East Contra Costa County
Integrated Regional Water Management Plan

Update 2019

March 2019

East County Water Management Association

Contents

Appendices

Figures

Tables

Abbreviations and Acronyms

°F	degrees Fahrenheit
1996 Study	East County Water Supply Management Study in 1996
ACS	American Community Survey
Act	Integrated Regional Water Management Planning Act of 2002 (Act
ADWF	average dry weather flow
AF	acre-foot
AFY	acre-foot per year
BAB2E	Bay Area Biosolids to Energy Coalition
Banks	Harvey O. Banks Delta Pumping Plant
BBID	Bryon Bethany Irrigation District
BDCP	Bay-Delta Conservation Plan
BIMID	Bethel Island Municipal Improvement District
BMO	basin management objective
BMP	Best Management Practice
BWWTP	Brentwood Wastewater Treatment Plant
CALFED	California Bay-Delta Program
Canal	Contra Costa Canal
CASGEM	DWR's California Statewide Groundwater Elevation Monitoring Program
CCCCD	Contra Costa Community College District
CCCFCWCD	Contra Costa County Flood Control and Water Conservation District
CCCWA	Contra Costa County Water Agency
CCCWP	Contra Costa Clean Water Program
CCFCWCD	Contra Costa Flood Control and Water Conservation District
CCRCD	Contra Costa Resource Conservation District
CCWD	Contra Costa Water District
CDPH	California Department of Public Health
Central Valley Water Board	Central Valley Regional Water Quality Control Board
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CIHC	California Indian Heritage Center

COBWTP	City of Brentwood Water Treatment Plant
CPUC	California Public Utilities Commission
CUWCC	California Urban Water Conservation Council
CVP	Central Valley Project
CWC	California Water Code
CWP	California Water Plan
DAC	Disadvantaged Community
DDSD	Delta Diablo Sanitation District (now Delta Diablo)
DEC	Delta Energy Center
Delta	Sacramento-San Joaquin Delta
DGA	Data Gap Analysis
District	Town of Discovery Bay Community Services District
DO	dissolved oxygen
DRDWQMP	Delta Region Drinking Water Quality Management Plan
DWD	Diablo Water District
DWR	California Department of Water Resources
ECCC	East Contra Costa County
ECCCHC	East Contra Costa County Habitat Conservancy
ECCID	East Contra Costa Irrigation District
ECWMA	East County Water Management Association
EJ	environmental justice
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FEIRWM Plan	2005 Functionally Equivalent IRWM Plan
FOG	Fats, Oils and Grease
FOMCW	Friends of Marsh Creek Watershed
FWSS	Future Water Supply Study
GBR	Governing Board Representatives
GHG	greenhouse gas
GMP	Groundwater Management Plan
GSWC	Golden State Water Company
Handbook	Climate Change Handbook for Regional Water Planning
HCP	East Contra Costa County Habitat Conservation Plan

HCPA	ECCC Habitat Conservation Plan Association
HPWTF	High Purity Water Treatment Facility
I	Interstate
IPCC	Intergovernmental Panel on Climate Change
IRWM	integrated regional water management
ISD	Ironhouse Sanitary District
JMC	Joint Managers Committee
KCSD	Knightsen Town Community Services District
LMEC	Los Medanos Energy Center
MGD	million gallons per day
MHI	median household income
NCCP	Natural Community Conservation Plan
NEPA	National Environmental Policy Act
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resource Conservation Service
PRC	California Public Resources Code
RAP	Regional Acceptance Process
RBWTP	Randall Bold Water Treatment Plant
RCS	Regional Capacity Study
RD	Reclamation District
Reclamation	U.S. Department of the Interior, Bureau of Reclamation
region	East Contra Costa County region
Region	Regional Water Management Group and its members
RMS	Resource Management Strategy
RWF	Recycled Water Facility
RWMG	Regional Water Management Group
RWQCB	Regional Water Quality Control Board
San Francisco Bay Water Board	San Francisco Bay Regional Water Quality Control Board
SAR	sodium adsorption ratio
SB	Senate Bill
SR	State Route
State Water Board	State Water Resources Control Board
SWP	State Water Project

TAF	thousand acre-feet
TDS	total dissolved solids
TOC	total organic carbon
ULL	Urban Limit Line
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
UWMP	Urban Water Management Plan
Water Board	Regional Water Quality Control Board (formerly the RWQCB)
WRWC	Western Recycled Water Coalition
WTP	Water Treatment Plant
WWTF	Wastewater Treatment Facility
WWTP	Wastewater Treatment Plant

Chapter 1 Introduction

The East Contra Costa County (ECCC) Integrated Regional Water Management (IRWM) planning effort is a formal collaborative process convened to support all aspects of regional water management. This includes integrated planning for water supply, water quality, watershed and habitat protection, and flood and stormwater management. The ECCC IRWM members have a long history of cooperation across political and jurisdictional boundaries that spans almost two decades. In this 2015 IRWM Plan Update, further updating the November 2013 IRWM Plan, the ECCC region creates a framework to implement integrated water management projects with multiple benefits to serve the population of the region and protect water and environmental resources for the State.

This IRWM Plan articulates the challenges the ECCC region faces and defines the water resource management objectives it hopes to accomplish. The framework defined in the IRWM Plan is a living process the region can rely on to meet its current and future water management challenges.

1.1 Purpose

The purpose of the IRWM Plan is to provide a roadmap for the region to meet its overall water management objectives, including:

- Ensuring reliable water supply under normal conditions as well as during droughts and other emergencies, achieving water quality goals and meeting related regulations.
- Restoring and enhancing the Sacramento-San Joaquin Delta (Delta) ecosystem and upstream habitat and wetland resources.
- Positioning water-related planning and implementation projects for funding.
- Implementing robust stormwater and flood management strategies and practices.
- Providing public outreach and establishing broad support for integrated water management.

This IRWM Plan addresses specific requirements, created and documented in accordance with the California Department of Water Resources (DWR) IRWM Grant Guidelines.[1] A summary of the requirements is listed in Section 1.4 and the full list is contained in **Appendix A**.

1.1.1 Background

California faces multiple challenges related to water management, including water supply reliability under normal conditions as well as during droughts and other emergencies, threats to water quality, increasing flood risk, declining ecosystems, aging infrastructure, climate change, and economic challenges. To meet these challenges, DWR has established (1) State policy

[1] http://www.water.ca.gov/irwm/grants/docs/Archives/Prop84/Guidelines_PSPs/GL_2012_FINAL.pdf

encouraging IRWM, and (2) financial planning programs for local and regional water resources managers and their stakeholders to implement IRWM.

In contrast with traditional water management sector-based approaches, IRWM deals with all water functions on equal terms within the framework of an integrated water system. This plan's approach considers:

- Scientific and technical aspects of managing water supply, treatment, and wastewater systems
- Watershed resource protection
- Sustainable use and planning for the future
- Socioeconomic, institutional, policy, and political aspects of water decisions
- Governance
- Legal and institutional framework
- Regional economic conditions
- Public awareness and input
- Cultural and social customs
- Educational characteristics
- Fundamental aspects of how humans behave and interact with their water resources

The ECCC region capitalizes on the long history of integrated water planning and, with This IRWM Plan, defines key water management issues and objectives for ongoing water security in the region. This IRWM Plan also established the process by which the region will identify and integrate innovative projects and programs that, when implemented, will help the region to meet those objectives.

1.2 IRWM Process

DWR outlines specific standards, steps, and requirements for IRWM plans created with grant funds. In 2009, DWR instituted a Regional Acceptance Process (RAP) to evaluate and accept an IRWM region into its IRWM grant program. At a minimum, a region is defined as a contiguous geographic area encompassing the service areas of multiple local agencies. It is delineated to maximize the opportunities to integrate water management activities, and effectively integrate water management programs and projects within a hydrologic region as defined in the California Water Plan (CWP), the Regional Water Quality Control Board (Water Board, formerly the RWQCB) region, or subdivision. The ECCC region was formally accepted into the RAP process in 2009.

DWR also encourages regions to pay attention to three concepts when incorporating planning grant standards into their IRWM plans. These concepts are:

1. **Ahwahnee Water Principles** – IRWM planning is not focused on a single use of a resource, but seeks to manage that resource based on all the ways that the resource can be used. As exhibited by the IRWM Plan Standards, many aspects of IRWM planning reflect the Ahwahnee Water Principles.[2] Commonalities between IRWM planning and the Ahwahnee Water Principles include multi-agency collaboration, stakeholder involvement and collaboration, regional approaches to water management, water management involvement in land-use decisions, and project monitoring to evaluate results of current practices. Although IRWM Plan Standards can be seen as very separate and distinct items, regions should be aware of the broader overarching shift to resource planning as presented in the Ahwahnee Water Principles and the practice of IRWM planning, as opposed to a single planning purpose (i.e., water supply, wastewater, or watershed function).

2. **Flood Management** – Flood management should be integrated into IRWM plans as with other types of water management. Integrating flood management into a regional plan, as appropriate, may increase the ways a region can achieve its IRWM Plan objectives.

3. **IRWM Plan Outline** – The IRWM Plan Standards are intended to ensure IRWM plans include specific content. Although the IRWM Plan Standards name specific topics, explanations, and descriptions, these do not necessarily constitute an outline of an IRWM Plan. An IRWM Plan can be written in a format that is logical for the IRWM region. The IRWM Plan can use different titles for sections than those offered in these standards; hat is important is that IRWM plans contain the proper contents to ensure effective, implementable planning.

The ECCC planning and project list development process was conducted to facilitate inclusion of IRWM Plan Standards. To do this, the IRWM members created a website to collect and disseminate information. They met with stakeholders and developed a process to identify, evaluate, and prioritize implementation projects.

The result of the planning and project development process is an active list of IRWM Plan project priorities. With an interactive list and the planning framework established, projects may be added, removed, or updated at any time. The IRWM Plan is a living document that can adapt to the challenges of water management in the region. The updated website (http://www.eccc-irwm.org/) allows project proponents and stakeholders to view each other's projects, helping them to identify opportunities for collaboration and integration for their projects. From time to time, the region may also initiate another formal "Call-for-Projects" to refresh their list or to prepare for a new funding opportunity. Studies and planning efforts supported by the Round 2 Planning Grant have resulted in the addition of projects to the list. Integrated planning will continue to be ongoing, open, transparent, and collaborative.

[2] http://www.lgc.org/wordpress/docs/resources/water/lgc_water_guide.pdf

1.3 Document Organization

This IRWM Plan is organized to address the Guidance for IRWM Plan Standards (Appendix C of the Proposition 84 and Proposition 1E IRWM Guidelines issued by DWR in August 2010 and in November 2012). The main chapters of this IRWM Plan are as follows:

- **Chapter 1, Introduction** – This chapter describes the purpose of the IRWM Plan to document the region's integrated water management planning process.

- **Chapter 2, Region Description** – This chapter summarizes the region's history, governance, and member agencies involved in the development of this document. It also provides a detailed description of the region's water resources.

- **Chapter 3, Plan Development** – This chapter presents the results of each step of the planning process, including the objectives, resource management strategies, technical analyses, stakeholder involvement, project review process, and integration and coordination. The chapter also details the planning process, including the living process that will continue after completion of the IRWM Plan Update, and relationships to local water and land-use planning, and stakeholders.

- **Chapter 4, IRWM Plan Implementation** – This chapter discusses all the considerations for implementing this IRWM Plan, including possible benefits and impacts.

- **Chapter 5, References** – This chapter lists the references used in the development of this document.

1.4 IRWM Plan Standards

This IRWM Plan successfully meets the requirements of a DWR IRWM plan as established by the program's planning grant. Each of the IRWM Plan Standards, including related components, has been addressed. **Table 1-1** lists the various standards of a compliant IRWM Plan and indicates the chapter/section in which each component is addressed.

Table 1-1. Location of IRWM Plan Standard

IRWM Plan Standard	Section
Governance	Section 2.3, Section 4.1
Region Description	Chapter 2
Objectives	Section 2.9, Section 3.2
Resource Management Strategies	Section 3.3, Appendix G
Project Review Process	Section 2.9, Section 3.4
Impacts and Benefits	Section 4.3, Section 4.4
Plan Performance and Monitoring	Section 3.4, Section 3.8, Section 4.6
Data Management	Section 4.7
Finance	Section 4.5
Technical Analysis	Section 3.5
Relation to Local Water Planning	Section 3.5, Section 3.7.9
Relation to Local Land-Use Planning	Section 3.7.10
Stakeholder Involvement	Section 3.6
Integration and Coordination	Section 3.7
Climate Change Mitigation and Adaptation Strategies	Section 2.8, Section 2.9, Chapter 3

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Chapter 2. Region Description

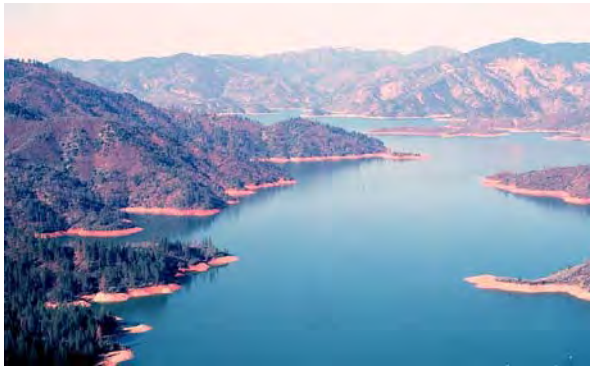
2.1. The East Contra Costa County Region

ECCC contains the largest plain area in Contra Costa County, and includes much of the hilly terrain of the Diablo Range, as well as the agricultural areas adjacent and within the Sacramento-San Joaquin River Delta region. Home to more than 330,000 people and still growing, its four cities are Antioch, Brentwood, Oakley, and Pittsburg. Unincorporated communities include Bay Point, Bethel Island, Byron, Discovery Bay, and Knightsen.

ECCC is bounded by the ridge lines of Mount Diablo to the south and west, and nestled along the meandering banks of the complex historic Delta water system to the north and east. The landscape frames a geographically distinct region. Its unique footprint both isolates and incorporates complex urban and Delta water management issues, and brings with it a unique set of challenges and opportunities for water management.

In addition to its highly diverse population, the 350 square miles of ECCC host a wide range of water-related uses, including major industrial activities, agriculture, and recreation, as well as fragile habitats and sensitive species. All are dependent on water.

The Delta serves as the primary water source for the region. Originating from rivers within the Sierra Nevada, the water flows into the Sacramento and San Joaquin Rivers, eventually finding its way into the Delta. The ECCC members all share a location within and/or a hydrological connection to the statutory Delta – a legally defined, environmentally sensitive ecosystem that supports over 750 plant and animal species, provides drinking water to over two-thirds of Californians, and irrigation supplies for more than 7 million acres of the most productive agricultural land in the world. This water is supplemented to varying degrees by groundwater and recycled water. A series of special studies was conducted as part of this IRWM Plan to further explore expansion of the region's recycled water supplies. Water use efficiency programs including conservation as well as water reuse are increasingly important as the region responds to ongoing drought conditions and plans for future drought and emergency scenarios. Residents also benefit from and rely on critical flood and stormwater infrastructure, water treatment facilities, wastewater collection systems and treatment plants, and recycled water systems.



Water flowing from the headwaters of the Sacramento River then stored at Lake Shasta are part of an overall water system that serves ECCC.

The integrated water management needs of the region are likely to grow. Although urban development has slowed since 2008 due to the housing foreclosure crisis and downturns in the economy, as of 2015 the ECCC region is beginning to see an increase in new development and anticipates increases in population and urban development over the long term as the demand for affordable housing continues to push Bay Area residents toward the eastern edges of Contra Costa

and Alameda counties. The future water supplies required to reliably meet the needs of the region will come from a diverse portfolio of water management options that considers lessons learned from the ongoing severe drought, statewide programs to balance water supply and environmental needs of the Delta, and the expected longer term hydrology changes resulting from climate change.

2.2. History of Regional Planning

The ECCC signatories recognize the value of coordinated regional planning and have a long history of cooperation across geographies, political boundaries, and project types. An early example of this cooperation occurred with the completion of the *East County Water Supply Management Study* in 1996 (1996 Study).

The 1996 Study was commissioned by the East County Water Management Association (ECWMA). The Governing Board of Representatives included:

- City of Antioch
- City of Brentwood
- Byron-Bethany Irrigation District (BBID)
- Contra Costa Water District (CCWD)
- Contra Costa County (formerly Contra Costa County Water Agency [CCCWA])
- Delta Diablo (formerly Delta Diablo Sanitation District [DDSD])
- Diablo Water District (DWD)
- East Contra Costa Irrigation District (ECCID)
- Ironhouse Sanitary District (ISD)
- City of Pittsburg

The purpose of the effort was to assess future water supply management within the eastern portion of Contra Costa County. Through this effort, the partnering agencies developed a comprehensive regional assessment of water demands and supplies through 2040, treatment and delivery options, water supply alternatives, and recommendations and implementation strategies for regional water management.

This cooperative approach to resource management has served the region well and is reflected in the ECWMA, the regional water management group that has stepped forward to lead the ECCC IRWM Region. Other collaborative activities of the group members prior to the formation of the IRWM Region included multi-agency coordination for completion of multiple planning efforts, such as:

- *Contra Costa Water District* (CCWD) *Future Water Supply Study* (FWSS) *Final Report*, 1996 – A detailed analysis of the future supply and water needs for the CCWD service area, informed by a 29-member stakeholder feedback group, including members from ECCC, and an Inter-Agency Work Group consisting of planning and water management agencies within the CCWD service area.

- *Contra Costa County Stormwater Management Plan*, 1999 – The basis for the Contra Costa Clean Water Program's National Pollutant Discharge Elimination System (NPDES) Permit application to the Central Valley Water Board and San Francisco Bay Water Board.

- *CCWD FWSS Final Report Update*, 2002 – A review of projections and success of the 1996 FWSS, including updated 50-year water demand projections and a review of available supplies based on 2000 Census data and CCWD obligations contained in the Biological Opinion for the Multi-Purpose Pipeline and the FWSS Implementation Program. It also reflected renegotiation of CCWD's Central Valley Project (CVP) contract, an expanded conservation program, and water transfers to provide drought reliability and to accommodate future growth.

- *Delta Regional Drinking Water Quality Management Plan*, 2005 – Provided an understanding of water quality conditions at the urban intakes within the Delta; identified challenges and issues confronting agencies diverting water from the Delta; and developed projects and programs at the local, regional, and statewide level to address these issues and ensure that in-Delta agencies can meet their water quality goals in the future.

- *Functionally Equivalent IRWM Plan* (FEIRWM Plan), 2005 – Leveraged the planning efforts cited above and brought together water management agencies of the ECWMA, identified water management objectives and strategies, and helped prioritize a list of implementation projects.

- *East Contra Costa County Habitat Conservation Plan* (HCP) *and Natural Community Conservation Plan* (NCCP), 2006 – Provided a plan to preserve and enhance native habitats that support endangered and sensitive species while providing a regional incidental take permit under the federal Endangered Species Act (ESA) and California Endangered Species Act (CESA). The HCP was finalized in 2007 and implementation started in 2008.

- *Brentwood/CCWD Joint Water Treatment Plant* (WTP), 2008 – The City of Brentwood and CCWD partnered to design, finance, build, and operate a WTP to serve Brentwood. The new plant shares facilities and infrastructure with its neighbor, CCWD's Randall Bold WTP (RBWTP). These measures reduce operational and construction costs and environmental impacts, while providing an efficient and reliable water treatment system.

Other notable joint efforts, both prior to formation of the IRWM Region, and in parallel with, but separate from, IRWM efforts included:

- East County Groundwater Study (1999)
- ECCID-Brentwood Transfers (1999)
- ECCID-CCWD Transfer (2000)
- DWD-Antioch Intertie (2003)
- DWD Tracy Subbasin Groundwater Management Plan (GMP) (2007)
- DDSD/Pittsburg Recycled Water Project (2008)
- Pittsburg Plain GMP (2012)
- Pittsburg Plain Salt and Nutrient Management Program Summary Report (2012)
- DWD Tracy Subbasin Data Gap Analysis Report (2012)
- DDSD Recycled Water Master Plan (2013)
- Regional Capacity Study for the cities of Antioch, Brentwood, Martinez, and Pittsburg, CCWD, and DWD (2014)

ECCC agencies also share and/or use interdependent facilities, such as interties between member agencies and the RBWTP, which is co-owned by CCWD and DWD. Some capacity at the RBWTP is allocated to the cities of Antioch and Brentwood, as well as the community of Bay Point (Golden State Water Company). Since CCWD is the primary surface water supply wholesaler to the ECCC region, several agencies access CCWD's Delta infrastructure, including the Delta intakes at Rock Slough, Middle and Old River, the Contra Costa Canal (Canal) and Los Vaqueros Reservoir, and related conveyance. The same is true on the wastewater side where Delta Diablos regional wastewater treatment plant (WWTP) and conveyance system serves the collection system of Antioch and Pittsburg.

While the ECWMA was founded in 1995 to undertake the development of the 1996 Study, it was terminated upon acceptance of the recommended actions in the study (November 1996). Realizing how important coordination was, the regional partners reestablished ECWMA in August 1997 to facilitate continued communication, cooperation, and education among the member agencies as water supply reliability projects were implemented.

Part of what makes the ECWMA such a successful regional water management group is that member agencies all share common water management challenges and a desire to pool resources to leverage results. The spirit of partnership continues to this day and member agencies coordinate on a regular basis. As described later in this section, the level of regional cooperation and coordination facilitated by the ECWMA has helped to avoid/resolve potential conflicts in the region and has resulted in several successful regional planning and implementation projects within the ECCC region over the past decade. The success of these multi-benefit regional initiatives has established a foundation of trust between ECWMA member agencies and other regional stakeholders that will enable successful implementation of future water management activities as well.

The Randall-Bold Water Treatment Plant is one example of a shared facility within the East Contra Costa County Region

2.2.1. The DWR IRWM Regional Process

In 2009, the DWR instituted a Regional Acceptance Process (RAP) to evaluate and accept an IRWM region into its IRWM grant program. At a minimum, a region is defined as a contiguous geographic area encompassing the service areas of multiple local agencies. It is intended to encompass an area in which opportunities to integrate water management activities can be optimized and to effectively integrate water management programs and projects within a hydrologic region as defined in the California Water Plan (CWP), the Water Board region or subdivision, or other region specifically identified by DWR.

Per these requirements, the ECCC region successfully submitted a RAP application and was fully recognized by DWR as an IRWM region. Interestingly, the IRWM regional definition creates some complexity. As a contiguous geographic area encompassing multiple ECCC service areas, the

region also overlaps sections of the San Francisco Bay Area IRWM region. This Bay Area region includes all or part of nine counties (including Contra Costa) and 110 cities, and is coterminous with the boundary of the San Francisco Bay Water Board (Region 2).

While the ECCC region rests primarily in the jurisdiction of the Central Valley Water Board (Region 5), it overlaps with Region 2 (the San Francisco Bay Water Board) jurisdiction in Pittsburg, Bay Point, and a small portion of Antioch within Contra Costa County. Further, under the definitions of funding areas as described in DWR grant guidelines, the overlap area is eligible for funds from both the San Francisco and San Joaquin River funding areas. The potential for leveraging multiple funding sources with the San Francisco Bay IRWM region is especially important as the overlap area includes, as defined by income, a disproportionate number of Disadvantaged Advantaged Community (DAC) members. At the same time, the requirements for coordination are increased.

As part of its RAP application, the ECWMA member agencies formed a Regional Water Management Group (RWMG), responsible for navigating these jurisdictional complexities, coordinating with other planning efforts, and updating and implementing the region's IRWM Plan. Added to the original list of 1996 partners and in recognition of the importance of integrated management, were:

- Contra Costa County Flood Control and Water Conservation District (CCCFCWCD)
- Discovery Bay Community Services District
- East Contra Costa County Habitat Conservancy (ECCCHC)

With the first ECCC IRWM Plan (a Functionally-Equivalent IRWM Plan finalized in 2005) and the 2009 RAP, the region was able to secure various planning and implementation grants from DWR to implement and update their IRWM Plan. **Table 2-1** shows each of the successful grants for the region.

In 2010, the ECWMA was amended to change the name "Contra Costa County Water Agency" to "Contra Costa County."

Table 2-1. IRWM Regional Grant Awards

Funding Opportunity	Date	Amount Received	Projects
Proposition 50 IRWM Implementation Grant, Round	2005—2006	$12,500,000	• Antioch Recycled Water Implementation • DWD Well Utilization Project • Pittsburg Recycled Water Project • Alternative Intake Project • Antioch Water Treatment Plant Project • CCWD Canal Improvement Project • Dutch Slough Tidal Marsh Restoration – Phase 1 • HCP Habitat and Watershed Protection/Restoration Project
Proposition 1E Stormwater Flood Management Grant, Round 1	December 2011	$2,000,000	Awarded to CCCFCWCD • Upper Sand Creek Basin Improvements
Proposition 1E Stormwater Flood Management Grant, Round 1	December 2011	$10,000,000	Awarded to CCWD • Contra Costa Canal Improvements
Proposition 1E Stormwater Flood Management Grant, Round 1	December 2011	$2,997,300	Awarded to the City of Antioch • West Antioch Creek Stormwater Improvements
Proposition 84 Implementation Grant, Round 1	August 2011	$1,775,000	• Pittsburg Recycled Water Pipeline Rehabilitation Project • Watershed Protection and Restoration
Proposition 84 Planning Grant, Round 1	February 2011	$449,843	• IRWM Plan Update • Pittsburg Plain GMP • Tracy Subbasin Data Gap Analysis Report • Pittsburg Plain Salt and Nutrient Management Program Summary Report
Proposition 84 Planning Grant, Round 2	November 2012	$451,818	• Enhanced Website and Outreach • Regional Recycled Water Planning • Regional Capacity Study
Proposition 84 Implementation Grant, Round 2	March 2013	$430,000	• Rossmoor Well Replacement/ Groundwater Monitoring Well System Expansion

Key:
CCCFCWCD = Contra Costa County Flood Control and Water Conservation District
CCWD = Contra Costa Water District
DWD = Diablo Water District
GMP = Groundwater Management Plan
HCP = East Contra Costa County Habitat Conservation Plan
IRWM = Integrated Regional Water Management

2.3. Governance

As noted above, the ECWMA, which operates via a cooperative agreement known as the ECWMA Agreement, is the foundation of the IRWM. Representatives from the members of the ECWMA serve as the official RWMG for the ECCC region. The ECWMA remains a consortium of 13 member agencies with a broad range of water management-related responsibilities within the region. The organizational structure is shown in **Figure 2-1.**

2.3.1. Regional Water Management Group

The ECWMA is governed and operated by the Governing Board Representatives (GBR), composed of one elected official representative from each of the member agencies. Further, the ECWMA has a Joint Managers Committee (JMC) that is composed of managers from each of the member agencies. The term "manager" means City Manager, County Administrator, or General Manager of each of the member agencies and their respective alternates designated by the member agency, or their designees. The JMC can appoint subcommittees related to specific water management activities with which the members of the ECWMA are involved.

Each member of the ECWMA appoints staff to serve as representatives on the Regional Water Management Group (RWMG). Because the RWMG is comprised of members of the ECWMA, the group meets the required definition of a RWMG per DWR's IRWM Guidelines. The staff representatives of the ECWMA that constitute the RWMG are responsible for representing their agencies and providing input on IRWM matters on behalf of their agencies. The RWMG members meet as needed to discuss IRWM and other regional matters, and are responsible for taking issues to their representatives on the JMC to resolve disputes or settle issues.

Approximately two times per year the RWMG members meet with the larger ECWMA to inform the group of recent IRWM-related activities and other pertinent matters that are of interest to the ECWMA. These bi-annual meetings of the ECWMA are open to the public, noticed, and conducted in accordance with the Brown Act, Government Code Section 54950 et seq. As such, the ECWMA meetings provide a forum through which non-ECWMA member agencies, participants, stakeholders, and members of the public can provide input on the ECCC IRWM Program. In addition to the two regular meetings held each year, the chair or any three members of the GBR may call a special meeting as needed to discuss IRWM-related matters. A full roster of the Governing Board is contained in **Appendix B**.

CCWD has served as the lead agency responsible for submitting any IRWM grant materials on behalf of the ECCC region. CCWD has been serving as the lead agency for the ECCC region in accordance with a February 25, 2005, letter agreement signed by all of the ECWMA member agencies.

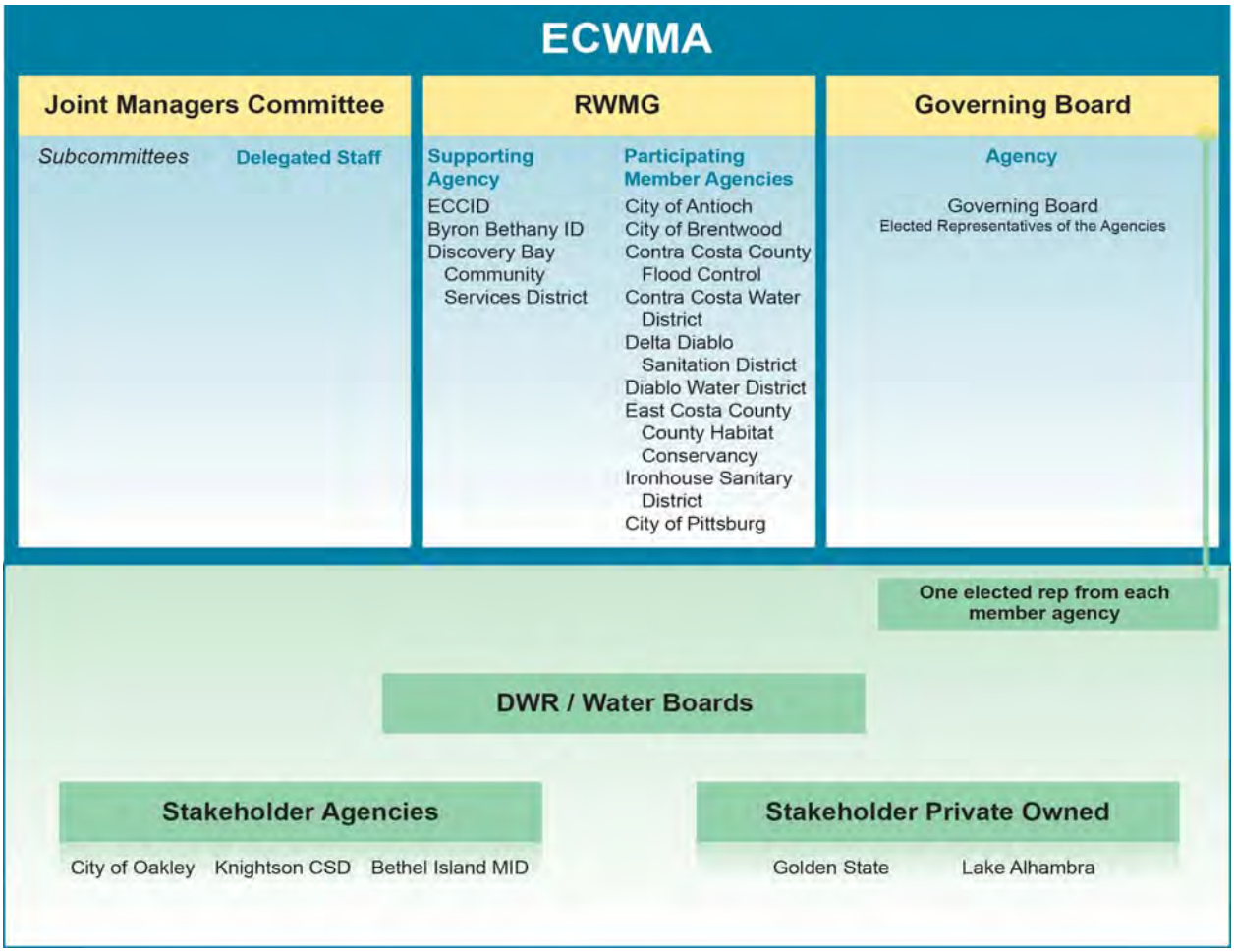


Figure 2-1. ECWMA Organization Chart

Subcommittees

The RWMG often forms subcommittees related to specific water management activities in which members of the ECWMA are involved. For example, there is a subcommittee of the member agencies and stakeholders that took the lead in developing the FEIRWM Plan, related grants applications, and the 2012 IRWM Plan and the 2015 IRWM Plan Update.

Native American Tribal Participation

During the 2015 IRWM Plan update, a review of DWR and other tribal maps, as well as a summary scan of ECCC historic literature, was conducted (described in Section 3.6.6). After this review, it was determined there are no tribal communities currently residing in the ECCC region. However, there is a rich history of Native American occupation in ECCC, including the Kellogg Creek National Historic District located on the Los Vaqueros watershed. Future IRWM projects may be proposed that benefit tribal communities. To ensure that tribal interests are represented in the East County IRWM, stakeholder groups will be invited to IRWM meetings and will be consulted. For example, the California Indian Environmental Alliance will be included on the meeting invitations and on other mailings from the IRWM group. If specific project opportunities are identified or proposed that benefit tribes, additional outreach is anticipated to organizations such as California

State Parks, the State Historic Preservation Officer, the California Indian Heritage Center (CIHC), the CIHC Foundation, and the Native American Heritage Commission.

2.3.2. Scope

Decision Making

The ECWMA is a collaborative association with member agencies each having representatives that serve on the RWMG and report regularly to the ECWMA. All actions undertaken by the ECWMA require majority vote. If one or more members do not wish to participate in an activity undertaken by the ECWMA, the member can opt out and would not have any financial responsibility for that activity.

Implementation of the IRWM Plan

Implementation of the IRWM Plan is conducted by the project sponsors, which typically consist of partnerships of member agencies and interested stakeholders. The project sponsors undertake specific activities related to project implementation and funding. Project development and funding is described under Implementation Grant Applications, below. Progress reports on the status of project implementation are provided at the ECWMA meetings and other regional forums.

Updating the IRWM Plan

This IRWM Plan will be updated when prompted by significant regional changes or by new requirements of the State. The RWMG or designated subcommittee, will monitor conditions within the East County and be apprised of statewide IRWM requirements, and will notify the RWMG if an update is needed to the IRWM Plan. Stakeholder input received at any of the stakeholder forums will also be considered when determining if an update to the Plan is required.

Updates to the IRWM Plan will be performed by participating RWMG agency staff, or through use of a consulting firm, depending on the scope and scale of the needed Plan update. If a major update is anticipated, CCWD, serving as the lead agency responsible for submitting IRWM materials on behalf of the RWMG, will work with participating east county IRWM agencies to solicit support from a consulting firm to help prepare the update. In this case, funding should be available to support the cost of the Plan update from the East County IRWM, state grants, or though outside agencies. If a minor update is anticipated, the RWMG will discuss whether internal agency staff to any participating RWMG agencies have the capacity to perform the update themselves. If so, agencies may opt to provide staff services as in-kind donations to the RWMG.CCWD will provide a summary of the updated plan at an ECWMA meeting. The ECWMA meets at least twice a year and additionally, as needed. All of the ECWMA meetings are open to the public, noticed, and conducted in accordance with the Brown Act. The updated plan information will then be incorporated onto the East County IRWM website.

Adopting the IRWM Plan

Once an IRWM Plan update is completed, CCWD (on behalf of the RWMG) will submit the updated Plan to DWR for review. Upon DWR review and approval of the Plan, each participating agency that is a member of the ECWMA will adopt the updated IRWM Plan. Pursuant to the 2016 Guidelines, all Local Project Sponsors funded under an IRWM grant agreement must also adopt the IRWM plan.

This IRWM Plan was last updated in 2019 in anticipation of the Proposition 1 IRWM Implementation Round 1 grant. The IRWM Plan was submitted to DWR for review. Upon approval by DWR, the IRWM Plan update will be formally adopted via governing Board action by the following ECWMA agencies:

- City of Antioch
- City of Brentwood
- Byron-Bethany Irrigation District
- Contra Costa County Flood Control and Conservation District
- Contra Costa County
- Contra Costa Resource Conservation District
- Contra Costa Water District
- Delta Diablo
- Diablo Water District
- Discovery Bay Community Services District
- East Contra Costa County Habitat Conservancy
- East Contra Costa Irrigation District
- Ironhouse Sanitary District
- Any Local Project Sponsors anticipated to receive funding by an IRWM grant program.

Progress Monitoring

There are two levels of progress monitoring, (1) project level, undertaken by the project sponsor; and (2) IRWM Plan level, undertaken by all the plan participants under the auspices of the RWMG. Each of the projects included within the plan has specific project metrics and appropriate monitoring approaches identified to assess performance on an ongoing basis. The project proponent takes the lead on monitoring the project implementation performance, and is responsible for providing updates to the RWMG.

The RWMG uses the project monitoring information, together with input from member agencies and stakeholders, to assist with periodic reviews of the progress of the region in meeting the objectives of the IRWM Plan. Review of progress and reevaluation of conditions and needs in the region feeds into the IRWM Plan updates discussed above.

Implementation Grant Applications

In the case of applying for a grant, the designated lead agency, with participating agency input, informs the ECWMA that the region will pursue grant funds for one or more high-priority projects that meet specific grant criteria. Each participating agency in any implementation grant request is required to pay a fair share of the consultant cost services and provide the technical information to support the grant application. CCWD has generally served as the lead agency for requesting implementation grant funding, contracted for consulting services with each agency paying their fair share and assuming grant award has administered the awarded grant assuming a fee of up to 5% of the requested grant funding. Adjustments to this structure can be made based on the level of interest by other participating agencies who may have more available resources.

2.4. Description of Internal Boundaries

2.4.1. Region

The region, as approved by DWR during the 2009 RAP, covers 350 square miles. The ECCC IRWM region has distinct water management circumstances that unify it as a region. The region boundary is shown in **Figure 2-2**.

Region Quick Facts

The ECCC IRWM region is a cohesive geographic area. Isolated from the remainder of Contra Costa County and the greater Bay Area by ridgelines of Mount Diablo on the southern and western boundaries, it is bounded on the north and east by the San Joaquin River and Old River, and the associated maze of waterways within an agricultural zone effectively separating the ECCC region from the Central Valley region.

The entire region drains to the Delta. This occurs primarily through the Marsh Creek, Kirker Creek, and Kellogg Creek watersheds. These watersheds encompass the jurisdictional boundaries of the ECCC IRWM region participating agencies, except for Contra Costa County and the CCWD, which serve an area broader than ECCC.

All or a portion of the cities and unincorporated communities within the ECCC IRWM region are located within the statutory Delta. Located within the Delta boundaries, and with Delta water as a primary source of drinking water for the ECCC IRWM region, the agencies in ECCC share a common commitment to protect and restore the Delta water quality and environment. **Figure 2-3** shows the region in relation to the statutory boundaries of the Delta.

The water agencies in the ECCC IRWM region all fall within the jurisdiction of the Central Valley Water Board (Region 5). There are some agencies (CCWD, Delta Diablo , and the City of Pittsburg) that fall in both the San Francisco Bay Water Board (Region 2) and the Central Valley Water Board (Region 5) jurisdictional areas. The remaining regional entities lie entirely within the Central Valley Water Board. These water board boundaries are shown in **Figure 2-2**.

The water management entities in ECCC have long recognized the value of regional cooperation in integrating water management activities related to natural and constructed water systems. Ongoing regional planning initiatives, such as the Habitat Conservation Plan (HCP), the IRWM Plan and others, are in place for the ECCC communities, urban water suppliers, agricultural water suppliers, habitat preservation and enhancement entities, watershed managers, and wastewater agencies to work on common issues. Successful resolution to past water resource conflicts has given these entities proven practices and tools to manage potential conflicts in the future.

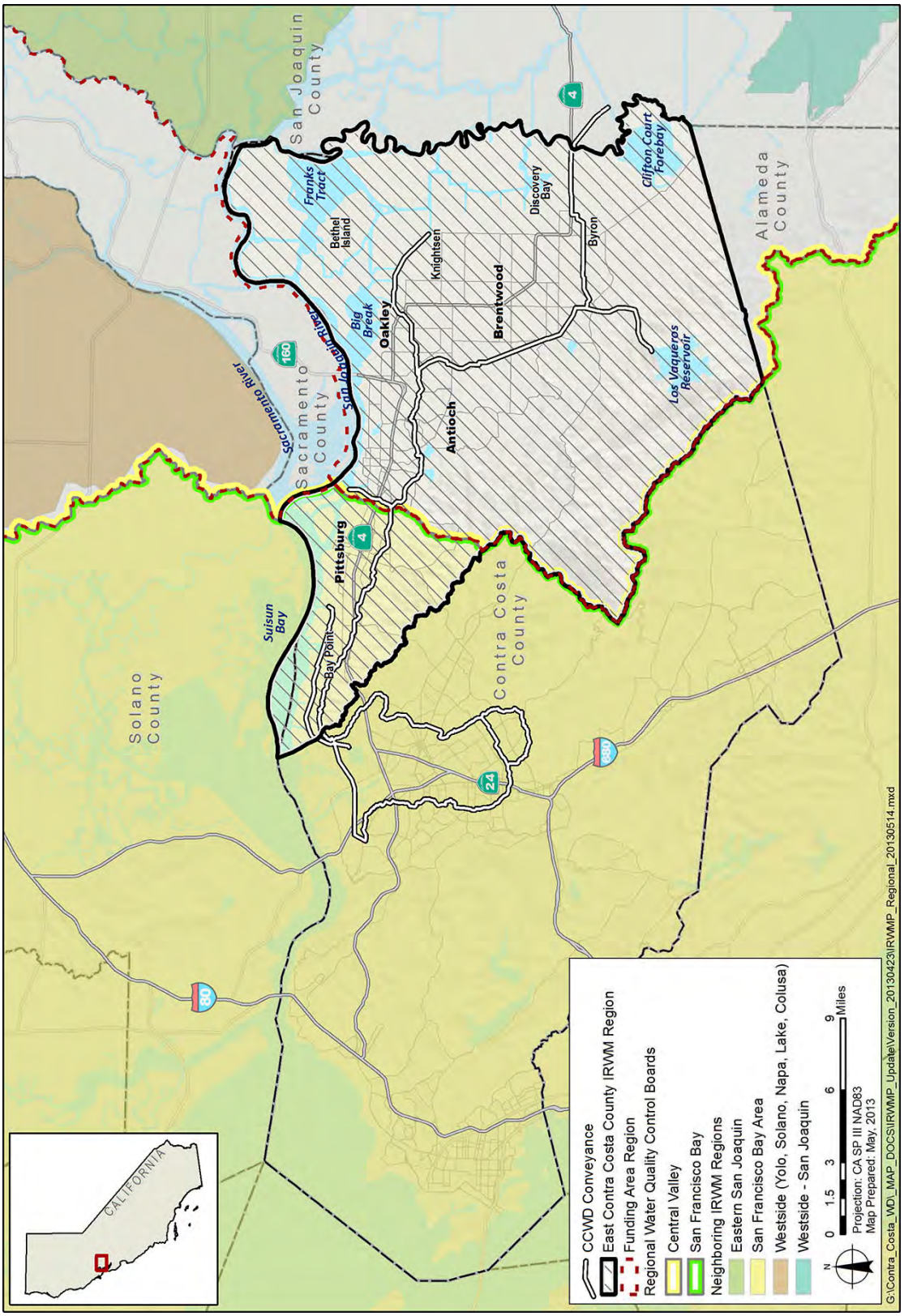


Figure 2-2. ECCC IRWM Region and Surrounding Areas

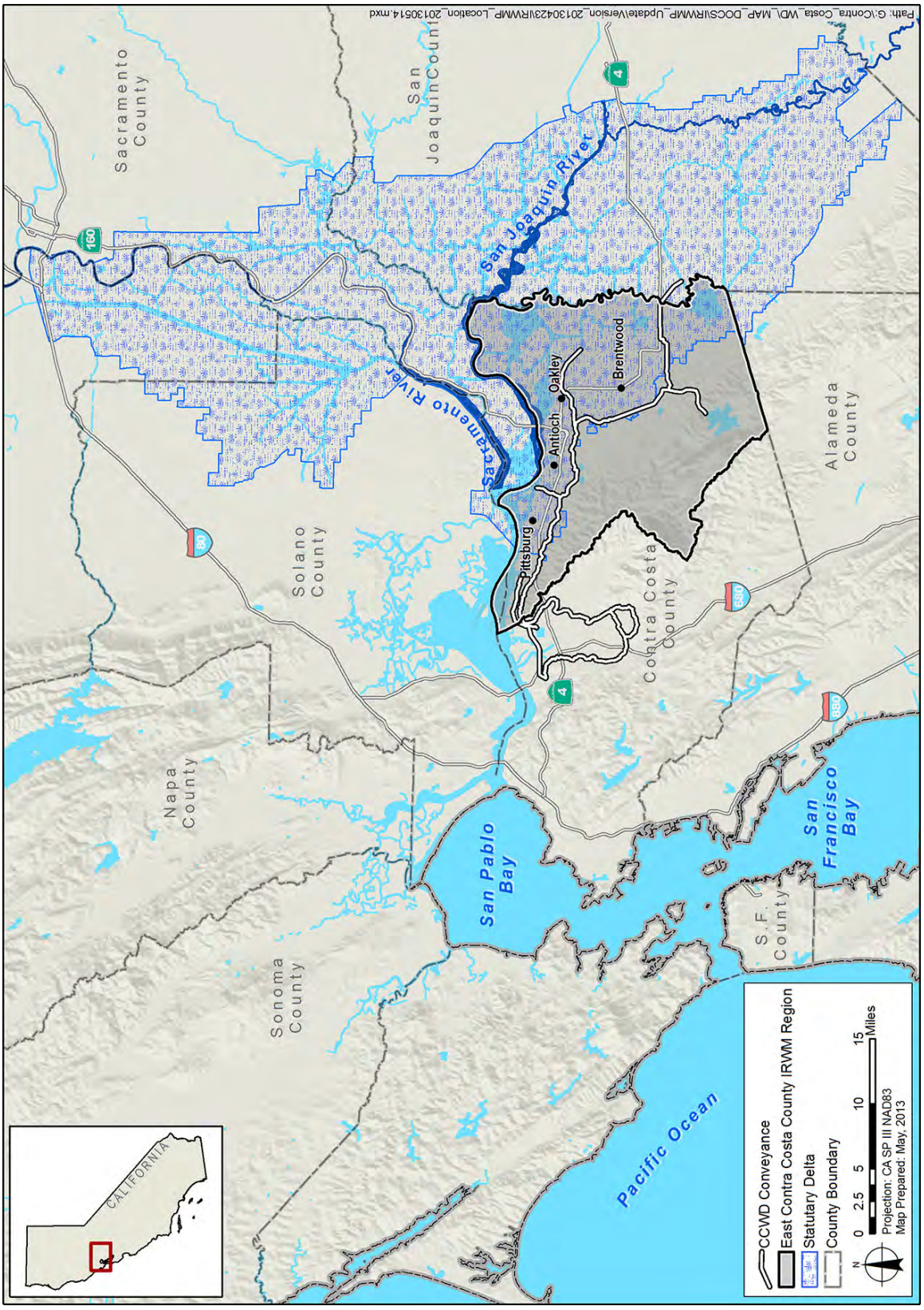


Figure 2-3. ECCC IRWM Region and the Statutory Delta

2.4.2. Member Agencies

This IRWM Plan was developed under the direction and support of the RWMG and its members, as identified in the region's RAP application. The ECCC region covers all aspects of water management within the region: drinking water supply and quality, wastewater, recycled water, flood control and stormwater, and watershed and habitat management. **Table 2-2** illustrates the range of services provided by member agencies.

Table 2-2. Regional Water Management Group Members and Primary Functions

Member Agency	Water Supply and Quality*	Wastewater*	Recycled*	Stormwater/ Flood Management	Watershed and Habitat
City of Antioch	√*	√	√	√	√
City of Brentwood	√*	√*	√*	√	√
Byron-Bethany Irrigation District	√	√*			
Contra Costa County Flood Control				√	√
Contra Costa County		√*		√	√
Contra Costa Resource Conservation District	√				√
Contra Costa Water District	√*				√
Delta Diablo		√*	√*		
Diablo Water District	√*				
Discovery Bay Community Services District	√*	√*			
East Contra Costa County Habitat Conservancy	√				√
East Contra Costa Irrigation District	√				
Ironhouse Sanitary District		√*	√*		
City of Pittsburg	√*	√	√	√	√

Note:

* Agency role includes treatment; otherwise role is collection/distribution

The RWMG and its members are diverse, ranging from municipalities to special districts, with large agencies employing hundreds of staff members to very small agencies with fewer than five staff members. Many of the agencies work within the same geographies, and over the years, the jurisdictions have forged cooperative efforts well in advance of being formally accepted by DWR as an IRWM region.

