

- Commercial turbines and non-commercial turbines over 100 feet in height or with a total rated power output of more than 100 kilowatts in designated wind resource areas require a public hearing and use permit approval by the Planning Commission.

- Following use permit approval, building permits and grading permits are required. Non-commercial turbines 100 feet or less in height and 100 kilowatts or less in rated power output require only building permits and grading permits.

- Submittal requirements for use permit applications within the wind resource areas include the following:

  - Permit application

  - Project description form (requires information on size and characteristics of project, physical and performance specifications of equipment, transmission system, certification, project schedule and phasing, circulation, and access).

  - Acoustical analysis

  - Archaeological survey

  - Geotechnical report (must correlate to standard County requirements for geotechnical analysis)

  - Site plan

  - Elevation package (elevation drawings to scale of proposed turbines and accessory uses).

  - Notification of the Federal Aviation Administration of any application with wind turbines over 200 feet in height within 20,000 feet of a runway of any airport.

  - Notification of the utility and the California Public Utilities Commission of application filing.

- Notification of application filing to microwave communications link owners within 2 miles of the proposed installation.

- Adjacent property owner's notification package.

- Current aerial photographs or panoramic photographs of the site.

- Evidence of liability and workers compensation insurance.

- Map locating all residences within 2 miles of the proposed project.

- Certification of detailed plans for electrical systems and transmission lines, substation, support towers, generators, and foundations by California licensed professional engineers (electrical, civil, and structural).

- Performance test documentation by a licensed engineer for all proposed turbine types.

- Contribution to escrow account for removal of inoperable or unsafe wind equipment and associated uses, including foundations.

- Following review of the applicant's site plan by County planning staff, a biological assessment would be required if it is determined that sensitive biological resources identified by the Resource Conservation Overlay (Figure RS-2) could be affected by the proposed project. If the proposed wind turbine siting would fall within or near areas of sensitivity, additional biological assessment of the probable impacts of the project would be required as part of the permit application. Findings of the biological assessment would determine need for biological resource monitoring and mitigation for protection of biological resources. For projects proposed in areas of low biological sensitivity, no additional biological information would be required.

Submittal requirements for building permit and grading permit applications shall be as follows:

- Completed permit application.

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- Detailed plans and specifications for structures, foundations, electrical systems, certified by a California licensed professional engineer. Plans will be checked for compliance with such codes as the Uniform Building Code, the National Electrical Code, and applicable ANSI and IEEE standards.

- Grading and erosion, sediment, and runoff control plans.

  - A standard set of minimum conditions would apply to every permit approval. These conditions could be modified or added to at the discretion of Resource Management Department staff, Planning Commission, or Board of Supervisors.

Additional environmental information beyond that required for permit processing would not be required for projects proposed within wind resource areas south of SR 12 in the Montezuma Hills.

In addition to the required safety setbacks, applicants would be required to demonstrate that the CNEL 50 influence area of proposed wind turbines would not coincide with residential areas or individual dwelling units. No turbines which exhibit high infrasonic noise generation potential would be permitted within one mile of residential uses or land zoned for residential uses.

The Zoning Ordinance should require a bond or other guarantee, such as a contribution to an escrow account, for removal of inoperable or unsafe wind equipment and associated uses, including foundations, after use permit approval.

Related Policies: RS.P-22, RS.P-50, RS.P-52, RS.P-53, RS.P-54, RS.P-56, RS.P-57, RS.P-58

Agency/Department: Department of Resource Management

Funding Source: General Fund

Time Frame: Ongoing

RS.I-51: Adopt a County "green building program." Require all new and renovated commercial, office, and institutional buildings over 10,000 square feet in size to achieve LEED certification, or meet equivalent performance standards. Amend the County Zoning

	Ordinance to encompass these green building requirements. Provide permitting-related and other incentives for building projects that exceed the County's energy efficiency standards by greater than 5 percent.
Related Policies:	RS.P-49, RS.P-50, RS.P-51, RS.P-52, RS.P-54, RS.P-56
Agency/Department:	Department of Resource Management
Funding Source:	General Fund
Time Frame:	Ongoing