Figures 2-4 through **2-6** illustrate the boundaries of the region's agencies by their service type. **Figure 2-4** displays participating and supporting water agencies, **Figure 2-5** displays participating wastewater agencies, and **Figure 2-6** shows the participating flood management and environmental agencies.

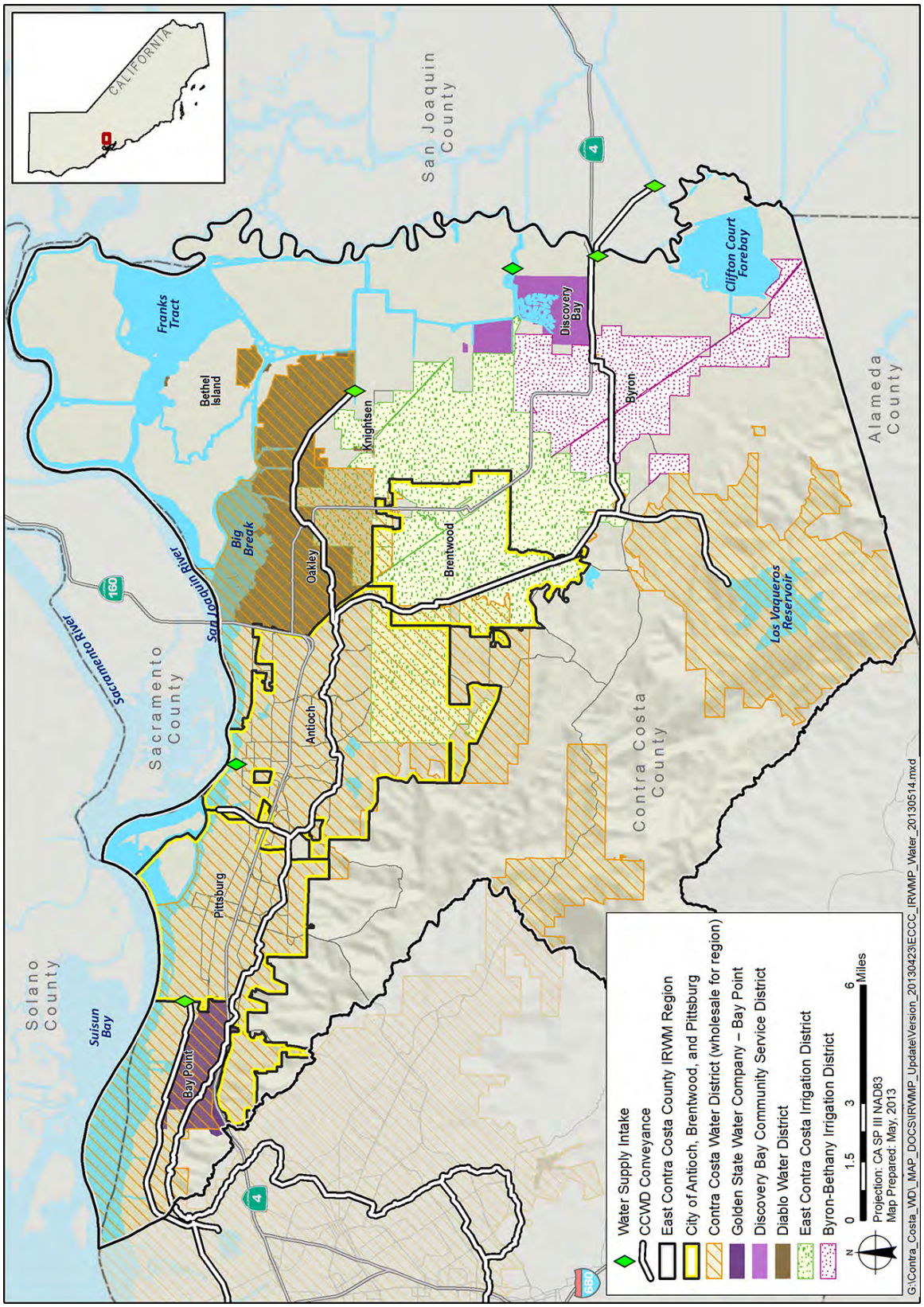


Figure 2-4. Participating Water Supply Agencies

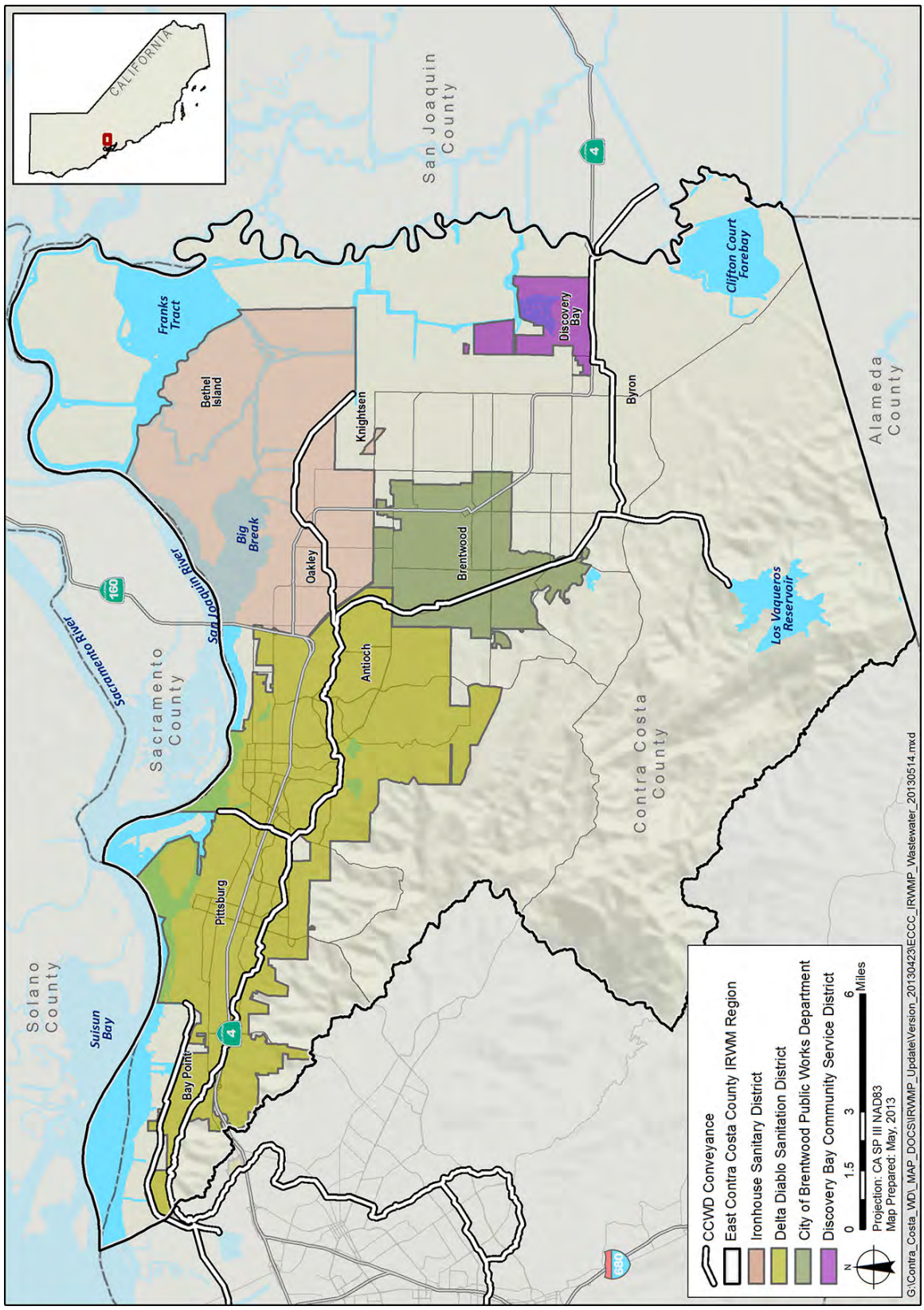


Figure 2-5. Participating Wastewater Agencies

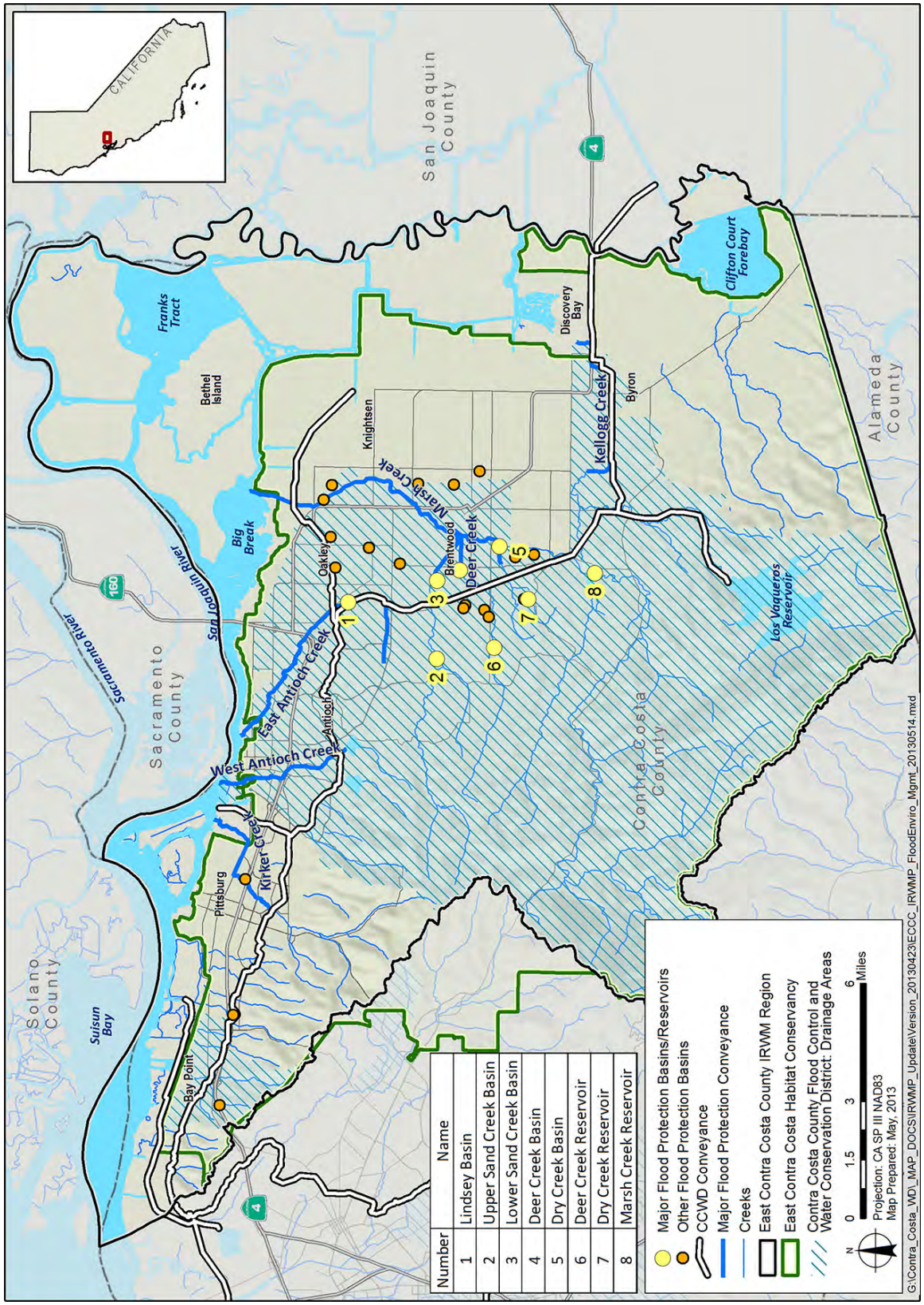


Figure 2-6. Participating Flood Management and Environmental Agencies

Following are brief descriptions of the agencies and the services each provides.

City of Antioch

- Agency role:
  - Water Supply and Quality
  - Wastewater
  - Stormwater/Flood Management
  - Watershed and Habitat

The City of Antioch, one of California's oldest cities, is home to 103,833 residents. The City delivers treated water to residential, commercial, and irrigation customers. Personnel maintain approximately 387 miles of water main, 31,349 service connections and meters, and 2,329 backflow prevention devices; they maintain, repair, and flush approximately 3,449 fire hydrants, and exercise system valves. They also administer a water conservation program focused on providing residential, commercial, and irrigation customers with education, assistance, and financial incentives to conserve the City's treated water supply.

Antioch pumps water from the San Joaquin River when Delta water quality is sufficient. Antioch also purchases untreated Delta water from CCWD and has the capacity to treat 36 million gallons per day (MGD) at the Antioch WTP. In addition, Antioch has purchased a permanent capacity right (currently 5 MGD with a reservation of up to 10 MGD) in the RBWTP, a regional WTP co-owned with CCWD and DWD from CCWD's share of the plant capacity.

The City also maintains an estimated 305 miles of sanitary sewer system for wastewater collection that serves 29,943 residential and commercial sewer lateral connections. Waste flows to Delta Diablo's Regional Treatment Plant.

The City's stormwater operations maintain, in a safe and serviceable condition, natural and constructed facilities that handle stormwater runoff in the City of Antioch's jurisdiction. Personnel assigned to this activity remove debris and illegally dumped trash, and perform weed abatement activities.

City of Brentwood

Agency role:

- Water Supply and Quality
- Wastewater
- Recycled Water
- Watershed and Habitat
- Stormwater/Flood Management

The City of Brentwood delivers water to more than 52,000 residents through 18,000 connections and approximately 172 miles of water mains. The City uses groundwater and surface water for its domestic water system using entitlements from ECCID. The City's eight groundwater wells supply over 1.9 billion gallons of water each year. Surface water purchased from ECCID is treated at the City of Brentwood (COB) WTP or at RBWTP through capacity obtained from CCWD. Surface water supplies approximately 2.5 billion gallons of water annually.

The City has multiple storage reservoirs located throughout the City to store water during low demand periods for use during peak consumption by the City's water customers.

The COBWTP was part of a joint venture between the City and CCWD in which CCWD designed and constructed the COBWTP on behalf of the City. The City is responsible for operational and capital costs, and CCWD operates and maintains the facility. The first phase of the COBWTP, which has been constructed and is in operation, can treat up to 16.5 MGD of surface water. However, the plant is designed so that it can be expanded to an ultimate capacity of 30 MGD to serve the City's projected water demands through 2040. In addition, Brentwood has purchased a permanent capacity right of 6 MGD in the RBWTP.

In an effort to conserve water, the City of Brentwood uses recycled water to irrigate a majority of parks and golf courses, saving an estimated 2 MGD of water. Recycled water is generated at the wastewater treatment plant located on Elkins Way, above. *Photo by Samie Hartley, March 12, 2009 - Source www.press.net.*

In addition, the City owns and operates a 5.0 MGD capacity tertiary wastewater treatment plant (WWTP), which includes reclamation facilities for irrigation. An estimated 3 MGD treated at the WWTP is discharged to Marsh Creek, while the remaining tertiary recycled water is used for irrigation. Brentwood has been collecting and treating wastewater since 1948 and currently delivers recycled water to customers throughout the City. The City of Brentwood recently completed a Recycled Water Feasibility Study that examined maximizing recycled water deliveries to existing recycled water customers, existing potential recycled water customers, and future potential recycled water customers. In sum, this report found that an additional 1,406 AFY of recycled water could be delivered to 86 new recycled water users through implementation of the recommended project.

Byron Bethany Irrigation District (BBID)

Agency role:

- Water Supply and Quality
- Wastewater

The BBID operates and maintains a wastewater collection system and treatment facility for the residents of Byron and provides agricultural water to southeastern Contra Costa County. Organized in 1914, BBID originally furnished water to landowners in Contra Costa, Alameda, and San Joaquin counties, covering 24,000 acres northwest of Tracy. While BBID was owned, built, and managed by the landowners, it was not consolidated into an irrigation district until 2004. In 2004, BBID formally consolidated with the former Plain View Water District, an adjacent district of 6,000 acres located in San Joaquin County along the Delta-Mendota Canal south and west of Tracy. BBID currently supplies water to a total of just over 30,000 acres of farms, towns, and businesses, and in 2012, BBID served 5,663 acres within Contra Costa County that used 18,484 acre-feet (AF) of water. In 2014 CCWD began to coordinate with BBID to install an intertie from the CCWD Old River pipeline. By July 2015 a portion of the project had commenced implementation.

BBID also maintains its own pre-1914 water right and diverts water under a settlement agreement with DWR from an intake in the Harvey O. Banks Delta Pumping Plant (Banks) intake channel, located between DWR's Clifton Court Forebay and Banks Pumping Plant. Also, as a federal CVP contractor, BBID receives water from the Trinity and Sacramento Rivers that has been stored in

Shasta Reservoir and sent toward the Delta as part of the CVP. Once in the Delta, the water is distributed by the Delta-Mendota Canal to the rest of the State. In the process, it makes a stop at the C. W. "Bill" Jones Pumping Plant in nearby Tracy, which then sends it on to BBID. This CVP water is delivered by BBID to Mountain House, City of Tracy, and the Tracy Hills development. Wastewater treated at the BBID Wastewater Treatment Facility (WWTF) is disposed either by percolation and evaporation in the ponds or by land application. This WWTF is permitted for 96,000 gallons per day.

Contra Costa County Flood Control and Water Conservation District (CCCFCWCD)

Agency role:

- Stormwater/Flood Management

Created in 1951 by the CCCFCWCD Act, the CCCFCWCD is a special district that manages flood and stormwater, develops flood control plans, and establishes and collects development fees through drainage areas (DA) to fund subregional drainage improvements that support approved General Plan land uses. Plans and fee ordinances, adopted by the Board of Supervisors under the Act, are not subject to the Subdivision Map Act.

The CCCFCWCD's mission is to provide flood protection facilities while protecting environmental resources. Its jurisdiction extends throughout Contra Costa County, including incorporated areas, and it owns most of the major storm drainage facilities in the County. The CCCFCWCD works directly with cities and the County to carry out its mission including, as appropriate:

- Implementing DA and zone plans
- Constructing flood control projects
- Maintaining facilities
- Managing rights of way
- Reviewing and issuing Flood Control Encroachment Permits for work within CCCFCWCD right of way

Understanding Appropriative Water Rights

California appropriative water rights (the right to take water) are typically referred to as either pre-1914 or post-1914. On December 19, 1914, the California Legislature adopted new Water Code that fundamentally changed the procedures for obtaining an appropriative water right. Rights obtained after the passage of this code are called post-1914 rights. Obtaining a post-1914 right begins with an Application to Appropriate Water with the State Water Resources Control Board, followed by a series of subsequent steps.

Pre-1914 rights are based on laws enacted in 1872. Generally, people wanting to take water from a water body posted a notice and/or began to use it in a beneficial way. It was essentially a first come, first serve approach and the people first in line can pre-empt those following.

Once acquired, a pre-1914 appropriative right can only be maintained by continuous beneficial use of the water. The right is not fixed by the amount claimed in the original notice of appropriation; the notice of appropriation only fixes the date of priority. The amount of the right is fixed by the amount that can be shown to be actually beneficially used as to both amount and season of diversion. The rights acquired under a pre-1914 water right can be lost by either abandonment or failure to use the water beneficially for five (5) years.

This distinction in water rights is important to understand as it explains what is required to maintain the right and the order of priority to water the water right holder has.

The CCCFCWCD is an active partner in the Contra Costa Clean Water Program, with a comprehensive plan to reduce the discharge of pollutants to the maximum extent practicable, and is regulated under Central Valley Water Board Order. No. R5-2010-0102. This is a joint permit for the City of Antioch, City of Brentwood, City of Oakley, Contra Costa County, and CCCFCWCD.

The CCCFCWCD is involved with several watershed groups, watershed councils, and watershed-focused agencies such as the Contra Costa Resource Conservation District (CCRCD) and the Friends of Marsh Creek Watershed (FOMCW). In the ECCC region, the CCCFCWCD has worked cooperatively on a fish passage projects, creek and habitat restoration projects, and recreational facilities (trails and dual use parks/play fields) as part of its ongoing membership in the Region's community.

Contra Costa Resource Conservation District

Agency Role:

- Water Supply and Quality
- Watershed and Habitat

The mission of the CCRCD is to facilitate conservation and stewardship of the county's natural resources. Under that mission, the CCRCD has worked in cooperation with landowners and agencies in the ECCC region for many years. The CCRCD is a non-regulatory agency – working with individuals, growers, ranchers, public agencies, nonprofit organizations and corporations to accomplish goals. Their federal partner, the U.S. Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS), provides technical support for programs.

The CCRCD was formed in 1941. Their service area is consistent with the political boundaries of Contra Costa County. CCRCD is one of California's 103 Resource Conservation Districts and is governed by a voluntary Board of Directors appointed by the County Board of Supervisors and regulated under Division 9 of the California Public Resources Code. The CCRCD Board of Directors holds monthly meetings.

The CCRCD has active programs in many parts of the county related to promoting watershed awareness and health and habitat. As an example the CCRCD worked with land owners and developed watershed plans. It has promoted an Adopt a Creek Program, and supports Friends of Marsh Creek and the Contra Costa Watershed Forum

Contra Costa Water District (CCWD)

Agency role:

- Water Supply and Quality
- Watershed and Habitat

The CCWD, covering 137,127 acres, was formed in 1936 to provide water for irrigation and industry. Since then, CCWD has expanded to serve about 500,000 people in central and eastern Contra Costa County, making it one of California's largest urban water districts.

A leader in drinking water treatment technology and source water protection, CCWD acts as both a retail and wholesale water distributor, delivering treated drinking water directly to customers and both treated and untreated water to retail water agencies and major industries. About 200,000

people receive treated water directly from CCWD, and the other 300,000 receive water CCWD delivers to six local agencies.

CCWD draws its water from the Delta primarily under a contract with the federal CVP. As such, it is particularly concerned about Delta water quality and the Delta environment. CCWD is the CVP's largest urban contractor. Other local sources of water used in CCWD's service area include a Delta surplus water right, Mallard Slough water rights, recycled water, a minor amount of local groundwater, and water transfers.

In 1998, CCWD completed construction of the locally-financed $450 million Los Vaqueros Project, including a 100 thousand acre-feet (TAF) reservoir designed to provide improved water quality and emergency supply reliability for CCWD customers, as well as net environmental benefits. In 2012, the reservoir was enlarged. The dam was raised 34 feet and the reservoir's capacity was increased to 160 TAF. CCWD also manages approximately 19,000 acres Los Vaqueros Watershed, and about 5,000 acres of additional conservation lands.

The backbone of the CCWD conveyance system is the Contra Costa Canal (owned by the U.S. Department of the Interior, Bureau of Reclamation [Reclamation], and operated and maintained by CCWD). The Contra Costa Canal travels a total of 48 miles through the ECCC IRWM Region. A series of four pump stations (Pumping Plants 1 through 4) lift the water from Rock Slough to a height of 126 feet above sea level, after which gravity propels the water to its terminus in Martinez. The canal passes through many of the cities and communities in the northeastern and central county areas before ending at the Martinez Reservoir. Water is also supplied to the canal from Old and Middle Rivers via the Los Vaqueros and Middle River pipelines and from Mallard Slough. The Middle River Intake Station began operation in July 2010.

CCWD owns two water treatment plants, the 40 MGD capacity Randall Bold Water Treatment Plant in Oakley (jointly with DWD) and the 75 MGD capacity Bollman Water Treatment Plant in Concord.

Delta Diablo (formerly Delta Diablo Sanitation District [DDSD])

Agency role:

- Wastewater
- Recycled Water

Delta Diablo provides wastewater collection services for the unincorporated community of Bay Point, and conveyance, treatment, and disposal services for certain unincorporated areas of eastern Contra Costa County, including the community of Bay Point and the Cities of Antioch and Pittsburg.

Delta Diablo was originally formed in 1955 and began providing subregional wastewater conveyance and treatment services in 1982. Delta Diablo now serves an estimated population of over 188,500 residents in a service area of approximately 52 square miles. Delta Diablo wastewater infrastructure includes pumping stations, conveyance systems, and equalization basins in each community, a wastewater treatment plant, and a recycled water facility (RWF) located on the Pittsburg-Antioch border. Treated wastewater is discharged in New York Slough, a section of the San Joaquin River. The WWTP has a permitted capacity of 16.5 MGD.

In 2000, Delta Diablo began a landmark recycled water program to produce and deliver tertiary recycled water for power generation and for landscape irrigation of municipal golf courses and parks in Pittsburg and Antioch. Delta Diablo has produced and delivered over 26 billion gallons of recycled water from 2001 to 2012.

Delta Diablo has been involved with household hazardous waste collection since 1995, leading a multi-jurisdictional effort involving Contra Costa County; ISD; and the cities of Antioch, Brentwood, and Pittsburg. Delta Diablo has constructed and manages the Delta Household Hazardous Waste Collection Facility, which has diverted over 4,500 tons of waste from landfills and waterways through 2012.

In 2012, Delta Diablo was named Plant of the Year by the San Francisco Bay Section of the Clean Water Environment Association (5 MGD to 20 MGD facilities), and also received Platinum Peak Performance Award 9 by the National Association of Clean Water Agencies for 9 consecutive years of 100 percent compliance with its discharge permit. Delta Diablo is currently exploring opportunities in water resource recovery and is partnering with Stanford University and Lawrence Livermore National Laboratories on innovative pilot projects. Delta Diablo is also continuing its lead role in both the Bay Area Biosolids to Energy Coalition (BAB2E) and the Western Recycled Water Coalition (WRWC).

In 2013, Delta Diablo completed a Recycled Water Master Plan to examine maximizing the utilization of existing facilities and to identify both near-term and long-term projects that could be implemented to improve performance of Delta Diablo's existing recycled water system and expand recycled water deliveries. The Recycled Water Master Plan results were incorporated into a Title XVI-compliant Feasibility Study, making Delta Diablo eligible to receive Title XVI grant funding for recycled water implementation projects. The Title XVI program that was identified and recommended in the Recycled Water Master Plan consists of a recycled water distribution system expansion project and a High Purity Water Treatment Facility (HPWTF) that would consist of a microfiltration/reverse osmosis treatment plant and related pipelines and pump stations. The HPWTF project would involve construction of an advanced treatment facility capable of removing chlorides from water that is currently available in the Delta but is too high in TDS to be usable. As such, both projects proposed under the Title XVI program would allow Delta Diablo to make use of available water supplies and increase overall water supply reliability in the region.

Diablo Water District (DWD)

Agency role:

- Water Supply and Quality

The DWD was formed in 1953 as a self-governing local public agency to provide water to customers in downtown Oakley. Today, DWD obtains, treats, and supplies water for about 35,000 people and the parks, schools, and businesses throughout a 21-square-mile area consisting of Oakley, Cypress Corridor, and Hotchkis Tract, as well as Summer Lakes, and portions of Bethel Island and Knightsen. It provides approximately 9.5 MGD of water, on a maximum day, to residents. Most of the water delivered by DWD is surface water supplied by CCWD. DWD purchases untreated Delta water from CCWD and treats it at the RBWTP, which DWD owns jointly with CCWD.

DWD's surface water source has been supplemented by groundwater from the Glen Park municipal well since 2006 and the Stonecreek well since 2011. DWD uses up to 4 MGD of local groundwater, which is blended with the Delta water to maintain consistent water quality for its customers. The water is then distributed through the main municipal system serving the City of Oakley. Expanded use of groundwater is an objective of DWD under its Well Utilization Project in which it seeks to develop 6 MGD to 7 MGD of well capacity to supplement surface water and improve reliability, drought supply, and operating flexibility of its system. Outside of its main distribution system, in unincorporated areas, DWD owns and/or operates a number of small community wells.

DWD is in the beginning stages of converting its water meter reading system to a remote FlexNet radio read system, through which DWD staff are able to read water meters from the central office and automatically check customer accounts for leaks. It is expected that DWD will have fully converted its 11,000 meters to the FlexNet system within 10 years. If grant funding is available, the conversion could be completed sooner, depending on the amount of funding awarded.

Discovery Bay Community Services District

Agency role:

- Water Supply and Quality
- Wastewater

The Town of Discovery Bay is located adjacent to the Delta, approximately six miles southeast of the City of Brentwood along the Highway 4 corridor, just east of Byron Highway (J-4). A significant portion of Discovery Bay is situated within a network of constructed lakes and channels that are connected to the Delta.

The Town of Discovery Bay Community Services District (District) was formed in 1998 to provide Discovery Bay's over 15,000 residents with water treatment, distribution, and storage. The community is largely residential with some commercial and irrigation uses. The District owns water supply wells, treatment plants, storage tanks, and distribution system pipelines that serve water through 6,116 service connections for residential, commercial, and irrigation uses in an approximate 9-square-mile area.

Many of the residential properties have docks with backyard access to the constructed channels and Delta waters. The levees and waterways of Discovery Bay are managed and maintained by Reclamation District (RD) 800 and the U.S. Army Corps of Engineers (USACE). The system is defined by relatively flat topographies with mean sea level elevations ranging from 5 feet to 15 feet across the entire system.

The District derives all of its water supply from six active groundwater supply wells. Raw water from the wells is delivered and treated at two WTPs, known as the Newport WTP and the Willow Lake WTP, with a water storage capacity of 2.5 million gallons of treated water. Two storage tanks are located at each plant to provide operational equalization and reserves for fire safety. Booster facilities pump water from storage to provide the flow and pressure required in the distribution system. On a summer day, the District will pump approximately 4 MGD to 5 MGD of which a large portion of that is being used for irrigation.

In addition, the District owns two WWTFs that treat an average of 1.4 million gallons of wastewater per day using advanced tertiary treatment. The system also includes 15 wastewater lift stations that transport/move the raw wastewater to the main WWTF and 60 miles of water and wastewater mains.

The water and wastewater facilities are operated and maintained by Veolia North America under a multi-year contract.

East Contra Costa County Habitat Conservancy

Agency role:

- Water Supply and Quality
- Watershed and Habitat

Originally formed in 2007, the ECCCHC is a joint exercise of powers authority formed by the cities of Brentwood, Clayton, Oakley and Pittsburg, and Contra Costa County to implement the ECCC HCP/NCCP.

The HCP/NCCP provides a framework to protect natural resources in eastern Contra Costa County, while improving and streamlining the environmental permitting process for impacts on endangered species. Within the 174,018-acre inventory area, the NCCP will provide permits for between 8,670 and 11,853 acres of development and will permit impacts on an additional 1,126 acres from rural infrastructure projects. The Preserve System to be acquired under the NCCP will encompass about 24,000 to 30,000 acres of land that will be managed for the benefit of 28 species, as well as the natural communities that they, and hundreds of other species, depend upon.

The NCCP will allow Contra Costa County, the CCCFCWCD, the East Bay Regional Park District, and the Cities of Brentwood, Clayton, Oakley, and Pittsburg (collectively, the Permittees) to control endangered species permitting for activities and projects in the region that they perform or approve. The NCCP also provides for comprehensive species, wetlands, and ecosystem conservation and contributes to the recovery of endangered species in Northern California.

The NCCP was approved in 2007. The permit program will be in effect until 2037. The lands acquired will be preserved and managed for species in perpetuity.

East Contra Costa Irrigation District (ECCID)

Agency role:

- Water Supply and Quality

The ECCID is an independent special district established in 1926 under the Irrigation District Law. The primary purpose of ECCID is to provide agricultural irrigation water to properties within ECCID. ECCID's boundaries encompass approximately 40 square miles and include the City of Brentwood, the unincorporated community of Knightsen, portions of the cities of Oakley and Antioch, and a large area of unincorporated territory south and east of Brentwood.

ECCID supplies irrigation water for agricultural and landscape use as well as raw water for treatment and delivery to urban areas. ECCID has a 1912 appropriative right to divert water from Indian Slough on Old River, and therefore has infrastructure and delivery costs but no water supply costs. ECCID also operates nine groundwater wells.

From the Indian Slough intake water is conveyed through the Main Canal that extends from the Indian Slough intake area northwest of Discovery Bay to approximately 8,000 feet west of Walnut Boulevard in Brentwood. Seven pump stations are located along the canal. A grid of open canals and pipelines runs throughout ECCID. Deliveries to approximately 50 percent of the agricultural accounts are measured. ECCID has an ongoing program to add measuring devices for all customers. ECCID's drainage system includes ditches for surface drainage, a subsurface drainage system, and pumps. The original irrigation and drainage system was built in 1911.

In 2012, ECCID diverted approximately 37 TAF of which 15 TAF were provided to CCWD and the City of Brentwood, and 22 TAF were used for agriculture.

Ironhouse Sanitary District (ISD)

Agency role:

- Wastewater
- Recycled Water

Ironhouse Sanitary District (ISD) provides sewage collection and treatment and disposal services to the City of Oakley, the unincorporated area of Bethel Island, and other unincorporated areas including the East Cypress Corridor Specific Plan Area. In existence in some form since 1945, ISD utilizes a staff of 33 field and office personnel to maintain sanitary services for over 38,000 customers.

The ISD provides sewage collection, treatment, and disposal services to the City of Oakley, the unincorporated area of Bethel Island, and other unincorporated areas of Contra Costa County. Bounded by the San Joaquin River to the north, Delta Diablo to the west, the City of Brentwood to the south and unincorporated area in the Holland Tract to the east; its service area is approximately 37 square miles.

ISD's infrastructure includes gravity and pressure pipelines, pumping stations, and the Ironhouse Water Recycling Facility (WRF). Effluent from the WRF is applied to agricultural lands on Jersey Island and discharged into the San Joaquin River. The District treats approximately 2.5 million gallons of wastewater every day at their treatment facility located north of Highway 4 in Oakley. In October 2011, ISD began operation of a new 4.3 MGD membrane bioreactor Water Reclamation Facility (WRF). Effluent from the WRF is used to irrigate 334 acres of agricultural land on Jersey Island for the production of hay, or is discharged into the San Joaquin River.

The WRF has a design capacity of 4.3 MGD and an ultimate capacity of 6.8 MGD. ISD participated in a regional water recycling study looking at providing recycled water to industry outside of the ISD service area. In addition, ISD completed a Recycled Water Master Plan and a Recycled Water Feasibility Study looking at potential users of recycled water within the ISD service area and the economic feasibility of developing a separate non-potable water system that could supply recycled water to offsite users.

The preliminary results of ISD's Recycled Water Feasibility Study demonstrate that in the immediate-term (less than 2 years), recycled water use could increase by 20 AFY with implementation of a fill station that is currently operable. Further, in the near-term (less than 10 years), ISD could increase recycled water use by 2,350 AFY by providing recycled water for industrial reuse along the Wilbur corridor and the Northern Waterfront Area, and by including

recycled water uses for sustainable farming practices. In the long-term (more than 20 years), recycled water in ISD's service area could be increased by between 2,200 and 6,500 AFY through implementation of indirect or direct potable reuse.

Upon completion of its new membrane bioreactor WRF, ISD began additional efforts to determine ways in which the high-quality recycled water produced at the WRF could be used within its service area. In 2012, ISD completed a Recycled Water Master Plan that evaluated the feasibility of various alternatives that could be implemented to serve irrigation needs at parks, schools, medians, vineyards, and future industrial facilities. To refine the alternatives developed in the Recycled Water Master Plan, ISD began preparing a Recycled Water Feasibility Study to evaluate additional (ten) alternatives and address cost and feasibility issues identified in the Recycled Water Master Plan. The Feasibility Study identifies immediate-term, near-term, and long-term projects that could be implemented to increase water reuse in ISD's service area, including:

- Immediate term projects: recycled water fill station, higher-value crop farming
- Near-term projects: industrial reuse, sustainable farming practices,
- Long-term projects: direct potable reuse

The Feasibility Study complies with Title XVI requirements and was submitted to the United States Bureau of Reclamation in January 2015; upon final completion of the Title XVI-compliant Feasibility Study, ISD will be eligible to receive Title XVI grant funding for recycled water implementation projects.

City of Pittsburg

Agency role:

- Water Supply and Quality
- Wastewater
- Stormwater/Flood Management
- Watershed and Habitat

The City of Pittsburg was incorporated in 1903 as a General Law City and has an estimated current population of around 66,000. Pittsburg is bounded by Suisun Bay to the north, the unincorporated community of Bay Point to the west, the City of Antioch to the east, and the Mount Diablo Recreation Area to the south. The Pittsburg Water Service Area comprises all of the area within the city limits, around 10,000 gross acres (15.6 square miles), and a very small number of individual residents outside. The Bay Point area outside the service area is served by Golden State Water Company (GSWC).

Originally a coal shipping port in the 1940s and early 1950s, the City was a major commercial and industrial center for the County and the eastern ports of the greater San Francisco Bay Area. Pittsburg experienced rapid population growth during the 1970s and 1980s, evolving into a bedroom community for employment centers in west and central Contra Costa County. Today, the City is part of the second largest industrial center in the County.

Located within the CCWD service area, the City obtains roughly 85 percent of its water supply wholesale from CCWD. CCWD provides untreated surface water pumped from the Delta and delivered through the Canal. The remainder of the City's water supply is obtained from groundwater wells located within the City. In 2015 the City of Pittsburg began drilling a new water

well using Proposition 84 IRWM funding from Round 2. Surface water from CCWD and groundwater from the City's wells are blended at the City's WTP and delivered to customers within the City. The City's water system includes a 32 MGD WTP, two municipal wells, seven pump stations, and eight drinking water storage reservoirs.

Delta Diablo treats wastewater from Pittsburg, and also provides recycled water for industrial and irrigation use within the City service area.

The City and its residents are increasingly focused on quality-of-life issues. Pittsburg has been designated both a Healthy City by California Healthy Cities and Communities Project, and a Tree City U.S.A.

2.4.3. Other Water-Related Agencies within the Region

A variety of other related local and regional groups are stakeholders of the IRWM effort even if they do not maintain a formal role in its governance. The following are agencies in this category.

Bethel Island Municipal Improvement District (BIMID)

Agency role:

- Water Supply and Quality
- Stormwater/Flood Management

Created in 1960, BIMID maintains the levee that protects Bethel Island and provides stormwater, seepage, and drainage control services. Its charter includes not only maintaining the levee that surrounds and protects the island, but allows for many other activities, including the distribution of water for public and private purposes, parks and playgrounds, airports, and works to provide for drainage.

BIMID owns 100 acres of land in the center of the island between Bethel Island Road and Piper Road. This property is used to remove sand, which is placed on the levee, and also as a mitigation site. The state requires that for every tree BIMID removes from the island levee areas, three trees must be replanted, and they must survive for at least 2 years. New trees are planted on the mitigation site as trees are removed from the levee and drainage ditches.

Golden State Water Company

Agency role:

- Water Supply and Quality

GSWC provides retail water service for the unincorporated Bay Point community. GSWC is a wholly owned subsidiary of American States Water Company, an investor-owned utility publicly traded on the New York Stock Exchange under the trading symbol AWR. GSWC provides water service to approximately 1 out of every 36 Californians located within 75 communities throughout 10 counties in Northern, coastal, and Southern California (approximately 256,000 customers).

As of December 2011, the Bay Point Customer Service Area is a single, interconnected system with 4,918 service connections. Water delivered to customers in the Bay Point system is a blend of groundwater pumped from wells and treated surface water purchased from CCWD.

The company operates under the oversight of the California Public Utilities Commission (CPUC). Customers living in the community of Bay Point receive service from the local employees of the Bay Point Customer Service Area.

Knightsen (Town of) Community Services District

Agency role:

- Stormwater/Flood Management

The Knightsen Town Community Services District (KCSD) was created in 2005, and encompasses approximately 5,100 acres serving 1,500 people. It was formed to provide flood control and water quality (drainage services) for the community of Knightsen, which is a low area that receives runoff flow from nearby areas.

KCSD is authorized to provide only flood control and water quality (drainage services). KCSD is not actively providing these types of services at this time, but is in the planning stages to do so. Other types of services, if desired, can be provided by KCSD only with the Local Agency Formation Commission's approval.

Mutual Water Companies and Small Water Systems

Agency role:

- Water supply and quality

There are a number of mutual water companies and privately owned water systems providing service within the County. Mutual water companies (also called water companies, cooperative company, water system, water association, and water works) are a legal entity with no specific requirement for the size of the system or number of connections. It essentially means that there are shared interests in the water system and service by customers of the system. Water systems may also be investor owned, meaning that the owners, whether it be an individual or group, are not customers of the water system. Investor-owned systems are regulated by the CPUC.

In ECCC, the small mutual companies supply drinking water to communities between 2 and 199 service connections; or serve 25 or more people at least 60 days out of the year. Small water systems are required to meet water quality standards of the Safe Drinking Water Act. Contra Costa Environmental Health permits and regulates all Small Water Systems in Contra Costa County, which include small Public Water Systems (Community, Non-Transient Non-Community, and Transient Non-Community Systems) and Non-Public Water Systems (State Small and County Small Systems). The CDPH also oversees systems of greater than 15 connections. **Table 2-3** lists the ECCC small systems.

Table 2-3. ECCC Small Systems

Water System	Service Connections	Population
Bethel Island		
Willow Mobile Home Park	173	350
Beacon West Water System	17	45
Farrar Park Water System	56	140
Flamingo Mobile Manor Water System	80	200
Angler's Subdivision #4	70	168
Frank's Marina	120	290
Pleasantimes Mutual Water Company	190	380
Angler's Ranch #3 Water System	45	100
Bethel Island Mutual Water Company	23	56
Riverview Water Association	86	230
Sandmound Mutual	65	160
Marina Mobile Manor Water System	24	75
Russo's Mobile Park	35	110
Oakley		
Willow Park Marina Water System	125	380
Oakley Mutual Water Company	65	170
Delta Mutual Water Company	75	180
Sandy Point Mobile Home Park	24	94
Dutch Slough Water Works	18	49

In the ECCC region, all of the Mutual Water Companies rely on groundwater as a major water supply source.

Reclamation Districts

Agency role:

- Stormwater/Flood Management

There are several reclamation districts (RDs) within ECCC that provide flood protection services, including: RD 799 (Hotchkiss Tract); RD 800 (Byron Tract), RD 830 (Jersey Island), RD 2024 (Orwood and Palm Tracts), RD 2025 (Holland Tract), RD 2026 (Webb Tract), RD 2059 (Bradford

Island), RD 2065 (Veale Tract), RD 2090 (Quimby Island), RD 2117 (Coney Island), RD 2121, RD 2122 (Winter Island), and RD 2137.

2.4.4. State Agencies Collaborating with the Region

State agencies, the DWR and the California State and regional water boards, have provided grants and technical assistance to the region. The water boards also maintain oversight over water quality and water allocation. Following is additional information on these key partners.

California Department of Water Resources

In 1956, the Legislature passed a bill creating the DWR to plan, design, construct, and oversee the building of the nation's largest State-built water development and conveyance system. Today, DWR protects, conserves, develops, and manages much of California's water supply, including the State Water Project (SWP), which provides water for 25 million residents, farms, and businesses. The mission of DWR is to manage the water resources of California in cooperation with other agencies, to benefit the State's people, and to protect, restore, and enhance the natural and human environments.

Working with other agencies and the public, DWR fosters public safety, environmental stewardship, and economic stability statewide by developing strategic goals, and near-term and long-term actions to conserve, manage, develop, and sustain California's watersheds, water resources, and management systems. DWR also works to prevent and respond to floods, droughts, and catastrophic events that would threaten public safety, water resources and management systems, the environment, and property.

DWR has a number of IRWM grant program funding opportunities. The 2013 IRWM grant programs include planning, implementation, and stormwater flood management. Additional IRWM grant funding will be available through Proposition 1, which was passed by voters in November 2014. It is anticipated that Proposition 1 will include IRWM grant programs for planning and implementation.

Balancing the State's water needs with environmental protection remains a long-term challenge. The Delta Habitat Conservation and Conveyance Program is a key initiative currently underway to promote the recovery of endangered, threatened, and sensitive fish and wildlife and their habitats in the critically important Delta in a manner that will also ensure water supply reliability for the State.

Water Boards

The State Water Resources Control Board (the State Water Board) was created by the Legislature in 1967. The mission of the State Water Board 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 State Water Board to provide comprehensive protection for California's waters.

There are nine regional water boards under the State Water Board. The mission of the each regional water board is to develop and enforce water quality objectives and implementation plans for their designated hydrologic region that will best protect the beneficial uses of the State’s waters, recognizing local differences in climate, topography, geology, and hydrology.

The water agencies in the ECCC IRWM region all fall within the jurisdiction of the Central Valley Water Board (Region 5). There are some agencies (CCWD, Delta Diablo, and the City of Pittsburg) that fall in both the San Francisco Bay Water Board (Region 2) and the Central Valley Water Board (Region 5). The remaining regional entities lie entirely within the Central Valley Water Board.

2.5. Description of Social and Cultural Makeup

Based on 2010 Census and California Department of Finance data, UWMPs[1], industry data projections, and other related sources, such as topical research studies, ECCC is a complex mix of races, ages, education, and prosperity. Composed of approximately 330,000 people, the residents of Antioch, Bay Point, Brentwood, Byron, Discovery Bay, Knightsen, Oakley, and Pittsburg do not fully mirror the rest of California. The community is highly diverse and has a large population of children. This trend is so pronounced, regional post-secondary schools have commissioned studies to monitor a future influx of students, who at the time of this report, are all under the age 10.[2]

There are minor variations in the population studies and reported numbers due to the time of collection, boundaries of the study areas, and limitations with the collection processes; however, there is general consistency. As such, it is possible to identify trends and discern the implications that can be drawn.

2.5.1. Demographics

Table 2-4 below provides key demographic facts and illustrates how ECCC compares to the State and nation.

[1] UWMPs are in the process of being updated, with 2015 UWMPs finalized by July 2016. Data collected from 2010 UWMPs is therefore anticipated to be updated in the near future, but not prior to finalization of the 2015 IRWM Plan Update. Therefore, the best available UWMP information was used in this document.

[2] Projected Population Changes in Contra Costa County and Their Implications for Contra Costa Community College District, Prepared for Contra Costa Community College District Office by Hanover Research Council, January 2010. Contra Costa. Includes full district boundaries, including eastern Contra Costa County.

Table 2-4. Demographics Data for the ECCC Region

People Quick Facts[1]	ECCC	California	USA
Population, 2010	330,000	37,253,956	308,745,538
Persons under 18 years, percent, 2011	29%	24.6%	23.7%
Persons 65 years and over, percent, 2011	9%	11.7%	13.3%
Females	51%	50.3%	50.8%
Whites	53%%	74.0%	78.1%
Blacks	13%	6.6%	13.1%
American Indian and Alaska Native persons	0.1%	1.7%	1.2%
Asians, percent	10%	13.6%	5.0%
Native Hawaiians and Other Pacific Islanders	0.1%	0.5%	0.2%
Hispanics or Latinos (of any race)	35%	38.1%	16.7%
Persons reporting two or more races	7%	3.6%	2.3%
Other	15%	n/a	n/a
Bachelor's degree or higher,	19.1%%	29.4%	28.2%
High school graduate or higher	80.7%	80.8%	85.4%

Note:
[1] Where appropriate, figures are rounded to whole numbers and for that reason may not total 100%. Some ECCC numbers are based on 2009 and 2010 data sets, rather than the 2011 projection used for national and statewide numbers. Additional calculations will be needed if this chart is used for more than illustrative purposes.
Key:
ECCC = East Contra Costa County
n/a = data not available
USA = United States of America

2.5.2. Demographic Analysis of Contra Costa County in 2009 and 2019

In 2010, the Contra Costa Community College District (CCCCD) retained the Hanover Research Council to analyze demographic trends in Contra Costa County. They specifically focused on age, race/ethnicity, nationality, and gender. While the analysis considered potential implications of the changes for CCCCD, some aspects of the information have direct utility for ECCC.

2.5.3. Age

Contra Costa County is expected to experience significant population growth over the 10 years between 2009 and 2019, with much of the County growth occurring in ECCC. The proportion of residents in some age groups will diminish or increase only slightly, while the relative proportion of other age groups will increase substantially. Both the decreases and increases are concentrated among a few adjacent age groups. According to the Hanover report, "overall Contra Costa will experience a significant decrease in the number of residents aged 40 to 54 years. Indeed, from 2009 to 2019, the total population in this age group was anticipated to decrease by over 23,000, or 9 percent. Furthermore, the proportion of residents in this age group, relative to the total population, was also expected to decline markedly, from 22.7 percent to 18.2 percent. This demographic shift represents a significant loss of working-age residents."

At the same time, models predict larger numbers of children under the age of 10 living in the County. While age per se is not a water management issue, the profile of a community has many implications for competing interests for service, Also to be considered is the degree of flexibility

of those on fixed incomes and the ability to adjust to rate changes or support investments in infrastructure. A large number of children may change service demands and at the same reduce discretionary income.

2.5.4. Ethnicity

Also projected for significant change is the racial-ethnic composition with those originating from Hispanic and Asian heritage becoming a larger percentage of the population. This trend indicates a need for service models able to accommodate more than one language. Some additional research may be also needed on the best ways to communicate with multiple cultures on water use efficiency or other water policy initiatives. Additional thinking will be needed on all forms of public outreach and engagement.

2.5.5. Gender

No significant trends were seen in County data for gender.

2.5.6. Economic Industry

Industry and agriculture are important to the ECCC economy. Approximately 30 percent of water use is attributable to major industry within the region, including USS-Posco (steel finishing plant), Delta Energy Center (electric generation), LMEC (electric and steam generation), and Gaylord Container and Inland Paperboard & Packaging (corrugated boxes, shipping materials) as major contributors. The Milken Institute, a nonprofit, nonpartisan think tank, with the support of Chevron, the Contra Costa Economic Partnership, and the Contra Costa Council, completed an assessment of the Contra Costa economic climate in October 2012.

The Milken report outlined key economic challenges the County faces. Of particular interest is contraction in its industrial base and unbalanced economic growth across the County. In the early 1990s, manufacturing was the key driver of the economy. Over 12 percent of private-sector jobs were concentrated in manufacturing in 1990, compared to less than 7 percent in 2010.

Petrochemical, steel, and confectionery products still maintain a good jobs outlook but the local manufacturing base has shed more than 10,000 jobs since 1990. As heavy manufacturing diminished, former workers faced challenges in acquiring new skills and adapting to new industries, contributing to rising unemployment. In the early 1990s, the jobless rate was much lower in Contra Costa than in the wider Bay Area. However, over the past 2 decades, that trend has reversed.

Antioch and Pittsburgh are among 2 of the 19 cities in the county responsible for 95 percent of employment. Both continued to add jobs to the service sector, however slowly, during the 2008 to 2014 recession. The availability of land and relatively low business costs, combined with proximity to San Francisco and Oakland, makes them ideal choices for land-intensive businesses. Pittsburg is a prominent manufacturing center and assets include an enterprise zone where business incentives are available. Pittsburgh's recent economic development plan has the city promoting strategies that capitalize on this.

However, Antioch, along with Pittsburg, faces a severe shortage of high-skilled labor, which helps explain its weak performance in knowledge-based industries, compared to the Bay Area and to

Contra Costa overall. This shortcoming will likely continue to impede the development of a more diverse economy.

Southern portions of ECCC are predominantly unincorporated and agricultural lands. More than 80,000 acres in ECCC are designated for agricultural use, and 99 percent of this land is located in unincorporated areas. Agricultural lands are generally used for crops, vineyards, and rangelands. Crops grown in ECCC include nursery crops, vegetables, fruits, and nuts, with nuts being the most profitable. Because of the region's dependence upon Delta water supplies, events that threaten the quality or quantity of this supply, such as the ongoing droughts, water quality events, and levee failures, could have significant ramifications on the economic viability of the entire region.

2.5.7. Disadvantaged Communities

Like the State of California, the ECCC region is committed to promoting equitable distribution of IRWM Plan project benefits, and especially to addressing the critical water supply needs of disadvantaged areas. A DAC is a term defined by the California Public Resources Code (PRC), Section 75005(g): *"Disadvantaged community" means a community with a median household income (MHI) less than 80% of the statewide average. "Severely disadvantaged community" means a community with an annual MHI less than 60% of the statewide average.*

Related but somewhat different are environmental justice (EJ) concerns. As defined by the U.S. Environmental Protection Agency (EPA), "Environmental Justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.

The ECCC region faces special challenges as many residents reside in DACs. A lack of community resources can impact the ability of ECCC members to obtain additional resources for water-related needs. Yet, even with the recent economic downturn and the attendant issues of disproportionate DAC numbers, growth is still occurring. All indications point to an increased need for water-based infrastructure and services, now and into the future.

The current DWR guidelines for IRWM funding, allocated through voter-approved Propositions 84 and 1E, identify statewide priorities among which is a goal to "ensure equitable distribution of benefits." For implementation grants, DWR has prioritized proposals that:

- Increase the participation of small communities and DACs in the IRWM process
- Develop multi-benefit projects with consideration of affected DACs and vulnerable populations
- Address safe drinking water and wastewater treatment needs of DACs

Delineating DACs

Delineating the DACs is often done by census tract, as data and boundaries are available. Even so, the California Public Resources Code (PRC) is not specific as to how DACs are delineated, so different methods of determining the boundaries of a DAC can be considered valid by DWR.

The U.S. Census Bureau's American Community Survey (ACS) includes MHI data compiled for the 5-year period from 2009 to 2013. A community with an MHI of $48,875 or less is considered a DAC. The U.S. Census collects and compiles data for multiple census geographies including Place, Block Group, and Tract. A census tract is a region defined for the purpose of taking a census and usually coincides with city boundaries, towns, or other administrative areas. The United States defines census tracts as "relatively homogeneous units with respect to population characteristics, economic status, and living conditions, census tracts average about 4,000 inhabitants." **Figure 2-7** shows the census tracts within the ECCC region that are considered DACs. These include the census tracts containing the Beacon West community on Bethel Island, as well as portions of Bay Point, and the Cities of Antioch and Pittsburg.

Census tract groups that qualify as DACs cover an area of 10,588 acres, or approximately 5 percent of the geographic area of the region and approximately 18 percent of the total population. The MHIs of the DACs identified in **Figure 2-7** range from $28,672 to $48,269, with an average MHI of $40,896.

Census data also demonstrates that each of the municipalities within the ECCC region contain a proportion of persons living below the poverty level (which varies by household size), and that in addition, some of the municipalities include populations that are classified as DACs per DWR's definition. Note that DACs are not necessarily below poverty levels. Data for each municipality are summarized below in **Table 2-5**. Additional information on DACs within specific communities is provided under Overlap Area, below. Data is also included for the entire State of California; as demonstrated in **Table 2-5**, the percentage of persons living below the poverty level in the ECCC region ranges from 5.7% to 16.8% of the total population.

Table 2-5. 2010 Census DAC Demographic Data for the ECCC Region

Municipality	2010 Total Population	Median Household Income 2009-2013	Persons Below Poverty Level 2009-2013*	Population Living in a DAC	% Population Living in a DAC
City of Antioch	102,372	$65,254	14.9%	17,803	17.4%
City of Brentwood	51,481	$91,475	5.7%	N/A	N/A
City of Oakley	35,432	$77,043	9.4%	N/A	N/A
City of Pittsburg	63,264	$58,866	16.8%	23,488	37.1%
Contra Costa County	1,049,025	$78,756	10.5%	167,087†	15.9%
State of California	37,253,956	$61,094	15.9%	12,274,010	32.9%

Notes:

*Poverty level varies by household size, and is not equivalent to DACs, which here are defined by DWR as communities with MHIs 80% or less of statewide MHI

†This is the total number of DAC residents in Contra Costa County, including those in municipalities. 19,588 people live in DACs located in the unincorporated areas of the ECCC Region.

Source: State and County QuickFacts. Available: http://quickfacts.census.gov/qfd/states/06/06013.html; American Community Survey, Contra Costa County. Available (Search criteria: 2013 ACS 5-year estimates, All Census Tracts within Contra Costa County, California): http://factfinder.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t#

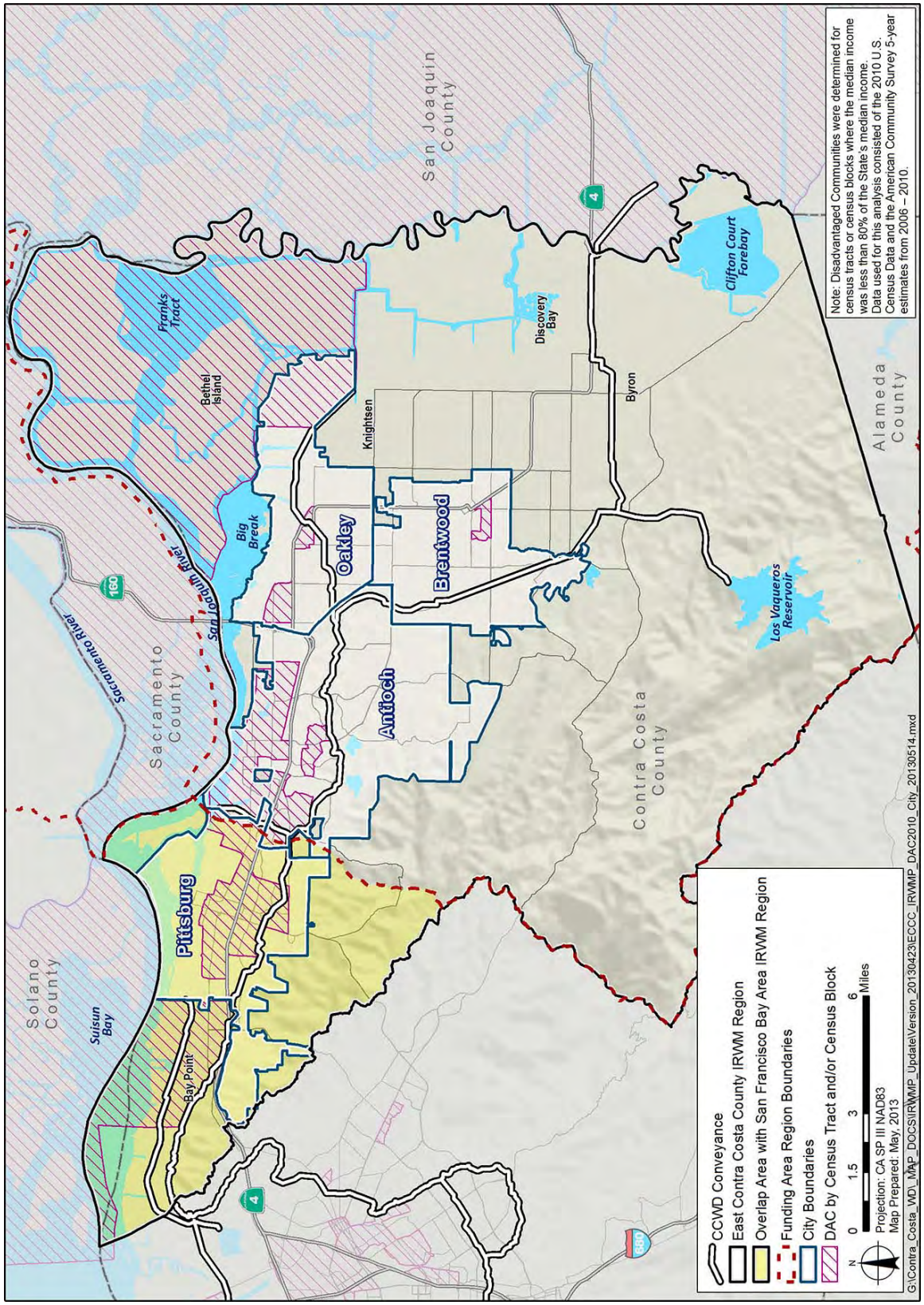


Figure 2-7. Disadvantaged Communities in the Region

Other Vulnerability Factors

As described in Sections 2.5.1 and 2.5.2, the region already experiences potential vulnerabilities related to the age and education of citizens and the future employment picture, which exacerbates the situation for DACs. In addition to those already mentioned, ECCC was disproportionately affected by the foreclosure crisis during the economic downturn and housing market crash in 2007-2009. While access to adequate housing is a continual crisis in California, homes lost to foreclosure increased over 200 percent in 2007, compared to 2006. Contra Costa County had an even more alarming foreclosure rate of 290 percent with 3,500 County homeowners receiving Notices of Default in the fourth quarter of 2007.[3] For a variety of reasons related to the housing boom and widespread predatory lending, ECCC was especially impacted. Foreclosures in one ZIP Code in Antioch affected one of every 18 homes. For comparison, ZIP Codes in Richmond's Iron Triangle had a comparative rate of one of every 25 homes. Despite this setback, the region appears to have begun recovering as of 2013.

The plight of the DACs cannot be untangled from those of the water utilities. Issues related to foreclosure and neighborhood blight are particularly hard hitting for utilities as rate structures and bond repayment schedules depend on infrastructure being used, maintained, and paid for. **Figure 2-8** illustrates the relative impact of foreclosures on the County for foreclosures occurring between 2005 and 2012.

[3] The Geography of Foreclosure in Contra Costa County California, Kristin Perkins, UC Berkeley, July 2008. Master's Thesis.

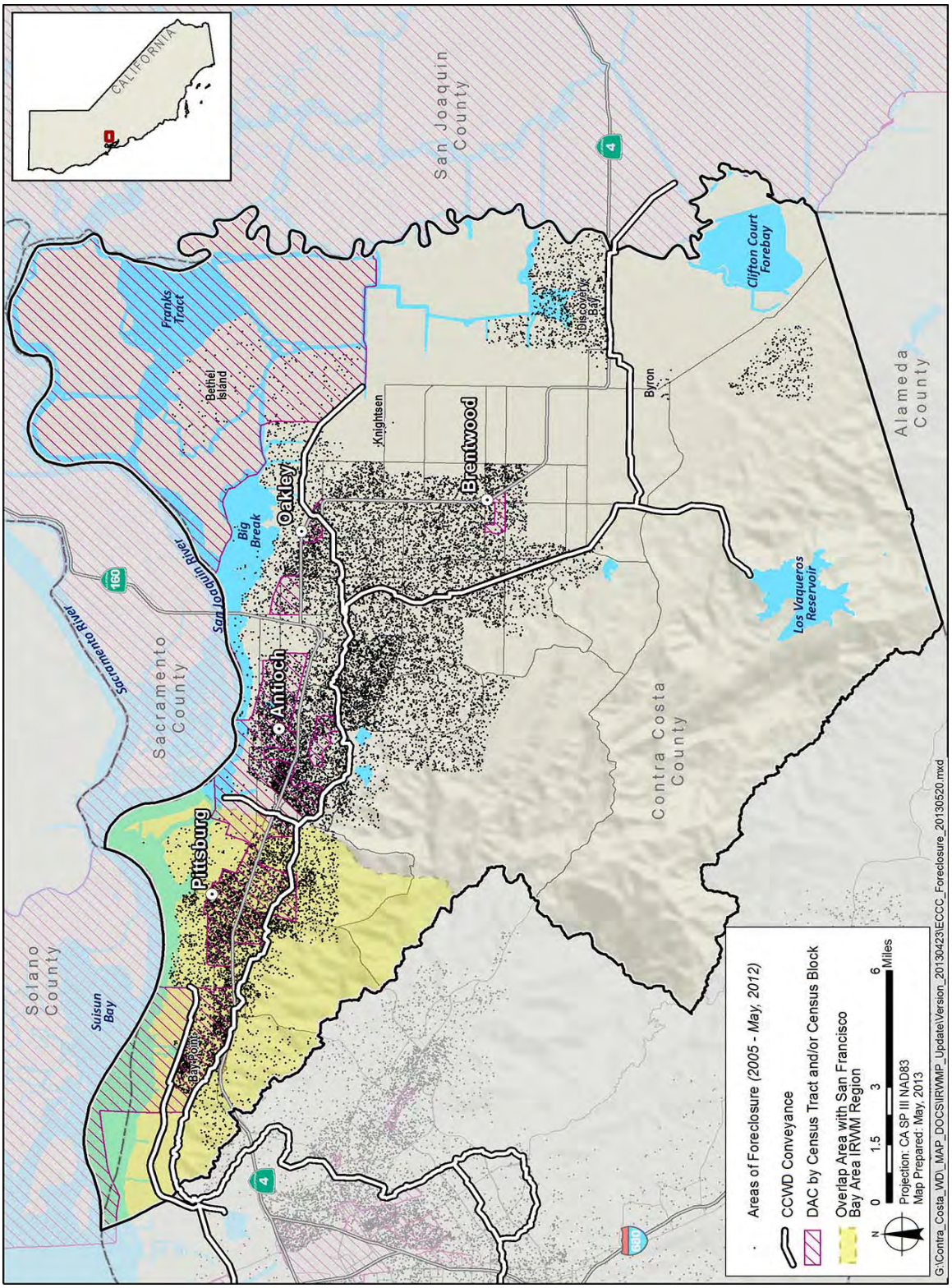


Figure 2-8. Impact of Foreclosures on Contra Costa County

Water Supply and Water Quality Needs

Many of the critical water supply and water quality needs of DACs in eastern Contra Costa County are typical of communities throughout the state. The primary water supply and water quality issues facing DACs relate to a strong reliance on Delta supplies, a need to maintain compliance with applicable drinking water standards, and the threat of damage from flooding. Critical water supply and water quality needs of DACs in the ECCC region include:

- Improved water supply reliability/reduced reliance on Delta supplies
- Water quality of groundwater supplies used to supplement Delta supplies (including meeting new drinking water regulations)
- Infrastructure renovations necessary to assure continued reliability of the minimum quality and quantity of water
- Affordability programs to offset the rising costs of water service

All of the water suppliers within the ECCC region rely on Delta supplies. The three water suppliers in eastern Contra Costa County that purchase untreated/treated Delta supplies from CCWD provide supplies to the bulk of the DACs in the region. Because of the region's heavy dependence upon Delta water supplies, events that threaten the quality or quantity of this supply could have significant ramifications on the economic viability of the entire region. This may be of particular concern for DACs, where economic conditions are below the statewide average. Further, the rising cost of water in the region is a critical water supply-related issue for DACs. Agencies must continually balance the need to improve supply reliability through implementation of aggressive conservation, water recycling, potentially expensive groundwater treatment, and even desalination with a need to maintain water affordability for DACs. With the rising cost of service, access to drinking water threatens to become a luxury for DACs in eastern Contra Costa County.

Some of the more remotes areas of the ECCC region, including the DAC of Bethel Island (which the Beacon West community is located on), are entirely reliant on groundwater for potable water supplies. Beacon West is supplied with drinking water from a well operated and maintained by DWD. The Beacon West well has arsenic levels exceeding standards issued by the California Department of Public Health (CDPH). Work is progressing towards addressing the Beacon West well issue, and DWD is pursuing State Revolving Fund (SRF) and other funding to help move this project forward. Similarly, the Rossmoor Well Replacement, Groundwater Monitoring Well System Expansion (funded under a Proposition 84 Round 2 Implementation Grant) is necessary to correct severe capacity deficiencies due to biofouling of a groundwater well serving a DAC. The area benefiting from this project includes DAC census tracts within the City of Pittsburg.

Flood

Still another concern is the exposure of regional DACs to flood events and a need for flood and stormwater management projects designed to protect DACs from flooding impacts. In general, DACs often have more overall risks (lack of flood insurance and flood proofing, and historic land-use patterns placing communities in floodplains) and fewer resources available to recover from inundation. Recovery from a flood event can have catastrophic economic consequences for a DAC even if immediate life/safety issues are managed.

Overlap Area

As described in Section 2.4, Pittsburg and portions of Antioch and the County are located in an area that partially overlaps the ECCC IRWM region and the San Francisco Bay Area IRWM region. **Figure 2-9** shows the location of the overlap with respect to the San Joaquin and San Francisco Bay funding areas. The map also shows the DAC locations in the vicinity.

As shown in **Figure 2-9** approximately 2 percent of the City of Pittsburg is located wholly within the San Joaquin Funding Area, with the remaining 98 percent located in the overlap area. Conversely, approximately 99 percent of the City of Antioch is located wholly within the San Joaquin River Funding Area, with only 1 percent located in the overlap area. The Bay Point Area, which sits west of Pittsburg, is fully in the overlap with the San Francisco Bay Funding Area.

According to 2006-2010 American Community Survey (ACS) data (which provides demographic and economic estimates for non-census years, using data compiled over 5-year periods), approximately 27 percent of the City of Pittsburg (by geographical area) is a DAC, and 45 percent of the City of Pittsburg is a DAC based on population (27,849 people out of 61,723). Of the portion of the City of Pittsburg classified as a DAC, approximately 98 percent (by population) is located in the overlap area and 2 percent is located in the San Joaquin River Funding Area. Similarly, 16 percent of the City of Antioch is a DAC based on geographic area, or 19 percent by population. Of the DACs located in the City of Antioch, 4 percent (by population) are located in the overlap area and 96 percent are located in the San Joaquin River Funding Area. Approximately 71 percent of the geographical area of Bay Point is DACs (or 73 percent of its total population). Because Bay Point is fully contained within the overlap area, coordination with the San Francisco Bay IRWM will be essential to ensure the needs of this community are met. These estimates were used to determine DAC-project status for the Proposition 84 Round 2 Implementation Grant and Proposition 84 Drought Round Implementation Grant. Note that estimates differ from Census data presented in Table 2-5, above. As the economy has begun to recover from the recent recession, DACs have decreased in the region as a whole from approximately 23 percent of the population to approximately 18 percent of the population, according to updated 2009-2013 ACS data.

Engagement

The ECCC region has maintained a transparent and open process in which DAC representatives are always welcome, and an easily navigated project website allows 24-hour access to information. Further, in 2015, the website was updated to include an additional DAC page that provides information about the location and water resources-related needs of DACs in the region. Cities such as Pittsburg and Antioch maintain close connections with the DACs through elected local leadership and consolidated planning processes. Further, outreach to DACs included the Municipal Advisory Councils. Contra Costa County has various Municipal Advisory Councils whose purpose is to advise the County Board of Supervisors on land use and planning matters affecting their communities of interest.

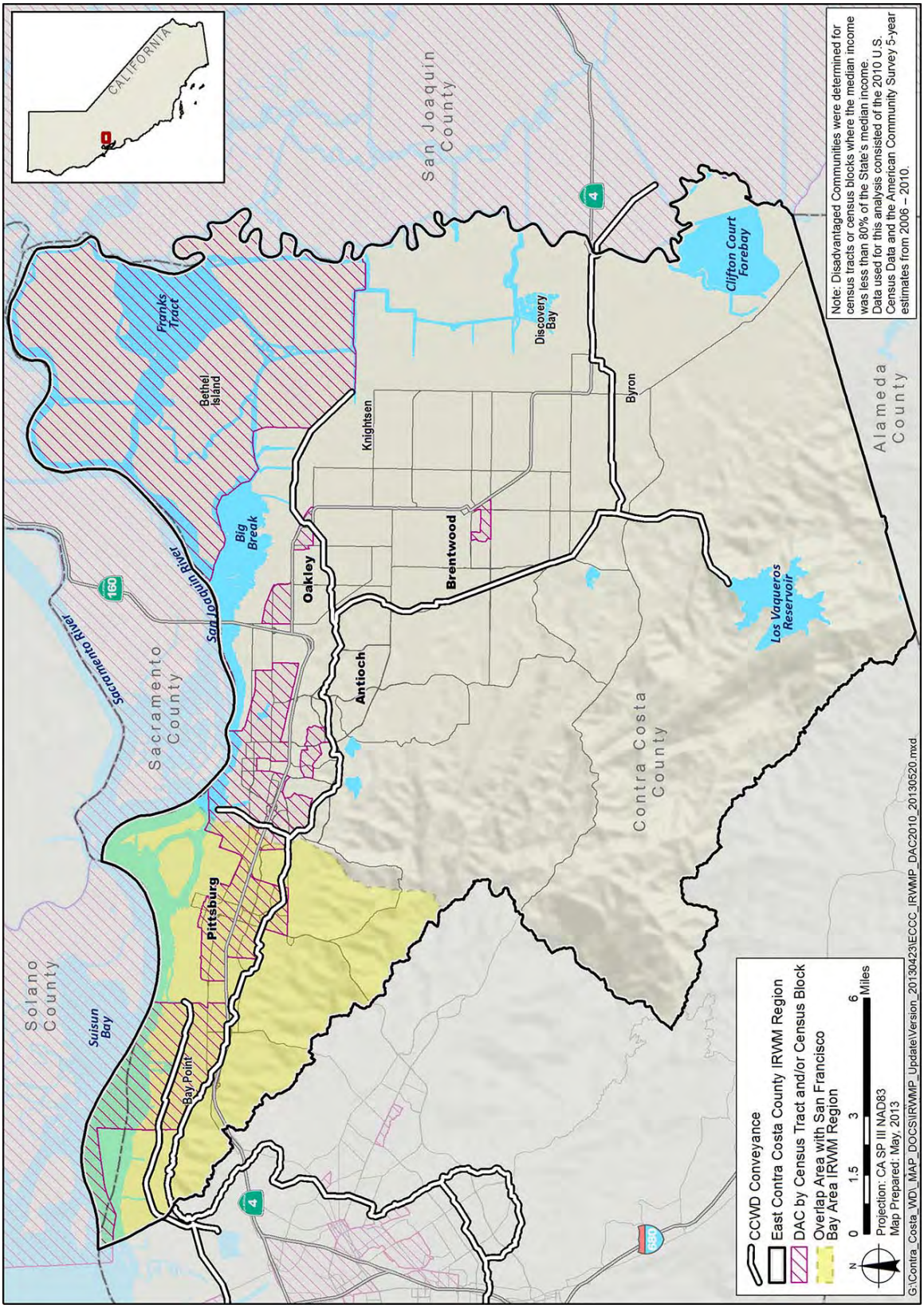


Figure 2-9. Location of ECCC Overlap in Relation to Regional Boundaries and DACs

All four of the Municipal Advisory Councils in the region–Bay Point, Bethel Island, Knightsen, and Byron–contain DACs within their boundaries or in their adjacent Special Notification Areas, and are therefore a natural conduit for the IRWM process to reach DACs outside incorporated areas such as the Cities of Pittsburg and Antioch. Targeted outreach to Municipal Advisory Councils allows for direct and structured engagement with the greater parts of the unincorporated areas of the region.

2.6. Description of Watersheds and Water Systems

Watersheds and water systems within the ECCC region are defined by hydrological features, geological conditions (in the case of groundwater basins), and meandering Delta waterways. This section describes the region's major watersheds and water systems.

2.6.1. Watersheds

Watershed Management Areas

The ECCC region is defined by natural watershed boundaries. The western boundary is the ridgelines of Mount Diablo and the northern boundary is the Delta. The eastern boundary is Old River/San Joaquin River. The southern boundary is the county line with Alameda County. The ECCC region spans two State-defined hydrologic regions–the San Francisco Bay Hydrologic Region (regulated by the San Francisco Bay Water Board) and the San Joaquin River Hydrologic Region (regulated by the Central Valley Water Board). The majority of the region lies within the San Joaquin River Hydrologic Region.[4] **Figure 2-2** displays the boundaries between the two hydrologic regions and regional water board jurisdictional areas.

Watersheds

The agencies participating in and supporting this effort span nine watersheds,[5] all entirely within the ECCC region. These watersheds are the Willow Creek, Kirker Creek, East Antioch Creek, West Antioch Creek, Upper Marsh Creek, Lower Marsh Creek, East County Delta Drainages, Kellogg Creek, and Brushy Creek watersheds. Drainage from several watersheds intersects Delta waterways to the north and east. Major creeks in these watersheds generally flow from south to north, discharging into Suisun Bay and the Delta. The boundaries of these watersheds, and their proximity to the Bay and Delta, are presented in **Figure 2-10**, and additional information on each watershed is provided below.

Willow Creek Watershed

The Willow Creek Watershed is found in the northwestern ECCC region, bounded by the Sacramento River to the north. Bay Point and the City of Pittsburg are within the Willow Creek Watershed. This watershed drains into the Delta and is approximately 23.6 square miles in size (11,370 acres). All drainages in this watershed are ephemeral. Its landscape is diverse and includes grasslands, wetlands, and municipal and industrial uses.

[4] For water planning and conservation purposes, DWR and the State Water Board divided the State into 10 hydrologic regions. These 10 hydrologic regions are geographic areas that contain the DA of a major river or series of rivers. Source: CWP, Update 2009, Hydrologic Regions Map, DWR.

[5] A watershed is an area of land that drains precipitated waters to a given reference point, typically a confluence with another major creek or large water body. Source: Contra Costa County Watershed Atlas (2003).

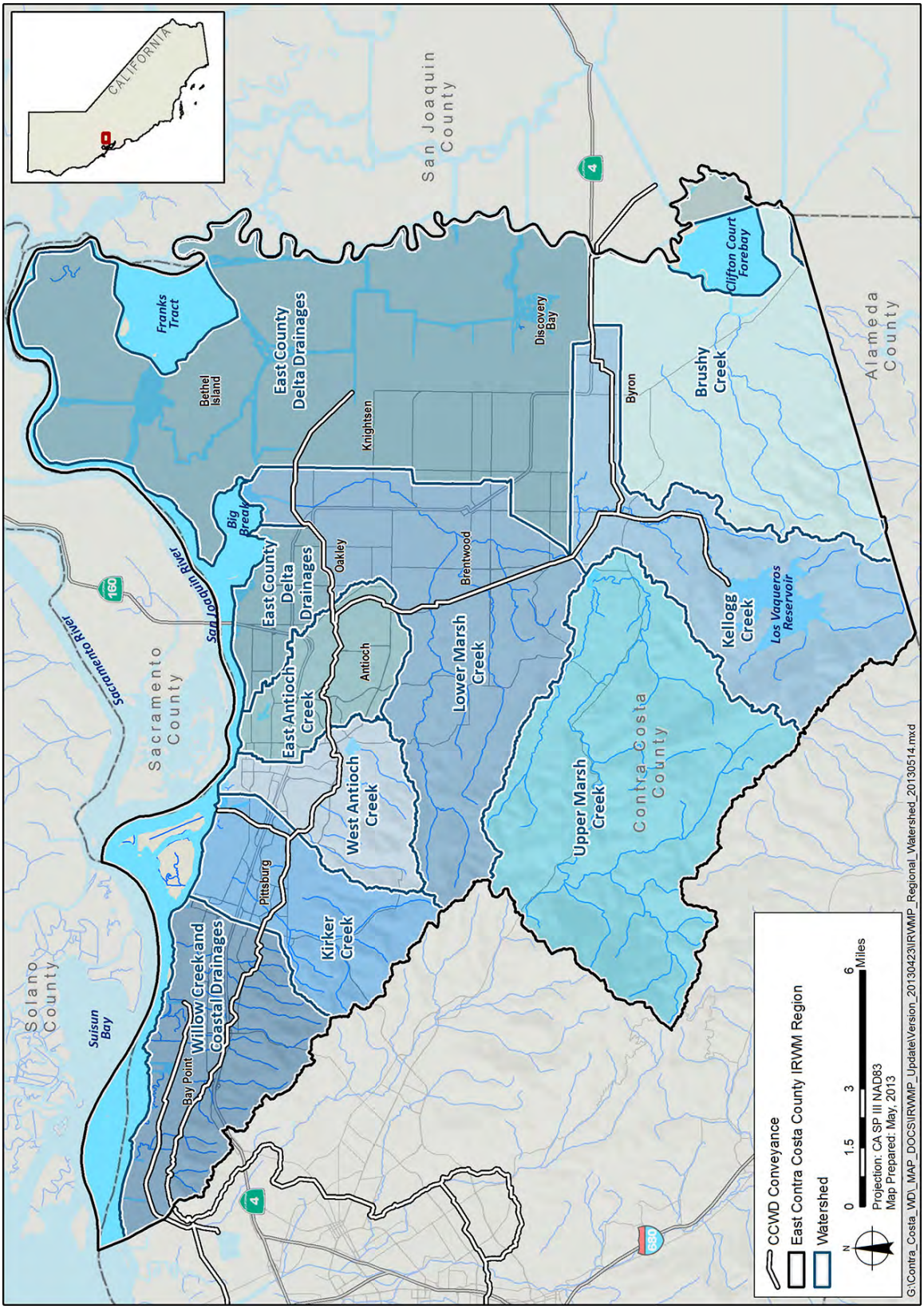


Figure 2-10. Watersheds in the Region

Kirker Creek Watershed

The Kirker Creek Watershed lies east of the Willow Creek Watershed. The City of Pittsburg falls within the Kirker Creek Watershed. Kirker Creek originates in Black Diamond Mines Regional Preserve and drains to the Delta and is approximately 15.8 square miles in size (9,500 acres). The drainages in this area are mostly ephemeral, though in some lower reaches of the watershed the creeks are perennial due to artificial inputs. This watershed includes regional parkland, ranchland, urban, and municipal and industrial uses. Its landscape is diverse and includes grasslands, wetlands, and urban areas. The lower portion of this watershed includes channelized conditions connected with an extensive stormwater drainage system to accommodate areas of suburban development. A community watershed group, Partners for the Watershed, is active in the area and organizes creek cleanups and creek monitoring. Two projects funded through the IRWM Plan grant process have been funded in this watershed, and have contributed to approximately 460 acres of conservation open space and restoration of wetlands and creeks in the upper watershed.

West and East Antioch Creek Watersheds

The West and East Antioch Creek watersheds lie east of the Kirker Creek Watershed and are bounded by the San Joaquin River to the north. The City of Antioch falls within these watersheds. These watersheds drain the north side of the Mount Diablo foothills into the Delta. The East Antioch Creek Watershed is approximately 11.4 square miles in size (7,261 acres). This area is heavily urbanized and numerous detention basins have been installed to manage and control flood flows. The Dow Wetland Preserve is at the mouth of the creek along the San Joaquin River and is an area that has been restored and is maintained by volunteers. The area is used for environmental education and outreach in the area. The West Antioch Creek Watershed is approximately 12.8 square miles in size (8,180 acres). West Antioch Creek originates in Contra Loma and Black Diamond Mine Regional Preserve. The Contra Loma Reservoir and the Antioch Reservoir capture most of the water that leaves the foothills. Most of the drainages in these watersheds are ephemeral with lower parts flowing perennially due to artificial inputs The lower portion of this watershed includes channelized conditions connected with an extensive stormwater drainage system to accommodate areas of suburban development.

Upper and Lower Marsh Creek Watersheds

South of the Antioch Creek Watershed is the Marsh Creek Watershed, which contains portions of the cities of Antioch, Brentwood, and Oakley, as well as unincorporated areas south and west of Brentwood in the ECCC region. This is the second largest watershed in the County, and the largest in eastern Contra Costa County. The watershed drains into the Delta through the Dutch Slough area and is approximately 94 square miles in size (60,066 acres). The Upper Marsh Creek Watershed drains parts of Mount Diablo and includes steep, rocky conditions. Though this area is predominantly undeveloped, historical land uses have impacted this area, including an abandoned mercury mine. The upper watershed drains to the Marsh Creek Reservoir. The Lower Marsh Creek Watershed includes agricultural and urban centers. The creek channel in the lower watershed has been altered to protect the surrounding land uses. The lower watershed also includes grasslands, wetlands, and municipal and industrial uses. The Friends of Marsh Creek is an active community group that meets regularly, organizes creek cleanups, monitors the creek and are stewards of the watershed. A fish ladder was constructed in lower Marsh Creek to support anadromous fish that use Marsh Creek. This project was funded in part by IRWM Plan grant funds.

East County Delta Drainages

East of the Marsh Creek Watershed is the East County Delta DA. This area includes eastern Oakley, Bethel Island, and Knightsen, as well as the District. This watershed flows into Old River and the San Joaquin River. It is approximately 88 square miles in size (56,223 acres). This watershed includes the County's agricultural core. Numerous irrigation canals and channels crisscross the area, dramatically altering the natural hydrology. The region supports more alkali habitats than the western watersheds. The comparatively flat topography, seasonal flooding, and agricultural (active and passive) support a different collection of flora and fauna. For many species, eastern Contra Costa County is the northwestern reach of their range. The landscape is a mix of grasslands, wetlands, agriculture, and municipal and industrial.

Kellogg Creek Watershed

South of the East County Delta Drainages is the Kellogg Creek Watershed, which includes Byron. The 160,000 TAF Los Vaqueros Reservoir is located within the Kellogg Creek Watershed. CCWD owns and operates the reservoir, along with approximately 20,000 acres of protected watershed lands managed for water quality, conservation, and recreation. This watershed flows into Old River (and eventually into the San Joaquin River). It is approximately 20,863 acres in size. Kellogg Creek has been heavily altered due to its historical use for agriculture. Mallory Creek and several small unnamed creeks are tributaries to Kellogg Creek. Kellogg Creek inflows of up to 5 cubic feet per second are required to be passed through the reservoir as outflow to meet downstream water rights that were in place before construction of the reservoir in 1998. Reservoir releases are also made to support constructed wetlands that were created by CCWD as mitigation for the original Los Vaqueros Reservoir Project.

Brushy Creek Watershed

The Brushy Creek Watershed is found east of the Kellogg Creek Watershed in the southeastern corner of the ECCC region. There is no urban development in this area; the watershed is currently used for agriculture. This watershed flows into Old River and the Clifton Court Forebay (and eventually into the San Joaquin River). It is approximately 24,422 acres in size. Brushy Creek is the principal creek and has numerous unnamed tributaries connected to it.

Groundwater Basins

The groundwater basins underlying ECCC can be seen in **Figure 2-11**. The ECCC region partially overlies the Pittsburg Plain and Clayton Valley groundwater basins, and partially overlies the Tracy Subbasin of the San Joaquin Valley Groundwater Basin. Groundwater is an important source of supply for agricultural and domestic uses, and to a lesser extent, municipal and industrial uses. Groundwater use throughout the ECCC region, relative to surface water use, is small and on the order of about 10 percent of total water demands, or approximately 10 TAF. More information about groundwater use in the region is discussed in Section 2.7 and is available in Groundwater Management Plans (GMPs), the Tracy Subbasin Data Gap Analysis, and Salt and Nutrient Management Plans. Groundwater will continue to be an important resource for the region as a principal supply for agricultural and rural areas, and as a supplemental supply for the developed areas.

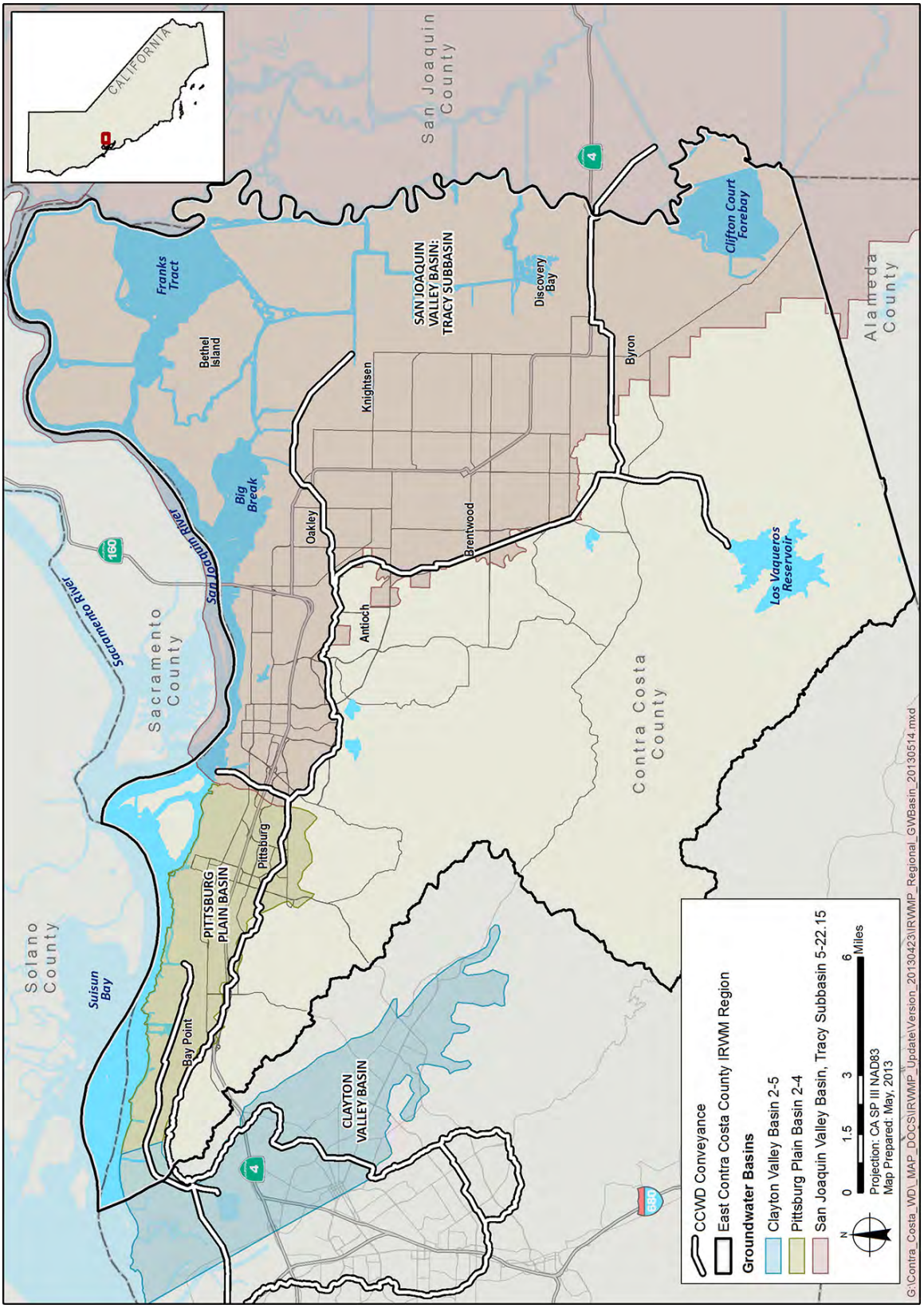


Figure 2-11. Groundwater Basins in the Region

Pittsburg Plain Groundwater Basin

The Pittsburg Plain Groundwater Basin (DWR Basin Number 2-4) is located along the southern shore of Suisun Bay. It is bounded by Suisun Bay to the north, the Tracy Subbasin (DWR Subbasin 5-22.15) to the east, and the Clayton Valley Groundwater Basin (DWR Basin 2-5) to the west, and includes the overlying City of Pittsburg and the community of Bay Point. Aquifer units beneath the city consist of north-dipping sand and gravel material under confined to semi-confined conditions. To the south, a deeper zone, where most of the basin groundwater production occurs, is close to the ground surface and appears to interbed with the sandy clay surface layer. Similar hydrogeological conditions are expected in the western portion of the basin near Bay Point, though the ability to characterize the hydrogeology of this portion of the basin is limited by a lack of data. Groundwater flow appears to be generally to the north-northeast toward Suisun Bay, which defines the northern border of the basin. The City of Pittsburg prepared the Pittsburg Plain Groundwater Basin GMP in 2012 (Section 3.5.1). The City of Pittsburg also prepared a Salt and Nutrient Management Program Summary in 2012 (Section 3.5.2) that reported groundwater quality conditions of the basin. DWR classifies the Pittsburg Plain Groundwater Basin as low priority.

San Joaquin Valley Groundwater Basin: Tracy Subbasin

The Tracy Subbasin (DWR Basin Number 5-22.15) makes up the northwestern most portion of the San Joaquin Valley Groundwater Basin around the Delta and extends south into the central portion of the San Joaquin Valley. Subbasin boundaries are defined by the Mokelumne and San Joaquin Rivers on the north, the San Joaquin River on the east and the San Joaquin-Stanislaus County line on the south. The western subbasin boundary is defined by the contact between the unconsolidated sedimentary deposits and the rocks of the Diablo Range. DWD prepared a GMP for the portion of the Tracy Subbasin underlying their service area in 2007. In 2012, DWD completed a Data Gap Analysis (Section 3.5.3) to determine the data needed to calculate the basin's safe groundwater yield. DWR classifies the Tracy Subbasin as medium priority. In 2014 CCWD worked with DWD, City of Antioch, Discovery Bay and Byron Bethany Irrigation District to ensure that the Tracy Subbasin is in compliance with DWR's CASGEM requirements. In 2014 DWR confirm that the East County IRWM is in compliance with CASGEM.

Clayton Valley Groundwater Basin

The Clayton Valley Groundwater Basin (DWR Basin Number 2-5) underlies a small portion of the region, in its northwestern corner along the south shore of Suisun Bay. It is bounded by Suisun Bay on the north, Mount Diablo Creek on the east, the Concord Fault on the west, which divides and separates this basin from the Ygnacio Valley Groundwater Basin, and the foothills of Mount Diablo on the south. Marsh Creek flows through the basin before emptying into Suisun Bay. The basin is underlain by thick alluvial deposits that cover a faulted and folded complex of consolidated Cretaceous and Tertiary rocks. The water-bearing units in the basin can be found in the Recent Alluvium and the Older Alluvium valley fill deposits. DWR classifies the Clayton Valley Groundwater basin as low priority.

2.6.2. Infrastructure

Major Water Supply Infrastructure

A variety of water infrastructure is located within the ECCC region, including water bodies, reservoirs, conveyance facilities, pumping plants, and WTPs and WWTPs. Major water supply and wastewater infrastructure within the ECCC region is shown on **Figure 2-12**. Among the major

water infrastructure are the Clifton Court Forebay (DWR), the Contra Costa Canal (Reclamation and CCWD), and Los Vaqueros Reservoir (CCWD).

Clifton Court Forebay

Located in ECCC, the Clifton Court Forebay is a regulated reservoir located at the head of the SWP's California Aqueduct, with intake facilities located on Old River. The SWP, managed by the California Department of Water Resources, is the nation's largest State-built water and power development and conveyance system, conveying Delta supplies from the ECCC region to 23 million Californians and 755,000 acres of irrigated farmland throughout California.

Contra Costa Canal

The Contra Costa Canal (Canal) is the oldest unit of Reclamation's CVP. It was originally constructed to serve agricultural needs, and now comprises the backbone of CCWD's untreated water conveyance system. The Canal conveys water from the Delta to CCWD's treatment facilities and untreated water customers. The Canal spans 48 miles, starting at Rock Slough in the ECCC region, passing through several communities including the Cities of Oakley, Antioch, Pittsburg, and Bay Point, and ending at the Terminal Reservoir in Martinez. Water is drawn from Rock Slough near Knightsen (8 miles east of Antioch). Water travels from Rock Slough through a 4-mile stretch of unlined channel before entering the concrete-lined section of the Canal in Oakley. CCWD is implementing a plan to convert the unlined portion of the Canal (Canal Project) into a pipeline as a means of improving water quality, public safety, and reducing flood risks. Approximately 2 miles of the unlined Canal is adjacent to the proposed DWR Dutch Slough Tidal Restoration Project (Restoration Project). CCWD is working with DWR to coordinate the construction of the Restoration Project and the Canal Project. The Canal can also receive untreated water from Old and Middle rivers or the Los Vaqueros Reservoir around Milepost 7 in Antioch via the Los Vaqueros Pipeline.

Los Vaqueros Reservoir

CCWD owns and operates the Los Vaqueros Reservoir, which stores up to 160 TAF of high-quality water. The reservoir is supplied from the Delta at Old River and on Victoria Island off of Victoria Canal (Middle River). The reservoir is surrounded by nearly 20,000 acres of protected watershed, providing more than 55 miles of recreational trails. CCWD expanded the Los Vaqueros Reservoir from 100 TAF to 160 TAF in 2012. Current Los Vaqueros Expansion Studies are examining the feasibility of expanding the reservoir to provide water quality and water supply reliability benefits to regional partners while providing ecosystem benefits to the Delta. Los Vaqueros Reservoir is not operated to provide flood protection, but has reduced the watershed area that drains to Kellogg Creek, which has a significant floodplain, since is it operated not to spill during large storm events.