RS.I-52:	Require that development projects use landscaping and site design techniques that minimize energy use. These may include designing landscaping to shield or expose structures to maximize energy conservation or acquisition; and taking advantage of orientation, sun-shade patterns, prevailing winds, landscaping, and sunscreens. Amend development standards to require such techniques.
Related Policies:	RS.P-49, RS.P-50, RS.P-51, RS.P-52, RS.P-54, RS.P-56
Agency/Department:	Department of Resource Management
Funding Source:	Project Applicant
Time Frame:	Ongoing

RS.I-53:	Review studies and reports and incorporate recommended standards and guidelines to reduce bird and bat mortality rates. These guidelines may include new technology or alternative siting of turbines. The standards and guidelines shall incorporate the California Energy Commission's *Guidelines for Reducing Impacts to Birds and Bats from Wind Energy Development* or any superseding guidelines and recommendations of the energy and wildlife resource agencies for wind power projects.
Related Policies:	RS.P-50, RS.P-52, RS.P-53, RS.P-54, RS.P-56, RS.P-57, RS.P-58
Agency/Department:	Department of Resource Management
Funding Source:	General Fund
Time Frame:	Ongoing

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RS.I-54:	Provide safeguards and require compliance for the production, injection, and drilling of natural gas deposits.
Related Policies:	RS.P-50, RS.P-55, RS.P-56, RS.P-57
Agency/Department:	Department of Resource Management
Funding Source:	General Fund
Time Frame:	Ongoing

RS.I-55:	Require the design and orientation of all buildings to maximize passive solar heating during cool seasons, avoid solar heat gain during hot periods, enhance natural ventilation, and promote effective use of daylight. Orientation should optimize opportunities for on-site solar generation.
Related Policies:	RS.P-49, RS.P-51, RS.P-56, RS.P-59
Agency/Department:	Department of Resource Management
Funding Source:	General Fund
Time Frame:	Ongoing

RS.I-56:	Where feasible, include appropriate facilities in new buildings to support the use of low/zero carbon fueled vehicles. This may include charging stations for electric vehicles which use green electricity sources.
Related Policies:	RS.P-50, RS.P-54, RS.P-59
Agency/Department:	Department of Resource Management
Funding Source:	General Fund
Time Frame:	Ongoing

Ongoing Planning Efforts, Public Outreach and Education

RS.I-57:	Investigate the feasibility of using solar (photovoltaic) streetlights instead of conventional streetlights.
Related Policy:	RS.P-49
Agency/Department:	Department of Resource Management
Funding Source:	General Fund
Time Frame:	By 2011

RS.I-58:	Protect the viability of renewable energy generation within the county by protecting resources such as solar access on buildings and high value wind energy sites. Facilitate the development of renewable energy generation in the county through the provision of streamlined permitting processes.
Related Policies:	RS.P-50, RS.P-53, RS.P-56
Agency/Department:	Department of Resource Management
Funding Source:	General Fund
Time Frame:	Ongoing

RS.I-59:	Promote public awareness of energy conservation and efficiency through the development of a publicity program. This program shall include information describing how residents can retrofit existing homes for increased energy efficiency. Encourage the use of low-carbon and renewable fuels and zero emissions technologies.
Related Policies:	RS.P-49, RS.P-50, RS.P-51, RS.P-52, RS.P-54, RS.P-56
Agency/Department:	Department of Resource Management
Funding Source:	General Fund
Time Frame:	Ongoing

RS.I-60:	Conduct studies that identify methods to expand renewable energy production in the county. Methods may include incentives such as expedited permit processing, reduced fees, and technical assistance to encourage energy-efficiency technology, research and practices.
Related Policies:	RS.P-50, RS.P-52, RS.P-53, RS.P-54, RS.P-56
Agency/Department:	Department of Resource Management; Department of General Services
Funding Source:	General Fund
Time Frame:	By 2011

RS.I-61:	Investigate the feasibility and benefit of establishing a Community Choice Aggregation program by analyzing energy production costs and by establishing a stakeholder advisory group.