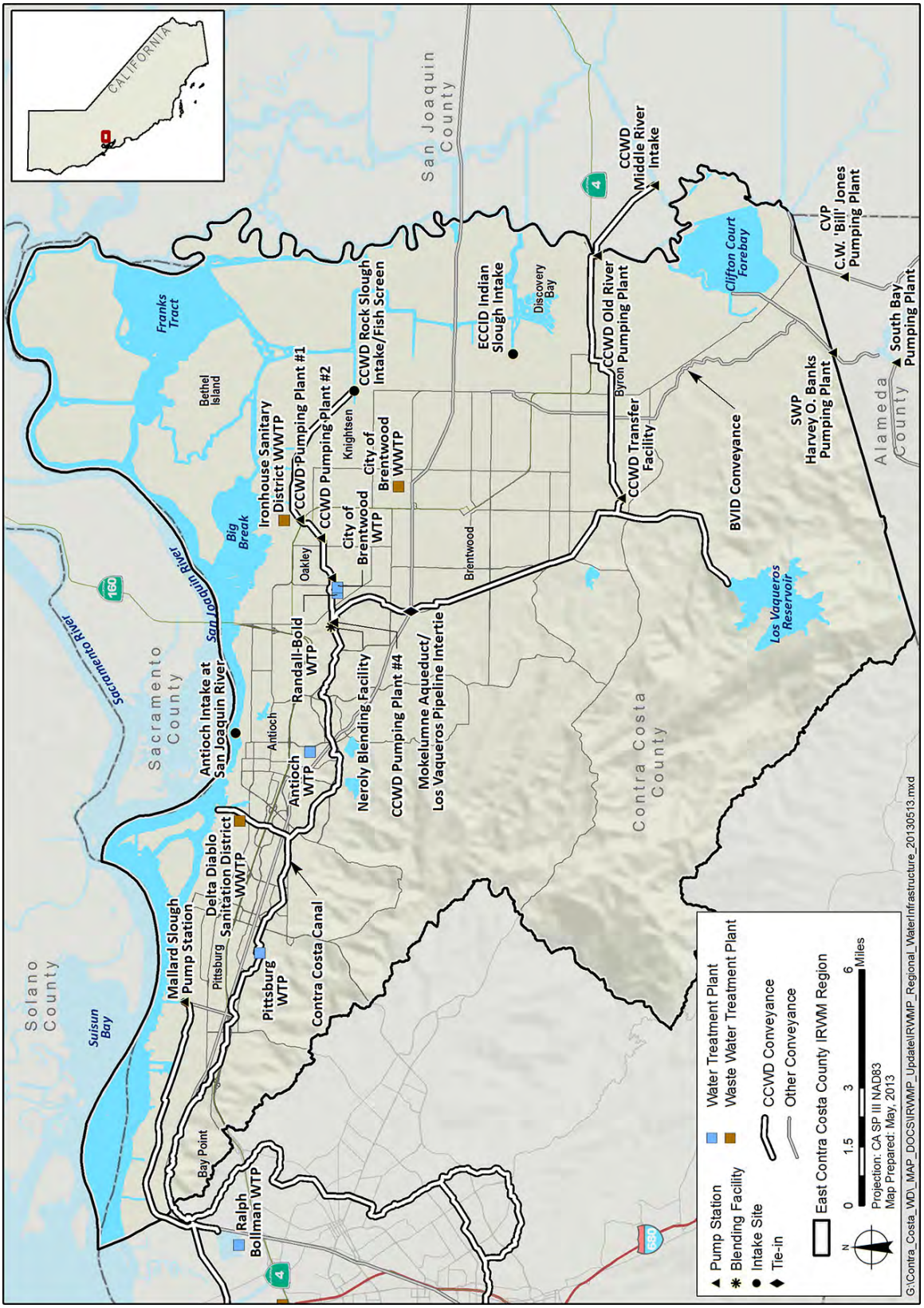


Figure 2-12. Major Water and Wastewater Infrastructure

Antioch Municipal Reservoir

The 735 AF (240 million-gallon) Antioch Municipal Reservoir provides supply reliability and volume for equalization storage for water pumped from the Canal. The reservoir also serves the secondary purposes of flood control and impoundment of local runoff. Water production from the small (1,300-acre) tributary watershed, however, is of negligible importance, particularly since most stormwater runoff from residential areas (about 600 acres) is now diverted around the reservoir.

Preserve System for ECCC HCP/NCCP

More than 12,000 acres have been acquired since 2008 for the Preserve System to fulfill conservation requirements of the HCP/NCCP. These lands were acquired by the East Bay Regional Park District in partnership with the ECCC Habitat Conservancy. Natural resources on these properties will be restored, enhanced, and managed in perpetuity. When acquisition is complete, the Preserve System is anticipated to consist of 24,000 to 30,000 acres. It will build on approximately 45,000 acres of existing public watershed and park land. The Preserve System will protect water bodies and hydrological processes in nearly every major watershed in ECCC. Within the approximately 12,000 acres acquired to date, approximately 277,000 linear feet (52 miles) of streams and 71 acres of wetlands and ponds are managed to protect and enhance natural functions and values.

Water Treatment Infrastructure

Water treatment plants and facilities that are owned, operated, or supply water to agencies and communities in the region are described under the activities described for individual RMWG member agencies in Section 2.4.2 Member Agencies, above.

Major Flood Management Infrastructure

The CCCFCWCD manages most of the major flood management infrastructure in ECCC to provide regional flood protection. The facilities it plans and manages are described below. Major flood management infrastructure within the ECCC region is shown on **Figure 2-13.**

Marsh Creek Reservoir, Dry Creek Reservoir, and Deer Creek Reservoirs

The Marsh Creek Reservoir is located approximately 4 miles southwest of Brentwood. It and the smaller Dry and Deer Reservoirs were built in early 1960s with funding from the Soil Conservation Service (now NRCS) to protect the then predominantly agricultural land uses in ECCC from a 5-year storm. The CCCFCWCD manages these facilities and has planned and built a number of other large, regional detention basins in the watershed to increase system capacity and protect rapidly urbanizing area from a 100-year storm. Sediments in the Marsh Creek Reservoir contain elemental mercury washed down from an old mine in the upper watershed.

Marsh Creek Flood Control Channel, Dry Creek Flood Control Channel, Sand Creek Flood Control, and Deer Creek Flood Control Channel

Approximately 12 miles of Marsh Creek, Deer Creek, Dry Creek, and Sand Creek were widened and channelized as part of the 1960s Soil Conservation District flood control project. Other channel capacity work has been planned and constructed by the CCCFCWCD to improve the level of flood protection in the Marsh Creek Watershed.

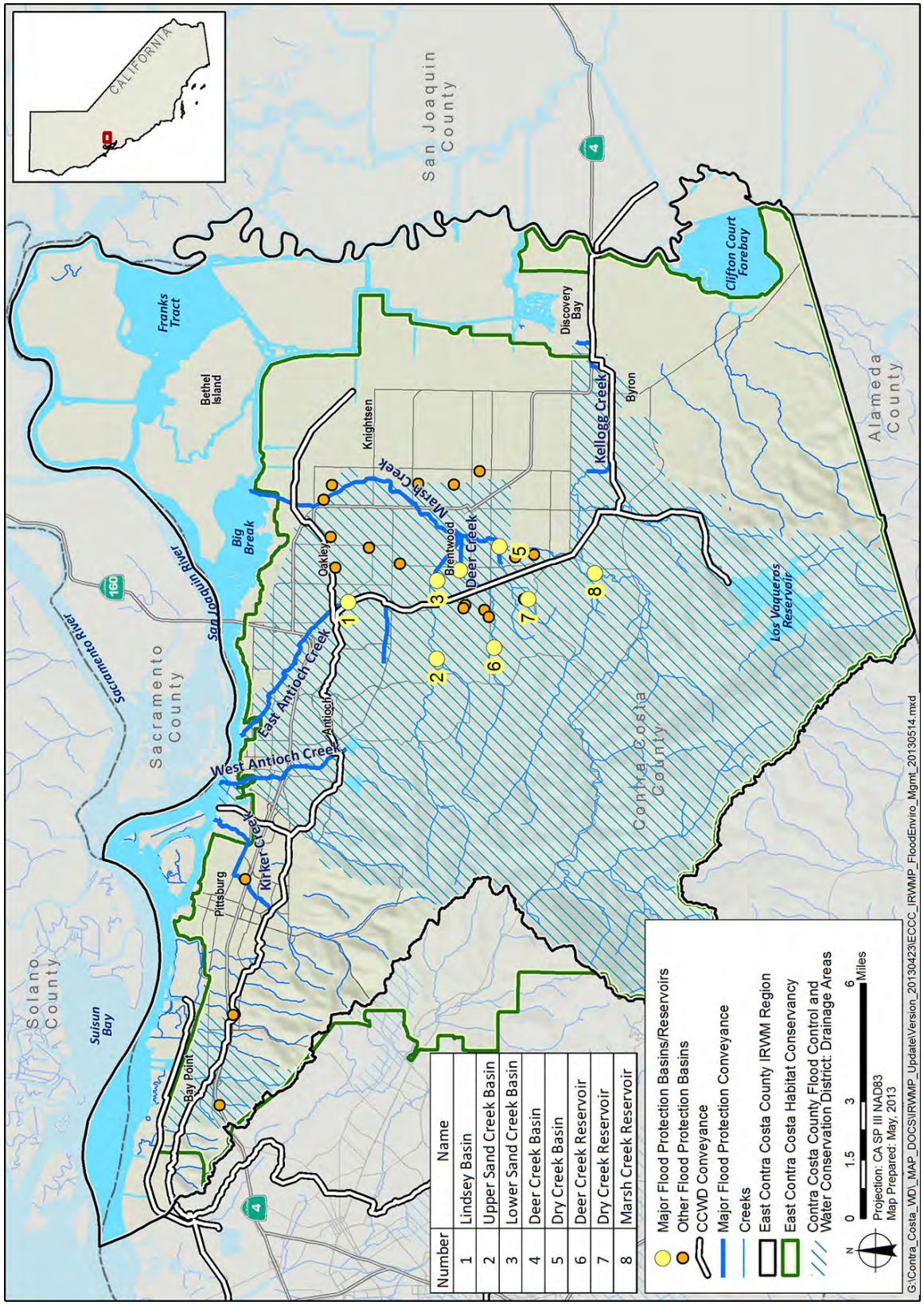


Figure 2-13. Major Flood Management Infrastructure

Drainage Area Infrastructure

The CCCFCWCD established DAs to plan subregional drainage infrastructure and collect development fees to fund subregional drainage infrastructure. The DAs infrastructure is either built by the CCCFCWCD or by developers who then receive credit for their fees or enter a reimbursement agreement to be reimbursed for costs of constructing the infrastructure that are in excess of their fees. Once constructed, most of these facilities are turned over to the local jurisdiction for ownership and maintenance. Some of the major DAs facilities are owned and maintained by the CCCFCWCD using property tax revenues it receives in the Marsh Creek Watershed, also known as Flood Control Zone 1.

East Antioch Creek

East Antioch Creek improvements and their associated basins, (Lindsey Basin and Oakley Basin), are major flood management infrastructure that serve the City of Antioch. Currently, the system is partially owned and managed by the City of Antioch, and the remainder of the improvements will be handed over to the City for ownership and maintenance in the near future.

West Antioch Creek

West Antioch Creek is also a DA funded facility with improvements in various stages of completion, design, and planning. Facilities in this watershed are owned and managed by the City of Antioch.

Major Wastewater Infrastructure

The major wastewater agencies in the region (servings greater than 5,000 customers) include Delta Diablo, ISD, and Brentwood. Their respective WWTP locations are shown in **Figure 2-13**. Below are summary descriptions of their systems.

Delta Diablo

Delta Diablo provides wastewater collection services for the unincorporated community of Bay Point, and conveyance, treatment, and disposal services for Bay Point and the Cities of Antioch and Pittsburg. Since 2001, Delta Diablo has provided recycled water to the Delta Energy Center and the Los Medanos Energy Center (LMEC), and has expanded recycled water conveyance to Pittsburg and Antioch for irrigation of local public parks and median landscapes. Delta Diablo has been producing and delivering recycled water for cooling tower use at two Calpine power plants since 2001. The Delta Energy Center (DEC) and the Los Medanos Energy Center (LMEC) together use an average of 6.5 MGD (7 TAF per year) of recycled water, resulting in one of the largest industrial uses of recycled water in California. In 2012 these two centers used a combined 8,132 AF of recycled water and have an average annual demand of 7,010 AFY. In total, Delta Diablo has produced and delivered approximately 17,500 million gallons, or 53,700 acre-feet, of recycled water to 15 different use sites since the system was established in 2001.

The existing Delta Diablo wastewater infrastructure includes conveyance systems, pumping stations, equalization basins, and a WWTP and RWF located on the Pittsburg-Antioch border. Treated wastewater is discharged in New York Slough through a deep water outfall. The WWTP has a rated average dry weather flow capacity of 16.5 MGD and a peak wet weather flow treatment capacity of 26.0 MGD; the average dry weather flow (ADWF) for 2012 was 12.7 MGD. It is anticipated that the build-out ADWF for Delta Diablo's service area will be 25.3 MGD in 2057.

Delta Diablo's 2013 Recycled Water Master Plan identified a Title XVI program that will be implemented through two projects: a recycled water distribution system expansion project that will deliver an additional 4,461 AFY of recycled water, and a HPWTF implementation project that will reduce TDS concentrations from Delta water entering the Antioch intake to below 30 mg/L, which will create up to 5,600 AFY of high-purity water that is suitable for industrial demands.

Ironhouse Sanitary District

The ISD provides sewage collection, treatment, and disposal services to the City of Oakley, the unincorporated area of Bethel Island, and other unincorporated areas of Contra Costa County. ISD's infrastructure includes gravity and pressure pipelines, pumping stations, and the Ironhouse Water Recycling Facility (WRF). Effluent from the WRF is applied to agricultural lands on Jersey Island and into the San Joaquin River. The WRF has a design capacity of 4.3 MGD and an ultimate capacity of 6.8 MGD. ISD participated in a regional water recycling study looking at providing recycled water to industry outside of the ISD service area. In addition, ISD completed a Recycled Water Master Plan and a Recycled Water Feasibility Study looking at potential users of recycled water within the ISD service area and the economic feasibility of developing a separate non-potable water system that could supply recycled water to offsite users.

The preliminary results of ISD's Recycled Water Feasibility Study demonstrate that in the immediate-term (less than 2 years), recycled water use could increase by 20 AFY with implementation of a fill station that is currently operable. Further, in the near-term (less than 10 years), ISD could increase recycled water use by 2,350 AFY by providing recycled water for industrial reuse along the Wilbur corridor and the Northern Waterfront Area, and by including recycled water uses for sustainable farming practices. In the long-term (more than 20 years), recycled water in ISD's service area could be increased by between 2,200 and 6,500 AFY through implementation of indirect or direct potable reuse projects.

Brentwood

The City of Brentwood owns and operates its wastewater collection, treatment, and disposal system. The collection system, with approximately 138 miles of sewer main, conveys wastewater to the Brentwood Wastewater Treatment Plant (BWWTP) located on approximately 70 acres on the northeast side of the city adjacent to Marsh Creek. The BWWTP provides tertiary treatment and has an average dry weather flow capacity of 5.0 MGD and discharges over 3 MGD recycled water into Marsh Creek. The plant is to be expanded to 7.5 MGD by 2019. Effluent is pumped through the BWWTP as process water and discharged into Marsh Creek.

The City of Brentwood completed a Recycled Water Feasibility Study in 2013. The Feasibility Study examined ways to maximize recycled water deliveries to current recycled water customers, existing potential recycled water customers, and future potential recycled water customers. In summary, this report recommended implementation of a proposed project that would expand the recycled water system to supply 1,406 AFY of recycled water to 86 new recycled water users. The proposed project would involve upgrades to the BWWTP pump station, additional storage, and approximately 17,000 lineal feet of additional pipelines to deliver recycled water to new users.

Ultimately, the City of Brentwood is looking to pump this effluent off site as recycled water to be used for irrigation for landscaped areas in accordance with the City's Master Reclamation Permit issued by the Central Valley Water Board/NPDES Permit. The City is aggressively expediting

implementation of recycled water citywide; however, the peak daily recycled water supply (morning and evenings) do not align with the peak recycled water demand (night). The City needs an adequate storage facility to maximize utilization of this valuable resource and must demonstrate active efforts to effectuate this vision for NPDES compliances. As part of this effort, the City currently has a 3.0 MGD storage reservoir design underway with construction anticipated by the end of 2015.

Any remaining treated wastewater is discharged into Marsh Creek per the terms of the City's Waste Discharge Requirements Permit. Brentwood is also exploring the possible transfer of a portion of its recycled water to ECCID for agricultural irrigation.

2.7. Water Supplies and Demands

Water management in the region is driven by a highly diverse population base with a wide range of water needs, including urban and agricultural uses; major industrial activities; recreation; and environmental systems. Water demand for these uses is met primarily by water supplies from the Delta. Detailed descriptions of water demands and supplies are provided below.

2.7.1. Current and Projected Water Demands

According to the Interim Population Projections for California and its Counties 2010–2050 (California Department of Finance, 2012), the Contra Costa County 2010 population is projected to increase by 20 percent by 2030 and by 42 percent by 2050. With that growth, water demands are also expected to increase. **Figure 2-14** presents population projections for the region's urban areas from 2010 through 2035, as contained in recently completed UWMPs. The ECCC region urban population is projected to increase 38 percent by 2035 from 294,000 people in 2010 to 406,000 people in 2035.

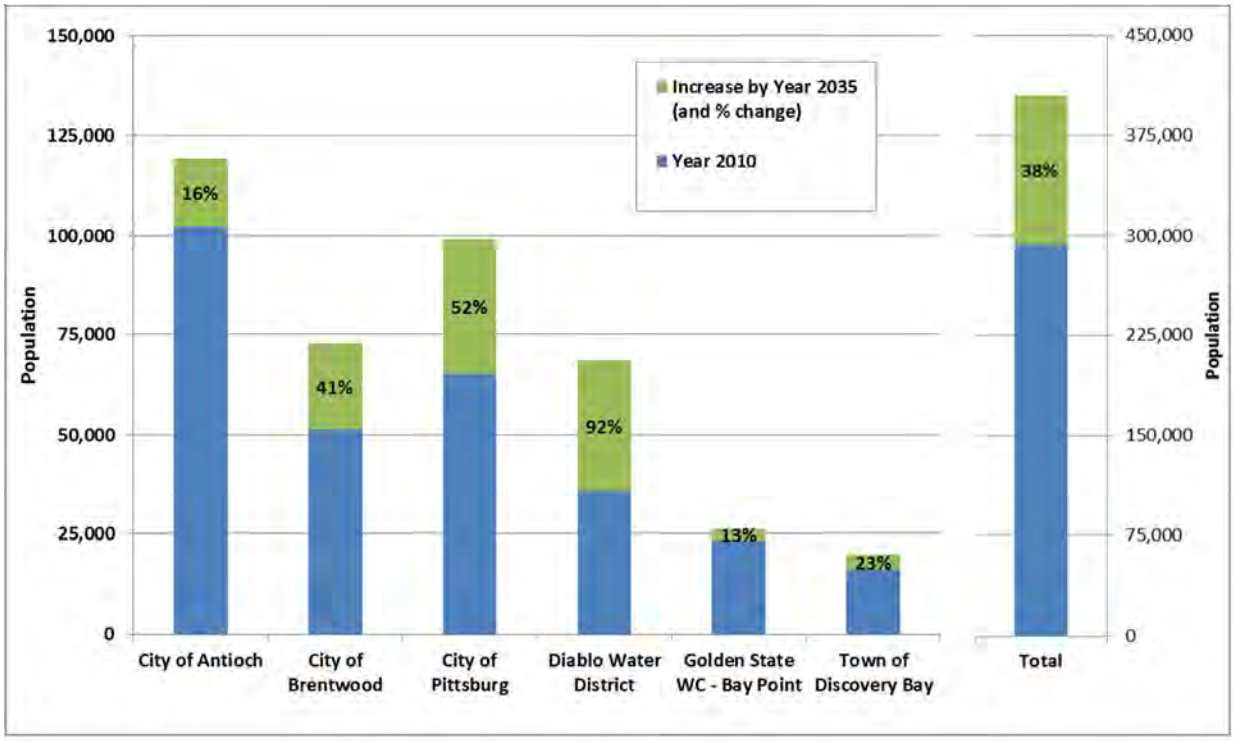


Figure 2-14. Current and Projected 2035 Population for Urban Areas in the Region

Agriculture in Bay Area counties has declined in recent years. Some changes are a result of changing market conditions, and some are a result of suburban growth like that described above. Cropland acreage in Contra Costa County alone has declined approximately 19 percent between 1990 and 2008 according to a 2011 report led by the American Farmland Trust.[6] Present cropland acreage for the county is approximately 23,000 acres (irrigated and non-irrigated). The American Farmland Trust reports that there are over 275 irrigated farms in Contra Costa County and most are in eastern Contra Costa County.[5] A majority of this acreage is located within BBID and ECCID. BBID and ECCID reported 5,663 and 7,071 irrigated cropland acreage respectively for 2012. This is a total 12,734 irrigated acres in 2012.

Table 2-6 and **Figure 2-15** show current and projected water demands for urban, industrial, and agricultural water uses in the region. Urban demands within the region are met by public and private water utilities. The normal year urban demand in these areas is expected to increase from 50 TAF per year in 2010 to 79 TAF per year in 2035, which represents a 66% increase. The use of recycled water and air-cooled condensers for power facilities in the region is significant since the Pacific Gas and Electric Company (PG&E) Pittsburg and Antioch power plants along the San Joaquin River had been using once-through cooling water from the Delta.. Using recycled water for cooling towers lessens environmental impacts from entraining and impinging sensitive aquatic species associated with once through cooling systems as well as lowers the heat input into the Delta from the discharge of power plant cooling water. An additional benefit is reducing potable water demands during drought, while allowing normal operations at the power plants, which could potentially be limited by potential water use restrictions during prolonged drought.

Most of the agricultural demands in the region are met by irrigation district supplies (BBID and ECCCID). A small percentage of agricultural demand is for small-scale farm operations that rely upon privately owned wells or individual surface water rights. While other special districts may have powers that allow for distribution of water, such as BIMID, they are not exercised. Agricultural water use reported by BBID and ECCID was about 38 TAF in 2012. (This does not account for agricultural water use by small private farms located outside these districts. Data for these uses is not available on a regional scale.) Estimates of projected agricultural water use for the region are not available. Recent trends suggest future agricultural water use would be similar.

The ECCC region includes a richly diverse environmental landscape, including grassland, oak woodland, chaparral, streams, and wetlands. Each of these environmental systems has specific water requirements for the maintenance of the ecosystem and its dependent species. A majority of the environmental water requirement is associated with river- and wetland-dependent aquatic ecosystems, and is often referred to as environmental flow requirements or habitat conservation requirements. These flow requirements can be defined by magnitude, timing, frequency, duration, or some combination of those factors. CCWD provides up to 5 cubic feet per second to Kellogg Creek downstream from the Los Vaqueros Reservoir dam. The City of Brentwood currently discharges treated effluent to Marsh Creek estimated to be approximately 5,000 TAF per year. Brentwood is seeking to reduce this discharge by using this treated effluent within the City of Brentwood.

[6] Sustaining Our Agricultural Bounty–A White Paper, American Farmland Trust, Greenbelt Alliance, and Sustainable Agriculture Education, March 2011.

Table 2-6. Current/Projected Urban, Industrial[d], and Agricultural Water Demands (AFY)

Major Water Retailer	2010	2015	2020	2025	2030	2035	Change (2010 to 2035)	Increase by Year 2035
City of Antioch[a]	17,843	22,677	21,301	22,400	23,049	23,717	33%	5,874
City of Brentwood[a]	10,802	11,564	11,521	12,659	13,334	13,982	29%	3,197
City of Pittsburg[a]	7,784	9,461	10,192	10,980	11,828	12,743	64	4,959
Diablo Water District (Oakley)[a,b]	5,389	7,893	10,076	12,417	14,759	17,100	217%	11,711
Golden State WC - Bay Point[a]	2,190	2,955	3,139	3,298	3,376	3,474	59%	1,284
Town of Discovery Bay[a,c]	4,097	4,569	5,041	5,041	5,041	5,041	23%	944
Subtotal	**48,105**	**59,119**	**61,269**	**66,795**	**71,387**	**76,057**	**58%**	**27,951**
Calpine Power Plants[d,e]	7,010	7,010	7,010	7,010	7,010	7,010	0%	0
Subtotal	**7,010**	**7,010**	**7,010**	**7,010**	**7,010**	**7,010**	**0%**	**0**
Byron Bethany ID[f,e]	18,484	18,484	18,484	18,484	18,484	18,484	0%	0
East Contra Costa ID[g,e]	20,038	20,038	20,038	20,038	20,038	20,038	0%	0
Subtotal	**38,522**	**38,522**	**38,522**	**38,522**	**38,522**	**38,522**	**0%**	**0**
Total	**93,637**	**104,651**	**106,801**	**112,327**	**116,919**	**121,589**	**30%**	**27,951**

Notes:

[a] 2010 demand from Urban Water Management Plans.

[b] Includes the City of Oakley, and areas served outside the City of Oakley which includes portions of Knightsen and Bethel Island.

[c] Water Master Plan (from 2012) projects build-out conditions will be reached in 10 years (about 2020).

[d] Calpine Power Plant average annual demand is 7,010 AFY. Results from Delta Diablo's Recycled Water Master Plan show that in the future, Calpine demands for recycled water are anticipated to drop due to water quality improvements of the Delta Diablo's recycled water and water management system; in the Recycled Water Master Plan, a 10% demand reduction is assumed for modeling purposes.

[e] Demand is assumed to be constant.

[f] 2012 demand based on District Crop Production Report of 2012 irrigation, Byron Bethany Irrigation District.

[g] 2012 demand based on District Crop Production Report of 2012 irrigation, East Contra Costa Irrigation District.

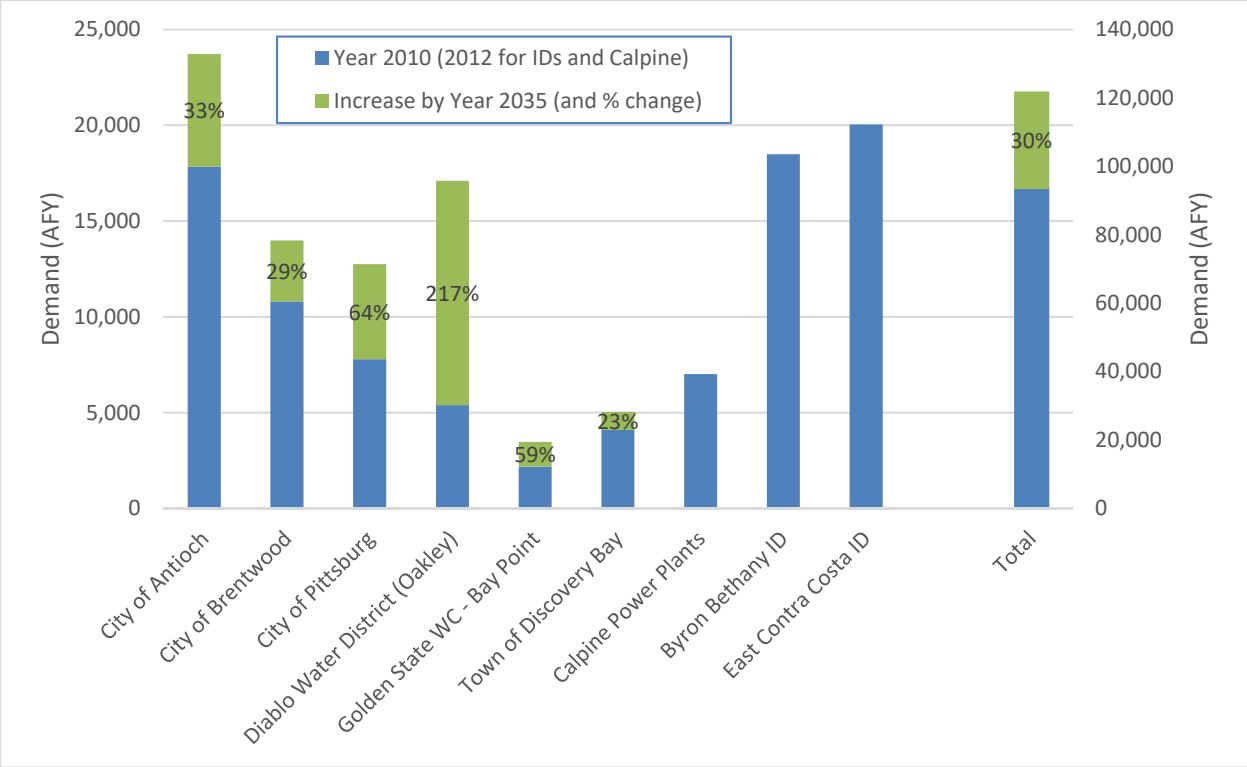
Key:

AFY = acre-foot per year

ID = Irrigation District

WC = Water Company

n/a = data not available



Source: 2010 Urban Water Management Plans, 2012 District Crop Reports, and 2012 DDSD recycled water use records.

Figure 2-15. Current and Projected 2035 Water Demands

2.7.2. Current and Projected Water Supplies

Water supplies for urban and industrial uses originate from surface water purchased from CCWD and, to a lesser extent, recycled water, groundwater, and local surface water supplies. This pattern is expected to continue. Agricultural water needs are met mostly by surface water supplied by BBID, ECCID, and individual water rights for small farm operations. Some small farm operations use groundwater from privately owned wells. ECCID also uses groundwater when demand exceeds their surface water supply. Detailed descriptions of both existing and projected water supplies are provided below.

Existing water supplies are summarized based on 2010 UWMPs, irrigation district irrigated crop reports, recycled water planning documents, and other agency records. **Table 2-7** summarizes water supply by specific source for municipal agencies, irrigation district, and large industry in the region. On average, surface water provides approximately 78.2 percent of existing water supplies in the region. Groundwater and recycled water supply approximately 9.4 percent and 12.4 percent of total water supplies, respectively.

Tables 2-8 and **2-9** present the current and projected water supplies for urban, industry, and agriculture in the region. Water supplies are categorized by source to distinguish surface water from groundwater from recycled water. **Table 2-8** represents normal (average hydrology) conditions as reported in individual agency planning documents. The region's supplies originating from the Delta are subject to variable hydrologic conditions, which can significantly reduce the availability of this supply. **Table 2-9** represents what water supplies would be under dry hydrologic

conditions. Specifically, information in **Table 2-9** represents supplies in the third year of a multiple dry-year scenario. Comparing water supplies under normal and dry hydrologic conditions helps identify potential water supply shortfalls. Under dry year hydrologic conditions, reductions in total surface water supplies to the region are projected to be less than 2,000 TAF per year. However, this is subject to change, depending upon future decisions that may affect how the Delta is managed that in turn may impact, positively or negatively, the availability and quality of water provided to the region from the Delta, and management of the groundwater basins under the Sustainable Groundwater Management Act of 2014. As shown in **Table 2-8** and **Table 2-9**, any potential supply shortfalls, by agency, will be accounted for with conservation.

Table 2-7. Current Water Supply Availability by Source (AFY)

	City of Antioch	City of Brentwood	City of Pittsburg	Diablo Water District (Oakley)	Golden State WC-Bay Point	Town of Discovery Bay	Delta Diablo Sanitation District (for industry)	Ironhouse Sanitary District	Byron Bethany ID	East Contra Costa ID	TOTAL
Sacramento/San Joaquin Rivers, Delta – Purchase from CCWD	17,770	0	7,815	8,402	1,954	0	0	0	0	0	35,941
Sacramento/San Joaquin Rivers, Delta – Purchased from ECCID	0	8,175	0	0	0	0	0	0	0	0	8,175
Sacramento/San Joaquin Rivers, Delta – Water Right	7,550	0	0	0	0	0	0	0	18,500	20,000	46,050
Local Municipal Reservoir	380	0	0	0	0	0	0	0	0	0	380
Groundwater	0	3,535	1,500	2,062	235	4,097	0	0	0	0	11,429
Recycled Water	0	0	459	0	0	0	12,000	2,700	0	0	15,159
Total	**25,700**	**11,710**	**9,774**	**10,464**	**2,189**	**4,097**	**12,000**	**2,700**	**18,500**	**20,000**	**117,134**

Note: This information was summarized based on 2010 UWMPs, irrigation district irrigated crop reports, and other agency records.

Table 2-8. Projected Urban, Industrial, and Agricultural Water Supplies in a Normal Year

Source	Projected Available Supplies (Thousand AFY)				
	2010 (1)	2015	2020	2025	2030
Surface Water	**90.6**	**98.7**	**104.4**	**107.9**	**113.4**
City of Antioch (CCWD/River)	25.7	31.1	30.2	31.8	32.5
City of Brentwood (CCWD/ECCID)	8.2	8.8	8.7	9.6	10.6
Diablo Water District – Oakley (CCWD)	8.4	8.4	14.0	14.0	16.8
City of Pittsburg (CCWD)	7.8	9.2	10.1	11.0	11.9
Golden State Water Co Bay Point (CCWD)	2.0	2.7	2.9	3.0	3.1
Byron Bethany ID (River water right)	18.5	18.5	18.5	18.5	18.5
East Contra Costa ID (River water right)	20.0	20.0	20.0	20.0	20.0
Small Private Farms (River water right)	unknown	unknown	unknown	unknown	unknown
Recycled Water (2)	**15.2**	**17.4**	**17.7**	**20.3**	**22.6**
City of Antioch (Delta Diablo)	0.0	2.2	2.2	2.2	2.2
City of Brentwood	0.0	0.053	0.25	0.5	1.4
City of Pittsburg (Delta Diablo)	0.46	0.47	0.47	0.48	0.48
Delta Diablo (industrial)	13.7	11.6	11.6	11.6	11.6
Ironhouse Sanitary District	2.7	2.7	2.8	5.1	6.5
Groundwater	**9.8**	**12.3**	**13.4**	**13.7**	**14.8**
City of Brentwood	3.5	3.8	3.8	4.1	4.4
Diablo Water District – Oakley	1.0	2.1	2.8	2.8	3.6
City of Pittsburg	1.1	1.5	1.5	1.5	1.5
Golden State Water Co Bay Point	0.2	0.3	0.3	0.3	0.3
Town of Discovery Bay	4.0	4.6	5.0	5.0	5.0
East Contra Costa ID (district wells)	unknown	unknown	unknown	unknown	unknown
Small Private Farms (private wells)	unknown	unknown	unknown	unknown	unknown
Conservation	**4.4**	**5**	**5.1**	**5.6**	**5.7**
Voluntary and Mandatory Conservation	4.4	5	5.1	5.6	5.7
Total Supplies (2)	**120.0**	**133.4**	**140.6**	**147.5**	**156.5**
City of Antioch (including Delta Diablo recycled water)	25.7	33.3	32.4	34	34.7
City of Brentwood	11.7	12.7	12.75	14.2	16.4
Diablo Water District – Oakley	9.4	10.5	16.8	16.8	20.4
City of Pittsburg (including Delta Diablo recycled water)	9.4	11.2	12.1	13	13.9
Golden State Water Co Bay Point	2.2	3	3.2	3.3	3.4
Town of Discovery Bay	4	4.6	5	5	5
Delta Diablo (industrial)	13.7	11.6	11.6	11.6	11.6
Ironhouse Sanitary District	2.7	2.7	2.8	5.1	6.5
Byron Bethany ID	18.5	18.5	18.5	18.5	18.5
East Contra Costa ID	20.0	20.0	20.0	20.0	20.0
Small Private Farms	unknown	unknown	unknown	unknown	unknown

Source: Urban supplies from 2010 Urban Water Management Plans; Irrigation district supplies from 2012 Crop Reports; Recycled water supplies verified against and updated with recycled water planning documents where applicable.

Notes:

(1) 2010 values reflect actual supply numbers derived from applicable planning documents.

(2) Delta Diablo supplies recycled water to the Cities of Pittsburg and Antioch as well as the power generating facilities within Pittsburg. Ironhouse Sanitary District uses recycled water for irrigating row crops. Presently, Brentwood discharges its tertiary treated water into Marsh Creek. Over time, Brentwood expects to reduce the discharge of treated water into Marsh Creek and instead use these supplies to water parks, golf courses, schools playfields, landscape areas etc.

Key:

AFY = acre-feet per year

CCWD = Contra Costa Water District

Delta Diablo = Industrial Supplies

ECCID = East Contra Costa Irrigation District

ID = Irrigation District

Table 2-9. Projected Urban, Industrial, and Agricultural Water Supplies in a Dry Year (1)

Source	Projected Supplies (Thousand AFY)				
	2010	2015	2020	2025	2030
Surface Water	**79.1**	**88.2**	**93.9**	**95.0**	**99.5**
City of Antioch (CCWD/River)	15.2	19.3	18.1	19	19.6
City of Brentwood (CCWD/ECCID)	8.3	11.9	12.8	12.9	14.4
Diablo Water District – Oakley (CCWD)	2.5	2.5	4.2	4	4.7
City of Pittsburg (CCWD)	7.8	8.5	9.3	9.7	10.1
Golden State Water Co Bay Point (CCWD)	1.7	2.3	2.4	2.6	2.6
Byron Bethany ID (River water right)	18.5	18.5	18.5	18.5	18.5
East Contra Costa ID (River water right)	20	20	20	20	20
Small Private Farms (River water right)	unknown	unknown	unknown	unknown	unknown
Recycled Water (2)	**15.2**	**17.4**	**17.7**	**20.3**	**22.6**
City of Antioch (Delta Diablo)	0	2.2	2.2	2.2	2.2
City of Brentwood	0	0.053	0.25	0.5	1.4
City of Pittsburg (Delta Diablo)	0.46	0.47	0.47	0.48	0.48
Delta Diablo (industrial)	13.7	11.6	11.6	11.6	11.6
Ironhouse Sanitary District	2.7	2.7	2.8	5.1	6.5
Groundwater	**7.3**	**9.7**	**10.9**	**11**	**11.9**
City of Brentwood	1	1.2	1.3	1.4	1.5
Diablo Water District – Oakley	1	2.1	2.8	2.8	3.6
City of Pittsburg	1.1	1.5	1.5	1.5	1.5
Golden State Water Co Bay Point	0.2	0.3	0.3	0.3	0.3
Town of Discovery Bay	4	4.6	5	5	5
East Contra Costa ID (district wells)	unknown	unknown	unknown	unknown	unknown
Small Private Farms (private wells)	unknown	unknown	unknown	unknown	unknown
Conservation	**4.4**	**1.6**	**1.4**	**1.6**	**1.7**
Voluntary and Mandatory Conservation	4.4	1.6	1.4	1.6	1.7
Total Supplies	**101.6**	**115.3**	**122.5**	**126.3**	**134.0**
City of Antioch (including Delta Diablo recycled water)	15.2	21.5	20.3	21.2	21.8
City of Brentwood	9.3	13.2	14.4	14.8	17.3
Diablo Water District – Oakley	8.6	9.8	15.6	15.1	17.9
City of Pittsburg (including Delta Diablo recycled water)	9.4	10.5	11.3	11.7	12.1
Golden State Water Co Bay Point	1.9	2.6	2.7	2.9	2.9
Town of Discovery Bay	4	4.6	5	5	5
Delta Diablo (DD)	13.7	11.6	11.6	11.6	11.6
Ironhouse Sanitary District	2.7	2.7	2.8	5.1	6.5
Byron Bethany ID	18.5	18.5	18.5	18.5	18.5
East Contra Costa ID	20	20	20	20	20
Small Private Farms	unknown	unknown	unknown	unknown	unknown

Source: Urban supplies from 2010 Urban Water Management Plans; Irrigation district supplies from 2012 Crop Reports; Recycled water supplies verified against and updated with recycled water planning documents where applicable.

Notes:

(1) Numbers represent supplies available in the third year of a multiple dry year scenario.

(2) Delta Diablo supplies recycled water to the Cities of Pittsburg and Antioch as well as the power generating facilities within Pittsburg. Ironhouse Sanitary District uses recycled water for irrigating row crops. Presently, Brentwood discharges its tertiary treated water into Marsh Creek. Over time, Brentwood expects to reduce the discharge of treated water into Marsh Creek and instead use these supplies to water parks, golf courses, schools playfields, landscape areas etc.

2.7.3. Comparison of Water Supplies and Demands

Figures 2-16 and **2-17** compare the projected demands and supplies out to year 2030 for normal and dry year conditions, respectively. Projected industrial and agricultural demands are not available and for purposes of this analysis, projections were assumed equal to 2012 demands.

As shown in these figures, water supplies appear to be sufficient to meet urban, industrial, and agricultural needs on an annual basis under both normal and dry year conditions. The current drought emergency has presented water management challenges beyond those evaluated in the dry year analyses shown here. How the region is addressing these challenges, and the lessons learned going forward, are discussed in Section 2.8 below.

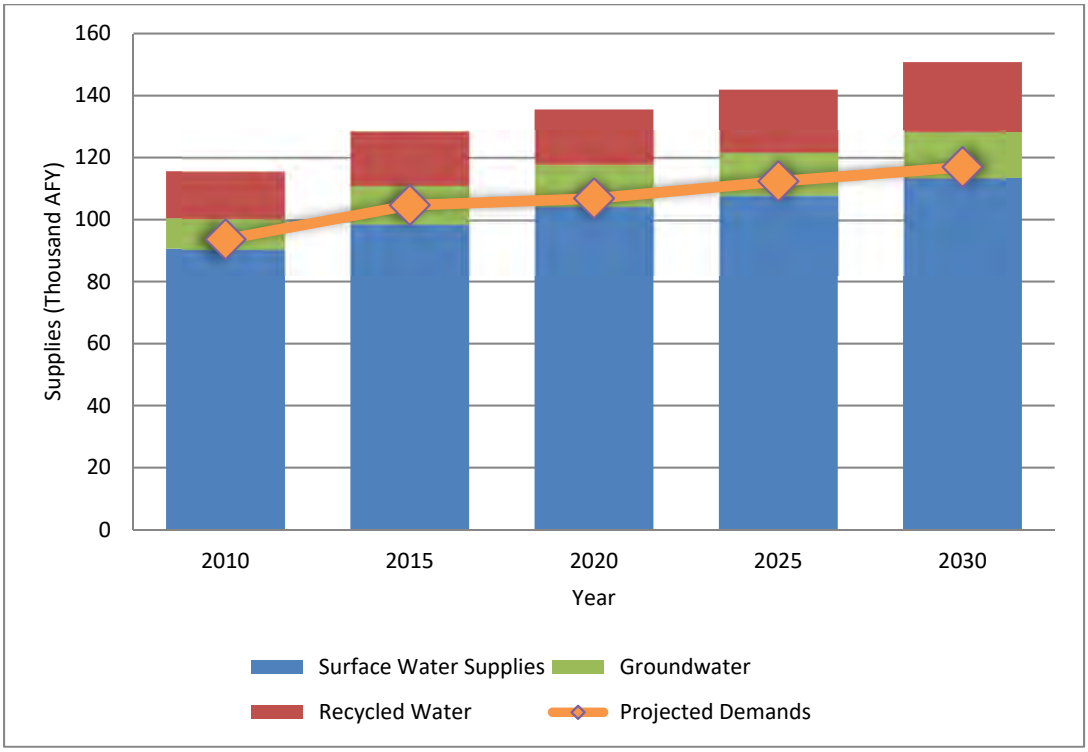


Figure 2-16. Normal Year Projected Supply and Demand in the Region

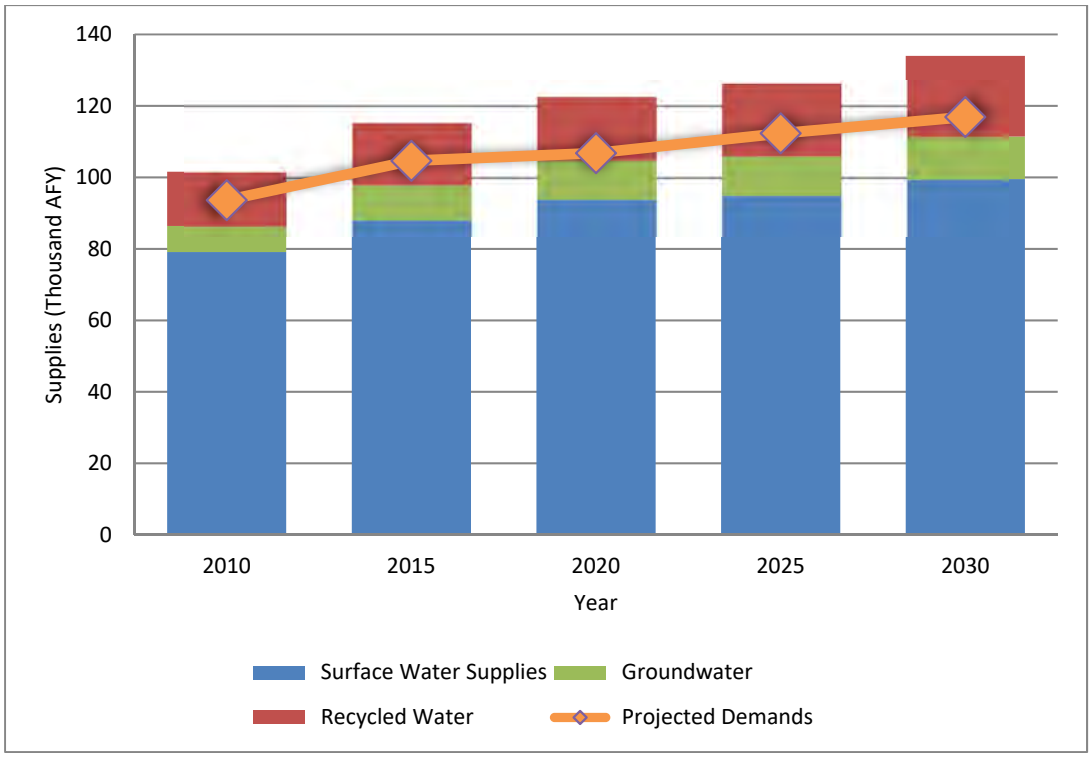


Figure 2-17. Dry Year Projected Supply and Demand in the Region

In late 2012, the retail urban water suppliers of the region, along with the City of Martinez and water wholesaler CCWD, began developing a Regional Capacity Study (RCS) to look at strategies and projects to optimize the region's water supplies, facilities, and operations. The RCS was completed in August 2014 and is included as Appendix I to this IRWM Plan.

The RCS along with other efforts, including recycled water planning and feasibility studies for Delta Diablo, ISD, and the City of Brentwood, further demonstrate the region's commitment to long-term water supply and demand planning to secure the reliability of supplies into the future. The RCS looked at supply and demand under normal and dry conditions as well as under two different regional emergency scenarios. It also looked at regional treatment plant capacity versus demand under various conditions and found that, even after supplementing supplies with groundwater, the City of Brentwood and DWD may not have sufficient treatment capacity to fulfill all future maximum daily demands (MDDs) through 2035. However, the RCS also found that several treatment plants have excess capacity compared to MDDs, and therefore recommended that additional interties and system connections be made to link treatment plants with excess capacity to those systems with potential capacity shortfalls. **Table 2-10** below provides an overview of excess capacity and potential capacity shortfalls identified in the RCS, indicating potential intertie opportunities. Specific early action projects and other projects that are recommended in the RCS to maximize supply reliability and potentially reduce supply shortfalls in the future are described in detail in Chapter 3 of this IRWM Plan.

Table 2-10. Water Treatment Plant Capacity vs. Projected Demands

	Treatment Capacity (MGD)	Average Day Demand (MGD)			Maximum Day Demand (MGD)		
		2010	2035	% Increase	2010	2035	% Increase
Antioch	36	15.9	21.4	35%	27.0	32.3	20%
Brentwood	16	9.6	12.5	30%	16.1	26.2	63%
Martinez	14.7	3.7	4.5	22%	7.5	8.9	19%
Pittsburg	32	7.9	13.4	70%	15.1	25.4	68%
CCWD	110	42.1	54.6	30%	84.3	103.5	23%
DWD	15	5.0	10.7	114%	9.9	21.4	116%
TOTAL	**223.7**	**84.4**	**117.0**	**39%**	**159.9**	**217.9**	**36%**

Source: 2014 Regional Capacity Study

Indicates potential capacity shortfall (2035 MDD>Treatment Capacity)

Indicates excess capacity (2035 MDD<Treatment Capacity

2.8. Emergency Drought Response

Water supply projections included in the previous sections are derived from water supply planning efforts completed in the ECCC region, including projections from applicable Urban Water Management Plans. Per information from CCWD's 2010 UWMP, CCWD's primary supply is CVP water obtained under contract with the United States Bureau of Reclamation. The M&I Water Shortage Policy defines the reliability of CCWD's CVP supply and provides for a minimum shortage allocation of 75% of adjusted historical use until irrigation allocations fall below 25%. CCWD's minimum public health and safety allocation from the CVP as reported in CCWD's 2010 UWMP is 65% of normal demand, which includes a 10% reduction to key industries, minimum interior residential water allocations (55 gallons per capita per day), necessary institutional and commercial uses, fire protection, and average system losses.

Currently, California is in the fourth year of a major drought. As a result of the drought, agencies in the ECCC region are experiencing substantial water supply cutbacks that are more extreme than the worst-case-scenarios assumed in previous planning efforts. **Table 2-11** shows actual 2015 minimum supply projections under current drought conditions. As shown in **Table 2-11**, the region's CVP allocations have been substantially reduced, below the previously-assumed public health and safety minimum, with increased supplies from Los Vaqueros Reservoir offseting this drastic reduction. The Los Vaqueros Reservoir Expansion Project expanded the capacity of the Los Vaqueros Reservoir from a 100,000 acre-feet to 160,000 acre-feet, which allows the reservoir (when full) to provide enough storage for approximately 14 to 28 months of normal use. As a result of this expanded capacity, the United States Bureau of Reclamation has further reduced CVP supplies provided to CCWD to 50,500 AFY.

Table 2-11. Current Minimum Supply Projections under Existing Drought Conditions (2015)

Source	Normal (AFY)	Previous Year 3 Health and Safety Assumption	2015 Dry Year Supply (AFY)
CVP	170,000	112,700	50,500
ECCID	6,000	10,000	10,000
Industrial Diversions	10,000	0	0
Mallard Slough	3,100	0	0
Antioch Diversions	6,700	0	0
Groundwater	3,000	3,000	3,000
LV Supply	10,000	10,000	30,000
Recycled Water	8,500	8,500	8,500
Total	**217,300**	**144,200**	**102,000**

2.8.1. East Contra Costa Planned Efforts to Address Drought Conditions

The region is responding to potential supply shortfalls resulting from the drought by increasing voluntary and mandatory conservation efforts. In addition, several agencies are increasing water recycling efforts to further offset potable water demands with recycled water. These projects and regional efforts require substantial planning and financial investments, and therefore often require additional funding to implement. Additional funding is especially important within disadvantaged communities in the ECCC region, given that water rate increases and other potential methods used to finance projects may not be feasible in those areas.

Specific efforts that are being considered in the ECCC region to address the current drought are listed below:

1. City of Antioch/Contra Costa Water District Intertie Projects: Two potential intertie projects were identified in the RCS. One would add a booster pump that would allow Antioch to provide water into the Multi-Purpose Pipeline (MPP) through an existing intertie. The second would include a second connection between Antioch and the MPP that would more efficiently distribute water to the west side of Antioch's system. Although not specifically designed as drought projects, both of these projects could increase water delivery and system efficiencies that could help address drought-related impacts.

2. Brentwood Wastewater Treatment Plant: The Brentwood Wastewater Treatment Plant provides service to the City of Brentwood. The majority of treated effluent is discharged to Marsh Creek, and recycled water is currently supplied to a small number of customers. Upgrades to the Plant that would increase storage and pumping capacity would allow for the expansion of recycled water delivery in the City of Brentwood. Expanding recycled water would help to offset potable water demands, and therefore respond directly to drought conditions.

3. Delta Diablo Distribution System Expansion Project: This project would include implementation of pipeline, pump station, and storage improvements to the Recycled Water Facility in order to provide recycled water to additional users. Expanding recycled

water would help to offset potable water demands, and therefore respond directly to drought conditions.

4. Delta Diablo High Purity Water Treatment Facility Implementation Project: This project would construct an advanced water treatment plant and related pipelines and pump stations to expand water reuse and provide additional supplies to supplement cutbacks resulting from the drought.

5. Ironhouse Sanitary District Short-Term Implementation Projects: Two short-term projects are being considered by ISD; one would include the construction of a fill station that would allow for the provision of additional recycled water. The second would include planting and growing alternative crops to allow for additional reuse of water. Both projects would help to offset potable water demands, and therefore respond directly to drought conditions.

6. Ironhouse Sanitary District Near-Term Implementation Projects: In the near-term, ISD plans to provide recycled water for industrial reuse along the Wilbur corridor, expand industrial reuse to the Northern Waterfront area, and use recycled water for sustainable farming practices. All three of these projects would help to offset potable water demands, and therefore respond directly to drought conditions.

2.9. Climate Change Vulnerability Assessment

Over the coming decades, California's Bay-Delta system will feel impacts of global climate change with shifts in biological communities, a rising sea level, and modified water supplies. Together, the San Francisco Bay, San Francisco Watershed, and the Delta form an interconnected and valuable resource system.

Evidence confirms the San Francisco Bay is already rising, this is impacting the Delta, and this is projected to continue. In fact, today's flood is expected to be the future's high tide. Areas that currently flood every 10 to 20 years during extreme weather and tides will begin to flood regularly. The consequences may be severe.

ECCC is composed of substantial low-elevation acreage, is within the drainage of Mount Diablo, and sits adjacent to the Delta; both localized floods from stormwater runoff and regional/catastrophic flooding due to levee failure are real and present threats. Of the past 11 president-declared natural disasters in the region, all but one involved storms and flooding. Climate change is only likely to increase these risks.

The Bay-Delta system is also the primary ECCC water supply. Sea-level rise and extreme weather can impact water quality through introduction of salinity into freshwater supplies, increased runoff and pollutants entering the system, increased turbidity and sediments, and the potential for low-elevation critical infrastructure to be inundated.

Beyond the immediate concerns of managing altered and increased flows, the timing and volume of flows are likely to change due to changing temperature patterns in upper elevations. The entire interconnected State and federal water projects and other systems are designed and operated on basic assumptions about snow pack and predictable weather patterns. This means it is likely that ECCC water supply and water quality will be impacted by both floods and drought and changes

in the timing of the hydrological cycle, and that traditional systems for water delivery will be less reliable.

Deciding how best to meet the multiple (and sometimes conflicting) interests of those who value the resources of the Bay-Delta system already poses challenges to area resource managers. As the climate changes, the intensity of the challenges they face is likely to increase.

Therefore, as resource managers develop strategies to protect the Bay-Delta system–and the critical services it provides–they need to understand how global climate change will affect the system. The ECCC region must also implement adaptation actions that will reduce the vulnerability of the built and natural environment to the effects of climate change.

State and local agencies are already engaged in a number of efforts designed to improve California's ability to cope with a changing climate. IRWM planning efforts are collaborative and include many entities dealing with water management. These aspects make IRWM a good platform for addressing issues like climate change where multiple facets of water management are affected. To this end, DWR developed a standard to ensure that IRWM plans describe, consider, and address the effects of climate change on their regions and disclose, consider, and reduce when possible greenhouse gas (GHG) emissions when developing and implementing projects (DWR, 2010). To provide guidance for implementing the IRWM Climate Change Standard and incorporating climate change analyses into the IRWM planning processes, DWR and its partners USACE, EPA, and Resources Legacy Fund developed the Climate Change Handbook for Regional Water Planning (Handbook) (DWR, 2011).

2.9.1. Handbook Approach

In accordance with the Handbook, vulnerabilities of the region to future climate change impacts were assessed and member agencies efforts taken to adapt to climate change and to reduce GHG emissions in the region are described. The approach for assessing climate change in the region involved the following steps:

- Characterize the region
- Review literature on regional climate change impacts
- Assess and prioritize climate change vulnerabilities using the Handbook checklist
- Compile ongoing member agency efforts to address climate vulnerabilities

The full summary of information required for Handbook compliance is contained in **Appendix C**. Highlights of that summary include the following:

Characterize Region

Sections 2.5 through 2.7 of this IRWM Plan, characterize the social/cultural makeup and water resources, supplies, and demands of the region.

Review Climate Change Impacts

Multiple studies of climate change impacts on water resources specific to the western United States and California are available. A literature review was conducted to survey existing information and to determine the potential regional impacts of climate change.

Despite predictions for somewhat less overall precipitation over the long term, the region is also predicted to have more extreme storms. The region is also projected to have more frequent, longer, and more extreme heat waves and longer periods of drought. Additionally, river runoff patterns are anticipated to change as a result of earlier springtime runoff of the Sierra snowpack, which will have implications for changes to Delta flows and water quality.

Mean sea level is expected to rise by approximately 12.3 to 60.8 centimeters by the year 2050 at the Golden Gate Bridge (NRC, 2012). The Delta in the northern portion of the ECCC region is tidally influenced, and would be affected by rising sea levels, both in terms of Delta flows and water quality.

These predicted climatic shifts would have an impact on the region's water supply, water demand, flooding, water quality, ecosystems and habitats, and hydropower.

Identify and Prioritize Key Regional Areas of Potential Vulnerability

The next step was to identify and prioritize areas of potential vulnerability to climate change impacts. This allows the region to better plan adaptation actions to target specific high-priority climate vulnerabilities in the region.

Defined by the Intergovernmental Panel on Climate Change (IPCC), vulnerability is a function of the character, magnitude, and rate of climate variation (the climate hazard) to which a system is exposed, as well as of non-climatic characteristics of the system, including its sensitivity, and its coping and adaptive capacity (IPCC, 2001).

The Handbook provides a useful checklist for qualitatively determining areas of potential vulnerability within the region. Indicators of potential vulnerability include currently observable climate impacts, presence of climate sensitive features, and adaptive capacity of regional resources. The complete set of checklist responses can be found in **Appendix D**.

The checklist responses also include indications of the level of priority for each vulnerability. Prioritization was accomplished qualitatively, with issues assigned a low, medium, or high priority based on the potential impacts to the region's water resources, assessed likelihood, and regional values. The highest priority vulnerabilities in the region are related to the Delta. The region is reliant on the Delta for most of its water supply, and the Delta serves as an important habitat for endangered and threatened species. Therefore, changes to seasonal water supplies, water quality, and sea levels represent some of the most critical impacts. All of the vulnerabilities related to the health of the Delta have the highest priority.

Ongoing Member Agency Efforts to Address Climate Vulnerabilities

As part of the IRWM Plan monitoring process, member agencies will report on ongoing efforts to address climate change vulnerabilities. Sections 2.9.2 through 2.9.9 provide a description of the ongoing member agency efforts to address climate change vulnerabilities and provide insight on the feasibility for the region to address identified priority vulnerabilities. The following sections also provide an additional assessment of the primary climate change impacts to which the IRWM Plan must consider and respond.

2.9.2. Water Supply

Surface Water

Most of the water suppliers in the ECCC region are dependent on surface water supplies from the Delta to meet the majority of regional demand. CCWD, ECCID, and the City of Antioch maintain surface water intakes in the Delta. Delta Diablo and City of Brentwood supply recycled water to residential, industrial municipal customers in their respective regions. As discussed in Section 2.7, water supply in the Delta is already unreliable and changes in seasonal runoff patterns from climate change are likely to lead to reduced water supply reliability. Changes in precipitation and temperature in the Sierra Nevada region affect the timing and quantity of tributary flows. This affects the availability of fresh surface water for the region. Contributing factors include a reduced Sierra snowpack, earlier snowmelt, and extended drought periods punctuated by intense precipitation events.

Climate change could result in less storage in upstream CVP/SWP reservoirs, which in turn could reduce flows into the Delta during the summer and fall. Although some agencies in the ECCC region are not CVP/SWP contractors and divert from the Delta under their own water right, the availability of high-quality freshwater in the Delta is heavily dependent on the operation of CVP/SWP reservoirs; therefore, surface water supply for the region could be affected by changes in snowpack and upstream reservoir operations.

There is concern from the region's water supply agencies that two of their six water supply intakes could become threatened by climate change-related sea-level rise. The two intakes of concern are CCWD's Mallard Slough intake and the City of Antioch's intake. Sea-level rise has the potential to inundate infrastructure (making it unusable) and causing increasingly brackish or saline water to reach the Delta intakes (reducing water quality) more frequently and for longer periods of time throughout the year.

The region has implemented adaptation measures that address the impacts of climate change to its surface water supplies. CCWD operates the Los Vaqueros Reservoir, described further in Section 2.6.2 Infrastructure, as a blending water source to offset saline water conditions that may get more frequent with climate change impacts. CCWD also operates its multiple Delta intakes strategically to maximize water quality and pumping costs, including consideration of seasonal pumping limitations. Other Delta users are pursuing diversifying their supplies or creating more robust supply options. For example, the City of Antioch intends to construct a desalination plant to be able to use its water right and Delta supply year-round, thereby adapting to the effects of climate change on its Delta surface water supply.

Delta Diablo and City of Brentwood are additionally expanding their abilities to supply recycling water to appropriate users. Proposition 84 IRWM funding has been used to benefit and build these projects, further supporting the region's adaptation measures against impacts of climate change. As additional impacts of climate change to the region are identified, agencies may implement additional adaptations to water management systems as necessary.

Groundwater

Many of the agencies in ECCC rely on groundwater to blend with surface water to augment local water supply. The City of Brentwood, ECCID, DWD, and the City of Pittsburg use groundwater

wells to supplement surface supplies and increase reliability. Changes in local hydrology could affect natural recharge to the local groundwater aquifers and the quantity of groundwater that could be pumped sustainably over the long term. Decreased inflow from runoff, increased evaporative losses, and warmer and shorter winter seasons can alter natural recharge of groundwater. Potential reductions in surface water availability in the Delta as described above could lead to more reliance on local groundwater. Furthermore, sea-level rise may impact groundwater quality due to impacts from saline groundwater intrusion from the Delta. Recharge projects and active participation in Sustainable Groundwater Management Planning Act requirements will assist the region in determine actions to mitigate for and adapt to climate change impacts to groundwater supplies.

2.9.3. Water Demand

It is likely that water demand (agricultural, municipal, industrial, recreational, and environmental) in the region will increase as a result of more frequent, longer, and more extreme heat waves; increased air temperatures; increased atmospheric carbon dioxide levels; changes in precipitation, winds, humidity, atmospheric aerosol and ozone levels; and population growth. Increased water demand would put even greater strain on the region's limited water supply. Regional water shortages could occur if the region's supply is not able to keep up with demand, a problem exasperated from both the supply and demand sides by a changing climate.

Much of the region's seasonal pattern of demand is due to higher agricultural and landscaping irrigation demands during the summer months. Warming temperatures and heat waves will likely intensify the need for summer irrigation and exacerbate the seasonal demand differential. Agricultural water demands include those associated with crop irrigation and livestock consumption, both of which represent important business interests in the region. Changes in temperature along with changes in the atmosphere's composition have the potential to either increase or decrease irrigation water needs. Elevated carbon dioxide levels may increase crop growth as photosynthesis responds positively to extra carbon dioxide. However, this positive response is not sustained because photosynthesis is eventually reduced. Additionally, elevated carbon dioxide levels also generally cause stomata to close (Baldocci and Wong, 2006); this effect leads to water savings by reducing transpiration at the leaf scale. At the field scale, however, these savings become much less significant and larger crops growing in a warmer climate are expected to use more water (Reclamation, 2011).

2.9.4. Flooding

ECCC is especially vulnerable to flooding due to levee overtopping or failure. Much of the infrastructure in the region is at or below mean sea level, while land protected by independently maintained levees are at risk for increased levee failure and flood damage. Failures could lead to disruption or changes in water supply reliability, water treatment, and wastewater treatment and disposal. CCWD, ECCID, and the City of Antioch have water intake facilities that could be at risk if sea level increases significantly. Similarly, some wastewater treatment plant (Delta Diablo and ISD's) facilities are located in regions that could be at risk of flooding given sea-level rise.

In recent decades, the mean sea level trend has been an increase of 2.08 millimeters/year at the nearest tidal gauge to the region (Port Chicago, located in the San Francisco Bay) (NOAA, 2012). Mean sea level is expected to rise by approximately 12.3 to 60.8 centimeters by the Year 2050 at the Golden Gate Bridge (NRC, 2012). Because the Delta is tidally influenced, it would be affected by rising sea levels. A rise in sea level would increase hydrostatic pressure on levees currently

protecting low-lying land in the Delta, much of which is already at or below sea level[7]. These effects threaten to cause potentially catastrophic levee failures that could inundate communities, damage infrastructure, and interrupt water supplies throughout the region and statewide (Hanak and Lund, 2008).

Where levee and flood protection projects are identified, the region may prioritize funding for these projects to assist the region in adapting to these climate change impacts. Additionally, it is common for flood channels and drains to sit adjacent to disadvantaged communities, further magnifying the need to identify proactive projects to prevent catastrophic flooding impacts.

2.9.5. Water Quality

A changing climate will likely create challenges for the management of water quality in the region. The majority of water supply in the region is from the Delta, which has several water quality concerns, as described in Section 2.9.1. These water quality challenges could be exacerbated by climate change. There may be potential water quality problems associated with sea-level rise, such as increased salinity in receiving waters and areas serving drinking water intakes. There may also be issues associated with higher river and stream flows caused by increased storm events, such as an increase in turbidity and in the pollutants transported by mobilized sediment. Disinfectant byproduct precursors tend to spike during storm events (DWR 2001) and this problem could be more common if storm frequency increases. A decrease in annual precipitation would result in higher concentrations of contaminants during droughts and lower dissolved oxygen (DO).

As noted in Section 2.9.1, the Los Vaqueros Reservoir is used as a blending facility to improve the quality of water delivered to customers in the late summer and fall, when Delta water quality is lowest. If the amount of water stored in Los Vaqueros Reservoir during summer and fall decreases, this could limit the blending capabilities of the reservoir.

As noted as well in Section 2.9.1, failure of the Delta levee system could dramatically increase levels of chloride, bromide, and total organic carbon in Delta water and potentially render that water supply unusable for municipal or agricultural purposes. As noted earlier in this section, the risk of Delta levee system failure increases under climate change conditions.

Potential changes in Delta water quality associated with climate change could increase the disinfection byproducts such as bromate. Bromide in the source water is transformed into bromate during ozonation. The level of bromate formation is largely dependent on the amount of total organic carbon and bromide concentration in the source water. Bromate is suspected of contributing to kidney and thyroid cancer in humans. Sea-level rise could increase the intrusion of sea water and the bromide concentration of the Delta. Additionally, decreased freshwater flows into the Delta could increase organic matter. Combined, these two potential outcomes of climate change could increase bromate formation during the treatment of Delta waters; minimization or avoidance may necessitate changes to treatment technologies in ECCC.

Warmer temperatures associated with climate change could also lead to increased taste and odor events triggered by algal blooms; which are characterized by water quality changes during the spring and summer, such as increases in DO and DO saturation, pH, and total organic nitrogen.

[7] Many Delta islands have subsided 15 to 25 feet below sea level (Contra Costa County Hazard Mitigation Plan Update 2011).

Many of the surface water treatment plants in the region are designed to address taste and odor events through preozonation. Although use of higher ozone dosages to control taste and odor events must also consider the need to control bromate formation.

2.9.6. Ecosystem and Habitat Vulnerability

The Delta is listed as one of the top 10 habitats to save for endangered species in a warming world in a report prepared by the Endangered Species Coalition (Endangered Species Coalition, 2011). The Delta provides habitat for hundreds of species of fish, birds, and other wildlife and enables the migration of Pacific salmon from spawning grounds in the upper reaches of cold-water rivers to the saline oceans and back again (Endangered Species Coalition, 2011). Regional climate-sensitive populations include salmonid species, migratory bird species, and wetland species (CEC, 2008).

Projected climate changes are likely to result in a number of interrelated and cascading ecosystem impacts. At present, most projected impacts are primarily associated with increases in air and water temperatures and include increased stress on fisheries that are sensitive to a warming aquatic habitat.

Warmer temperatures can compromise the health and resilience of aquatic and terrestrial species and make it more challenging for them to compete with nonnative species for survival. Competition for habitat and food will intensify with climate change. Further, climate change effects could compound with non-climate stressors, such as land-use changes, wildfire, and agriculture to cause habitat fragmentation at increasing rates, thus contributing to species extinction (USFWS, 2009). Changes in seasonal runoff patterns may place additional stress on native species by affecting, for example, adult and juvenile migrations.

Increasing temperatures are likely to increase challenges for providing suitable habitat conditions for salmonid populations. Of specific concern within the region are Chinook salmon and steelhead, which prefer temperatures of less than 64.4 to 68 degrees Fahrenheit (°F) in mountain streams, although these anadromous fish may tolerate higher temperatures for short periods (Bennett, 2005). Increased water temperatures could reduce the habitat suitability of California rivers for these species (Reclamation, 2011).

Additionally, warmer air and water temperatures potentially could improve habitat for invasive species that outcompete natives. Invasive species, including various nonnative fish and plant species, are an ongoing issue within the region. Some invasive species, such as quagga mussels, may additionally impact maintenance of hydraulic structures. Further, climate changes could decrease the effectiveness of measures currently used to control invasive species (Hellman et al., 2008).

Warmer water temperatures also could spur the growth of algae, which could result in eutrophic conditions in lakes and reservoirs, declines in water quality (Lettenmaier et al., 2008), and changes in species composition. Other warming-related impacts include northward shifts in the geographic range of various species, impacts on the arrival and departure of migratory species, amphibian population declines, and effects on pests and pathogens in ecosystems (Reclamation, 2011). Impacts on terrestrial ecosystems have also been observed, including changes in the timing and

length of growing seasons, timing of species life cycles, primary production, and species distributions and diversity (CEC, 2009c).

Additionally, the region's significant recreational economy (boating, fishing, biking, and hiking) could be affected by changes to the ecosystem and wildlife habitat.

2.9.7. Energy

In general, electricity production from hydroelectric power generation and other sources tend to be effected by weather patterns and temperature changes. Increases in peak energy demands throughout California and decreases in supply may decrease power supply reliability which in turn could alter or disrupt water diversions, water treatment, and wastewater disposal. The western U.S. energy crisis of 2000 and 2001, although not caused by climate change, demonstrated the gravity of unreliable supply.

The portion of the region's power supplies that come from systems with hydropower generation and hydroelectric generation as part of the utility portfolio is sensitive to potential climatic changes affecting the timing and magnitude of precipitation, runoff, and reservoir water levels. Direct impacts for ECCC may be energy reliability (brown outs) and cost. Water demands and production from conventional power plants located in the ECCC area can be expected to increase if out of area hydroelectric production decreases. Energy reliability is especially important for treatment and pumping operations.

In addition to sensitivity to water based generation concerns, reduced reliability could occur with a variety of other climate change and climate change mitigation variables such as:

- Availability of power supply sources (coal, other fuels) due to market availability or impediments to use (such as emissions concerns).
- Extreme temperatures driving intense competition among power users.
- Diminished local supplies (wind).
- Damages to the delivery system and grid caused by fires and flood.

2.9.8. Additional Local Data

The Regional Capacity Study, which was completed in 2014 by several agencies in the ECCC region, evaluated ways to optimize regional water treatment plant operations and untreated water supply, improve water supply reliability, and reduce treatment costs. The RCS included a water supply reliability evaluation that considered probable drought scenarios, including those that could take place as a result of, or be exacerbated by, climate change. Of the scenarios that were evaluated, the RCS determined that failures within the western delta levee system and a regional power outage would be most likely to create critical impacts to water quality and treated water supplies. Although prolonged droughts are a potential impact resulting from climate change, the RCS determined that a scenario that looked at drought conditions (loss of untreated water supply) was not necessary to carry forward in the analysis, because CCWD's long-term water planning scenarios already outline alternative untreated water sources that would be required in the event of a three-year prolonged drought.

As a result of the water supply reliability evaluation, the RCS recommended that operational changes and additional studies be pursued to potentially address regional issues, including those that could take place as a result of, or be exacerbated by, climate change. The results and recommendations of the RCS have been incorporated into this IRWM Plan.

2.9.9. Climate Change Mitigation and Adaptation Strategies

ECCC IRWM Plan participants recognize the importance of managing for climate change in the region. Management strategies include both mitigation and adaptation. Mitigation involves actions to reduce GHG emissions, while adaptation involves responding to the effects of climate change. Mitigation strategies attempting to reduce production of GHG emissions already in place in the region include:

- Consumer education
- Conservation
- Water and wastewater management
- Green buildings
- GHG reductions
- Expansion of recycled water systems
- Community involvement

A potential adaptation strategy to increase water supply reliability is to develop infrastructure to tie into the water supply systems of nearby water agencies, such as East Bay Municipal Utility District, to reduce reliance on the Delta. Additionally, increasing recycled water usage will improve water supply reliability, since recycled water is not affected by hydrologic conditions. This will provide additional dry-year reliability for irrigation customers and other industrial users.

Appendix E includes a detailed list and descriptions of ongoing and planned mitigation and adaptation actions in the region. Climate change mitigation and adaptation actions are also an important part of the IRWM planning process. GHG emissions were an important consideration in the project selection process, which is described in greater detail in Section 3.4.3.

2.10. Water Quality

This section provides an overview of water quality concerns for the region's Delta water supplies and groundwater supplies. A summary of the constituents of concern for these supplies is included in **Table 2-12** and discussed in more detail in the paragraphs following.

2.10.1. Delta Water Quality

Delta water quality is highly variable depending upon the season, the water year, and the intake location. During dry years and seasons, Delta supplies contain high concentrations of total dissolved solids (TDS), chloride, and bromide. Total organic carbon (TOC) concentrations in Delta supplies are also highly variable, with increases generally corresponding to periods of increased runoff. These concerns are discussed in detail in the Delta Region Drinking Water Quality Management Plan (DRDWQMP). The Los Vaqueros Reservoir is owned and operated by CCWD, and is used to improve the water quality delivered to its customers. Water is pumped into Los Vaqueros Reservoir during spring and early summer months when Delta water quality is good. During the late summer and fall, when Delta water quality is poor, Delta supplies are blended with the high-quality water stored in Los Vaqueros Reservoir to improve the water quality delivered to

CCWD's untreated and treated water customers. CCWD expanded the Los Vaqueros Reservoir capacity in 2012 from 100 TAF to 160 TAF.

Table 2-12. Constituents of Concern for ECCC Source Waters

Constituent of Concern	Reason	Regulatory Standard[1] (Goal)	Location
Total Dissolved Solids	Taste and odor Agricultural and industrial impacts	Secondary Standard: 500 mg/L	Delta Supplies, Groundwater, Recycled Water
Total Organic Carbon	Disinfection byproducts-THM, HAA precursor (public health concern)	MCLs – THM: 80 µg/L HAA5: 60 µg/L	Delta supplies
Bromide	Bromate precursor (public health concern)	(CALFED Goal: 50 µg/L)	Delta supplies
Chloride	Taste, corrosion	Secondary Standard: 250 mg/L	Delta supplies
Iron and Manganese	Filter deposits Rusty color Taste and odor	Secondary Standards: Iron: 0.3 mg/L Manganese: 0.05 mg/L	Groundwater
Arsenic	Bladder cancer Lung cancer	MCL: 10 µg/L	Groundwater
Boron	Reproductive toxicity	Action level: 1 mg/L	Groundwater
Nitrate (as NO_3)	Public health concerns	MCL: 45 mg/L	Groundwater

Note:
[1] MCLs and Secondary Standards are found in Title 22 of the California Code of Regulations
Key:
µg/L = micro grams per liter
CALFED = California Bay-Delta Program
Delta = Sacramento-San Joaquin Delta
ECCC = East Contra Costa County
HAA = Haloacetic acid
MCL = Maximum Contaminant Level
mg/L = milligrams per liter
NO_3 = Nitrate
THM = Trihalomethane

The quality of Delta water is dependent on maintaining the Delta levee system as well as land and water management activities throughout the Delta and its larger watershed. Failure of the Delta levee system could dramatically increase levels of chloride, bromide, and TOC in the water and potentially render the water supply unusable for municipal or agricultural purposes. Similarly, changes in Delta land-use and water management practices, including many identified by CALFED and the BDCP (discussed below), could increase levels of undesirable constituents at ECCC intake locations. ECCC is particularly vulnerable to these changes since Delta water makes up the majority of the region's water supply. The RCS analyzed potential operational impacts that could take place in the region as a result of Delta levee failure, including water quality impacts. The RCS recommended that additional studies be conducted to analyze potential impacts of TOC and bromide on treatment capabilities as these water quality constituents could potentially impact the region's ability to treat and deliver water in the event of a Delta levee failure.

Delta Operations

The majority of the ECCC region's water supply comes from the Delta. Changes in Delta operations by the State or federal government may impact water supply and water quality within the ECCC area. Therefore, the RWMG is tracking the progress of efforts in the Delta, including the Bay Delta Conservation Plan (BDCP). The BDCP is a planning document that addresses

ecosystem and water management challenges in the Delta. The BDCP included an analysis of potential Delta levee failure scenarios (four-island and fourteen-island failure analysis), which could impact or interrupt supplies in the region. DWR is considering requiring that 2015 UWMPs analyze the impacts of a potential 36-month supply interruption resulting from a 14-island failure. While the 14-island failure is an extreme condition, it is possible that 2015 UWMPs will include such an analysis if required by DWR.

2.10.2. Groundwater Quality

Several agencies, including the City of Pittsburg, DWD, and the City of Brentwood, use groundwater supplies to supplement Delta surface water supplies. Additionally, the Town of Discovery Bay and Bethel Island both utilize groundwater wells as their primary source of drinking water. Groundwater quality generally meets drinking water quality standards with some exceptions. For example, high concentrations of manganese and TDS have been observed in wells in the City of Pittsburg and DWD. Also, the City of Brentwood has experienced significant degradation of groundwater quality due to nitrate contamination. Small water systems on Bethel Island also report that arsenic is present at varying – and sometimes high – levels throughout the island.

Key Constituents of Concern

Nitrate, arsenic, perchlorate, and hexavalent chromium are contaminants of primary concern for the State of California. As indicated in Table 2-12, nitrate and arsenic are present in some locations within the region's groundwater supply and are considered to be contaminants of concern for the region. Hexavalent chromium is also present within the region but at levels low enough that the contaminant is not listed as a major constituent of concern.

Nitrate and arsenic are both present in the region, though generally at very low levels relative to the regulatory Maximum Contaminant Level (MCL) allowable for drinking water. Throughout the IRWM region, arsenic (with an MCL of 10 micrograms per liter) concentrations range from non-detectable levels to 5 micrograms per liter in Discovery Bay. On Bethel Island, the Beacon West small water system has reported arsenic levels of 26 micrograms per liter, which greatly exceeds the MCL. As a result, the Beacon West community abandoned its water supply well and in 2017 was connected to the DWD distribution system. Nitrate concentrations in the IRWM region are below the 45 mg/L MCL, with concentrations ranging from non-detectable to 23 mg/L in the City of Brentwood.

Hexavalent chromium levels in the IRWM region are below the 10 microgram per liter, with maximum reported concentrations of 0.49 micrograms per liter from DWD and 8.2 micrograms per liter for the City of Brentwood. Perchlorate is not detected in the region.

Impacts Caused by Contamination

Currently, there are no water sources in the IRWM region that exceed the MCL of nitrate, arsenic, perchlorate, and hexavalent chromium. As a result, there are no measureable or recorded impacts resulting from the constituents where they are present.

Efforts to Address Contamination and Impacts

The groundwater suppliers in the region continue to manage the groundwater basins and their supplies. Methods used to improve groundwater quality include blending with surface water,

targeting deeper aquifers, and designing future wells with deep seals extending to confining zones to ensure source water protection. As with the example of the Beacon West community (described above), local water purveyors and IRWM participants collaborate with each other to resolve major water quality issues.

To address potential groundwater quality degradation that could take place as a result of salt and nutrient loading from use of recycled water, agencies in the region have completed salinity analyses (Salt and Nutrient Management Plans) and others have participated in regional salinity management efforts such as the Central Valley Salinity Coalition. Information from the Pittsburg Plain Groundwater Basin Salt and Nutrient Management Program Summary suggest that TDS and chloride levels are elevated in shallow groundwater wells closer to the shoreline, likely as a result of seawater intrusion. Quality of deep zone groundwater is similar to that of shallow groundwater, with higher TDS concentrations closer to Suisun Bay. However, because the deep groundwater wells are located further inland than the shallow aquifers, TDS concentrations appear somewhat lower in the deep aquifers than in the shallow aquifers. Given limited available groundwater quality data for the Pittsburg Plain Groundwater Basin, the SNMP Summary recommends additional monitoring to determine the basin's assimilative capacity, identify potential loading sources, manage recycled water and fertilizer use, and prepare a full SNMP for the basin.

2.10.3. Recycled Water Quality

Recycled water is engineered for safety and reliability so that the quality of the water is more predictable than many existing surface water and groundwater sources. In general, recycled water contains higher salinity content (reported as TDS) than potable water and is treated to suit its end use. For irrigation purposes, the rate at which salts accumulate in soils is an important factor in determining acceptable TDS levels. In addition, the salinity, sodium hazard (as determined by sodium adsorption ratio [SAR]), and potential toxicity to plant foliage and roots from other specific constituents are potential concerns. Sampling data for Delta Diablo recycled water supplies shows that these supplies are within acceptable ranges for landscape irrigation. For industrial users, specifically those that use cooling towers, improved recycled water quality, through advanced treatment, would lower water demand resulting in chemical and water purchase cost savings. In 2014 ISD completed a Salinity Pollution and Prevention Plan (SPPP) for its WRF, which analyzed potential sources of salinity (TDS and electrical conductivity [EC]), feasibility of source control methods, and ways of reducing salinity in WRF source water. The analysis found that self-regenerating water softeners (SRWS) are significant contributors to EC in ISD's service area. As a result of this analysis, the SPPP recommended development of an ordinance to ban installation of new SRWS and outreach to help local residents understand salinity issues. With regards to water supply, the analysis found that high salinity in local groundwater wells (for Oakley and Bethel Island) are a large source of EC to ISD's WRF; as such, the SPPP recommends working with water purveyors in the area to develop a better potable water supply for Bethel Island that will reduce salinity loads to the WRF.

Chapter 3. Plan Development

This chapter presents the steps of the planning process and the outcomes for each. These outcomes include: objectives, resource management strategies, technical analyses, stakeholder involvement, project review process, and integration and coordination. The chapter describes the intention for the plan to be part of an ongoing process. It is considered by the ECWMA and regional stakeholders as a living document that will continue to be updated after the 2015 version.

3.1. Planning Framework

3.1.1. Background

With the enactment of Senate Bill (SB) 1672, the Integrated Regional Water Management Planning Act of 2002 (Act), the State of California affirmed the importance of IRWM. In this Act,[1] the Legislature found and declared:

> *"(a) Water is a valuable natural resource in California, and should be managed to ensure the availability of sufficient supplies to meet the state's agricultural, domestic, industrial, and environmental needs. It is the intent of the Legislature to encourage local agencies to work cooperatively to manage their available local and imported water supplies to improve the quality, quantity, and reliability of those supplies.*
>
> *(b) Improved coordination among local agencies with responsibilities for managing water supplies and additional study of groundwater resources are necessary to maximize the quality and quantity of water available to meet the state's agricultural, domestic, industrial, and environmental needs.*
>
> *(c) The implementation of the Integrated Regional Water Management Planning Act of 2002 will facilitate the development of integrated regional water management plans, thereby maximizing the quality and quantity of water available to meet the state's water needs by providing a framework for local agencies to integrate programs and projects that protect and enhance regional water supplies."*

The Act authorized regional water management groups to prepare and adopt a regional plan that addresses programs, projects, reports, or studies relating to water supply, water quality, flood protection, or related matters, over which any local public agency, that is a participant in that group, has authority to undertake.

It also required the DWR, the State Water Board, the State Department of Health Services, or CALFED,[2] as appropriate, to include in any set of criteria used to select the projects and programs they administer under specified provisions of law or under a specified Delta program a criterion that provides a benefit for qualified projects or programs.

[1] Division 6 of the Water Code, Section 1. Part 2.2 (commencing with Section 10530)

[2] CALFED responsibilities have transitioned to the Delta Stewardship Council, Resources Agency, and others

The voters similarly affirmed the importance of these efforts via passage of four significant bond measures:

- **November 2002** – California voters pass Proposition 50, the Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002, which provides $500 million (California Water Code [CWC] Section 79560-79565) to fund competitive grants for projects consistent with an adopted IRWM plan.

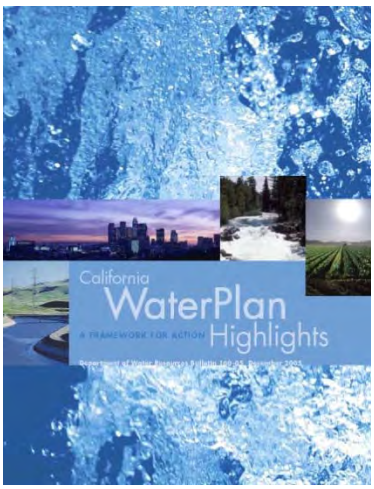
- **November 2006** – California voters pass Proposition 84, the Safe Drinking Water, Water Quality, and Supply, Flood Control, River and Coastal Protection Bond Act, which provides $1 billion (PRC Section 75001-75130) for IRWM planning and implementation.

- **November 2006 –** California voters pass Proposition 1E, the Disaster Preparedness and Flood Prevention Bond Act, which provides $300 million (PRC Section 5096.800-5096.967) for IRWM stormwater flood management.

- **November 2014 –** California votes pass Proposition 1, the Water Quality, Supply, and Infrastructure Improvement Act of 2014, which provides $7.5 billion statewide and $510 million to fund competitive grants for IRWM projects.

California Water Plan Update 2005 featured IRWM as its Number 1 Initiative, describes its implementation as essential to the State's future, and listed the following IRWM principles:

- Use a broad, long-term perspective
- Identify broad benefits, costs, and trade-offs
- Promote sustainable resource management
- Increase regional self-sufficiency
- Increase regional drought preparedness
- Use open forums that include all communities
- Promote coordination and collaboration among local agencies and governments
- Use sound science, best data, and local knowledge



California Water Plan Update 2005 featured Integrated Regional Water Management

3.1.2. ECCC IRWM Plan 2013 Update Process

As described in Section 2.2, ECWMA and its members understood, well before the passage of the 2002 Act, the importance of regional integrated planning. The preparation of the 2013 IRWM Plan Update evolved from this strong foundation and incorporated the process and required components of DWR's IRWM Guidelines. **Figure 3-1** illustrates the IRWMP update activities.

During the update process, the ECWMA focused on setting regional objectives and establishing a transparent project review process.

This chapter describes in more detail how each component of the planning process was developed and how the components can be used into the future, to ensure a vital plan.

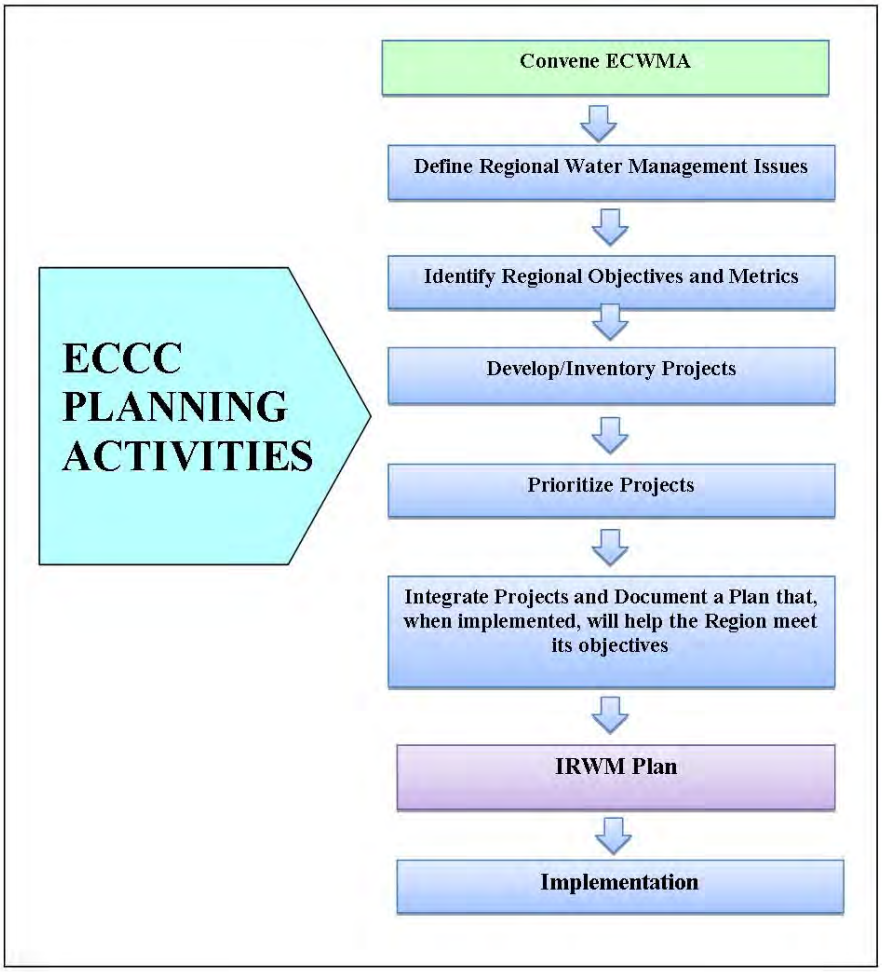


Figure 3-1. IRWM Planning Process

3.1.3. ECCC IRWM Plan 2015 Update Process

After completion of a comprehensive update to the IRWM Plan in 2013, several of the ECWMA members finalized planning studies and technical documents of regional importance. The ECCC IRWM has received DWR funding for these technical studies as part of the Round 2 Planning Grant process and CCWD executed an agreement with DWR in early 2014. As such, in 2015 the IRWM Plan was once again updated, to include information about the results of regional planning studies and comprehensively include the results of these studies into the IRWM Plan. To honor the region's commitment to stakeholder involvement and transparency, the 2015 IRWM Plan Update process also involved stakeholder outreach and refinement of the IRWM website to ensure that information about the 2015 Update is made publicly available for stakeholders and for DACs.

3.1.4. ECCC IRWM Plan 2019 Update Process

After passage of Proposition 1 in 2014, DWR updated the IRWM Guidelines in 2016. The 2016 IRWM Guidelines contain the general process, procedures, standards, and criteria that DWR will use to implement the Proposition 1 grant programs and review IRWM Plans. The 2016 IRWM

Guidelines contain additional requirements for content of the IRWM Plan. As such, the East Contra Costa County IRWM Plan was updated in 2019 to satisfy the revised Guidelines. Because the region's 2015 IRWM Plan update was so comprehensive, the 2019 update was minor, and focused on meeting the revised requirements of the 2016 IRWM Guidelines. The update was circulated to the IRWM region representatives and stakeholders for review and comment. The DWR approved, updated IRWM Plan will be available on the ECCC IRWM website.

3.2. Objectives

The ECCC IRWM region is almost entirely dependent on Delta water supply and all or a portion of the cities and unincorporated communities are located within the statutory Delta. This distinction is important as the Delta is a physical place with legally defined boundaries and requirements, which add to ECCC water management complexity. The Delta is a highly regulated and managed system providing both significant water supply and environmental benefits that are often in conflict. The Delta is also vulnerable to water quality impacts from a variety of natural and man-made causes such as drought, chemical spills, levee failure, and salt water intrusion. In 2015, the fourth consecutive dry year and a declared State-wide drought emergency, the ECCC IRWM participants all experienced severely reduced Delta supplies both from contractual reductions as well as poor water quality that limits use of intakes in the western Delta. ECCC IRWM goals and objectives reflect water management needs under normal, dry, and emergency conditions.

3.2.1. Water Management Challenges

The ECWMA explored water management issues that the region's water resources managers and stakeholders face. ECWMA reached out to members of the public, local agencies and other stakeholders with an invitation to participate in the discussion and learn more about the update process. During a workshop in February 2012, participants identified regional and local problems, challenges, resource conflicts, and opportunities to collaborate. During the session, five broad categories of issues were identified. The 2015 IRWM Plan Update has been discussed with participating agencies at East County coordinating meetings. Within each broad category, participants identified both issues and regional needs. The information gathered during the session was then compiled for review and refinement by the ECWMA.

Objectives Categories

Ultimately, five overarching issues and needs, listed below, were refined into objectives categories for use by the ECWMA in preparing detailed planning objectives and metrics, and establishing project selection criteria.

1. Ensuring reliable water supply during normal, dry, and emergency conditions including droughts, achieving water quality goals and meeting water quality regulations.

2. Protection, restoration, and enhancement of the Delta ecosystem and other environmental resources including upstream wetland and habitat restoration.

3. Funding for water-related planning and project implementation.

4. Stormwater and flood management.

5. Water-related outreach and equitable distribution of resources in the region.

In presenting the objectives in a list, the group expressly states the order does not imply that one issue or need is more important than another. The IRWM planning group views all objectives as important and to some extent inseparable. However, in 2015 a key priority has been the ongoing drought and the availability of water supply. The five objectives are discussed in more detail below.

Water Quality and Reliable Supply

The ECCC IRWM region is almost entirely dependent on Delta water supply. The CCWD has made substantial investments in water storage and water quality by expanding the Los Vaqueros Reservoir, constructing the Old and Middle rivers water intakes, and improving the Rock Slough Intake. Unreliable surface water supply, especially in dry years and during drought, continues to be a concern. Delta water supplies are subject to future Delta-wide influences (not controlled by the ECCC region) and can dramatically impact the quality and availability of surface water supplies for the region. As the most downstream user of Delta water supplies, the region is even more vulnerable to changes in water quality than other regions with Delta dependencies. In 2015 Antioch has not been able to take any surface water supply from its Delta intake due to poor water quality as a result of drought-impacted Delta flows. Similarly, water quality at CCWD's Mallard Slough intake has rendered it unusable.

Uncertainty in future water quality and supply for the region is associated with proposed future projects (such as the Bay-Delta Conservation Plan or BDCP), a fragile and somewhat unpredictable Delta ecosystem, climate change, and potential levee failure. An associated concern is the ability of the region to meet future water quality treatment and discharge regulations. A secure and reliable supply of water is a priority for the ECCC region.

A small group enjoys a hike on the levee at the Dutch Slough Wetlands Restoration Project.

The California Air Resources Board's (CARB) 2017 Climate Change Scoping Plan established strategies for achieving California's 2030 greenhouse gas (GHG) targets and identified priority actions to help the State achieve those goals. Among these strategies was a goal to invest in communities to reduce emissions. There are several water supply challenges in the ECCC region where targeted objectives and financial investments – such as from the IRWM grant programs – would facilitate the region in meeting its water supply reliability and GHG emissions goals. Current regional challenges include:

- Availability and utilization of water conservation programs for residential, commercial, and industrial water users,
- Aging infrastructure,
- Implementation of agricultural efficiency measures, and
- Operational energy use and use of renewable energy.

The IRWM Plan objectives will consider these challenges and identify metrics to support CARB's effort to reduce greenhouse gases. IRWM projects may also be developed to target these challenges, and the project scoring criteria and review factors developed in this IRWMP will consider how projects address these objectives.

Protection, Restoration and Enhancement of the Delta Ecosystem and Other Environmental Resources

Protection, restoration, and enhancement of the watersheds that drain to the Delta, the Delta ecosystem, and other environmental resources are important objectives for the region.

The conservation of the region's watersheds protects the local hydrology. Protected, restored, and enhanced ecosystems provide important services to the built and natural communities in the region. The watersheds naturally attenuate flooding, reduce stormwater and polluted runoff, and limit creek erosion and sediment loading into downstream water bodies (the Delta). Additionally, these protected habitats support State- and federally protected plant and animal species. Tree and plant growth in these protected environments also promotes biological carbon sequestration.

Water-infrastructure-related projects within the Delta often require wetland mitigation and these credits can be difficult and costly to obtain. Delta infrastructure projects are not covered by the ECCC HCP. That said, the region has several integrated ecosystem efforts already underway and CCWD has been able to self-mitigate for a number of its projects or use third-party mitigation companies.

ECWMA agencies participated in the ECCC HCP/NCCP. This Regional Conservation Plan was the basis for the biological/environmental components of the Functionally Equivalent IRWMP the ECCC region previously adopted. This HCP/NCCP provides regional conservation and development guidelines to protect and restore natural resources while improving and streamlining the permit process for endangered species and wetland regulations. By proactively addressing the long-term conservation needs, the HCP/NCCP strengthens local control over land use and provides greater flexibility in meeting other needs such as housing, transportation, and economic growth in the area.

Some environmental protection and restoration projects are isolated, but they have the ability to have regional benefits on water quality, special status species, and recreation, as well as targeted locations where carbon sequestration is an opportunity for reducing greenhouse gases. The ECCC IRWMP identifies a number of multi-objective projects are closely tied to other IRWMP objectives. These projects protect the region's ecosystem while providing other benefits. Two examples of these multi-objective projects are:

1. The Dutch Slough Wetlands Restoration[3] project, a collaborative effort of DWR and others, offers an opportunity for large-scale tidal marsh restoration, habitat enhancement, and open space preservation in the rapidly urbanizing area of eastern Contra Costa County and adjacent to the unlined portion of the Canal.

[3] Photos: http://www.dutchslough.org/events_meetings.html

2. The Knightsen Wetland Restoration and Flood Control project is an effort of CCCFCWCD, ECCCHC, and Knightsen to acquire property and restore wetlands that will function to attenuate flood waters. Flood waters regularly inundate the community of Knightsen, such as in 1997 shown in **Figure 3-2**. The project will protect and restore habitat, address flooding, and provide recreational opportunities.

Figure 3-2. Ecosystem Restoration can Attenuate Flooding Like that Experienced in Knightsen in 1997

Funding for Water-Related Planning and Project Implementation

Funding for water resources planning and implementation is a challenge for the region. In the mid-2000s the ECWMA began to more actively work together understanding significant State bond funds may become available via grants to support projects in integrated regional water management plans. In 2007, the region received a significant $12.5 million Proposition 50-based grant that supported numerous projects within the region. The region has also obtained close to $15 million in Proposition 1E-based grant funding.