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Related Policies: RS.P-49, RS.P-50, RS.P-51, RS.P-52, RS.P-54, RS.P-56

Agency/Department: Department of General Services

Funding Source: General Fund

Time Frame: Ongoing

RS.I-62: Ensure that natural gas storage facilities meet all safety standards of the Division of Oil and Gas.

Related Policy: RS.P-55

Agency/Department: Department of Resource Management

Funding Source: General Fund

Time Frame: Ongoing

RS.I-63: Require energy and water efficiency audits for new construction or substantial remodels of commercial, industrial, and institutional buildings. Examine existing usage and potential reductions related to heating, ventilation, air conditioning, lighting, water heater equipment, insulation, weatherization, and water usage by buildings and landscaping. Require energy and water audits of all County buildings.

Related Policies: RS.P-50, RS.P-54, RS.P-59

Agency/Department: Department of Resource Management

Funding Source: General Fund

Time Frame: Ongoing

COMMUNITY SEPARATORS

Planning Context

Numerous communities in Solano County have expressed a common desire to maintain a distinct sense of identity and to remain physically separated from other cities. Community separators are an effective means of achieving this goal. All the cities in the county, as well as some neighboring communities, have established agreements and plans in order to maintain land between communities in open space and agricultural uses.

In addition, the County has created the Agricultural Reserve Overlay to contribute to the cities' efforts. The intent of the overlay is to preserve the valued agricultural landscapes that exist in the areas between Vacaville

and Dixon and between Dixon and Davis by encouraging private landowners to voluntarily participate in land conservation. A community separator between Benicia, Vallejo, and Fairfield is similarly maintained through provisions of the Tri-City Cooperative Planning Area overlay.

The Agricultural Resource Overlay designation will serve as an agricultural mitigation bank for development projects subject to County and city agricultural mitigation programs. Projects affecting agricultural resources in other areas of the county or in participating cities could mitigate this impact by paying in-lieu fees used to purchase agricultural easements from willing landowners within the overlay area. Easements would be held by the County, cities, or relevant land trusts, while the landowner maintains ownership and management control.

The Agricultural Resource Overlay will help facilitate the County's various farmland protection goals identified in the Agriculture Chapter, and will help maintain scenic resources along the Interstate 80 corridor. The overlay will also assist the cities' existing agriculture, open space, and urban growth management efforts.

Related Plans, Programs, and Agencies

As mentioned previously, the cities in the county have engaged in plans and agreements to maintain land in open space and agricultural uses. These programs are described below.

Vacaville-Dixon Greenbelt

The Vacaville-Dixon Greenbelt Authority was established in 1995. The purpose of the greenbelt is to guarantee that certain lands located between the two cities remains an agricultural landscape in perpetuity. The greenbelt is implemented through acquisition from willing sellers and resale of the properties with a permanent conservation easement. A joint powers agreement ensures the preservation of the land.

Vacaville-Fairfield Greenbelt

Vacaville and Fairfield have adopted policies to create a community separator between the two cities. This area is governed by the Vacaville-Fairfield-Solano Greenbelt Authority. The aim of the separator is to establish a permanent, one-mile-wide, open space greenbelt that serves as a community separator, a setting for recreational activities, a buffer between agricultural and urban areas, and as an ultimate limit for urban growth.

Tri-City and County Cooperative Plan for Agriculture and Open Space Preservation

Benicia, Fairfield, Vallejo, and Solano County have jointly created the TriCity and County cooperative Planning Group which prepared and approved *the Tri-City and County Cooperative Plan for Agriculture and*

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Open Space Preservation. The plan aims to create a physical and visual separation between the three involved cities. The plan was created in response to concerns of encroaching development, the loss of agricultural lands, and the diminishing separation between communities. The cities and County created policies and implementation programs that address these issues and support the protection of the planning area's agricultural, biological, and scenic resources.

Dixon-Davis Greenbelt

The cities of Dixon and Davis (Yolo County), the Solano Land Trust, and federal and state agencies have entered into a partnership with the goal of permanently protecting the prime farmlands and scenic resources of the area located between the two cities.