The region has not been as successful seeking Proposition 84-based implementation grants. The bond language for this proposition allocated funds by the macro DWR regions described in the CWP. The ECCC IRWMP is within the allocation for the San Joaquin Region and there are 12 other IRWMPs within the region (including four IRWM regions that overlap into the San Joaquin funding region). Funds from Proposition 84have been limited, with two ECCC IRWMP entities receiving approximately $1.7 million from Round 1 grant funding and one of the ECCC entities receiving approximately $0.43 million from Round 2 grant funding. The region submitted a drought grant request (2014) and a final round IRWM Proposition 84 Implementation grant request (2015). The group will also work to consider applying for Proposition 1 funding made available for IRWM programs.

For water service providers, the drought has resulted in lower retail water demands. The reduced water usage has impacted revenues for these agencies, creating variable or insufficient revenue streams. While the voters have approved Proposition 1, constituents have been largely unwilling to support new tax or bond measures for water infrastructure-related funding. Additional funding issues are a result of the competitive nature of receiving State and federal funding, limited available funds, and potential schedule delays associated with grant funding.

Stormwater and Flood Management

The ECCC IRWM region is located between the western Delta and Mount Diablo. It includes substantial low-elevation acreage.

The 2013 California Future Report a joint report of DWR and the USACE identified eastern Contra Costa as having a significant acreage of floodplains subject to 100-year flood events. A common misunderstanding exists that a 100-year flood is likely to occur only once in a 100-year period. In fact, there is approximately a 63.4 percent chance of one or more 100-year floods occurring in any 100-year period.

Selected Major ECCC Flood Events

1861–1862 Winter, The Great Flood
1955–1956 December–January, Christmas Flood
1962–1963 December–February
1968–1969 December–February, Winter '69 Storms
1970 April
1980 January–February, Delta Levee Break, Sacramento–San Joaquin Delta
1982–1983 November–March, Winter Storms
1990 May
1995 January–April, 1995 Christmas Flood
1998 January–March, El Niño Floods
2006 February 3–April 1, Spring Storms

Both localized floods from stormwater runoff and regional/catastrophic flooding due to levee failure are real threats to communities and the region as a whole. Of the past 11 president-declared natural disasters in the region, all but one (an earthquake) involved storms and flooding.

Increasing urbanization has also increased the consequences of flood and a changing hydrograph resulting from more intense storm events has put pressure on the flood control infrastructure. The flood control facilities protect communities, businesses, and agriculture and are integral to the built environment in ECCC. Flood infrastructure is reaching or exceeding its expected life and is likely to need significant repair or rebuilding over the next 40 years.

Climate change is projected to even future increase these risks, particularly related to more extreme weather events potentially swamping existing flood control systems.

Earthquakes, which are already a known regional risk, pose an additional risk to the ECCC levees that are essential for both water supply and flood protection.

Water-Related Outreach and Equitable Distribution of Resources in the Region

A final set of concerns relates to water-related outreach within the area. Outreach is essential for building voluntary citizen action that is necessary for the successful implementation of many of the IRWM programs. For example, community action is integral to water conservation programs, reducing pollutants entering storm drains, and volunteer creek restoration activities.

For example, the FOMCW conducts an annual Marsh Creek Cleanup Day at seven locations along Marsh Creek and its tributaries. Volunteers clean trash and debris from nearly 15 miles of the creek in partnership with the cities of Oakley and Brentwood, the East Bay Regional Park District, and the California Coastal Commission. In 2012, more than 600 volunteers turned out to remove approximately 8,500 pounds of debris from the creek, and recycled more than 1,000 pounds of debris.

A volunteer adds trash to a growing stack of debris collected during the 2011 Marsh Creek Cleanup

Beyond building an environmental stewardship ethic, outreach is necessary for residents to fully understand the regional water context, and particularly the regional dependence on the Delta. Ongoing efforts for communication and engagement will allow residents to better evaluate the need for investments in water infrastructure improvements and participate in water governance.

It is also important to recognize the substantial (18 percent, recently down from 23 percent) regional DAC population of the East Contra Costa County Region. One example is feedback related to ways to overcome limited access to waterways for subsistence fishing and recreation or infrastructure needs. Special steps are needed to ensure disadvantaged communities have access to the regional water decision-making process.

Appendix F includes additional details about the issues and regional needs.

3.2.2. Creating Measurable Objectives

With an understanding of the regional water management issues, the ECWMA had the necessary information to set objectives for the IRWM Plan (see related planning hierarchy in **Figure 3-3**). Objectives establish the desired outcomes of the IRWM Plan. Clearly defined and measurable objectives inform development of appropriate, innovative actions and project selection criteria.

A measureable objective describes an outcome that can be either quantitatively or qualitatively evaluated. Measureable objectives allow the region to determine if progress is being made and/or an objective has been reached.

A preliminary list of potential objectives and metrics was generated from the outreach meeting held in January, discussions with member agencies, the 2005 Functionally Equivalent IRWM Plan (FEIRWM Plan), other regional, and local plans.

Figure 3-3. Planning Hierarchy

In March 2012, ECWMA conducted a second workshop to refine the regional objectives. No single objective was determined to be higher priority than the others. However, there are multiple sets of related objectives. Related objectives were grouped into topics to represent one priority for implementation. A single objective could fall into several topics, for example, maintaining Delta levees could assist with multiple topics, including flood control and Delta ecosystem protection. The ECWMA and its members felt that this list of objectives was comprehensive enough that, when implemented, the objectives would help them address their water management issues.

The objectives and metrics for the Water-Quality-Related Regulations and Water Supply Reliability Category are illustrated in **Figure 3-4**. A full list of the categories, objectives, and metrics is shown by topic in **Table 3-1** on the following pages.

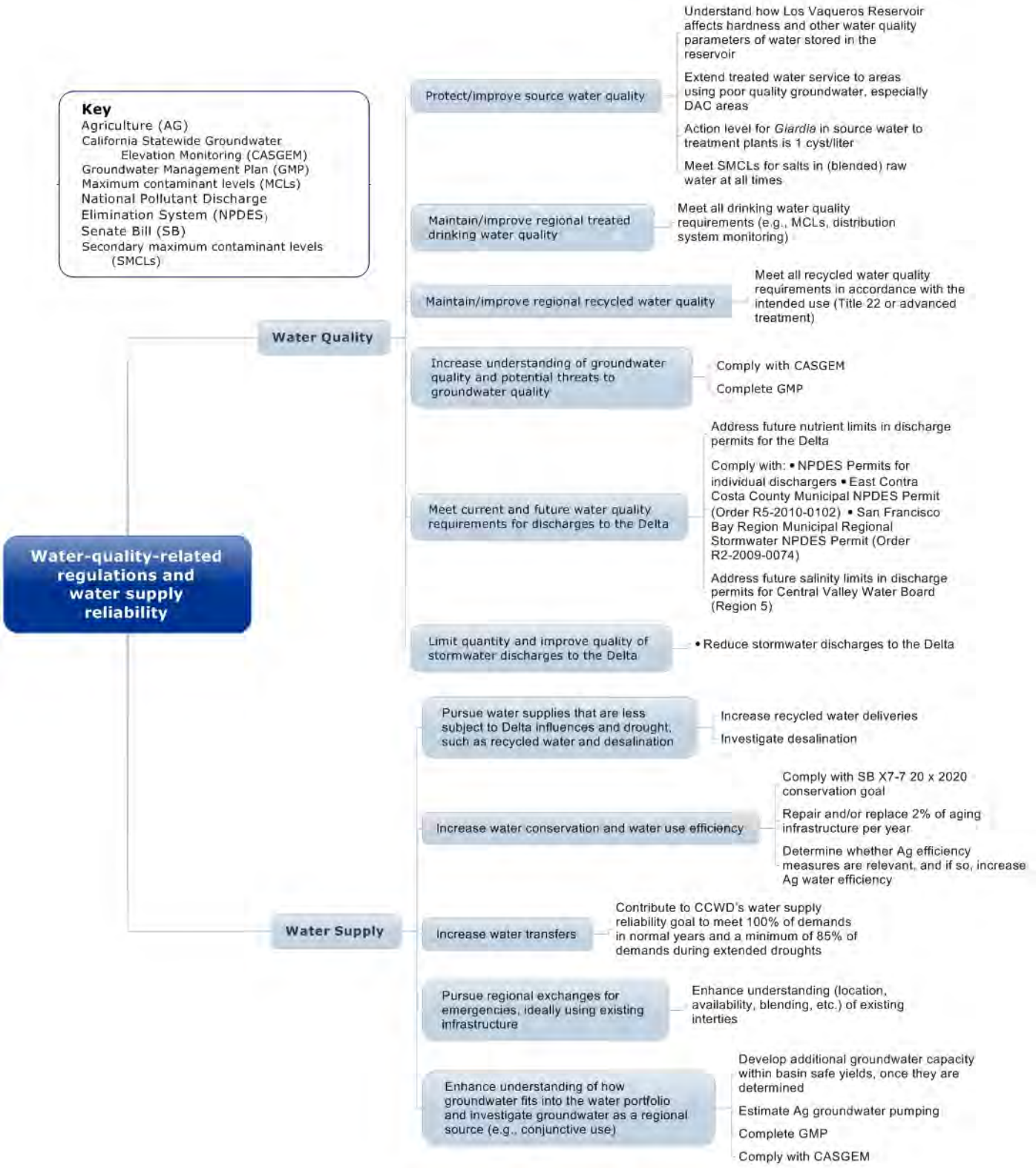


Figure 3-4. Planning Hierarchy for Water Quality and Supply

Table 3-1. ECCC Region Objectives and Metrics

Topic	Objective	Metric (Quantitative or Qualitative)
Water Quality and Related Regulations	• Protect/improve source water quality	• Meet SMCLs for salts in (blended) raw water at all times • Action level for *Giardia* in source water to treatment plants is 1 cyst/liter • Understand how Los Vaqueros Reservoir affects hardness and other water quality parameters of water stored in the reservoir • Extend treated water service to areas using poor quality groundwater, especially DAC areas
	• Maintain/improve regional treated drinking water quality	• Meet all drinking water quality requirements (e.g., MCLs, distribution system monitoring)
	• Maintain/improve regional recycled water quality	• Meet all recycled water quality requirements in accordance with the intended use (Title 22 or advanced treatment)
	• Increase understanding of groundwater quality and potential threats to groundwater quality	• Comply with CASGEM • Complete GMP
	• Meet current and future water quality requirements for discharges to the Delta	Comply with: • NPDES permits for individual dischargers • East Contra Costa County Municipal NPDES Permit (Order R5-2010-0102) • San Francisco Bay Region Municipal Regional Stormwater NPDES Permit (Order R2-2009-0074) • Likely future nutrient limits in discharge permits for the Delta • Likely future salinity limits in discharge permits for Central Valley Water Board (Region 5)
	• Limit quantity and improve quality of stormwater discharges to the Delta	• Reduce stormwater discharges to the Delta
Stormwater and Flood Management	• Manage local stormwater	• Compliance with ECCC Municipal NPDES Permit (Order R5-2010-0102) • Compliance with Contra Costa Clean Water Program • Consistency with Contra Costa County's 50-Year Plan • Inspect or conduct condition assessment of 5-10% of existing stormwater infrastructure per year
	• Improve regional flood risk management	• Achieve a 200-year level of protection for urban areas • Achieve a 100-year level of protection for small communities • Improve level of protection for Ag/rural • Coordinate with county Multi-Hazard Mitigation Plans

Table 3-1. ECCC Region Objectives and Metrics (contd.)

Topic	Objective	Metric (Quantitative or Qualitative)
Water Supply Reliability	• Pursue water supplies that are less subject to Delta influences and drought, such as recycled water and desalination	• Increase recycled water deliveries • Investigate desalination
	• Increase water conservation and water use efficiency	• Increase residential, commercial and industrial water conservation programs • Comply with SB X7-7 20 x 2020 conservation goal • Repair and/or replace 2% of aging infrastructure per year • Determine whether Ag efficiency measures are relevant, and if so, increase Ag water efficiency
	• Increase water transfers	• Contribute to CCWD's water supply reliability goal to meet 100% of demands in normal years and a minimum of 85% of demands during extended droughts
	• Pursue regional exchanges for emergencies, ideally using existing infrastructure	• Enhance understanding (location, availability, blending, etc.) of existing interties (such as was done in the 2014 Regional Capacity Study)
	• Enhance understanding of how groundwater fits into the water portfolio and investigate groundwater as a regional source (e.g., conjunctive use)	• Develop additional groundwater capacity within basin safe yields, once they are determined • Estimate Ag groundwater pumping • Comply with CASGEM • Complete GMP
Protection, Restoration and Enhancement of the Delta Ecosystem and Other Environmental Resources	• Protect, restore and enhance habitat in the Delta and connected waterways[4] • Protect, restore and enhance the watersheds that feed and contribute to the Delta Ecosystem	• Achieve wetland restoration and preservation goals of ECCC HCP/NCCP • Consider climate change adaptation in all enhancement/restoration strategies
	• Minimize impacts to the Delta ecosystem and other environmental resources	• Work collaboratively with ECCC HCP/NCCP on development of all future IRWM Plan projects • Comply with CEQA/NEPA for all applicable projects
	• Reduce greenhouse gas emissions	• Reduce operational energy use by 5% • Consider climate change adaptation in all mitigation strategies
	• Protect Delta ecosystem against habitat disruption due to emergencies, such as levee failure	• [See flood management]
	• Increase shoreline access for subsistence fishing and recreation"	• Reduce illegal activities (trespassing) related to subsistence fishing and recreation

[4] This includes all waterways, not just those in the statutory Delta, as all the waterways drain to the Delta.

Table 3-1. ECCC Region Objectives and Metrics (contd.)

Topic	Objective	Metric (Quantitative or Qualitative)
Funding for Water-Related Planning and Project Implementation	• Increase regional cost efficiencies in treatment and delivery of water, wastewater, and recycled water	• Maintain or reduce unit cost of treating and conveying water • Maximize use of existing infrastructure
	• Develop projects with regional benefits that are implementable and competitive for grant funding	• Collaborate on projects, inter- or intra-regionally • Update prioritization process regularly to keep it relevant (regional, integrated, project readiness, fundability, available cost share) • Encourage cooperation from smaller entities and stakeholders, including assistance with matching funds
	• Use financial resources strategically to maximize return on investment on grant applications for project development/implementation	• Implement decision-making process in pursuing grant opportunities (regional, integrated, project readiness, fundability, available cost share, and stated DWR priorities)
	• Develop a funding pool to self-fund regional efforts such as grant applications, outreach, website development, and other planning activities	• Reinitiate program to collect annual regional fees using ECWMA funding mechanism • Implement decision-making structure for using the funds
	• Increase public awareness of project importance to pass ballot measures or obtain matching funds through other means that require public support • Ensure projects with existing matching funds are prioritized to maximize regional funding opportunities.	• [see Other Aspects topic]
Outreach	• Identify and engage DACs	• Regularly refine DAC maps and outreach strategies based on new available data.
	• Collaborate with and involve DACs in the IRWM process	• Increase number of projects in the IRWM Plan that benefit DACs
	• Promote equitable distribution of proposed projects across the region	• Increase geographic distribution of IRWM Plan projects
	• Increase awareness of water resource management issues and projects with the general public	• Develop educational/outreach material for the website and other venues

Key:
Ag = agriculture
CASGEM = California Statewide Groundwater Elevation Monitoring
CCWD = Contra Costa Water District
CEQA = California Environmental Quality Act
DAC = Disadvantaged Community
Delta = Sacramento-San Joaquin Delta
ECCC = East Contra Costa County
ECCC HCP/NCCP = East Contra Costa County Habitat Conservation Plan/ Natural Community Conservation Plan
ECWMA = East County Water Management Association
GMP = Groundwater Management Plan
IRWM = integrated regional water management
MCL = maximum contaminant level
NEPA = National Environmental Policy Act
NPDES = National Pollutant Discharge Elimination System
SB X7-7 = Senate Bill X7-7
SMCL = Secondary Maximum Contaminant Level

3.2.3. Living Document

Using the established, published objectives, the region's stakeholders can work to find synergies and efficiencies in water resources planning and project development. The 2015 IRWM Plan Update is designed to produce a living document intended to add/delete projects from funding lists, adjust goals and objectives, and add member agencies as the region changes and the plan is implemented. Over time the ECWMA will need to reexamine regional objectives in light of changed conditions in the economy, environment, or changes in the region's priorities. The need for this in the ECCC region is perhaps more pronounced than might be found in other regions due to the evolving context of Delta management and the extent to which the future of the region is tied to its water source. Objectives may need to be revised as a result of:

- Shifts in environmental conditions or water quality
- To address new regulations or shifts in State policy (such as state mandates for water conservation requirements during periods of drought)
- It becomes evident, during implementation, that the region is unable to realistically or reasonably achieve the established objectives.

It is anticipated that the 2015 ECCC IRWM Plan will be further updated to capture implementation grant work once funded projects have been completed. Beyond that, until the next formal update or amendment to the IRWM Plan, the objectives and the intent of the region are established and available to help guide project development.

3.3. Resource Management Strategies

The ECWMA considered the strategies and approaches required to address the region's objectives. DWR guidelines require the IRWM Plan to document the range of Resource Management Strategy(ies) (RMS) considered to meet the IRWM objectives and identify which RMSs were incorporated into the IRWM Plan. The effects of climate change on the IRWM region must factor into the consideration of RMSs. To be considered, RMSs must include those found in Volume 2 of the CWP Update 2009. Additionally, in October 2014 DWR released initial volumes of the CWP Update 2013, which includes three new RMSs, all of which are incorporated into this ECCC IRWM Plan Update.

RMSs are defined as "a project, program, or policy that helps local agencies and governments manage their water, and related resources." These are referred to as the tool kit of the CWP. The goal of the toolkit is to encourage a region to consider and, if possible, build a diversified portfolio of water management strategies to address needs and objectives. DWR understands these RMSs are already being used, but wants to encourage a methodical assessment of how regional options for diversification have been considered.

The list of RMSs was shared with the ECWMA and stakeholders to consider when developing projects. Of the 33[5] individual tools described in the CWP 2009 RMS section, the ECWMA identified 24 with potential for use in meeting the IRWM Plan objectives, plus the three new CWP 2013 RMSs. **Appendix G** includes the full list of resource management strategies, the assessment

[5] There are 28 Resource Management Strategies in CWP 2009; however, several of the strategies contain multiple tools.

of applicability to the region, and the analysis of why or why not the tools could be applied. The RMSs moved forward for consideration in the ECCC IRWM Plan are listed in **Table 3-2**.

Table 3-2. ECCC Applicable RMS List

1. Agricultural Lands Stewardship	14. Pollution Prevention
2. Agricultural Water Use Efficiency	15. Recharge Area Protection
3. Conjunctive Management & Groundwater Storage	16. Recycled Municipal Water
4. Conveyance – Delta	17. Salt and Salinity Management
5. Conveyance – Regional/local	18. Surface Storage – CALFED
6. Desalination	19. Surface Storage – Regional/Local
7. Drinking Water Treatment and Distribution	20. System Reoperation
8. Economic Incentives (Loans, Grants, and Water Pricing)	21. Urban Runoff Management
9. Ecosystem Restoration	22. Urban Water Use Efficiency
10. Flood Risk Management	23. Water Transfers
11. Irrigated Land Retirement	24. Water-Dependent Recreation
12. Land Use	25. Watershed Management
13. Matching Quality to Use	26. Sediment Management
	27. Water and Culture
	28. Outreach and Education

Key:
CALFED = California Bay-Delta Program
ECCC = East Contra Costa County
RMS = Resource Management Strategy

3.3.1. Strategies for Climate Change Mitigation and Adaptation

As described in the Handbook, the CWP RMS can be used to help the region adapt to climate change impacts and implement mitigation strategies to reduce and minimize GHG emissions. The results of the climate change vulnerability assessment performed for the region are described in Section 2-9 of this IRWM Plan; vulnerabilities and potential impacts to the region due to climate change are described in that section. The applicable RMS were evaluated for their potential to help the region prepare and respond to climate change through adaptation and mitigation actions. The RMS evaluation provided in **Appendix G** provides an analysis of how each applicable RMS addresses region-specific climate change impacts, including adaptation strategies and GHG reduction and mitigation efforts.

Through implementation of the IRWM projects, the applicable RMS will assist the region and participating agencies with accomplishing the objectives of the IRWM plan and addressing climate change mitigation and adaptation strategies. A review of the IRWM Projects was performed, which were then compared to the applicable RMS identified by the region and grouped by IRWM objective. **Table 3-3** illustrates the relationship between the RMSs and proposed ECCC projects. This type of analysis can illustrate the concentration of RMSs that projects support, and alternatively can be used to identify where gaps exist in IRWM objective coverage. As indicated by **Table 3-3**, the IRWM-identified projects adequately represent the IRWM objectives, and are supported by the RMSs applicable to the region.

Table 3-3. ECCC IRWM Plan Projects – Resources Management Strategies vs. Objective Categories[6]

	Resource Management Strategies																														
	Reduce Water Demand		Improve Operational Efficiency and Transfers				Increase Water Supply						Improve Water Quality						Improve Flood Management	Practice Resources Stewardship							Other Strategies						
Objective Categories	Agricultural Water Use Efficiency	Urban Water Use Efficiency	Conveyance – Delta	Conveyance – Regional / Local	System Reoperation	Water Transfers	Conjunctive Management & Groundwater Storage	Desalination	Precipitation Enhancement	Recycled Municipal Water	Surface Storage - CALFED	Surface Storage - Regional / Local	Drinking Water Treatment and Distribution	Groundwater Remediation / Aquifer Remediation	Matching Quality to Use	Pollution Prevention	Salt and Salinity Management	Urban Runoff Management	Flood Risk Management	Agricultural Lands Stewardship	Economic Incentives (Loans, Grants and Water Pricing)	Ecosystem Restoration	Forest Management	Recharge Area Protection	Water-Dependent Recreation	Watershed Management	Crop Idling for Water Transfers	Dewvaporation or Atmospheric Pressure Desalination	Fog Collection	Irrigated Land Retirement	Rainfed Agriculture	Waterbag Transport / Storage Technology	**Total Number of Times that Projects meet this Objective Category**
Water Quality and Related Regulations	1	11	1	7	2	1	3	2	0	10	0	1	8	0	11	18	11	19	20	4	5	11	1	1	1	17	0	0	0	0	0	0	166
Water Supply	0	15	2	5	2	2	5	3	0	10	0	1	6	0	7	4	8	4	5	1	3	3	0	0	1	2	0	0	0	0	0	0	89
Restoration and Enhancement of the Delta Ecosystem and Other Environmental Resources	1	13	2	7	2	1	3	2	0	10	0	1	4	0	9	15	9	14	15	3	5	13	1	1	1	14	0	0	0	0	0	0	146
Funding for Water-Related Planning and Implementation	1	14	2	7	2	2	5	3	0	10	0	1	6	0	8	12	9	13	13	3	4	10	0	0	1	12	0	0	0	0	0	0	138
Stormwater and Flood Management	1	1	1	3	1	0	0	0	0	1	0	1	3	0	3	17	3	23	23	2	0	11	1	1	0	18	0	0	0	0	0	0	114
Water-Related Outreach	1	9	0	4	2	0	2	1	0	8	0	1	5	0	9	13	7	10	11	2	5	10	1	0	1	9	0	0	0	0	0	0	111
Total Number of Times that Project meet this Resource Management Strategy	3	24	3	14	5	2	7	4	0	19	0	3	14	0	20	42	19	46	47	7	9	31	2	1	2	39	0	0	0	0	0	0	

How to use this table:

The number found in each cell represents the number of ECCC IRWMP projects that fulfill an objective in the objective category found in that row and utilities the resource management strategy found in that column. There are 55 projects in total. All of the projects claim to fulfill multiple objectives and utilize multiple resource management strategies, thus the total number times that projects in any one row (objective category) or column (resource management strategy) may be greater than the total number of projects submitted.

[6] Table 3-3 represents the Objectives vs Resource Management Strategies analysis of the ECCC IRWM projects that were adopted into the 2015 IRWM Plan update.

3.4. Project Review Process

The DWR IRWM Plan Guidelines require a process or processes to select projects for inclusion in the IRWM Plan. The selection process(es) must include the following components:

- Procedures for submitting a project to the RWMG (ECWMA)
- Procedures for reviewing projects considered for inclusion into the IRWM Plan
- How the project contributes to the IRWM Plan objectives
- How the project is related to resource management strategies selected for use in the IRWM Plan
- Technical feasibility of the project
- Specific benefits to DAC water issues
- Environmental justice considerations
- Project costs and financing

This section describes the ECWMA process to collect, review, and maintain the region's list of projects to address all the requirements set forth in the IRWM Guidelines. The process was presented and accepted at a workshop attended by the ECWMA and stakeholders on July 11, 2012.

3.4.1. Project Submission

To be considered in the IRWM Plan, project proponents initially submitted candidate projects using the region's website (described in Section 3.6, Stakeholder Involvement) in 2012. The website contains information about why submitting a project could be beneficial, how projects will be evaluated, and instructions for how to submit. Submitting a new project requires providing a valid e-mail address and completing an online form with information about the project; the form may be saved, revisited, and edited until the user clicks "Submit." Once submitted, an IRWM administrator acknowledges the project and the information is moved into the project database. Select information about the projects in the database can be viewed by website visitors in map or list format.

The online project submission form was developed in accordance with DWR's IRWM Guidelines, with the purpose of collecting information needed to comply with the specified project review process. The requested information included:

- Project sponsor/proponent information
- Location
- Description
- Partners
- Stakeholder involvement
- Regional objectives met
- Program preferences met

- Statewide priorities met
- RMSs used
- Status
- Costs and funding
- Addressing needs of DACs, EJ, climate change
- Data management

To get an initial list of projects, the ECWMA held a formal "Call for Projects" from May 31 through September 20, 2012. The ECWMA met to discuss the projects on September 25, 2012, and agreed that projects may continue to be submitted through the region's website. For the IRWM Plan Update, an October 2012, date was used for evaluation and analysis of the 54 projects. With the list of projects gathered during this period, 54 projects, from 14 different proponents, were included for this plan analysis. Additional calls for projects will occur as needed and additional plans were added for consideration as part of the Round 2 Implementation Grant process. This flexibility is encouraged as packages of projects are more likely to result in integrated and multi-objective approaches.

Note: During 2014-2015 the East County IRWM website has not allowed participants to submit projects through the website. Instead, interested parties are asked to review the project at an East County coordinating meeting or to prepare a project form that can be submitted to all East County participants. Assuming no objections or issues with a proposed project, it can then be included as part of the East County IRWM Plan. The website is being upgraded and will again include a feature allowing interested parties to submit projects via an electronic database.

3.4.2. Project Review Factors

Many project review factors are considered for evaluating projects for inclusion in the IRWM Plan. As noted above, the IRWM Guidelines prescribe certain review factors, and the ECWMA and its members include additional factors that reflect its regional planning priorities. Review factors are grouped into three categories:

1. **Project Score** – Projects are given points by how well they met the region's objectives, the State's program preferences and statewide priorities, and a set of additional review factors, including improvements for DACs, EJ, and GHG reductions.

2. **RMS Diversification Score** – Projects are given points by their ability to diversify the number of RMSs considered.

3. **Implementation Considerations** – Information about the projects' readiness and economic feasibility is also collected.

Each of the review factors are described below and shown in **Figure 3-5**. Each category of review factors (score, RMS diversification, and implementation considerations) needs to be considered in tandem when evaluating projects to get a complete picture of the merit of a particular project. As grant or other funding opportunities arise, the ECWMA and its members will use all three factors to determine its highest priority projects. For instance, if there is an IRWM implementation grant

funding opportunity, it is not as simple as taking the projects with the highest scores because they may not be geographically diverse, they all may be a similar type of project, they all may be from one proponent, or they may not all be ready to proceed. Therefore, a project's score is only one-third of the story and a "high" score does not guarantee a project will advance, just as a "low" score does not eliminate a project from future considerations.

3.4.3. Project Scoring Criteria

Each project will be evaluated based on its contributions to meet the following regional objectives and statewide priorities and preferences with regional significance:

- **Regional Objectives** – Section 3.2.2 describes the region's objectives. Some objectives will be implemented through the IRWM Program as a whole and are not relevant to individual projects, but most of the objectives were used to evaluate candidate projects.

- **IRWM Program Preferences** – The IRWM Program Preferences are published in the IRWM Guidelines. These are preferences for selecting proposals for grant funding, and therefore represent what the State ultimately prefers to implement through its IRWM Program. Certain preferences are relevant to individual projects, while others are relevant to the IRWM planning process. Projects that address more preferences are more likely to align with the State's IRWM goals and rank favorably in grant funding opportunities.

- **Statewide Priorities** – A subset of the IRWM Program Preferences, Statewide Priorities were included in the review criteria for the same reasons.

- **Other IRWM Guideline Review Factors** – Several review factors suggested in the IRWM Guidelines are not explicitly covered in the above considerations, but are appropriate to consider when scoring project merits.

These project scoring criteria are shown in **Table 3-4**, followed by a discussion of the numeric approach used to score each project.

Table 3-4. Project Scoring Criteria

Topic	Project Scoring Criteria
Regional Objectives	
Water Supply	Pursue water supplies that are less subject to Delta influences and drought, such as recycled water and desalination
	Increase water conservation and water use efficiency
	Increase water transfers
	Pursue regional exchanges for emergencies, ideally using existing infrastructure
	Enhance understanding of how groundwater fits into the water portfolio and investigate groundwater as a regional source (e.g., conjunctive use)
Water Quality and Related Regulations	Protect/improve source water quality

Table 3-4. Project Scoring Criteria (contd.)

Topic	Project Scoring Criteria
Protection, restoration and Enhancement of Delta Ecosystem and Other Environmental Resources	Protect, enhance, and restore habitat in the Delta and connected waterways Protect, restore, and enhance habitat in the watersheds that contribute to the delta ecosystem
	Minimize impacts to the Delta ecosystem and other environmental resources
	Reduce greenhouse gas emissions
	Protect Delta ecosystem against habitat disruption due to emergencies, such as levee failure
	Provide better accessibility to waterways for subsistence fishing and recreation
Funding for Water-Related Planning and Implementation	Increase regional cost efficiencies in treatment and delivery of water, wastewater, and recycled water.
	Develop projects with regional benefits that are implementable and competitive for grant funding
	Increase public awareness of project importance to pass ballot measures or obtain matching funds through other means that require public support
	Maintain/improve regional treated drinking water quality
	Maintain/improve regional recycled water quality
	Increase understanding of groundwater quality and potential threats to groundwater quality
	Meet current and future water quality requirements for discharges to the Delta
	Limit quantity and improve quality of stormwater discharges to the Delta
Stormwater and Flood Management	Manage local stormwater
	Improve regional flood risk management
Regional Objectives	
Outreach	Collaborate with and involve DACs in the IRWM process
	Increase awareness of water resources management issues and projects with the general public
IRWM Program Preferences and Statewide Priorities	
IRWM Program Preferences	Effectively resolve significant water-related conflicts within or between regions
	Contribute to attainment of one or more CALFED objectives: • Improve the State's water quality from source to tap • Reduce the threat of levee failures that would lead to seawater intrusion • Allow for the increase of water supplies and more efficient and flexible use of water resources • Improve the ecological health of the Bay-Delta watershed
	Effectively integrate water management with land-use planning
Statewide Priorities	Drought preparedness
	Use and reuse water more efficiently
	Climate change response actions
	Expand environmental stewardship
	Protect surface water and groundwater quality
	Improve tribal water and natural resources
	Ensure equitable distribution of benefits

Table 3-4. Project Scoring Criteria (contd.)

Topic	Project Scoring Criteria
Other Review Factors in IRWM Guidelines	
Other Guideline Review Factors	Environmental justice considerations
	Contribution of the project in reducing greenhouse gas emissions as compared to project alternatives

Key:
CALFED = California Bay-Delta Program
DAC = Disadvantaged Community
Delta = Sacramento-San Joaquin Delta
IRWM = Integrated Regional Water Management

Using the above list of scoring criteria, each project was scored based on its merit and its ability to help the region meet its planning priorities.

A project received a numeric score for each of the four categories of scoring criteria as follows:

1. **Regional Objectives** – One point was given for each objective that was met by the project. In determining how to score projects against the region's objectives, several numeric methods were evaluated, including assigning equal significance to each objective (one point per objective), assigning equal significance to each topic (a fraction of a point per objective, where the fraction relates to the number of objectives in a topic), and rewarding projects that address multiple topics. A sensitivity analysis was run with a suite of diverse projects from the 2005 FEIRWM Plan to compare the outcome of the three different scoring approaches, and the outcomes were all similar with respect to ranking and relative score. The region decided to use the approach of awarding each project one point per objective that the project meets. A project's ability to meet regional objectives was self-reported in the project submission form.

2. **IRWM Program Preferences** – One point was given for each IRWM Program Preference that was met. One program preference is the project's contribution to the following CALFED objectives:

    - Water Quality
    - Levees
    - Water Supply
    - Ecosystem Restoration

    One point was given to each CALFED objective addressed by the project. A project's ability to meet IRWM Program Preferences was self-reported in the project submission form.

3. **Statewide Priorities** – One point was given for each statewide priority that was met. A project's ability to meet statewide priorities was self-reported in the project submission form.

4. **Other factors from IRWM Guidelines** – Three factors in the IRWM Guidelines were not explicitly addressed in the above categories, so they were evaluated separately: DAC and EJ considerations and contribution of the project in reducing GHG emissions as compared to project alternatives. Assessment of EJ impacts and avoidance or mitigation of any adverse effects is completed through the National Environmental Policy Act/ California Environmental Quality Act (NEPA/CEQA) process. It was therefore assumed that all projects would meet this criterion adequately before implementation. However, a project was given a point if it went above and beyond the requirements, or consisted of a study that included EJ considerations. A project's ability to address these factors was self-reported in the project submission form.

Each of the four categories of scoring criteria was assigned a weighting factor (shown in **Figure 3-5**), representing the relative importance to the region in the scoring process.

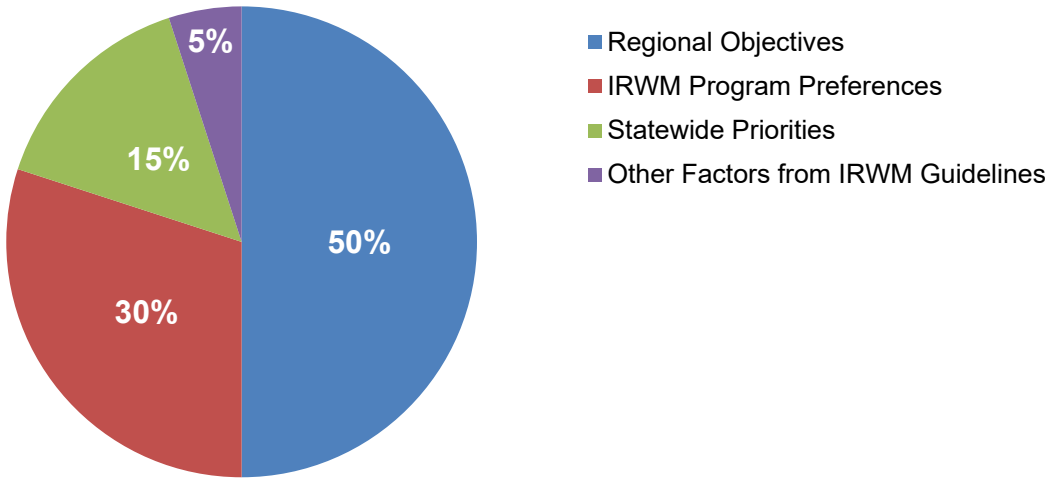


Figure 3-5. Relative Weighting Factors for Project Scoring Criteria

As shown above, regional objectives have the highest weighting factor of 50 percent, indicating the relative importance of addressing local water management issues. IRWM Program Preferences and statewide priorities together make up 45 percent, and the remaining 5 percent is allocated to other factors from the IRWM Guidelines. Using this distribution, an overall score was generated for each project.

Resource Management Strategies

Section 3.3, Resource Management Strategies, and **Appendix G** describe in more detail the evaluation of the RMS portfolio. All the RMSs were considered when project information was collected to understand the greatest potential range of strategies a project could address. A project's ability to meet an RMS was self-reported in the project submission form.

Projects were evaluated to determine which RMS it would satisfy and then given a total RMS score based on the number of RMS diversification criteria satisfied. Projects that included a greater number of strategies were considered to contribute more to a diversified water management portfolio for the ECCC region. RMS diversification did not contribute to the project score, but was

given as a separate consideration for the region in identifying implementation priorities or proposals for grant funding.

Implementation Considerations

In addition to the project score and RMS diversification criterion, implementation considerations are also collected for each project. These considerations are shown in **Table 3-5**. The implementation consideration information are self-reported in the project submission form.

Table 3-5. Implementation Considerations

Implementation Consideration	Information Collected
Readiness to Proceed	The status and competition date of planning, design, and construction/implementation.
Project Financing	Total project cost and total project amount funded, which allowed a percent of project funded to be calculated, as well as the current availability of a project economic feasibility analysis.

Project Review Factors in IRWM Guidelines

As noted above, the IRWM Guidelines specify certain review factors to be considered in the project review process and for use in selecting for inclusion in the IRWM Plan. These are listed in **Table 3-6**, and for each criterion, a description is provided of how it will be considered in the project evaluation process.

Table 3-6. Project Review Factors in IRWM Guidelines

Topic	Approach in Project Evaluation Process
Technical Feasibility	Technical feasibility is a review factor in project screening. All projects were evaluated for technical feasibility in early project screening, and projects were eliminated if they were not technically feasible. Therefore, technically unfeasible projects needed no additional review. No projects lacking technical feasibility were submitted in this Call for Projects during the first submission round.
Benefits Critical DAC Issues	Benefit to DACs is included as a project scoring criterion, as part of assessing the project's ability to address additional IRWM guideline review factors. There are many opportunities for projects to benefit DACs.
Native American Tribal Communities	Benefit to Native American tribal communities is included as a project scoring criterion, as part of assessing the project's ability to address statewide priorities. However, there are no tribal communities in the ECCC region. A future proposal may include something benefiting tribal communities; for example, enhancement of habitat suitable for plants that may be used for cultural purposes.
Environmental Justice Considerations	Environmental justice considerations are included as a project scoring criterion, as part of assessing the project's ability to address additional IRWM Guidelines review factors.
Project Costs and Financing	Project costs and financing are included as implementation considerations.
Economic Feasibility	Economic feasibility is included as an implementation consideration.
Project Status	Project status is included as an implementation consideration.

Table 3-6. Project Review Factors in IRWM Guidelines (contd.)

Topic	Approach in Project Evaluation Process
Strategic Considerations for IRWM Plan Implementation	Strategic considerations were considered as part of the project screening. Strategic considerations for combining or modifying local projects into collaborative regional projects were considered after the projects were submitted; The region identified opportunities for such modifications and initiated discussions directly with the project proposer(s). If project modifications were agreeable, the project was resubmitted. This occurred before this phase of the evaluation.
Project Adaptations for Climate Change	Climate change adaptation is included as a project scoring criterion, as part of assessing the project's ability to address regional objectives and statewide priorities. Climate change is also its own standard in the IRWM Plan.
Greenhouse Gases	Reduction of greenhouse gases is included as a project scoring criterion, as part of assessing the project's ability to address additional IRWM Guideline review factors.

Key:
DAC = Disadvantaged Community
ECCC = East Contra Costa County
IRWM = integrated regional water management

3.4.4. Project Review Steps

After projects are received, the process for prioritizing projects and programs within the ECCC region involves the following sequential steps:

1. **Perform initial screening of projects for inclusion** – Projects are screened for their relevance to water management and technical feasibility before being included in the IRWM Plan. No projects are eliminated at this step.

2. **Review benefits claimed by each project** – Text entries are required in the project submission form to justify why certain benefits are claimed, for those related to the regional objectives and the IRWM Program Preferences. The region can meet to review these explanations to verify that the project proposers understand the intent and that their benefit claims are reasonable before the benefits are accounted for in the evaluation of projects. After reviewing rationale for claimed benefits, project proposers are permitted to modify their submissions to have consistent evaluations. For example, if a project claims meeting an ecosystem objective based on compliance with CEQA/NEPA, this will be eliminated as a project differentiator because all projects would follow that same process.

3. **Project integration and coordination** – Opportunities are sought to combine, evaluate, expand, and/or modify projects to achieve multiple benefits, expand local benefits to a regional scale, and/or enhance projects to address more regional objectives. For example, two similar projects that are geographically adjacent could be combined into a single effort to maximize implementation efficiency, or a project could be modified to include more comprehensive DAC benefits and outreach.

4. **Evaluate and score projects** – Each project will be evaluated, based on the process described above, to arrive at a project score, RMS diversification, and a set of implementation considerations. The resulting data allowed the region to create multiple lists prioritizing or sorting the projects based on a number of factors, including project type, primary ECCC IRWM Plan objective category, project score, RMS diversification, project

status (determined by design date), total cost, and percent funded. Creating a variety of lists sorted or prioritized by multiple criteria gave the region a better understanding of where different projects excelled and laid a framework for a more comprehensive view of the suite of projects, in particular which projects might be strongest under the diverse possible grant alternatives.

5. **Iterate** – After the first round of project scores, further opportunities can be considered for project integration and coordination. Upon improving projects, projects can be reevaluated and rescored.

6. **Develop implementation plan** – The implementation plan is a suite of priority projects that, when implemented, will help the region to meet its objectives.

3.4.5. Documenting the Projects

For the purposes of this IRWM Plan, an initial list of projects was submitted and reviewed in October 2012. The reviewed projects are listed by sponsoring agency/organization summarized in **Table 3-7** and are shown on the IRWM website. Full details about these projects may be found in **Appendix E**. Note that the numbering of the projects in the table below bears no relationship to rank or priority, instead the numbers are related to the order in the database.

Table 3-7. Initial List of IRWM Projects

Sponsoring Agency / Proponent	Project Title
Antioch Youth Sports Complex	1. Recycled Water for American Youth Soccer Organization
Bethel Island Municipal Improvement District	2. BIMID Levee and Pump Station Improvement Project
City of Antioch	3. Drainage Area 55 – West Antioch Creek Channel Improvements
	4. Viera Water and Sewer Service, Northeastern Antioch
City of Pittsburg	5. City of Pittsburg Water Treatment Plant Improvements Project
	6. Rossmoor Well Replacement Project/Groundwater Monitoring Well System expansion
Contra Costa Clean Water Program	7. Mercury Reduction Benefits of Low Impact Development
Contra Costa County	8. East Contra Costa County Green Street Retrofit Network
	9. Knightsen Biofilter – Flood Control Project
Contra Costa County Flood & Water Conservation Control District	10. Upper Sand Creek Basin Surplus Material (#220)
	11. Deer Creek Reservoir Seismic Assessment (#212)
	12. East Antioch Creek Marsh Restoration (#206)
	13. Marsh Creek Reservoir Capacity and Habitat Restoration (#213)
	14. Marsh Creek Reservoir Seismic Assessment (#210)
	15. Marsh Creek Supplemental Capacity and Basin Development (#215)
	16. Marsh Creek Widening Between Dainty Avenue and Sand Creek (#216)
	17. Oakley and Trembath Detention Basins (#207)

Table 3-7. Initial List of IRWM Projects (contd.)

Sponsoring Agency / Proponent	Project Title
	18. West Antioch Creek Improvements: 10th Street to 'L' Street (#203)
	19. Dry Creek Reservoir Seismic Assessment (#211)
	20. Kellogg Creek Sedimentation Basin (#226)
	21. Lower Sand Creek Basin Construction (#222)
Contra Costa County Flood Control District	22. Deer Creek Reservoir Expansion (#217 and #218)
Contra Costa Flood Control and Water Conservation District	23. Marsh Creek Methylmercury and Dissolved Oxygen Assessment
Contra Costa Water District	24. BBID-CCWD Regional Intertie
	25. Contra Costa Canal Levee Elimination and Flood Protection Project
	26. Los Vaqueros Pond E-7 Embankment Rehabilitation
	27. Stormwater Management at Meadows Siphon
	28. Canal Liner Rehabilitation and Slope Stability at Milepost 23.03
Delta Diablo	29. Advanced Wastewater Treatment
	30. DDSD Advanced Water Treatment
	31. DDSD Recycled Water Distribution System Expansion
	32. DDSD Salinity Reduction -- Softener Rebate Program
	33. Recycled Water Facility Renewable Energy System
	34. Total Dissolved Solids Reduction/Salinity Management
	35. Wastewater Renewable Energy Enhancement
Diablo Water District	36. Allowable Maximum Level of Demand Project
	37. Beacon West Arsenic Replacement Well
	38. Bethel Island Water Supply Pipeline
	39. High-Efficiency Toilets and Landscape Water Conservation
	40. Phase 3 Well Utilization Project
Diablo Water District	41. Tracy Subbasin Safe Yield Analysis
	42. Treatment of Brackish Groundwater
Diablo Water District/Contra Costa Water District	43. Leak Detection and Repair
East Contra Costa County Habitat Conservancy	44. Watershed and Habitat Protection/Restoration
Ironhouse Sanitary District	45. Ironhouse Sanitary District Recycled Water Implementation – Phase B
	46. Ironhouse Sanitary District Recycled Water Implementation – Phase C
	47. Ironhouse Sanitary District Recycled Water Implementation – Phase A
	48. Oakley Sewers

Table 3-7. Initial List of IRWM Projects (contd.)

Sponsoring Agency / Proponent	Project Title
	49. Salinity Reduction
	50. Septage Receiving Station
Lake Alhambra Property Owners Association	51. Lake Alhambra Sediment Mitigation Antioch Drainage Area 56
Reclamation District 830	52. Jersey Island Cutoff Levees
	53. Jersey Island Levee Raising and Widening from Stations 333+00 to 470+00
	54. Marsh Creek Delta Restoration Project

Key:
BBID = Bryon Bethany Irrigation District
BIMID = Bethel Island Municipal Improvement District
CCWD = Contra Costa Water District
DDSD = Delta Diablo (formerly Delta Diablo Sanitation District)
IRWM = Integrated Regional Water Management

In 2014, Discovery Bay, Diablo Water District, and Ironhouse Sanitary District presented projects that were included as part of the IRWM Plan project list. These projects included the Discovery Bay Reclamation Project, Diablo Water District Leak Detection and the ISD Well (Jersey Island) and Fill Station. Since electronic submissions could not be submitted through the IRWM website, participants completed the project submission forms. CCWD then circulated the forms to all ECCC IRWM participants. There were no objections to any of these projects, which were then added to the list of IRWM Plan projects. A number of additional projects were identified in the planning studies completed as part of the 2015 IRWM Plan Update, which are presented in **Table 3-8**. These projects will be submitted to the IRWM project database, and the projects listed in the table may or may not reflect all of the projects that will eventually be submitted to the IRWM project database.

Table 3-8: List of Projects Identified by IRWM Planning Studies

Sponsoring Agency / Proponent	Project Title
City of Antioch/City of Brentwood/Diablo Water District	Coordinated Brine Disposal Pipeline Feasibility Study
City of Antioch/Contra Costa Water District	Booster Pump from Antioch to MPP
City of Brentwood	Brentwood Reliable Supply Analysis
	Brentwood Wastewater Treatment Plant
Contra Costa Water District	Regional Emergency Aid, Assistance, and Response Preparation
	Emergency Backup Power
City of Pittsburg	Fertilizer Application Rate Assessment
	Pittsburg Plain Groundwater Basin Monitoring Well Expansion
	Basinwide Groundwater Condition and Quality Analysis and SNMP Refinement
	Pursue funding for full SNMP

Sponsoring Agency / Proponent	Project Title
	Full SNMP
	Antioch/Pittsburg Intertie Analysis
City of Pittsburg/Diablo Water District	Monitor Existing Wells
	Delta View Golf Course Water and Fertilizer Application Assessment
Diablo Water District	Groundwater monitoring network expansion
	Marsh Creek Groundwater/Surface Water Interaction
	Land Use Map Updates
	Water Budget
Ironhouse Sanitary District	Fill Station and High Value Farming
	Wilbur Corridor and Northern Waterfront Industrial Reuse and Recycled Water for Agricultural Use in ISD Mainland Property Management Plan
	Advanced Treatment and Potable Reuse Investigation
	Self-Regenerating Water Softener Source Control
Regional[1]	Regional Joint Inventory and Purchasing Coordination
	Intertie Testing Program and Documentation
	Excess Regional Capacity Optimization Plan
	Evaluate Groundwater Supply
	Additional Analysis of Levee Failure Impacts on the Region
	Evaluate Potential Water Quality Risks

[1] Projects are regional in nature and a potential project sponsor has not yet been identified

3.4.6. Implementation and Updates to Project List

As stated previously, **Table 3-7** presents only an initial list of projects, and the projects presented in **Table 3-8** have not yet completed the IRWM project evaluation process. With the IRWM website and Planning Framework established, projects may be added, removed, or updated at any time. With a living process, project proponents and stakeholders now have a venue to collaborate and integrate their projects. Getting a project on the list is important, even if there isn't an imminent funding opportunity.