Vallejo-Benicia Separator

The cities of Vallejo and Benicia established by agreement a separator between these two cities. This area includes Benicia State Park and an open space corridor running north of Interstate 780 and Columbus Parkway.

Policies

RS.P-60:	Work with cities to maintain open space separators around cities to preserve their identity and character.
RS.P-61:	Retain rural character in areas between cities by promoting agricultural uses within community separators.
RS.P-62:	Retain community separators of sufficient size to ensure the continued economic sustainability of areas in productive agricultural use.
RS.P-63:	Encourage cities to maintain defined community separators in appropriate productive agricultural or open space use.

Implementation Programs

Regulations

RS.I-64:	Amend the Zoning Ordinance to implement the Agricultural Resource Overlay. This area is used to delineate those areas of special concern where agricultural lands are subject to the greatest development pressure. This overlay should be combined with a program to direct agricultural mitigation efforts toward these areas.
Related Policies:	RS.P-60, RS.P-61, RS.P-63

Agency/Department: Department of Resource Management

Funding Source: General Fund

Time Frame: Amend by 2011, Ongoing

Coordination with Other Agencies and Organizations

RS.I-65: Participate with cities and special districts in establishing agreements that delineate community separators. Support agreements that are already in place. Existing agreements and programs include the following:

- Tri City/County Agriculture and Open Space program
- Vacaville-Fairfield Greenbelt
- Vacaville-Dixon Greenbelt
- Dixon-Davis Greenbelt
- Vallejo-Benicia Separator

Related Policy: RS.P-60

Agency/Department: Department of Resource Management; cities

Funding Source: General Fund

Time Frame: Ongoing

WATER RESOURCES AND QUALITY

Planning Context

Water is a resource of great importance to the County's economy, its natural systems, and to residents' quality of life. Solano County has diverse surface and groundwater resources. Appropriate management of these critical resources is achieved via three strategies: watershed protection, preservation and improvement of water quality, and efficient management of water supply and demand. Watershed protection involves safeguarding the recharge and filtering capacities of undisturbed natural areas. Water quality can be protected by incorporating low-impact development techniques and other best management practices into new development projects or by retrofitting the existing urban landscape. Using appropriate agricultural practices can also benefit water quality and aquatic ecosystems. As urban populations grow, balancing water supply and demand becomes increasingly important. Policies that address efficient water use at the residential, commercial,

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and municipal level can greatly improve the county's future water security.

Groundwater Resources

Before completion of the Solano Project in 1959, groundwater was extensively used in Solano County both for municipal supplies and for agriculture. The Solano Project refers to the water supply created by a federal dam project and stored in Lake Berryessa. One of the main reasons for the development of the Solano Project was to correct the groundwater overdraft occurring in some agricultural areas. Once the Solano Project started making agricultural water deliveries, groundwater levels rebounded. In general, the county's groundwater levels are stable, dropping in dry years, and rebounding in wet years. The Cities of Rio Vista and Dixon are still served exclusively with groundwater from basins under the cities. Vacaville gets approximately one-third of its municipal water supply from groundwater located under the city. Most of the growers within the Solano Irrigation District, Maine Prairie Water District, and Reclamation District No. 2068 use surface water. Growers outside of districts that provide surface water rely entirely on groundwater. Most rural residential landowners have individual shallow groundwater wells that serve their domestic needs. Some small rural residential water systems also distribute groundwater to their customers. Isolated concerns about groundwater supplies in the area north of Vacaville prompted the formation of the Rural North Vacaville Water District.

Surface Water Resources

Solano County has a variety of surface water resources including creeks, drainages, sloughs, marshes, and extensive infrastructure for delivering water for irrigation and municipal uses. Through the Solano Project, Putah Creek and Lake Berryessa provide the majority of the county's surface water for urban and agricultural consumption. The Suisun Marsh and other marshlands located along the Bay-Delta play an important role in maintaining and protecting water quality for human and natural communities. Intact riparian corridors are also important resources in the county for the protection of water quality in urban and rural areas. Even so, many of the county's water bodies have been identified by federal and state agencies as not meeting mandated water quality standards for total maximum daily loads (TMDLs) of certain pollutants. Of particular concern are the water bodies with high levels of pesticide (diazinon), Polychlorinated biphenyls (PCB), and mercury pollutants.

Numerous water-related issues face the County and its residents, farms, and businesses. Allocation of this scarce resource is at the heart of two important challenges facing the County. Providing adequate quantities of water to ensure the viability of endangered species and aquatic and riparian habitat will remain a crucial aspect of water management plans and operations. Of particular importance are the water transfers to the North Bay Aqueduct and the resulting impact on delta smelt and the Solano Water Project allocations for the maintenance of salmonid species in Putah Creek.

A second issue facing the County is the potential for decreased water availability for human consumption that may result from the previously discussed allocations for environmental enhancement and habitat protection. Reduced water supply could affect water supply reliability, which in turn could impact the County's ability to support proposed land uses. Many of the potential strategies to increase water supply in the county are tied to statewide water issues, where similar uncertainty and conflicts exist.

Other water related issues include improving water quality in the North Bay Aqueduct, modernizing Solano Water Project infrastructure, and improving water demand management estimates by coordinating the Solano County Water Agency's future plans with city and County general plan population projections.

Related Plans, Programs, and Agencies

Solano County Water Agency

Solano County Water Agency (SCWA) was established in 1951 to provide untreated water to water service agencies in Solano County from the federal Solano Project and the North Bay Aqueduct of the State Water Project. SCWA is responsible for delivering water to water service agencies and monitoring efforts to mitigate stormwater runoff. SCWA requires the cities in Solano County to adequately mitigate the impacts of stormwater runoff from development projects.

State Water Resources Control Board

The State Water Resources Control Board (SWRCB) was created by the California Legislature in 1967. The mission of the SWRCB is to ensure the highest reasonable quality for waters of the state, while allocating those waters to achieve the optimum balance of beneficial uses. The joint authority of water allocation and water quality protection enables the SWRCB to provide comprehensive protection for California's waters.

Nine regional water quality control boards work under the SWRCB to develop and enforce water quality objectives and implementation plans that will best protect the beneficial uses of the state's waters. Each RWQCB recognizes local differences in climate, topography, geology, and hydrology. Solano County is within the jurisdiction of the San Francisco Bay RWQCB and the Central Valley RWQCB.

Regional Water Quality Control Board

State water quality is regulated/administered by the SWRCB and its nine RWQCBs. Solano County is within the jurisdiction of the San Francisco Bay RWQCB and the Central Valley RWQCB. The state and RWQCBs also maintain independent regulatory authority over the placement of waste, including fill, into waters of the state under the Porter-Cologne Water Quality Control Act. See Figure PF-2 in Chapter 8 for a map of the RWQCBs.

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Section 10 Rivers and Harbors Act of 1899

Section 10 of the Rivers and Harbors Act of 1899 requires authorization from the Secretary of the Army, acting through the U.S. Army Corps of Engineers, for the construction of any structure in or over any navigable water of the United States.

In general, activities regulated under Section 10 of the Rivers and Harbors Act are similar to Section 404 of the Clean Water Act, but the geographic extent of jurisdiction is much more restricted and is limited to identified navigable waters of the United States. In Solano County, navigable waters are limited to the current and historic (as of 1899) tidal channels in Suisun Bay, Suisun Marsh, the Delta, and the Sacramento River.

National Pollutant Discharge Elimination System

In 1972, the Clean Water Act was amended to make the discharge of pollutants to waters of the United States from any point source unlawful unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. In California, the Environmental Protection Agency delegates much of the implementation of the Clean Water Act to the SWRCB. NPDES permits cover industrial and municipal discharges, discharges from storm sewer systems in larger cities, stormwater associated with numerous kinds of industrial activity, runoff from construction sites, and developments disturbing more than 1 acre of soil, mining operations, and animal feedlots and agricultural facilities above certain thresholds. Permits require the preparation of a storm water pollution prevention plan. This is an operational plan that identifies and describes the best management practices to be implemented to reduce impacts on water quality and aquatic habitat.