From time to time, the ECWMA and its members may feel it is necessary to have another formal "Call-for-Projects" to refresh their list or to prepare for a new funding opportunity. Although funding is important, it should merely be a reward for good planning. Proper integrated planning should be ongoing, open, transparent, and collaborative.

The IRWM region intends to perform regular reviews of the project list in the IRWM Plan. The review process will involve dissemination of the current project list to agencies and stakeholders for review, comment, and editing. The review process will provide an opportunity for project proponents to update the project information, including its status for compliance with applicable rules, laws, and permit requirements. Because many of the projects on the list are still in the conceptual planning phase, much of the compliance status may not be known. However, the opportunity for regular review will result in a project list that is frequently monitored for compliance updates. This way, when funding opportunities do arise, projects will be better

prepared to meet program requirements if compliance requirements are already met or can be met quickly.

3.5. Technical Analysis

The projects included in this IRWM Plan are intended to provide multiple benefits to both the individual project proponents and the RWMG as a whole. With an understanding of the region's water management issues and objectives, the RWMG was able to identify and develop an initial list of several implementation projects. Project and IRWM Plan development is rooted in the data and information, reports, studies, and plans describing water management issues, objectives, and projects of participating agencies and overall region. **Table 3-9** provides a summary of the data sources and planning documents that were used in development of this IRWM Plan and to develop the identified projects.

Table 3-9. Data Used in the IRWM Plan

Data	Source
Population and demographic data	2010 Census; 2014 Regional Capacity Study.
Hydrologic data	2010 Urban Water Management Plans; Groundwater management plans/Studies.
Water demand information	2010 Urban Water Management Plans; Groundwater management plans/studies; 2014 Regional Capacity Study.
Water supply data	2010 Urban Water Management Plans; Groundwater management plans/studies; 2014 Regional Capacity Study.
Dry year supply reliability	2010 Urban Water Management Plans (ongoing)
Water quality data	Agency data; Groundwater management plans/studies.
Cost information for potential water management alternatives	Capital Improvement Plans[1]
Recycled water supplies and demands	Recycled water master plans
Groundwater data	Groundwater management plans/studies
Stormwater data	Stormwater master plans, Contra Costa Watersheds Stormwater Resource Plan
Ecosystem and habitat data	East Contra Costa County Habitat Conservation Plan. Natural Community Conservation Plan
Land-use data	City and County General Plans
Climate change adaptation and mitigation strategies	2014 Regional Capacity Study

Note:
[1] Cities of Antioch, Brentwood, Pittsburg, CCWD, CCFCWCD, DDSD, DWD, and ISD
Key:
CCFCWCD = Contra Costa Flood Control and Water Conservation District
CCWD = Contra Costa Water District
DDSD = Delta Diablo (formerly Delta Diablo Sanitation District)
DWD = Diablo Water District
IRWM = Integrated Regional Water Management
ISD = Ironhouse Sanitary District

3.5.1. Incorporation of Planning Documents

Since completion of the region's first IRWM in 2005, the region has continued to invest in regional integrated and coordinated water management planning to the benefit of urban, agricultural, and environmental needs. The updated IRWM Plan increases the opportunity to coordinate and integrate regional planning efforts and should allow the region to more efficiently and effectively accomplish its IRWM goals. As new studies and plans are developed, the RWMG will evaluate whether the content of the documents impacts the conclusions and recommendations in the IRWM Plan. If new or contradictory information is presented, the RWMG will determine whether an IRWM Plan update is necessary to include more up-to-date information.

The most relevant application for incorporation of studies and planning documents is in relation to project development and selection. As new regional information is discovered, participating agencies will incorporate relevant conclusions and recommendations into project selection criteria and into IRWM Plan objectives. If existing IRWM Plan objectives and analysis are insufficient to reflect the information and recommendations of emerging studies and plans, the RWMG should evaluate how IRWM Plan objectives may be adjusted to more appropriately reflect regional needs.

The following sections describe recent and ongoing water management planning efforts, including planning and technical studies conducted in coordination with the IRWM Plan update.

3.5.2. Urban Water Management Plans and Studies

Documents that provide information about the Region's water supply outlook and related management strategies include 2010 UWMPs and the 2014 Regional Capacity Study (RCS). These are described below.

The 2010 UWMPs were prepared by each of the region's urban water suppliers with greater than 3,000 connections or that serve 3 TAF annually. In ECCC, these suppliers included CCWD, Antioch, Pittsburg, Brentwood, and DWD. UWMPs are updated every 5 years and include historical water use information and 20-year projections of water demands, water supplies, recycled water use, and a water shortage contingency plan. Additionally, the 2010 UWMPs contained each supplier's water conservation targets to meet the requirements of SB X7-7 requirements of 20 percent water conservation by 2020. Completion of UWMPs is also required by the various DWR grant funding opportunities.

The RCS was initiated in the fall of 2012, completed in September 2014, and complements IRWM planning efforts. It is a collaborative effort among Cities of Antioch, Brentwood, Martinez, and Pittsburg, CCWD, and DWD. Its purpose is to evaluate and optimize regional untreated water supply, water treatment plant operations, and delivery processes to improve water supply reliability and reduce the cost of water for urban areas within the region. The RCS is an important

element of various ongoing water management planning activities in the region. One of the results of the RCS was a summary of potential improvement projects that could be implemented to address key observations regarding water supply risks and shortfalls; information about those projects has been incorporated into this IRWM Plan in Section 3.4, Project Review Process. The findings of the RCS increase the understanding of water management and operations in the region and will advance the region's efforts toward achieving the IRWM objectives.

3.5.3. Groundwater Management Plans and Studies

The region is actively managing its groundwater resources through planning and monitoring efforts. Recent groundwater plans and studies providing technical data and improving the understanding of groundwater resources in the region are described below.

Two GMPs were completed within the region: the Pittsburg Plain GMP completed by the City of Pittsburg in 2012 and the Tracy Subbasin GMP completed by the DWD in 2007 (these basins can be seen in Chapter 2, Figure 2-11). The Tracy Subbasin GMP was completed in conjunction with the original IRWM. The Pittsburg Plain GMP was completed in parallel with the 2015 IRWM Plan update. These plans define critical basin management objectives (BMO) necessary to maintain the quality, reliability, and sustainability of groundwater resources on local and regional scales. These BMOs complement the IRWM Plan objectives.

These plans further identify actions and associated implementation plans to achieve the BMOs. Actions that take the form of groundwater studies and monitoring programs will provide additional technical data to support local planning needs and regional planning efforts (i.e., future IRWM updates). The City of Pittsburg and DWD each have implemented groundwater monitoring programs[7] for their respective basins. The City of Pittsburg recently completed a Salt and Nutrient Management Program Summary (developed in parallel with the IRWM Plan Update) to provide a preliminary evaluation of groundwater quality and salt and nutrient loading potential to assist in future groundwater planning and development efforts. DWD recently completed the Tracy Subbasin Data Gap Analysis Report (developed in parallel with the IRWM Plan Update) to identify data needs to determine safe yield of the portion of the Tracy Subbasin underlying the region. These efforts are all considered essential to increase the success of management and protection of groundwater resources in the region.

On September 16, 2014, Governor Jerry Brown signed into law a three-bill legislative package, composed of AB 1739 (Dickinson), SB 1168 (Pavley), and SB 1319 (Pavley), collectively known as the Sustainable Groundwater Management Act (SGMA). SGMA, effective January 1, 2015, establishes a framework of priorities and requirements to facilitate sustainable groundwater management throughout the State. The intent of SGMA is for groundwater to be managed by local public agencies and newly-formed Groundwater Sustainability Agencies (GSAs) to ensure that a groundwater basin is operated within its sustainable yield through the development and implementation of a Groundwater Sustainability Plans (GSP). Through this planning process, basins should reach sustainability within 20 years of implementing their sustainability plans.

[7] The City of Pittsburg and DWD participate in DWR's California Statewide Groundwater Elevation Monitoring (CASGEM) Program as designated monitoring entities for the Pittsburg Basin and Tracy Subbasin areas, respectively. The Town of Discovery Bay, ECCID, and the City of Brentwood provide support to DWD.

The Tracy Subbasin, referred to as DWR Basin 5-22.15 San Joaquin Valley, is a Medium priority groundwater basin according to the Groundwater Basin Prioritization by DWR and is located in eastern Contra Costa County as well as in San Joaquin and Alameda Counties. Eight local agencies that overlay a portion of the Basin in Contra Costa County, referred to at East Contra Costa Basin, entered into a Memorandum of Understanding (MOU) on May 9, 2017 to collaborate and develop a single GSP for the East Contra Costa Basin. With the exception of Contra Costa Water District, each member agency has become a Groundwater Sustainability Agency (GSA) to be the local agency to manage the Basin within their respective management areas. The member agencies to the East Contra Costa Basin MOU include City of Antioch, City of Brentwood, Byron Bethany Irrigation District, Contra Costa County, Contra Costa Water District, Diablo Water District, Town of Discovery Bay, and East Contra Costa Irrigation District.

In 2018, East Contra Costa Basin MOU members submitted a basin boundary modification request to DWR to modify the boundaries of existing Tracy Subbasin to split the subbasin into two independent basins. DWR approved the request in November 2018, which effectively separates the subbasin at the county line. This basin boundary modification will be a useful delineation for the East Contra Costa Basin MOU members in implementing the requirements of SGMA in the region. Additional information regarding development of the Tracy Subbasin GSP can be found at the program's website: https://www.eccc-irwm.org/sgma/sgma-news-meetings/.

3.5.4. CASGEM Compliance

In July 2014, the region worked collaboratively to ensure California Statewide Groundwater Elevation Monitoring (CASGEM) Compliance including Diablo Water District (DWD), City of Brentwood, City of Antioch, Town of Discovery Bay, ECCID, and BBID as required by SB X7-6. DWR approved the program in 2014 and DWD was designated as the monitoring agency for the Contra Costa County portion of the Tracy sub-basin that is considered medium priority.

3.5.5. Recycled Water Plans and Studies

To achieve the IRWM objective of improving the reliability of water supplies, the region is diversifying its water supply portfolio through the use of recycled water. Delta Diablo, ISD, and the City of Brentwood, supply recycled water that offsets potable water use or provides other beneficial uses. These agencies completed studies and projects over the past decade. Past and more recent planning and study efforts contributed technical data used in the IRWM Plan Update. These efforts include the Pittsburg/DDSD Recycled Water Project Facilities Plan (2005), the Antioch/DDSD Recycled Water Project Facilities Plan (2007), the East County Industrial Recycled Water Facilities Plan (2009), the ISD Recycled Water Feasibility Report (2015, which was developed in parallel with the IRWM Plan Update), DDSD Recycled Water Master Plan (2013, which was developed in parallel with the IRWM Plan Update), the City of Brentwood Recycled Water Feasibility Study (2013),

3.5.6. Stormwater and Flood Management Plans and Studies

The 50-Year Plan "From Channels to Creeks" (2009) was completed by the CCFCWCD. This strategic planning document identifies opportunities and benefits for enhancing storm and flood management systems. Planned enhancements would be to modify these systems to behave more like natural creek systems. The document establishes a framework for long-range planning efforts toward achieving these actions, actions that complement IRWM objectives.

The Water Quality, Supply, and Infrastructure Improvement Act of 2014 (Proposition 1) provided $200 million for a Storm Water Grant Program, which provides matching grants to public agencies, nonprofit organizations, public utilities, state and federally recognized Native American tribes, and mutual water companies for multi-benefit stormwater management projects. Grant funds are for multi-benefit storm water management projects which may include, but shall not be limited to: green infrastructure, rainwater and storm water capture projects and storm water treatment facilities. Prior to the passage of Proposition 1, the California Legislature adopted Senate Bill (SB) 985, the Storm Water Resource Planning Act. SB 985 amended the Water Code to require the development of a Stormwater Resource Plan (SWRP), or functionally equivalent plan(s), to receive grants from a bond act approved after January 1, 2014 for stormwater and dry weather runoff capture projects.

In 2016, the SWRCB awarded planning grant funds to the Contra Costa Clean Water Program to develop the *Contra Costa Watersheds Stormwater Resource Plan: Greening the Community for Healthy Watersheds* on behalf of Contra Costa municipalities and stakeholders. The SWRP used a watershed-based planning approach to compile stormwater management project opportunities and develop potential project concepts designed to improve Contra Costa watersheds and communities. The potential project opportunities identified in the SWRP will help clean water in creeks and bays while providing additional community and environmental benefits.

Due to the requirements of SB 985, any stormwater or runoff capture projects seeking bond funding through the IRWM program must also be included in the SWRP. Because goals of the Contra Costa Watersheds SWRP are consistent with those of the East County IRWM Plan, the IRWM Plan incorporates by reference the findings, analysis, and projects included in the SWRP. Appendix K provides the currently available version of the Contra Costa Watersheds SWRP for reference. Future and updated versions of the Contra Costa Watersheds SWRP, along with the latest list of project opportunities, can be found at the program website: https://www.cccleanwater.org/resources/stormwater-resource-plan.

3.5.7. East Contra Costa County Habitat Conservation Plan/Natural Community Conservation Plan

The ECCC HCP /NCCP is an integral critical source of environmental and habitat technical data that informs the Region's IRWM planning efforts. The HCP/NCCP describes the mission, goals, and objectives for environmental and habitat management in the region, and includes extensive technical data in its appendices, including an aquatic resources inventory, species profile, priority acquisition areas, and urban-wildlife interface design guidelines. The HCP/NCCP establishes regional conservation and development guidelines to protect natural resources while improving and streamlining the permit process for endangered species and wetland regulations. By proactively addressing the region's long-term conservation needs, the HCP/NCCP strengthen local control over land use and provides greater flexibility in meeting water management and other needs in the region.

3.5.8. Climate Change Adaptation and Mitigation Studies

The Regional Capacity Study (RCS), which was completed in 2014 by several agencies in the ECCC region, evaluated ways to optimize regional water treatment plant operations and untreated water supply, improve water supply reliability, and reduce treatment costs. The RCS included a water supply reliability evaluation that considered probable drought scenarios, including those that

could take place as a result of, or be exacerbated by, climate change. Of the scenarios that were evaluated, the RCS determined that failures within the western delta levee system and a regional power outage would be most likely to create critical impacts to water quality and treated water supplies. Although prolonged droughts are a potential impact resulting from climate change, the RCS determined that a scenario that looked at drought conditions (loss of untreated water supply) was not necessary to carry forward in the analysis, because CCWD's long-term water planning scenarios already outline alternative untreated water sources that would be required in the event of a three-year prolonged drought. The RCS is further described in Section 3.7.6.

As a result of the water supply reliability evaluation, the RCS recommended that operational changes and additional studies be pursued to potentially address regional issues, including those that could take place as a result of, or be exacerbated by, climate change. The results and recommendations of the RCS have been incorporated into this IRWM Plan.

3.6 Stakeholder Involvement

As noted in previous sections, ECCC's long-standing commitment to collaboration was leveraged in the plan preparation and will be an integral part of any further updates to the plan. The region views identifying and involving stakeholders as an important aspect of the local and regional planning processes.

Beyond building a broader water ethic and advocacy for good water stewardship, now and into the future, engagement provides opportunities to gain better insight into potential planning approaches. For example, stakeholders can identify new issues, objectives, or projects others had not previously been aware of, describe the need for projects, discuss the benefits anticipated, solicit feedback from interested and/or affected individuals and agencies, and assist with making decisions. The region seeks to involve others from the early planning stages so that a project, potential concerns and/or opposition can be addressed early, and projects can be planned in a way to minimize negative impacts and maximize benefits. The composition of participating stakeholders has included the members of ECWMA and other interested parties, including:

- Wholesale and retail water purveyors*
- Wastewater agencies*
- Flood management agencies*

Many people have a stake in the ECCC IRWMP, which promotes multi-benefit projects and partnerships. One example of a multi-benefit project is the Dow Wetlands in Pittsburg, set aside as an industrial buffer zone and now dedicated to preservation and student learning. Students from throughout the region have a chance to explore estuaries, freshwater ponds, and grasslands. They can also hike the newly constructed path that links the Antioch Marina to the 471-acre wetland area. This photo is from a California State University summer program.

- Municipal and county governments and special districts*
- Environmental stewardship organizations*
- State agencies*
- General public
- Community organizations
- DACs
- Small Community Systems

** Active ECWMA members/planning participants*

Outreach can also be conducted with industrial and utility stakeholders via interaction of ECWMA members during regularly scheduled meetings of those groups and through the website.

Historically, The ECWMA and its members have regularly conducted stakeholder outreach for their various water resources planning and implementation projects. For the 2015 IRWM Plan Update, the ECWMA and its members used various methods to identify and reach out to stakeholders. These methods have included the development of a website, e-mails, mailings, and public meetings.

3.6.1. ECCC IRWM Region Website

Starting in 2010-2012, in order to support the update and outreach of the IRWM Plan, the ECWMA and its members developed a website (screen shot shown in **Figure 3-6**). The website serves as a portal to disseminate information about the IRWM Plan, the region, the ECWMA, and meeting notices. It also serves as the main tool for collecting project information from member agencies and stakeholders. The website, however, requires ongoing maintenance. By 2014, the website could no longer update projects electronically. The website is being renewed for the 2015 Plan Update, and with support from the ECWMA, will be maintained and updated as required in the future.

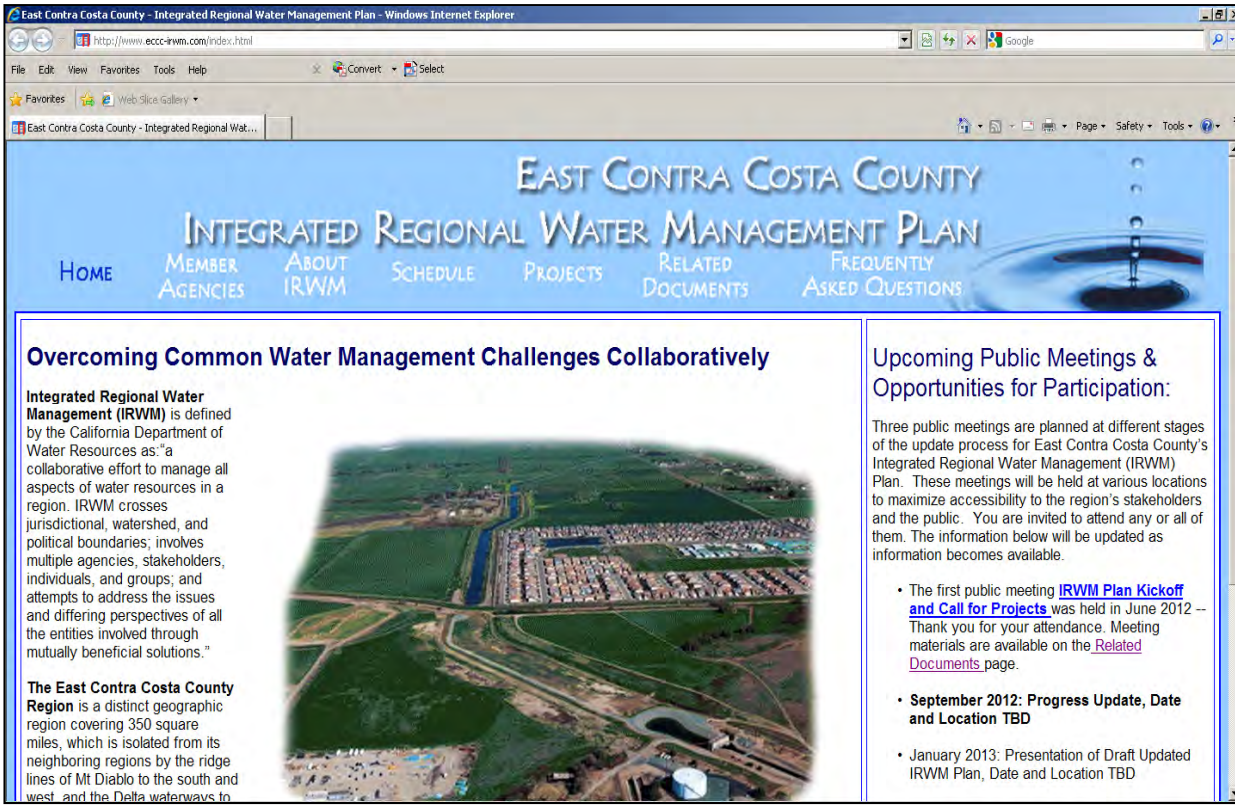


Figure 3-6. ECCC IRWM Region Website

The website can be viewed at http://www.eccc-irwm.org/, and has the following structure:

- **Home.** Describes IRWM Plan, the region, and lists upcoming opportunities for participation.
- **ECWMA Member Agencies.** Provides a brief description of each member agency, their role in water management, and a link to their websites.
- **About IRWM.** Summarizes the IRWM planning process, provides an overview of the region, and highlights successes of the IRWM program.
- **Timeline.** Presents the IRWM region's timeline of major milestones.
- **Projects**:
    - **About Projects.** States the importance of projects, explains how to submit projects, and clarifies how submitted project information will be used.
    - **Projects Map.** Displays the projects submitted and reviewed by an IRWM administrator to-date in an interactive map. Clicking on a project displays additional information.
    - **Project List.** Displays the projects submitted and reviewed by an IRWM administrator to date in a list. Clicking on a project displays additional information.

- **Submit New Project.** Upon entering a valid e-mail address, the user will be e-mailed a link to a project submission form. This form can be filled in with project information, saved, revisited, and edited until the user submits the project. After submission, an IRWM administrator will approve the project, after which it will enter the project database and show up in the View Map and View List functions above.

- **Disadvantaged Communities.** Provides additional information about the location and water quality and water supply needs specific to disadvantaged communities in the region.

- **Related Documents.** Provides downloads of the region's previous collaborative studies, materials from public meetings, and links to other neighboring IRWM websites.

- **Frequently Asked Questions.** Answers common questions about the IRWM program, IRWM projects, and the website.

3.6.2. Stakeholder Outreach Meetings – 2013 IRWM Plan Update

In 2012/2013, three public meetings were held that focused on scoping and crafting the IRWM Plan, were conducted at different stages of the update process and held at various locations to support accessibility to the region's stakeholders and the public. All meetings were advertised on the IRWM website, announcements were made in local newsletters, through the Contra Costa County Watershed Forum, and in emails or mailings from agencies to their involved stakeholders. After the meetings, all materials were posted on the IRWM website. The Public Workshops held were:

- June 14, 2012, at Delta Diablo – IRWM Plan Kickoff and Call for Projects (see **Figure 3-7**)
    - The kickoff meeting included an introduction of the IRWM Planning process and a demonstration of the website and all its features were demonstrated, including how to submit a project.

- September 6, 2012, at the City of Antioch – Progress Update and Final Call for Projects
    - The second public meeting included an orientation for those that missed the first meeting, and an overview of water management issues, regional objectives, RMSs, and the process that will be used for prioritizing projects.

- May 8, 2013, District III East County Joint MAC/AC – Update on IRWM Plan

- May 14, 2013, at the City of Pittsburg – Presentation of the Public Draft IRWM Plan Update 2013
    - This third public meeting presented the Public Draft IRWM Plan Update 2013 and allowed stakeholders the opportunity to provide their comments.

In addition to Public Workshops, six additional semi-regular phone-web working meetings were conducted with key stakeholders to review and provide input to specific sections of plan text.

These meetings were open to attendance by any interested party, and email invitations were sent to the entire interested party list. These 2013 sessions occurred: January 8; January17; January 25; March 15; April 8; and April 26.

Altogether 20 different stakeholders were engaged in the early public meetings with 12 new participants joining as the planning progressed. All interested parties were routinely advised by email of work sessions and other opportunities for participation. All interested groups have been welcome to participate in discussions, project submissions and for providing comment in both the drafting and public comment stages of plan development.

Since the May 14, 2013 Public Workshop, member agencies of ECWMA have shared the document with their own stakeholders and each will conclude the process with a public meeting adoption of the plan.

Figure 3-7. ECCC IRWM Region Stakeholder Outreach Meeting in June 2012

3.6.3. Stakeholder Outreach Meetings – 2015 IRWM Plan Update

Upon completion of several planning studies that were conducted under the Proposition 84 DWR Round 2 Planning Grant process, the ECWMA began updating the IRWM Plan in early 2015. In accordance with the region's commitment to transparency and stakeholder involvement, additional stakeholder outreach meetings were conducted for this additional update effort. After the meetings, all materials were posted on the IRWM website. Outreach meetings were held with the following communities in September 2015:

- Bay Point: September 1, 2015
- Bethel Island: September 8
- Byron: September 16
- Knightsen: September 22

3.6.4. Stakeholder Outreach During Implementation

As the IRWM Plan is implemented, stakeholders throughout the region will be involved in decision making and encouraged to provide feedback. The precise mechanism for stakeholder involvement will be determined based on the needs of an individual project or program being implemented. However, mechanisms for involving stakeholders and encouraging feedback are anticipated to include the following, as appropriate:

- Updates on the IRWM website to provide information on the status and progress of projects being implemented and other upcoming events or grant funding opportunities.
- Public forums, workshops, and meetings in which stakeholders are kept apprised of project progress and status, and are encouraged to provide feedback.
- Speakers Bureau composed of ECWMA representatives available to present at the meetings and convenings of related groups.

The Big Break Regional Trail, operated by East Bay Regional Parks runs through the Ironhouse Sanitary District. It is operated using integrated resource management. Not long ago, this culvert was thick with blackberries. To bring it back to a wetland state, the channel was graded, letting water in from the delta. Shorebirds found the wetland the very next day. Visitors on the trail can see tule and cattails and even small fish. The trail connects to the northern end of the Marsh Creek Regional Trail, providing access to Brentwood and Oakley. The Marsh Creek Regional Trail connects to the Delta de Anza Regional Trail. Often, simple, low-budget restorations can achieve multiple benefits. For example, this new habitat is also more resilient in floods and storms.

3.6.5. Outreach to Disadvantaged Communities

As outlined throughout this document, the region, like the State of California, is committed to promoting equitable distribution of project benefits, and especially to addressing the critical water supply needs of underprivileged areas. Section 2.43 addresses the significance of this community to the regional and outreach efforts undertaken to ensure representation.

For the 2015 IRWM Plan Update, additional outreach was conducted to target DACs and ensure that DACs were informed about the Plan and the update process. Communities targeted for DAC Outreach were either those that had been identified as DAC using Census and/or ACS data, or those communities that could provide support to neighboring DACs. The stakeholder outreach meetings listed above were selected specifically due to those communities' abilities to convey IRWM Program and Plan information to DACs within those communities or nearby. As such, the stakeholder outreach meetings conducted under Section 3.6.3 were also DAC-specific meetings conducted for the 2015 IRWM Plan Update.

3.6.6. Native American Tribal Communities

Because benefit to Native American tribal communities is included as a DWR IRWMP project scoring criterion, the team closely assessed the best way to achieve compliance. The team reviewed DWR and other tribal maps and conducted a summary scan of ECCC historic literature. After this review, it was determined there are no tribal communities currently residing in the ECCC region. However, there is a rich history of Native American occupation in ECCC, including the Kellogg Creek National Historic District located on the Los Vaqueros watershed. A future IRWMP proposal may include something benefiting tribal communities; for example, enhancement of habitat suitable for plants that may be used for cultural purposes. If project opportunities are identified, outreach is anticipated to organizations such as California State Parks, the State Historic Preservation Officer, the California Indian Heritage Center (CIHC) and the CIHC Foundation and the Native American Heritage Commission. Additional outreach may also be conducted with the basket weaving community, through the California Indian Basketweavers Association.

3.6.7. Process to Ensure Authentic Engagement

Chapter 2, Section 2.3 more fully describes decision making within the ECCC IRWM Plan process and Chapter 4, Section 4.1, also addresses governance. The ECWMA, as the RWMG, is a formal body directed by a wide range of agencies. That said, and while provisions for voting are provided, the body is largely consensus driven with participants seeking to find wide agreement on plan approaches, priorities and projects. The opinions, suggestions and requests of all stakeholders are given the highest consideration and managed in an open and transparent way. All parties with an interest have been included in deliberations.

With the development of the IRWM website, the establishment of the planning framework, and the various outreach activities, stakeholders may continue to be identified and added to the IRWM planning and implementation process. By being open with information and providing various venues, the ECWMA and its members are hoping to provide greater benefits to the region, while also keeping up with all of the region's water management issues, priorities, needs, and objectives.

3.7. Integration and Coordination

3.7.1. Opportunities for Integration and Coordination

DWR, by promoting integrated regional water management, encourages local water resources managers to cooperate, coordinate, and, where possible, integrate the strategies, projects, and programs they implement. This approach has encouraged water resources managers to think outside their immediate political boundaries, watershed, or primary water management responsibility. With an understanding that water should be managed as ONE resource, water suppliers, wastewater, flood and stormwater, watershed and environmental resources managers, community organizations, and other interests have a real stake in IRWM planning. There are several ways in which the IRWM is providing the venue for integration to occur. The ways include:

The Delta Diablo Sanitation District is a leader in working with others on water recycling.

- Regular meetings during the development of the update of the IRWM Plan and ongoing implementation activities.

- The IRWM website, which provides the opportunities for project proponents to upload, update, and review project information. Users are also kept apprised of other happenings, including upcoming and past meetings. The project information is important in that it may introduce an issue or solution that others had not thought of and it also shows the many capabilities and interest of those in the region.

- Existing relationships among ECWMA members. There may already be existing agreements, authorities, organizations, or programs, in which the ECWMA are partnering together. These relationships would support and fit under the umbrella of the IRWM Program.

There are many ways in which project proponents may collaborate and integrate their projects, including project funding, in-kind labor, sharing of other resources, statements of support, or joint outreach.

3.7.2. Existing Agency Relationships

The members of the ECWMA have strong working relationships and often work together to solve regional water management issues. The original ECWMA was formed in 1995 and expired in 1996, then was re-constituted in March 1997, and amended in 2010 to update some agency names, add East Contra Costa County Habitat Conservancy as a new member, include language about the IRWM Plan in the purpose statement and make a few other conforming changes. A copy of these documents is contained in (**Appendix H**).

The agencies work together in a number of ways, including through water supply agreements, recycled water collaborations, shared treatment facilities, participation in regional organizations, and collective efforts to strengthen regional water resources.

3.7.3. Water Supply Agreements

CCWD provides wholesale treated water to the City of Antioch, the GSWC in Bay Point, DWD in Oakley, and the City of Brentwood. CCWD sells untreated water to the ECCC Cities of Antioch and Pittsburg, as well as to industrial and irrigation customers. According to CCWD's 2010 UWMP, CCWD wholesaled 58,020 AF (adjusted to account for drought and economy) in 2010 and is projected to wholesale 82,200 AF by 2035. CCWD also has an agreement with ECCID to purchase surplus irrigation water to be used for M&I purposes in ECCID's service area.

3.7.4. Recycled Water

Recycled water is becoming more of a resource in the Region. The region recognizes the value of recycled water as a reliable, drought-proof supply. Agencies within the region plan to continue development of recycled water projects to help meet water needs, and will also evaluate expanding recycled water use more regionally.

In 2000, Delta Diablo and CCWD entered into an agreement for Delta Diablo to provide up to 8,600 AF/year of tertiary treated recycled water to the DEC and the LMEC. Treated wastewater from Delta Diablo is used for turbine cooling at the energy facilities. This project is one of the largest industrial recycled water projects in California. In 2004, Delta Diablo and CCWD reached a General Agreement for Delta Diablo to supply up to 1,654 AF/year of recycled water for urban landscape and golf course irrigation in Pittsburg and Antioch.

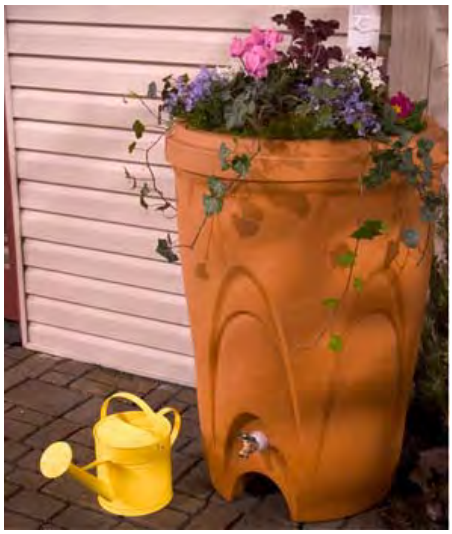
In 2004, Delta Diablo and CCWD executed general recycled water agreements whereby both districts can develop a joint project or each district can develop its own individual project(s) by cooperating with the other agency in planning, design, and construction activities. The agreements are intended to address and resolve legal issues, namely duplication of service, arising from the purveying of recycled water by a sanitation district in CCWD's service area.

City of Brentwood Water Treatment Plant.

CCWD, Delta Diablo, ISD, Pittsburg, Antioch, PG&E, Mirant Corporation, and Central Contra Costa Sanitary District prepared the ECCC Regional Industrial Recycled Water Facilities Plan in 2009. The purpose of this plan was to evaluate the feasibility of implementing regional industrial recycled water projects in the Pittsburg/Antioch industrial corridor.

Most recently in November 2012, the region was award a Proposition 84 DWR Round 2 Planning Grant, which included funding for expanded regional recycled water planning. This work continues to develop recycled water planning to better define the regional recycled water setting, better develop potential projects for implementation through the IRWM process, and help the ECWMA meet it objectives. The work would involve coordination of Delta Diablo Recycled Water Master Plan, ISD's Recycled Water Feasibility Study, and City of Brentwood's Recycled Water Feasibility Study. The wastewater agencies would participate in monthly conference calls to:

- Identify and develop recycled water projects
- Discuss opportunities for regional efficiency
- Discuss stakeholder and DAC outreach strategies and lessons learned
- Discuss regulatory aspects
- Discuss implementation challenges



The ECWMA agencies use a range of tools and best practices to address water concerns. Simple tools, like rain barrels, are promoted on the CCWD website. Rain barrels can help conserve outdoor irrigation water and reduce the impacts of stormwater runoff.

Shared Facilities

In addition to providing descriptions of individual agencies, Chapter 2, provides a history of joint planning efforts and a discussion of shared facilities such as the RBWTP. DWD and CCWD jointly own the RBWTP, which is operated and maintained by CCWD. In 2004, CCWD and the City of Brentwood entered into an agreement for the design, construction and operation of the City of Brentwood Water Treatment Plant (COBWTP), adjacent to the RBWTP. The COBWTP and the RBWTP share facilities improving efficiency and reducing costs for customers served from the two plants.

3.7.5. Organization Memberships

Beyond the ECWMA, many of the members of the ECWMA also belong to and participate in other water and environmental organizations, including the ECCC Habitat Conservancy, California Urban Water Conservation Council, Contra Costa Clean Water Program, and water resource conservation districts.

The ECCC Habitat Conservancy was formed to implement the East Contra Costa County Habitat Conservation Plan/Natural Community Conservation Plan (HCP/NCCP), and comprises the Cities of Brentwood, Clayton, Oakley, and Pittsburg, along with Contra Costa County, operating as a joint exercise of powers authority. The HCP/NCCP allows for development while remaining protective of native, threatened, and endangered species and habitat through creation of a Preserve System. Both the ECCC Habitat Conservancy and Contra Costa County are active participants in local water resource conservation groups.

The Cities of Brentwood and Pittsburg, and CCWD, are members of the California Urban Water Conservation Council (CUWCC). The CUWCC strives to integrate urban water conservation Best Management Practices (BMP) into the planning and management of California's water resources through development of statewide partnerships among urban water agencies, public interest organizations, and private entities.

Contra Costa Flood Control District, Contra Costa County, and the Cities of Brentwood, Antioch, and Pittsburg are all participating members of the Contra Costa Clean Water Program (CCCWP). The CCCWP facilitates the NPDES stormwater permit for Contra Costa County and organizes activities on a program level to implement best management practices to protect waterways from pollution. The CCCWP assists all municipalities within Contra Costa to come into compliance with their mandated stormwater permit issued by the regional water boards (under the California Environmental Protection Act).

3.7.6. Regional Planning Efforts

The ECWMA and its members also participate in several regional planning efforts.

Regional Capacity Study

CCWD, Antioch, Pittsburg, DWD, Brentwood, and the City of Martinez completed a RCS in September 2014. The RCS is partially funded through a Reclamation System Optimization Review grant and the Proposition 84 Round 2 Planning Grant. Acknowledging that the study area is primarily dependent on water supplies from the Sacramento-San Joaquin Delta, the study determined how best to optimize water supplies and facilities for the region to improve water supply reliability. The RCS evaluated ways in which to optimize regional water treatment plant operations and untreated water supply and delivery processes to improve water supply reliability and reduce the cost of water treatment for the project participants in the ECCC region. Recycled water and groundwater focus groups helped gather information, such as potential opportunities for recycled water use and additional opportunities for groundwater use.

The RCS involved several analyses, including: treatment plant capacity vs. projected demands, an analysis of water system interties, and regional water supply reliability evaluations. The water supply reliability evaluations focused on water supply impacts that could result from a failure of the Western Delta Levee and from a regional power outage. The analysis of treatment plant capacity and demands demonstrated that there is excess treatment capacity in several treatment plants, and linked the excess treatment capacity to potential users that could benefit from this available supply. The analysis of system interties determined that while all agencies can meet emergency supply needs from existing interties and alternate supplies, there are potential opportunities to implement new interties that would improve reliability. The analysis of water supply reliability associated with a potential Western Delta Levee failure found that in most scenarios there would be sufficient supply for entities within the region; however, the City of Brentwood has a higher probability of supply shortages in the event of a failure due to anticipated spikes in chloride levels. Lastly, the analysis of water supply reliability associated with a regional power outage demonstrated that there could be shortages to some entities in the event of an outage, but that such shortages could be improved with interties and other water supply reliability projects.

As an early implementation action, the Participating Agencies in the RCS worked together on a Regional Emergency Preparedness Plan to improve emergency and routine assistance and response among the agencies. The Plan is a separately bound appendix to the RCS.

The RCS resulted in a list of potential improvement projects that could be implemented to meet regional goals pertaining to supply reliability and affordability of supplies. The high-priority projects determined in the RCS have been integrated into this IRWM Plan and are listed in **Table 3-8**.

Regional Conservation Program

A regional alliance was created to meet SB X7-7, the Water Conservation Act of 2009, which set a goal for water agency's to have 20 percent water conservation by 2020 requirements. The regional alliance is led by CCWD and includes CCWD's retail service area and its wholesale municipal customers–the Cities of Antioch, Pittsburg, and Martinez, the GSWC, and DWD. Each agency will meet the requirements of SBx7-7 if it achieves the reductions on its own, or if the region meets the requirement as a whole.

Related to the regional alliance is CCWD's Water Conservation Program designed to achieve reductions in long-term water demand in an environmentally responsible and cost-effective manner. As a wholesaler, CCWD develops and implements this regional conservation program on behalf of its retail water agencies and their customers. This regional approach enables economies of scale, ensures a consistent message to the public, and assists in the acquisition of grant funding for program implementation.

Western Recycled Water Coalition

Since 2006, Delta Diablo has served as the lead agency for the Bay Area Recycled Water Coalition, a regional partnership of agencies seeking Federal funding to develop recycled water projects. Coalition members prepare Feasibility Studies under the Title XVI Program (the Reclamation Wastewater and Groundwater Study and Facilities Act). In 2013, membership was opened to interested agencies across the State, and the name was changed to the Western Recycled Water Coalition. There are currently 22 member agencies, which include ECCC members Delta Diablo, ISD, and the City of Brentwood. Recently, ECC members of the Coalition (Delta Diablo, ISD, and the City of Brentwood) moved forward with recycled water planning, and have completed Feasibility Studies under the Title XVI Program.

Water Forum

To foster collaboration among agencies and share information across watersheds, the Contra Costa County Flood Control District worked with partner agencies and organizations to establish the Contra Costa Watershed Forum, which brings together a variety of groups and individuals monthly to address watershed issues in Contra Costa County. The forum provides a vehicle to advance integrated watershed planning initiatives and projects that achieve multiple objectives from water supply and water quality protection to flood management and ecosystem restoration.

Potential Regional Efforts

In addition to the existing regional efforts of the ECWMA and its members, several regional planning studies have identified potential regional efforts that could be implemented.

The RCS specifically notes that there are efficiency and funding benefits to implementing projects at a regional level, especially considering that entities may be more competitive for grant funding for integrated regional efforts than for individual agency-by-agency efforts. Potential regional efforts listed in the RCS include:

- 2015 Regional Urban Water Management Plan
- Regional Compliance with SB X7-7 Goals
- Regional Grant Funding of Water Treatment Plant Improvements
- Regional Portable Emergency Booster Pump Stations
- Regional Recycled Water Coordination

The Data Gap Analysis of the Tracy Sub-basin (**Appendix J**), which was completed by the ECWMA, identifies multiple action items that should be taken to fill data gaps in order to determine the safe yield of the portion of the Tracy Sub-basin that is used in the region as a water supply. Given that groundwater is a regional resource for the ECWMA and its members, the action items listed below could be implemented regionally for maximum benefit:

- Temporarily expand existing groundwater monitoring network to include additional sites outside of the primary pumping centers
- Obtain surface water data for Marsh Creek
- Conduct an isotopic analysis of groundwater in the region
- Update the most recent detailed regional land use map
- Develop a preliminary water budget for the Tracy Sub-basin

Efforts of the Western Recycled Water Coalition in the region have resulted in Title XVI Feasibility Studies for Delta Diablo, ISD, and the City of Brentwood. These Feasibility Studies can be used to leverage additional funding under both federal and state programs to fund design and construction of recycled water systems, and will therefore help to expand recycled water throughout the region. While the Feasibility Studies themselves were completed by individual agencies, it is anticipated that in coordination with the efforts of the Western Recycled Water Coalition, regional agencies will work together to implement regional recycled water projects to the extent feasible.

3.7.7. Neighboring IRWM efforts

Overlapping Regions

As discussed in previous document sections, the northwestern portion of the ECCC IRWM region overlaps with the Bay Area IRWM region. The overlapping area includes the community of Bay Point and most of the City of Pittsburg. This overlap arises from the location of the San Francisco Funding Area boundary (contiguous with the Bay Area IRWM region boundary), which has been aligned with the San Francisco Bay Water Board (Region 2) boundary in this area. The ECCC IRWM region boundary in this area is based on the hydrologic divide created by the Mount Diablo ridgeline. Two watersheds that drain to the east of the Mount Diablo hydrologic divide (Willow Creek and Kirker Creek) are included the San Francisco Bay Water Board Region 2 boundary and thus were also included within the Bay Area IRWM region.

To confirm that there is no duplicative planning for regional water resource management issues in these watersheds, the ECCC IRWM region and the San Francisco Bay Area IRWM region collaborate to identify and prioritize any project that would be located in the overlap area. As mutually agreed to by the parties in March 2009, specific projects identified through this collaboration will only be included in funding proposals for a single funding region. Additionally, several members of the ECCC region participate as needed in the Bay Area IRWMP meetings.

Despite this overlap, the ECCC region has distinct water management differences from the Bay Area that justify preserving a separate IRWM region. The shared geographic, environmental, and water resource conditions combined with an established successful history of coordinating planning and implementation of water resources projects distinguishes the ECCC area as a logical unit for continued, contiguous regional planning efforts (refer to Figure 2-9 in Chapter 2 for a map of the overlap area and associated DACs).

Adjacent IRWM Regions

The ECCC IRWM region is geographically adjacent to only two other IRWM regions, the Eastern San Joaquin IRWM region to the east and the Westside (Sacramento Valley) IRWM region to the north. The Westside IRWM region is in the Sacramento River Funding Area and is located on the north of the Delta. The East San Joaquin IRWM region is located in the San Joaquin Valley and its current primary water management focus is the underlying groundwater basin, specifically the Eastern San Joaquin and Consumes groundwater subbasins, which are separate and distinct from ECCC's groundwater basins. There does not seem to be any obvious connections between the ECCC IRWM region and these neighboring regions. The ECWMA will monitor the progress of these IRWM regions and coordinate if the opportunity presents itself. There are also links to these IRWM regions' websites on the ECCC website (http://www.eccc-irwm.com/related.html).

Interregional Relationships

The dominant interregional water management issues for the ECCC IRWM region are related to protecting the multiple beneficial uses of the Delta. ECCC IRWM region stakeholders have a long history of working collaboratively in a comprehensive manner on Delta issues. ECWMA member agencies have been actively involved in broad Delta planning processes including CALFED, the Delta Risk Management Study, development of a Central Valley Drinking Water Policy, Delta Vision process, and the Delta Region Water Quality Management Plan, as well as project-related stakeholder processes for projects such as San Luis Drain, Sacramento Regional WWTP, BDCP and Frank's Tract Two Gate project. Through these processes, participants and stakeholders have exchanged information, built understanding, developed relationships, and worked to find mutually beneficial solutions to water management issues and avoid conflict (with varying degrees of success). Having these relationships and participating in Delta interregional planning processes ensures that while the ECCC IRWM region remains distinct, it is not isolated.

Many ECCC families enjoy visiting local orchards to pick their own fruit. Agriculture remains an important part of the region. With rich Delta soils, ideal growing weather and a good water supply, areas like Brentwood have grown fresh food for the Bay Area since the Gold Rush days.

Local farms provide more than food. In addition to food sales, agricultural tourism supports the local economy. The agricultural community also provides green jobs, open space and a connection to the history of the region.

In recent years farm land has been lost to urban development; however ECCC still has significant acreage of prime, irrigated farmland. This important land use must be considered in planning the region's water future.

Beginning in 2016 with DWR's solicitation for proposals for the Proposition 1 Disadvantaged Community Involvement Grant Program, the ECCC IRWM region has been engaging with the other IRWM regions within the San Joaquin River Funding Area (SJRFA). Of the ten IRWM regions in the SJRFA, seven are active. The three inactive regions are situated primarily in the Mountain Counties Funding Area, and have only small overlapping sections into the SJRFA with little to no population. The SJRFA regions have been meeting regularly to coordinate efforts on the DAC Involvement Grant Program, and more recently on the Proposition 1 Implementation Grant Program. With the Proposition 1 IRWM grant programs, DWR has taken a more funding area-wide coordination approach that has resulted in beneficial relationships formed between the participating regions. Each region presents its own priorities, strengths, and needs, resulting in a collaborative process and integrated projects that span across the funding area, particularly related to DACs.

3.7.8. State Agency Assistance

The ECWMA and its members coordinate with State and Federal agencies to gain assistance and support in implementation. DWR and the Water Boards have always been invited to IRWM meetings for their input and guidance. The Region has a long-standing working relationship with the State in implementing various projects, most recently through grants from Propositions 1E, 50,

and 84. Also, all projects will need to go through the proper CEQA/NEPA documentation process before construction or completion, which requires a certain amount of coordination and consultation with State and Federal agencies. As different types of projects are implemented, the ECCC IRWM agencies will work and coordinate with State and Federal agencies, where appropriate. The region anticipates working with DWR and the Water Boards on IRWM funding efforts associated with Proposition 1.

3.7.9. Relation to Local Water Planning

The IRWM Plan serves as a unifying document of regional objectives and projects, but it is not meant to supersede the autonomy or authority of a local agency. The IRWM Plan incorporates and is consistent with all local water planning documents including UWMPs, water master plans, GMPs, recycled water master plans, habitat conservation plans, stormwater management plans, and other water resources plans and studies. As local water planning is updated, the ECWMA may also update the IRWM Plan, in recognition that the plan is a living document and information and circumstances evolve. Conversely, local planning should also be consistent with the findings and results of the IRWM Plan. With a wide ranging membership on the ECWMA, achieving this consistency will be less onerous than in situations where the parties are less accustomed to working together.

As described previously, the ECWMA and its members have conducted and plan on continuing to conduct regional efforts, especially with regards to recycled water and groundwater management. The RCS identified opportunities for interties and identifying ways in which existing treatment capacity and supplies could be served to meet demands, thereby maximizing the use of local supplies. Similarly, the Data Gap Analysis for the Tracy Subbasin identified additional action items that should take place to fill data gaps and ensure the sustainable use of local groundwater resources. Given the Region's commitment to reducing demands on the Sacramento-San Joaquin Delta and the Region's focus on exploring and increasing water reuse and maximizing the use of groundwater, it is anticipated that local water planning agencies will continue to work together to maximize reuse and implement projects that reduce potential water supply reliability vulnerabilities.