Solano County's Storm Water Management Plan (SWMP) is consistent with NPDES requirements and procedures. The SWMP establishes a process for the review of development site plans to address long-term water quality issues and impacts associated with the proposed land uses following construction.

Wastewater discharges from wastewater treatment plants are also required to have an NPDES permit. The findings of the NPDES permit process provide information about recommended treatment plant design and operations, beneficial uses to be protected, and applicable standards.

Federal Clean Water Act

The federal Clean Water Act, administered by the Environmental Protection Agency, employs a variety of regulatory and nonregulatory tools to reduce pollutant discharges into waterways, finance municipal wastewater treatment facilities, and manage polluted runoff. These tools are employed to achieve a broader goal of restoring and maintaining the chemical, physical, and biological integrity of the nation's waters so that

they can support the protection and propagation of fish, shellfish, and wildlife.

Section 401 of the Clean Water Act requires an applicant to obtain certification for any activity that may result in a discharge of a pollutant into waters of the United States. The RWQCB also plays a role in review of water quality and wetland issues, including avoidance and minimization of impacts. Solano County is within the jurisdiction of the San Francisco Bay RWQCB and Central Valley RWQCB.

Under Section 404 of the Clean Water Act, the U.S. Army Corps of Engineers has jurisdiction over wetlands and waters of the United States. Permitting of activities that could discharge fill or dredge materials or otherwise adversely modify wetlands or other waters of the United States and associated habitat is required. Permits authorized by the U.S. Army Corps of Engineers under the act typically involve mitigation to offset unavoidable impacts on wetlands and other waters of the United States in a manner that achieves no net loss of wetland acres or values.

Section 303(d) of the Clean Water Act requires states to develop lists of water bodies (or segments of water bodies) that will not attain water quality standards after implementation of minimum required levels of treatment by point source dischargers (e.g., municipalities and industries). Section 303(d) requires states to develop TMDL for each of the listed pollutants and water bodies. A TMDL is the amount of loading that the water body can receive and still meet water quality standards.

Urban Water Management Planning Act (Senate Bill 318)

Each urban water supplier in California is required to prepare an Urban Water Management Plan (UWMP) and update the plan on or before December 31 in years ending in 5 and 0, pursuant to California Water Code Sections 10610–10657.

Amendments to SB 318 have focused on ensuring that the UWMP emphasizes and addresses drought contingency planning, water demand management, reclamation, and groundwater resources. Under the current law, all urban water suppliers with more than 3,000 service connections or water use of more than 3,000 acre-feet per year are required to submit a UWMP to the California Department of Water Resources every 5 years.

Senate Bill 610

SB 610 became active January 1, 2002. The purpose of SB 610 is to strengthen the process by which local agencies determine whether current and future water supplies are adequate and sufficient to meet current and future demand. SB 610 amended the California Public Resources Code to incorporate Water Code requirements within the CEQA process for certain types of projects. SB 610 also amended the Water Code to broaden the types of information included in an UWMP (Water Code Section 10610 et seq.).

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Water Code Part 2.10

Water Code Part 2.10 clarifies the roles and responsibilities of the lead agency under CEQA and the water supplier (i.e., the public water system) with respect to describing current and future supplies compared to current and future demand. It also defines the projects for which a water supply assessment (WSA) must be prepared as well as the responsibilities of the lead agency related to the WSA. A WSA is required for:

- proposed residential developments of more than 500 dwelling units;
- proposed shopping centers or business establishments employing more than 1,000 persons or having more than 500,000 square feet of floor space;
- proposed commercial office buildings employing more than 1,000 persons or having more than 250,000 square feet of floor space;
- proposed hotels or motels, or both, having more than 500 rooms;
- proposed industrial, manufacturing, or processing plants, or industrial parks planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area;
- mixed-use developments that include one or more of the uses described above;
- developments that would demand an amount of water equivalent to or greater than the amount of water required by a 500-dwelling-unit project; and
- for lead agencies with fewer than 5,000 water service connections, any new developments that will increase the number of water service connections in the service area by 10 percent or more.

Under Part 2.10, the lead agency must identify the affected water supplier and ask the supplier whether the new demand associated with the project is included in the supplier's UWMP. If the UWMP includes the demand, it may be incorporated by reference in the WSA (Water Code Section 10910[c][2]). If no public water system exists to serve the project, the lead agency must prepare the WSA itself (Water Code Section 10910[b].).

Senate Bill 221

SB 221 requires a county or city to include, as a condition of approval of any tentative map, parcel map, or development agreement for certain

residential subdivisions, a requirement that a "sufficient water supply" be available. Proof of a sufficient water supply must be based on a written verification from the public water system that would serve the development.

Policies

RS.P-64: Identify, promote, and seek funding for the evaluation and remediation of water resource or water quality problems through a watershed management approach. Work with the regional water quality control board, watershed-focused groups, and stakeholders in the collection, evaluation and use of watershed-specific water resource information.

RS.P-65: Require the protection of natural water courses.

RS.P-66: Together with the Solano County Water Agency, monitor and manage the county's groundwater supplies.

RS.P-67: Encourage new groundwater recharge opportunities.

RS.P-68: Protect existing open spaces, natural habitat, floodplains, and wetland areas that serve as groundwater recharge areas.

RS.P-69: Preserve and maintain watershed areas characterized by slope instability, undevelopable steep slopes, high soil erosion potential, and extreme fire hazards in agricultural use. Watershed areas lacking water and public services should also be kept in agricultural use.

RS.P-70: Protect land surrounding valuable water sources, evaluate watersheds, and preserve open space lands to protect and improve groundwater quality, reduce polluted surface runoff, and minimize erosion.

RS.P-71: Ensure that land use activities and development occur in a manner that minimizes the impact of earth disturbance, erosion, and surface runoff pollutants on water quality.

RS.P-72: Preserve riparian vegetation along county waterways to maintain water quality.

RS.P-73: Use watershed planning approaches to resolve water quality problems. Use a comprehensive stormwater management program to limit the quantity and increase the water quality of runoff flowing to the county's streams and rivers.

RS.P-74: Identify naturally occurring and human-caused contaminants in groundwater in new development

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projects and develop methods to limit and control contaminants. Work with RWQCB to educate the public on evaluating the quality of groundwater.

RS.P-75: Require and provide incentives for site plan elements (such as permeable pavement, swales, and filter strips) that limit runoff and increase infiltration and groundwater recharge.

RS.P-76: Promote sustainable management and efficient use of agricultural water resources.

Implementation Programs

Regulations

RS.I-66:	Establish development standards that maximize retention of runoff and regulate development to avoid pollution of storm water, water bodies, and groundwater.
Related Policies:	RS.P-71, RS.P-73, RS.P-74, RS.P-75
Agency/Department:	Department of Resource Management
Funding Source:	General Fund
Time Frame:	By 2011

RS.I-67:	Develop an ordinance that establishes a riparian buffer to protect water quality and ecosystem function. The minimum buffer width shall be determined according to existing parcel size. For parcels more than 2 acres in size, a minimum 150-foot development setback shall be provided. For parcels of 0.5–2.0 acres, a minimum 50-foot setback shall be provided. For parcels less than 0.5 acre a minimum 20-foot setback shall be provided. Exceptions to these development setbacks apply to parcels where a parcel is entirely within the riparian buffer setback or development on the parcel entirely outside of the setback is infeasible or would have greater impacts on water quality and wildlife habitat.
Related Policies:	RS.P-68, RS.P-70, RS.P-72
Agency/Department:	Department of Resource Management
Funding Source:	General Fund
Time Frame:	By 2011

Funding, Physical Improvements, and Capital Projects

RS.I-68:	Seek funding opportunities for collaborative watershed planning approaches to water quantity and quality enhancement and protection, where such an approach is the desired method of accomplishing the program objectives.
Related Policies:	RS.P-67, RS.P-68, RS.P-69, RS.P-70
Agency/Department:	Department of Resource Management
Funding Source:	General Fund
Time Frame:	Ongoing

RS.I-69:	Protect natural watercourses through acquisition or dedication of adjacent land in fee or less than fee title during the process of reviewing and approving land development proposals.
Related Policy:	RS.P-65
Agency/Department:	Department of Resource Management
Funding Source:	Project Applicant
Time Frame:	Ongoing

RS.I-70:	Require site plan elements to limit runoff from new development. These measures might include reduced pavement or site coverage, permeable pavement, vegetation that retains and filters stormwater, and/or drainage features. Limit the construction of extensive impermeable surfaces and promote the use of permeable materials for surfaces such as driveways, streets, parking lots, and sidewalks.
Related Policies:	RS.P-73, RS.P-74, RS.P-75
Agency/Department:	Department of Resource Management
Funding Source:	Project Applicant
Time Frame:	Ongoing

RS.I-71:	Require proposed projects located within the Putah Creek and Ulatis Creek watersheds to minimize project-related stormwater runoff and pollution. Stormwater runoff and pollution loads resulting after development of projects shall not exceed predevelopment conditions.

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Related Policies: RS.P-1, RS.P-72

Agency/Department: Department of Resource Management

Funding Source: Project Applicant

Time Frame: Ongoing

Ongoing Planning Efforts, Public Outreach and Education

RS.I-72: Seek and secure funding sources for development of countywide water quality assessment, monitoring, remedial and corrective action, awareness/education programs. Provide technical assistance to minimize stormwater pollution, support RWQCB requirements, and manage related County programs. Consider future use of desalinization to supplement water supplies.

Related Policy: RS.P-64

Agency/Department: Department of Resource Management; SCWA; State Water Resources Control Board; Department of Water Resources; California Department of Health Services; the California Environmental Protection Agency; the U.S. Bureau of Land Management; U.S. Bureau of Reclamation; and applicable federal, County, and city agencies

Funding Source: General Fund

Time Frame: Ongoing

RS.I-73: Develop a public education and technical assistance program that provides property owners, applicants, and the general public with information regarding stormwater pollution, efficient water use, public water supplies, water conservation and reuse, and groundwater.

Related Policy: RS.P-75

Agency/Department: Department of Resource Management; Solano County Water Agency; Resource Conservation Districts

Funding Source: General Fund

Time Frame: Ongoing

RS.I-74:	Continue to require best management land use practices in the Barker Slough watershed.
Related Policy:	RS.P-73
Agency/Department:	Department of Resource Management
Funding Source:	General Fund
Time Frame:	Ongoing

RS.I-75:	Together with the SCWA and the cities, create and maintain a comprehensive database of information regarding groundwater supply and quality. Seek funding to complete a countywide groundwater study that fills the gaps among aquifer-specific studies. Coordinate with the SCWA to get more information on its groundwater study and subsequent groundwater management programs.
Related Policy:	RS.P-66
Agency/Department:	Department of Resource Management; SCWA; Cities
Funding Source:	General Fund
Time Frame:	Ongoing

RS.I-76:	Inform the public about practices and programs to minimize water pollution and provide educational and technical assistance to farmers and landowners to reduce sedimentation and increase on-site retention and recharge of storm water.
Related Policy:	RS.P-74
Agency/Department:	Department of Resource Management; Solano County Water Agency; Resource Conservation Districts
Funding Source:	General Fund
Time Frame:	Ongoing

Coordination with Other Agencies and Organizations

RS.I-77:	Coordinate with federal and state agencies to monitor the extent of endocrine disruptor pollutants (synthetic compounds that mimic certain hormones and effect body functions such as immune and reproductive system) in the county's water supply and water bodies. Create an action plan to reduce

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	such pollutants, if pollutants are found to exist at unacceptable levels.
Related Policies:	RS.P-64, RS.P-66
Agency/Department:	Department of Resource Management
Funding Source:	General Fund
Time Frame:	Ongoing

RS.I-78:	Explore a cooperative city/County program to compensate farmers and/or landowners to preserve farmland for watershed preservation and maintenance.
Related Policies:	RS.P-68, RS.P-69, RS.P-70
Agency/Department:	Department of Resource Management; Solano County Water Agency; Cities
Funding Source:	General Fund
Time Frame:	Ongoing

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