3.7.10. Relation to Local Land-Use Planning

Land-use planning can often be improved by a careful review of the linkages between land use and development decisions and water supply availability and reliability. The availability of water supplies; protection of water resource features such as streams, wetlands and recharge areas; potential climate change impacts to infrastructure; and policies and regulations about water quality, drainage, and flooding all play a role in future development.

Significant assessment of land use was conducted during the 2005-6 preparation of the ECCC HCP/NCCP. A review of this assessment may be found in Chapter 2, Land Use and Covered Activities, of the HCP/NCCP. Some significant considerations of the plan that relate to the IRWM plan include findings regarding general land-use patterns and designations, and potential conflicts.

According to the HCP/NCCP, until the mid-1980s, much of the growth in Contra Costa County was concentrated in the western and central communities along the shoreline and along the I-680 corridor. When those communities began to reach their boundaries, development pressure increased on the eastern portion of Contra Costa County. As a result, the Eastern County

experienced rapid residential growth during the mid-1980s, particularly in Pittsburg, Antioch, Brentwood, and Oakley along the corridor of State Route (SR) 4. The Eastern County continued to develop rapidly throughout the 1990s and is expected to be the fastest growing area of the County for the foreseeable future.

The City of Brentwood experienced the most significant increase (152 percent) making it, for a time, the fastest growing city in the United States. Much the early urban development in ECCC involved converting crop, grazing, or irrigated pasture lands into residential and other urban uses (Contra Costa County, 2005). These lands are highly desirable for housing development as they are typically flat, which makes building easier, and often have some infrastructure already in place. Agricultural land conversion can have a major impact on water planning. This extends beyond water supply to flood and stormwater management, to water quality and groundwater considerations.

Many became concerned about the rapid changes to the landscape. Contra Costa County votes adopted Measure C in 1990 to put the brakes on. The measure established a Land Preservation Standard, which limited urban development while preserving land for open space, agriculture, parks, wetlands, and other nonurban uses. Measure C also created an Urban Limit Line (ULL), which prohibits the County from approving urban land uses beyond the ULL (Contra Costa County, 2005)." Over time the ULL standard has been amended by the County and different ECCC local governments moved forward with varying approaches to growth

Today, general patterns of land-use designations in ECCC begin with northern focus. That area is primarily designated for development. The remainder of land is primarily designated as agricultural land, open space, and parks.

Housing is the major form of development projected to occur in the growth areas. Development trends for the inventory area include the buildout of southern Pittsburg, southern Antioch, and southern and eastern Clayton; the urbanization of Brentwood and Oakley; development of the Cypress Road Corridor east of Oakley, development of Discovery Bay West adjacent to the existing Discovery Bay; and development between the already urbanized cores of Antioch, Brentwood, and Oakley.

With the economy beginning to recover, new housing is starting to be constructed in ECCC.

The unincorporated areas of ECCC are primarily rural agricultural and public lands used principally for grazing, natural parks, and watershed protection.

Water resource planning efforts in the region must take into consideration land-use plans identified in the HCP/NCCP and general plans for each city and the county. Land-use planning projections provide the basis for establishing water supply projections and identifying habitat areas that will need to be protected against impacts associated with urban development and climate change.

Land-use plans will continue to play an important role in developing effective projects to meet the objectives of the region. The region will continue to collaborate with land use planning and decision-making efforts to help manage water supplies and resources, protect water infrastructure, and guide water use. As needed or as available, new information regarding land use planning or analysis may be incorporated in the Plan during future informal or formal updates.

Responsible land use planning can help build community resilience to climate change and prepare and protect water infrastructure from climate change impacts. Regional water suppliers continuously work together to adapt to regional water supply and quality conditions, as well as to adapt to State-wide water restrictions and mandates on water use that occur due to climate change. The nature of water supply management and land use management in East Contra Costa County is integrated, and agencies are often dependent on each other to mitigate for and respond to climate change impacts. In doing so, water management agencies work together to offset climate change impacts to water supplies locally and State-wide.

3.8. Future IRWM Plan Updates

In preparing this plan, the ECCC region seeks to establish a strong foundation for future planning and implementation activities. The intent of the ECWMA is that the current IRWM Plan will meet the requirements prescribed in the latest IRWM Guidelines. IRWM plans do not have regular update schedules as do UWMPs, which must be updated every 5 years.

Instead, the ECWMA has adopted a "living document" policy that makes the process of updating the IRWM Plan a more routine practice. In an effort to maintain the currency and applicability of the IRWM Plan, the IRWM region intends to perform a regular review of the projects in the Plan. At the time of the project review, agencies and stakeholders will have an opportunity to review existing projects and make updates as needed. New projects may also be added at this time.

The ECWMA's "living document" policy also serves to maximize the adaptive management capacity of this IRWM Plan. As new information becomes available, sections of the Plan may be updated to reflect significant changes to water management in the region, including changes to the regional characteristics described in Chapter 2. Some significant changes may trigger a need for a more formal, comprehensive update to the Plan to take into account major new information or a changing situation, at which point the ECWMA will determine the appropriate the scope and timing of the update.

Circumstances triggering an informal or formal update – depending on the significance of the information – to the IRWM Plan may include:

- New IRWM Guidelines or requirements and more certainly of long term IRWM funding;
- New stakeholders or participants;

- A need to change to the region's boundary, such as contraction, expansion, or consolidation with another region;
- Significant environmental changes, the ongoing drought continuing, or other catastrophic events;
- Development of new tools to assist or analyze regional water management; and
- Climate change impacts manifesting in the region.

The 2015 update to the IRWM Plan was a significant one that included performance and incorporation of the climate change vulnerability assessment, and recommended analysis in the Handbook. Barring significant changed circumstances, the region anticipates using the IRWMP well at least through 2025. However, the ECWMA's "living document" policy and plan to regularly update the project list will help regional water managers' efforts to adaptively manage water resources under changing circumstances and climate change impacts.

Chapter 4. IRWM Plan Implementation

The ECCC IRWM participating agencies work together across geographies, political boundaries, and project types. Each agency also continues to invest in its own planning efforts. These various efforts are highlighted in **Table 4-1**. Consistent with past regional planning efforts, this update does not aim to duplicate efforts of local agencies and regional partnerships. This regional plan complements those efforts. It provides a venue for regional coordination, collaboration, outreach, and identification of projects and actions that will create mutually beneficial water management outcomes and produce projects with multiple benefits to the region. This section discusses implementation elements important to advancing these projects and actions. Implementation elements discussed include plan and project financing, performance monitoring, data management, impacts and benefits of plan projects and actions, and plans and general processes for updating the IRWM Plan in the future.

Table 4-1. ECCC Region - Progress on Planning Efforts since 2005 IRWM

Regional integrated and coordinated water management planning since completing the ECCC IRWM Plan in 2005:

- Regional Acceptance Process was completed in 2009. Approved by DWR
- 2010 UWMP Updates (Antioch, Pittsburg, Brentwood, CCWD, DWD, GSWC – Bay Point) and various related water conservation plans, programs, and projects
- Regional-scale water supply optimization planning (municipal water purveyors)
- Regional water recycling and desalination planning (Delta Diablo, ISD)
- Groundwater management plans, CASGEM plans, and salinity/nutrient management planning (DWD, Pittsburg)
- Regional habitat conservation planning and implementation (ECCCHC)
- Long-range regional flood management planning (CCCFCWCD)
- Active participant in integrated regional water management grant programs (all ECWMA member agencies)
- Improved outreach, collaboration, and communication (all ECWMA member agencies)

Key:
CCCFCWCD = Contra Costa County Flood Control & Water Conservation District
CCWD = Contra Costa Water District
DWD = Diablo Water District
ECCCHC = East Contra Costa County Habitat Conservancy
ECWMA = East County Water Management Association
GSWC = Golden State Water Company
ISD = Ironhouse Sanitary District

4.1. Governance

The East County Water Management Association (ECWMA) is governed and operated by the Governing Board Representatives (GBR), composed of one elected official representative from each of the member agencies. Further, the ECWMA has a Joint Managers Committee (JMC) that is composed of managers from each of the member agencies. The term "manager" means City Manager, County Administrator, or General Manager of each of the member agencies and their respective alternates designated by the member agency, or their designees. The JMC can appoint subcommittees related to specific water management activities with which the members of the ECWMA are involved.

Each member of the ECWMA appoints staff to serve as representatives on the Regional Water Management Group (RWMG). The staff representatives of the ECWMA that constitute the RWMG are responsible for representing their agencies and providing input on IRWM matters on behalf of their agencies. The RWMG members meet as needed to discuss IRWM and other regional matters, and are responsible for taking issues to their representatives on the JMC to resolve disputes or settle issues. Approximately two times per year the RWMG members meet with the larger ECWMA to inform the group of recent IRWM-related activities and other pertinent matters that are of interest to the ECWMA. These bi-annual meetings of the ECWMA are open to the public, noticed, and conducted in accordance with the Brown Act, Government Code Section 54950 et seq. As such, the ECWMA meetings provide a forum through which non-ECWMA member agencies, participants, stakeholders, and members of the public can provide input on the ECCC IRWM Program. In addition to the two regular meetings held each year, the chair or any three members of the GBR may call a special meeting as needed to discuss IRWM-related matters.

The CCWD has served as the lead agency responsible for submitting any IRWM grant materials on behalf of the ECCC region. CCWD has been serving as the lead agency for the ECCC region in accordance with a February 25, 2005, letter agreement signed by all of the ECWMA member agencies.

4.1.1. Introduction

The ECWMA governance structure was originally established by a 1997 agreement between member agencies, and later amended in 2010 to update agency membership and language based on new 2010 DWR IRWM Plan Guidelines. The ECWMA facilitates communication and cooperation between member agencies on matters affecting the existing and potential water supplies of the ECCC region. The ECWMA also guides the preparation of plans such as the IRWM Plan Update. The RWMG has a proven history of working together to resolve water management-related issues within the ECCC region. The RWMG successfully implemented a State Water Board Proposition 50 IRWM Implementation Grant that was completed in 2012. In addition, the RWMG received DWR approval for the Regional Acceptance Process in 2009. The RWMG is familiar with the DWR IRWM planning and implementation grants process and has been working together on a variety of projects since 1997.

4.1.2. Regional Water Management Group Governance Structure

Management and Operations

Over the past several years staff of the ECWMA member agencies has served as the RWMG working on ECCC reports, plans, and IRWM implementation and planning grants. CCWD has served as the authorized agency submitting grant applications, entering into grant agreements, and administering IRWM grants for the RWMG. However, each agency has been responsible for implementing its own projects that have received state funding as part of an IRWM grant request.

Staffing

Each participating entity designates staff to attend meetings and work together as a RWMG on implementation and planning grants. CCWD holds a primary role to organize meetings among the RWMG as needs arise. For example, in 2011 through 2013 RWMG members met frequently to discuss the 2013 IRWM Plan update as well as to seek approval for projects to be included in

Proposition 84 planning and implementation grant applications. Consulting staff have been used by the group to prepare grant materials..

Committees

Generally the RWMG staff members work collectively on IRWM grant requests of interest. CCWD serves as the grant administrator and generally has contracted for consultant services to support grant applications. Members of the RWMG have formed subcommittees to manage groundwater studies, salt and nutrient management studies, and recycled water studies. CCWD and Contra Costa County Flood Control District staff are involved with the Bay Area IRWM and attend Bay Area Coordinating Committee meetings. CCWD and Contra Costa County Flood Control District staff have also worked closely with the Bay Area IRWM region to vet projects and address overlap concerns.

Communications

Staff from the RWMG encourages open and new participation in the ECCC IRWM Program. Meeting minutes generally are circulated after the RWMG meetings. Staff from the RWMG routinely works together on a variety of planning and implementation projects that require frequent and regular communication. Meeting and communicating on a frequent basis affords the opportunity to create synergies across agencies and across potential projects. In 2012, a new website was created to facilitate improved communication among the agencies, stakeholders in the community, and interested parties, such as adjacent IRWM regions (http://www.eccc-irwm.org/index.html).

4.2. Projects for Plan Implementation

The ECCC IRWM region is almost entirely dependent on the Delta for water supply and all or a portion of the cities and unincorporated communities are located within the statutory Delta. This distinction is important as the Delta is a physical place with legally defined boundaries and requirements, which add to ECCC water management complexity. Substantial investments have been made in the region in water storage and water quality by constructing the expanded Los Vaqueros Reservoir, improving and expanding intakes, developing recycled water systems, and planning for coordinating conjunctive management of surface water and groundwater supplies. Even so, regional dependence on Delta water supplies is a continuing concern for the following reasons:

- Issues associated with proposed future projects such as the Bay Delta Conservation Plan (BDCP), a fragile Delta ecosystem, climate change, and/or potential levee failure are expected to impact water quality and water supply reliability within the ECCC IRWM region. An associated concern is the ability of the region to meet future water quality treatment and discharge regulations.

- Closely linked to Delta water quality and water supply reliability is protection, restoration, and enhancement of the Delta ecosystem and other environmental resources. Water-infrastructure-related projects within the Delta often require wetland mitigation and these credits can be difficult and costly to obtain.

- Given that the ECCC IRWM region includes substantial low-elevation acreage, is within the drainage of Mount Diablo, and sits adjacent to the Delta, both localized flood from

stormwater runoff and regional/catastrophic flooding due to levee failure are real and present threats. Of the past 11 president-declared natural disasters in the region, all but one involved storms and flooding. Climate change is only likely to increase these risks.

- Outreach to discuss these water-related issues, and how they may be addressed, is a challenge for all communities. ECCC has additional challenges; the DACs (18 percent of the population) are not concentrated in one area. The DACS are spread across urban centers and rural areas. There isn't a strong existing information distribution network that targets these stakeholders, and thus extra effort needs to be made to communicate with representatives from these areas.

With an understanding of these water management challenges, the RWMG and its members had the necessary information to set its objectives (presented in Chapter 3) for the IRWM Plan. This set of objectives, when combined, addresses the region's priority water management issues of water supply and quality, environmental concerns, storm and flood management, and outreach and equitable distribution of resources. To determine what projects and actions are required to meet these objectives, the RWMG collected and disseminated information, met with stakeholders, and developed and implemented an evaluation and prioritization process. The final result of this process is a suite of priority projects that, when implemented, will help the region to meet its objectives. This plan identifies 54 projects for consideration (see **Appendix E**). Each project has an identified lead agency, and has been demonstrated to be economically and technically feasible. An additional 29 projects have been identified by the 2015 IRWM Plan Update's associated planning studies to be implemented in the short-term or near future. As noted in Chapter 3, these additional projects are currently being developed and have not completed the project evaluation process described in that chapter.

Table 4-2a, **Table 4-2b**, and **Table 4-2c** list the projects identified for near-term implementation that were submitted in the Region's application package for Proposition 84 Round 2, Proposition 84 Drought Round, and Proposition 84 2015 Implementation Grant requests. **Figures 4-1** and **4-2** show the location of projects that were included in the Round 2 and Drought Round funding applications. Projects identified for inclusion in funding proposals address IRWM Plan objectives, provide multiple regional benefits, have broad stakeholder support, and are implementation ready. Should IRWM grant proposals not receive full funding, the projects included within the proposals will remain within the IRWM Plan, and likely will remain relevant to address priorities for the region. However, decisions regarding whether or not to move forward with project implementation will be up to the discretion of individual project proponents. Given that projects included in IRWM grant proposals are priority projects in the region, many project proponents seek out alternative or supplemental funding sources, including State Revolving Fund (SRF) grants and loans, local funds, federal funds, or other financial options to move the projects forward.

Table 4-2a. Proposition 84 Round 2 Implementation Project List

(Adapted from Table 8 – Summary Budget from PSP) Proposal Title: East Contra Costa County Region Proposition 84 Round 2 Grant Proposal							
		(a)	(b)	(c)	(d)	(e)	(f)
	Individual Project Title	**Requested Grant Amount**	**Cost Share: Non-State Fund Source**	**Cost Share: Other State Fund Source**	**Total Cost**	**% Funding Match**	**Grant Award**
(a)	Beacon West Arsenic Well & Tank Replacement Project[1]	$136,262	$0	$0	$136,262	0%	$0
(b)	Rossmoor Well Replacement/Groundwater Monitoring Well System Expansion Project	$430,000	$917,200	$0	$1,347,200	68%	$430,000
(c)	Integrated Regional Flood Protection and Water Quality Improvement Borrow Area Project	$675,000	$803,587	$0	$1,478,587	54%	$0
(d)	Knightsen Wetland Restoration and Flood Protection Project	$500,000	$4,958,750	$0	$5,458,750	91%	$0
(e)	Recycled Water Salinity Reduction and Distribution System Expansion Project	$1,500,000	$1,500,000	$0	$3,000,000	50%	$0
(f)	East Contra Costa County Prop 84 Round 2 Grant Administration	$149,984	$0	$0	$149,984	0%	$0
(i)	Proposal Total (Sum rows (a) through (h) for each column)	$3,391,246	$8,179,537	$0	$11,570,783	71%	$430,000
(j)	DAC Funding Match Waiver Total				$136,262	0%	$0
(k)	**Grand Total**	**$3,391,246**	**$8,179,537**	**$0**	**$11,434,521**	**72%**	**$430,000**

[1]Project located in the Overlap Area with San Francisco Bay Funding Area. Grant award from the San Francisco Bay Area Funding Area.

Table 4-2b. Proposition 84 Drought Round Implementation Project List

(Adapted from Table 8 – Summary Budget from PSP) Proposal Title: East Contra Costa County 2014 IRWM Drought Grant Proposal							
		(a)	(b)	(c)	(d)	(e)	(f)
	Individual Project Title	**Requested Grant Amount**	**Cost Share: Non-State Fund Source**	**Cost Share: Other State Fund Source**	**Total Cost**	**% Funding Match**	**Grant Award**
(a)	CCWD-BBID Regional Intertie	$569,000	$501,000	$0	$1,070,000	47%	$0
(b)	DWD Leak Detection and Repair	$150,000	$50,000	$0	$200,000	25%	$0
(c)	ISD Irrigation and Recycled Water Fill Station	$75,000	$25,000	$0	$100,000	25%	$0
(d)	Proposal Total (Sum rows (a) through (c) for each column)	$794,000	$576,000	$0	$1,370,000	42%	$0
(e)	DAC Funding Match Waiver Total	-	-	-	-	-	-
	Grant Administration	$30,000	$0	$0	$30,000	0%	$0
(f)	**Grand Total**	**$824,000**	**$576,000**	**$0**	**$1,400,000**	**41%**	**$0**

Table 4-2c: Proposition 84 2015 Implementation Grant Round Project List

(Adapted from Table 8 – Summary Budget from PSP) Proposal Title: ECCC Sustainable Delta Water Management							
	Individual Project Title	**(a)** **Requested Grant Amount**	**(b)** **Cost Share: Non-State Fund Source (Funding Match)**	**(c)** **Cost Share: Other State Funding Sources**	**(d)** **Total Cost**	**(e)** **% Funding Match (Col b/Col d)**	**(f)** **Grant Award**
(a)	East Contra Costa County Lawn to Garden Rebate Program	$100,000	$35,059	$0	$135,059	26%	TBD
(b)	Brentwood Non-Potable Water Distribution System – Phase III	$1,125,000	$393,691	$0	$1,518,691	26%	TBD
(c)	Delta Diablo Recycled Water Supply Expansion and Residential Fill Station Project	$1,162,234	$451,215	$0	$1,613,449	28%	TBD
(d)	Grant Administration	$119,000	$0	$0	$119,000	0%	TBD
(e)	Proposal Total	$2,506,234	$879,965	$0	$3,386,199	-	TBD
(f)	DAC Funding Match Waiver Total	-	-	-	-	-	TBD
(g)	**Grand Total**	**$2,506,234**	**$879,965**	**$0**	**$3,386,199**	**26%**	**TBD**

Note: Funding awards anticipated to be announced December 2015, after adoption of this 2015 IRWM Plan Update.

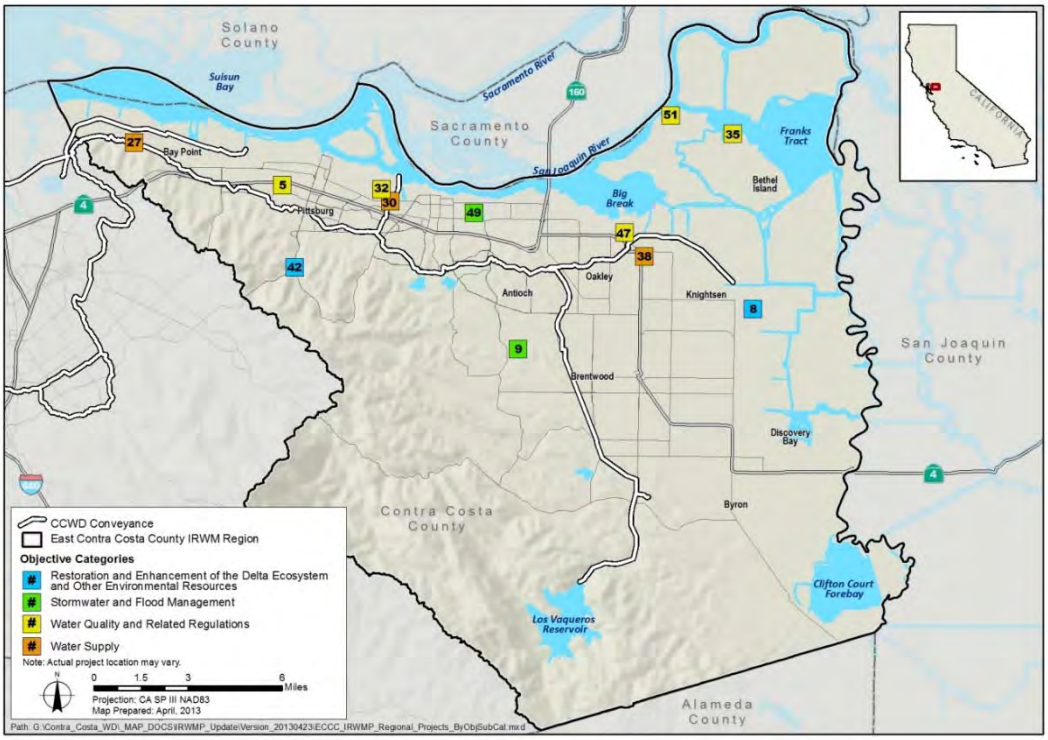


Figure 4-1. Proposition 84 Round 2 Implementation Projects by Objective Category

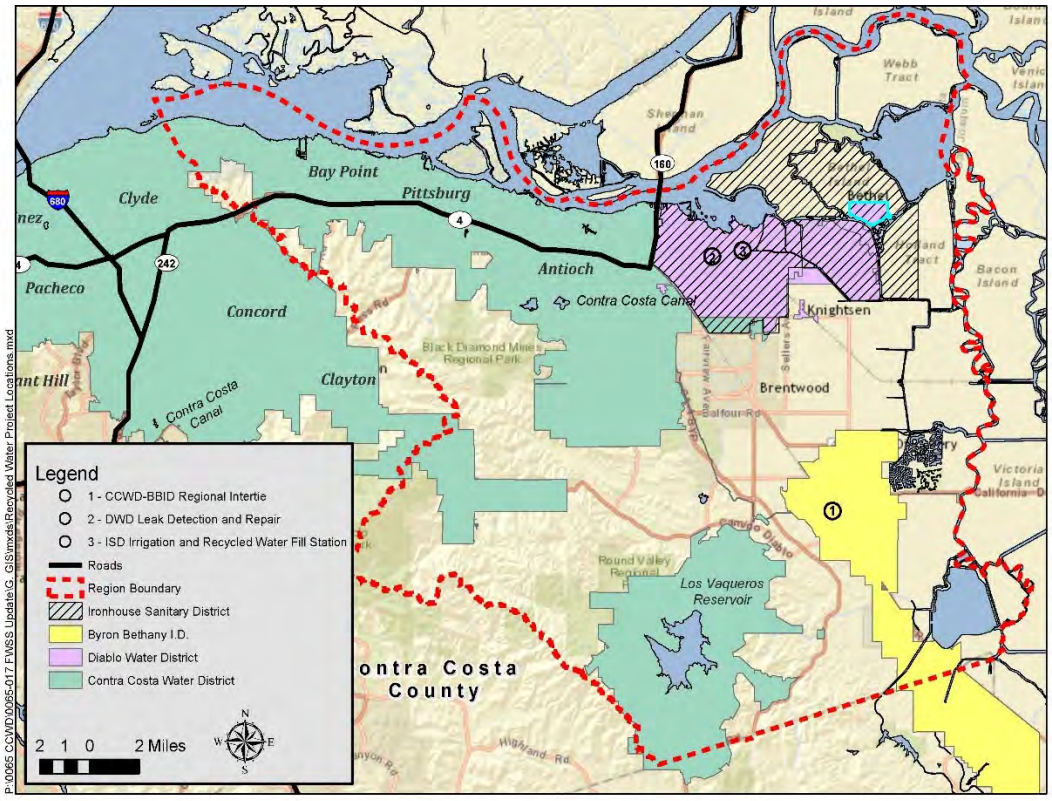


Figure 4-2. Proposition 84 Drought Round Implementation Projects

4.3. Potential Benefits of IRWM Plan Implementation

By their nature, IRWM plans are implemented through projects. These projects are designed to produce benefits but may also have impacts to the region. Impacts are evaluated in light of benefits for each project prior to implementation to meet the requirements of CEQA and NEPA, and other local, State, or Federal permits. A summary of potential impacts is presented in section 4.4. The focus of this discussion is the potential benefits to the region from implementing the IRWM Plan to achieve the Plan objectives. The region identified multiple benefits from achieving its five objectives.

4.3.1. Improving Water Supply Reliability and Water Quality Objective

Projects that provide reliable water supply are essential to future viability of all aspects of the region's environment, economy, and culture. Additionally, because the regional supply is tied to the Delta, projects to reduce Delta influences and anticipate climate change impacts, such as drought and extreme weather, will greatly increase the region's resilience and ability to adapt to changing conditions. Water supply and quality are linked as improving and maintaining water quality contributes to supply (for humans and the environment) and is a critical factor in cost. Benefits associated with water supply projects or water quality projects (or both) determine what water may be available for appropriate uses. Specific projects proposed to achieve reliable supply and quality aim to provide the following benefits:

Pursue water supplies that are less subject to Delta influences and drought, such as recycled water and desalination:

These projects will seek to increase the utilization of recycled water, create access to desalination water as well as other alternative water supplies, such as groundwater sources, which would not be subject to the water quality variability or environmentally based water supply constraints that characterize Delta waters. Additionally, these supplies would not be impacted by levee breaches or other emergency conditions in the Delta, adding reliability to the ECCC region.. Increasing supply diversification improves water supply and quality resiliency, and reduces reliance on the Delta, an important statewide goal. . Also, by increasing the water quality of currently recycled water, the industrial and irrigation uses of this water supply can be expanded further, contributing to the aforementioned benefits. Providing a drought-tolerant supply that is less subject to Delta influences is a critical goal for the region.

Reduce per capita consumption through increases in water recycling, water conservation and water use efficiency

The benefits from projects that reduce per capita water consumption include reducing demand for treated drinking water through increased recycled water use, increased water conservation across all customer classes, improved treatment plant water-use efficiency, and by minimizing leaks and water loss due to root damage from trees and vegetation, damaged concrete liners, and repairable system and customer leakages.

Increase water transfers and regional interties

The projects that increase water transfers and regional interties will benefit the region by increasing regional water sharing, while also decreasing leaks and water losses, which will increase the efficiency of water distributed within the system. Intertie projects help create system redundancies and back-ups, better preparing the region for potential emergencies, leverages existing water storage, distribution, and treatment assets, and may reduce operational costs or benefit DACs.

Pursue regional exchanges for emergencies, ideally using existing infrastructure

The main benefits provided by the projects fulfilling this objective are to minimize the amount of salt water intrusion into the drinking water supply, particularly in the event of a levee failure within the Delta and to provide interconnection redundancy for existing pipelines.

Enhance understanding of how groundwater fits into the water portfolio and investigate groundwater as a regional source (e.g., conjunctive use)

Projects studying regional groundwater will benefit the region by improving how groundwater is managed, reducing Delta water use and threats to groundwater quality. In addition, these projects will identify subbasin yield, and areas with contamination (i.e., high arsenic levels). Improved groundwater management could increase supply reliability, and potentially lower costs to users, which in turn benefits DACs using groundwater.

Protect/improve source water quality

The projects that fulfill this objective will provide many benefits to the region, such as improved stormwater and flood management and enhanced Delta water quality through reduced pollution, including reduced discharges of noncompliant wastewater, trash, road runoff, salinity, silt, and sediment levels. Many regional and downstream municipalities use the Delta as a drinking water source, so protecting this resource is an important regional and statewide goal. Providing public water and sewer service to new customers that are currently using private wells and septic systems will help to protect and improve regional surface and groundwater sources. Also, by reducing the region's reliance on Delta supplies and improving levees, saltwater intrusion and salinity levels would be reduced and higher quality water would be available for environmental use and for other water users statewide.

Maintain/improve regional treated drinking water quality

Many of the projects that are improving source water quality will also have the added benefit of improving treated drinking water quality as well. In addition to those benefits, some of the projects propose to add advanced treatment processes, such as through reverse osmosis, to their systems to enhance drinking water quality and meet regulatory requirements. Also, by repairing leaks in drinking water mains, customers' water quality at the tap will be higher.

Maintain/improve regional recycled water quality

Similar to those projects that are improving treated drinking water quality, improving source water quality will also benefit the region by helping to improve the quality of its recycled water. A number of projects will improve and increase the region's recycled water supply by implementing advanced water and wastewater treatment processes and improve the quality of drinking water effluent and wastewater influent from the collection system. Additionally, by expanding the recycled water distribution system, these projects would increase the region's use of recycled water for irrigation and industrial purposes. Diversified supplies provides benefits such as improved supply reliability, resiliency, and can reduce costs to customers, including agricultural customers and DACs.

Meet current and future water quality requirements for discharges to the Delta

By achieving this objective, these projects will benefit the Region by reducing pollutant loads to the Delta. Projects that improve wastewater quality for effluent that will be discharged to the Delta, through advanced wastewater treatment process, higher quality source water and drinking

water treatment, and increased recycled water production and usage are prime opportunities. Additional projects, such as increasing trash capture, green streets projects, salinity reduction, reservoir sediment mitigation, and reduced noncompliant wastewater discharges can further improve Delta water quality.

Limit quantity and improve quality of stormwater discharges to the Delta

The benefits to the region from projects fulfilling this objective include increasing detention of peak storm flows, controlling downstream discharge, and decreasing reservoir sediment buildup in order to increase capacity, water retention, and infiltration. Additional projects will improve the water quality of regional stormwater discharges by reducing mercury and turbidity levels through the removal of silt, sediment, trash, and road runoff, by minimizing mixing with septic overflows and noncompliant wastewater discharges, and by using natural treatment aspects of constructed wetlands.

4.3.2. Restoring and Enhancing the Delta Ecosystem and Other Environmental Resources Objective

Projects focused on the Delta ecosystem and environmental resources recognize the importance of investments in watershed health and sustainability. Specific proposed projects will:

Enhance and restore habitat in the Delta and connected waterways

Projects that meet this objective will provide both local and statewide benefits by enhancing and restoring habitat in the Delta and connected waterways, as well as providing valuable ecological habitat for local flora and fauna and protecting the area's valuable watersheds. The restoration and enhancement of wetland habitats immediately adjacent to the Delta and connected waterways will protect groundwater and surface water, and provide habitat for special-status species. Additionally, restoring and improving historical and constructed wetland and marsh areas will provide valuable breeding and foraging habitat for State- and federally listed species.

Minimize impacts to the Delta ecosystem and other environmental resources

The benefits from projects satisfying this objective include maintaining Delta water quality and the health of the surrounding ecosystem by reducing regional flooding and road runoff impacts, lowering salinity in effluent discharges, minimizing Fats, Oils and Grease (FOG)-related sewer overflows, curtailing disruptive earth movements, decreasing the amount of water removed from the Delta, protecting watersheds, and restoring sensitive aquatic habitats.

Reduce greenhouse gas emissions

The projects that reduce greenhouse gas emissions will contribute to the State's goals for addressing climate change, as outlined in the Global Warming Solutions Act of 2006. Additionally, these projects will benefit the region by reducing carbon-intensive cleanup efforts due to flooding damage, offsetting energy needs by using recycled water or local groundwater sources on site rather than pumping and treating additional Delta water supplies, increasing operating efficiencies, reducing fossil fuel-based energy use, and decreasing trucking miles by providing a local FOG receiving facility for the region's use.

Provide better accessibility to waterways for subsistence fishing and recreation

The projects that fulfill this objective will provide many fishing-related benefits to the region, such as reducing mercury levels in fish that will, over time, increase the amount of fish that can be

safely consumed and allow the reopening of a reservoir for recreation, which had been closed due to concerns about consumption of fish caught in the reservoir. Additionally, non-fishing-related recreational uses will be increased through the building of bird watching platforms and other passive public access facilities.

4.3.3. Positioning Water-Related Planning and Implementation for Funding Objective

Projects that strive to improve funding for planning and implementation fall into several categories. The ultimate benefit of this focus is to make sure funds are available to implement projects delivering the benefits already described above and to ensure the public is receiving the best possible value from its investments. Projects meeting this objective:

Increase regional cost efficiencies in treatment and delivery of water, wastewater, and recycled water

The projects that meet this funding objective would provide many benefits to the region, including increasing recycled water use and local groundwater supplies, both of which would decrease water supply and treatment costs and reduce reliance on Delta water, a critical issue for the region. Additionally, these projects would decrease sediment loads currently in regional source waters and decrease TDS, salinity, and FOG levels in wastewaters, which would lead to a decrease in required water/wastewater treatment and associated system and maintenance costs. Increasing water conservation and reducing leaks improves delivery efficiency and conserves water, which reduces costs associated with treatment and delivery. Reduced costs for treating water can help reduce costs to consumers, including DACs.

Develop projects with regional benefits that are implementable and competitive for grant funding

The benefits from the projects meeting this objective include improving stormwater and flood management, reducing pollution to the Delta, reducing reliance on Delta water supplies, protecting aquatic habitat in the Delta, and increasing the efficient use of regional resources. Furthermore, some projects will produce excess material that can be reused in other projects in the region. A number of projects would capture runoff, or ensure that it continues to be captured, which reduces flow rates and provides flood protection to the project site and downstream regional areas. Improved potable and recycled water quality will provide region-wide health benefits as well as expand the water supply and the uses of recycled water. Also, increasing conservation efforts and alternative water supplies will decrease current water demands and take pressure off the region's water supplies, particularly the Delta water supplies. Additional benefits include increasing renewable energy use, which would reduce demand on regional energy generation from conventional sources and reduce GHG emissions, and habitat restoration, which will provide region-wide environmental benefits and recreation opportunities.

Integrate and increase opportunities for partnering with others to get more outcomes for the same dollar

The benefits from projects meeting this objective involve coordinating efforts to implement projects more cost effectively, optimize use of materials, and increase benefits to more parties; for instance, projects that will produce excess material that can be reused in other projects in the region.

Improve stability of operations

Projects that meet this objective will ultimately result in reduced cost; for example, regularly scheduled maintenance is less costly than system failures caused by a lack of maintenance. These projects will plan and design systems that are more efficient, easier to operate, and cost less to maintain. Reduced costs benefits consumers by protecting water rates from large or unexpected increases, and benefit DACs, which are more vulnerable to raising water and sewer rates.

Leveraging Existing Awarded Funds

Agencies in the ECCC region support water infrastructure and habitat planning and implementation projects that are integral to local, State, and federal goals related to water and special-status species/habitat protection. Because local projects address federal goals and priorities, funding may be secured from non-IRWMP sources. Federal grant funds often need to provide a match of non-federal funds. Without the non-federal match, such funds are at risk of being lost. IRWMP State funding can provide the critical match that will enable agencies in the east county region to leverage federal funding, increasing the opportunity for more funds for the region for completing important planning and implementation projects that address local, State and federal priorities.

4.3.4. Implementing Robust Stormwater and Flood Management Objective

The benefits of proposed stormwater and flood management projects are multiple. Proposed projects will provide benefits such as:

Improve regional flood risk management

By achieving this objective, these projects will benefit the region by protecting areas, including DACs, that currently experience flooding and its related issues through maintenance of existing and construction of new levees and through the expansion of existing and the construction of new storage reservoirs and stormwater detention basins. In addition, these projects will improve resiliency and speed up recovery from storm and flood events. Reduced risk and damages from excess water flows from storms and flood will result in better economic, social, and environmental outcomes.

Manage local stormwater within the region

As described previously in the water quality section, benefits from the projects meeting this objective include measures that will reduce trash, sediment, mercury, and other pollutant discharges to the Delta, reducing impacts to water quality. Furthermore, these projects will also decrease current flooding overflows and road runoff, as well as their associated problems.

4.3.5. Providing Public Outreach and Building IRWM Support Objective

The ECCC believes engagement with the community is essential to ongoing support for IRWM projects. Outreach also educates and promotes actions that residents and businesses can take in support of IRWM goals. For example, individuals and businesses can reduce pollutants entering waterways and practice water use efficiency. Finally, the community at large is benefited when DACs have access to decision making and the work of the ECCC is transparent. Some other benefits of this approach include:

Collaborate with and involve DACs in the IRWM process

The projects satisfying this objective would specifically benefit DACs by improving project identification and selection through enhanced collaboration. As a result of improved projects, these projects would reduce annual flood damages, provide public water and sewer services to communities that are currently underserved, remediate a hazardous waste site, and reduce water supply arsenic levels, which will provide direct community health benefits.

Increase awareness of water resources management issues and projects with the general public

The projects fulfilling this objective will seek to increase public awareness of water resources management issues, such as the importance of salinity reduction and climate change impacts, and will expand public knowledge of water resource issues by involving communities and small water systems in the projects, and increase appreciation for the environment through access to areas made available.

Expanded outreach programs to the public

Expansion and creation of renewable energy sources, FOG programs, and recycled water will be accompanied by outreach programs so that citizens will understand how to properly dispose of FOG and the associated environmental and community benefits of these projects and regional water resource management. Specific outreach methods will include project signage, stakeholder meetings, water system newsletters, and city council presentations.

4.4. Potential Impacts of IRWM Plan Implementation

Based on the initial project evaluation, anticipated impacts are primarily local, temporary, and associated with construction. A smaller set of projects may also result in impacts as described in **Table 4-3**.

Table 4-3. Potential Impacts of a Small Set of Projects

Project Type	Potential Impacts
Water supply projects	Projects that increase water supply takes from the Delta have the potential to: • Negatively impact statewide water supplies • Harm endangered and protected species, including the Delta smelt • Projects that increase recycled water use could detrimentally decrease the amount of wastewater returning to the environment and impact species that rely on this water. • Recycled water projects could increase salt and nutrient loading to groundwater basins.
Water quality projects	• Advanced water quality treatment may lead to an increase in chemical use and additional treatment costs for the Region's WTPs and consumers. • Projects that alter the quality or quantity of water discharged into the Delta might have unintended consequences that could harm sensitive aquatic species.
Restoration and related projects	Tidal marsh restoration projects have a potential to: • Increase mercury methylation. This happens when projects increase dissolved organic carbon (DOC) in Delta water. Several studies indicate that methylmercury can damage developing embryos and exposure in adults has been linked to increased risk

Project Type	Potential Impacts
	of cardiovascular disease, tremors, gingivitis, damages to the immune system and other ailments. Humans are primarily exposed by eating mercury-contaminated fish. • Increase DOC loads in drainage water • Create temporal impacts from excavation and restoration of marsh area
Desalinization projects	Create issues associated with brine discharge/disposal issues, and potential fisheries impacts
Groundwater projects	If improperly implemented can: • Damage the aquifer • Introduce contaminates or allow salinity intrusion • Increase greenhouse emissions (through energy use for pumping)
Flood and stormwater management projects	• May reallocate risk from the project location to another area in the watershed by changing flow patterns and/or increasing contaminants • May minimize understanding of actual risks from flood by the public

4.5. IRWM Plan and Project Financing

Financing planning and implementation of projects has historically been a major obstacle for ECCC IRWM member agencies. A lack of funding for planning and implementation because of slower economic development and reduced water usage has impacted agency revenues, creating insufficient or variable revenue streams. Additional funding issues are a result of the increasing competitive nature of receiving State and federal grant funding, the limited availability of these funds, and the common schedule delays associated with these funds. In the case of projects that benefit the environment but do not provide a measureable improvement to water supply reliability and/or water quality, this challenge becomes further intensified, as funding options become more limited. Without ratepayer willingness to fund a project, project survival depends wholly upon grants or subventions for implementation.

This region faces additional special challenges as many residents (18 percent, formerly 23 percent) reside in economically DACs. Smaller agencies, such as those in the ECCC region, have smaller reserves and fewer staff resources, making it more difficult to meet cost share and in-kind service grant funding requirements. These special challenges are compounded by increasing construction costs, aging infrastructure, and increased regulations. Grant funds are often contingent upon certain conditions being met. These factors can affect the flow and timing of funding, and make project implementation less effective, sometimes preventing projects from proceeding to implementation.

Allocation of project payments for regional (or multi-agency) projects are often proportioned based upon the benefits expected. Under this principle, recipients of water from project implementation would bear the financial burden, rather than taxpayers overall, shifting the financial burden to the local level. Certain ECCC region members, like water districts or cities, have the ability to raise project funds through development fees or user rates. Others, like nongovernmental organizations, must rely on grants or volunteer contributions.

The IRWM Plan identifies objectives tied to funding intended to make project planning and implementation more successful in the future. These objectives are:

- Increase regional cost efficiencies in treatment and delivery of water, wastewater, and recycled water

- Develop projects with regional benefits that are implementable and competitive for grant funding

- Increase public awareness of project importance to pass ballot measures or obtain matching funds through other means that require public support

All types of appropriate funding mechanisms would be considered for project funding. The sections below discuss potential funding sources and funding certainty.

4.5.1. Potential Funding Sources

The region has historically relied upon a range of funding mechanisms to help support planning and implementation projects. While the primary source of funds is generally from the more traditional sources, other sources of funds have also helped successfully move projects into the implementation phases. Provided in **Table 4-4** is a summary of the types of funding sources the region will consider as it implements projects and actions identified in this IRWM Plan. Further detailed information about these funding sources can be found in the CFCC Handbook available at: http://cfcc.ca.gov/res/docs/2012%20Handbook%20.pdf.

Table 4-4. Potential Funding Sources

Source	Type	Relevance to ECCC IRWM Plan Update
State Funding	Proposition 50 and 84	Integrated projects for water supply/quality/flood.
	CDPH Safe Drinking Water State Revolving Fund	Finance long-term loans for construction projects and short-term planning grants. Special consideration and rates for DACs apply.
	California Infrastructure and Economic Development Bank	Drinking water and wastewater treatment and distribution/collection systems are eligible under this program.
	Department of Housing and Community Development	Community Development Block Grant provides funding to cities/counties for public water programs and improvements, project feasibility studies, environmental reviews.
	Department of Water Resources	Grants and funding opportunities from Propositions 84, 1E, 50, and 204 for water supply/quality/ efficiency, ecosystem restoration, flood.
	State Water Resources Control Board	Clean Water State Revolving Fund Program, which provides loans to wastewater, water recycling, and expanded use projects. Water Recycling Funding Program loans and research grants for use of treated wastewater to offset water supplies. Small Community Wastewater Program aids DACs with wastewater project financing.
	Proposition 1	Water quality, supply, and infrastructure projects under a variety of programs. Proposition 1 was passed in 2014, and funding details are still being developed at the time of this 2015 IRWM Plan Update. Funds will be administered by various agencies depending on the program.
Federal Funding	Department of Rural Development	For water-related programs, towns under 10,000 population. Grants used for construction, land acquisition, sewer collection system improvements.
	Environmental Protection Agency	Grants to support research, standards, and policies for air pollution, climate change, toxic waste, and drinking water.
	Bureau of Reclamation	B-D Restoration Water Use Efficiency Grants, WaterSMART Grants (Water and Energy Efficiency Program and Title XVI Program), Title XVI for conservation or water management, Water management Improvement Grant
	U.S. Fish and Wildlife Service	Section 6 ESA funding for habitat preservation
Mitigation/Settlement Funds	Project Mitigation or Settlement of Lawsuit	For water supply, flood management, habitat restoration.
Special Assessment Districts	Non-County local government districts	Method of collecting projects funds related to a specific service (like flood management).

Table 4-4. Potential Funding Sources

Source	Type	Relevance to ECCC IRWM Plan Update
New Development Fees	Water Agencies	Used to pay for new water pipeline, large water facilities, or other projects to support additional service area needs.
User Fees	Water Agencies	Used to pay for new water pipeline, large water facilities, or other projects to support services benefiting existing users.
User Rates	Water Agencies	User rates pay for the operations and maintenance of a water agency or public utility's system.
Municipal Bonds	Water Agencies	Includes revenue bonds, general obligation bonds, certification of participation. Bonds could be used to supplement other funding sources. Large facility is needed to support current and future growth.
Volunteer Contributions	nonprofit/nongovernmental organizations	Used for preservation of native land and implementation of public outreach programs.
General Funds	County and local governments	Used to pay for projects included in agency budgets where costs not covered by other means.

4.5.2. Funding Certainty

Historically, the ECCC region has had good success seeking funding through DWR's IRWM grant programs. **Table 4-5** summarizes project planning and project implementation activity dating back to the completion of the first IRWM in 2005, along with IRWM grants received by the region. Since that regional planning effort the region has been accepted as an official IRWM region through DWR's RAP, and been awarded two planning grants through the Proposition 84 planning grant program.

As a result of the regions successful collaboration in regional planning, a Proposition 50 implementation grant application prepared by the region in 2007 was successfully awarded for grant funding totaling $12.5M. These projects focused on water supply, water quality, and ecosystem restoration. In 2011, three agencies in the region submitted Proposition 1E stormwater grant applications and were awarded a total of approximately $15M. In 2013, the region, with CCWD as the lead agency, submitted a Proposition 84 Implementation Round 2 grant application, and was awarded $430,000 to help fund one of the projects included in the application. Projects included in this application were identified through the IRWM Plan Update (discussed previously in Section 4.1).

Agencies in the region, including members of the ECWMA, have applied for, and received, funding for water projects that, although they are outside of the IRWM program, help address some of the region's IRWM objectives. These include recycled water projects and plans funded through USBR (primarily Title XVI dollars). Other potential funding mechanisms that may be pursued for projects related to the IRWM program or that help achieve objectives of the IRWM program include State Revolving Funds, agency connection fees, and other funds described in **Table 4-4**, above. Projects that are regional in nature may be more attractive for competitive funding applications, and funds from one funding program may be able to be used to leverage funds from another program, depending on the individual program requirements and guidelines.

Table 4-5. IRWM Plan Financing – IRWM Grants

Activity Description			Approximate Total Cost	Grant Amount Requested (%)	Local Match/Other Funds Committed (%)	Funding Certainty (Match; Grant)	O&M Finance Certainty[1] (Match; Grant)
IRWM Plan Development	2005	Functionally Equivalent IRWM Plan	$100,000	$0 (0%)	$100,000 (100%)	Secure	N/A
	2009	Region Acceptance Process	$50,000	$0 (0%)	$50,000 (100%)	Secure	N/A
	2011	IRWM Plan Update – Proposition 84 Planning Round 1	$600,000	$450,000 (75%)	$150,000 (25%)	Secure Awarded	N/A N/A
	2012	IRWM Plan Update – Proposition 84 Planning Round 2	$1,493,045	$447,914 (30%)	$1,045,131 (70%)	Secure Awarded	N/A N/A
IRWM Plan Project Implementation	2006	Proposition 50, Chapter 8 – IRWM Implementation Grant	$12,500,000	$2,125,000 (17%)	$10,375,000 (83%)	Secure Awarded	Secure N/A
	2011	Proposition 1E – Stormwater Flood Management Grant Round 1 (CCFC&FCD)	$2,000,000	$280,000 (14%)	$1,720,000 (86%)	Local CIP Budget Awarded	Rates and other grants N/A
	2011	Proposition 1E – Stormwater Flood Management Grant Round 1 (CCWD)	$10,000,000	$5,000,000 (50%)	$5,000,000 (50%)	Local CIP Budget Awarded	Rates and other grants N/A
	2011	Proposition 1E – Stormwater Flood Management Grant Round 1 (Antioch)	$2,997,300	$1,498,650 (50%)	$1,498,650 (50%)	Local CIP Budget Awarded	Rates and other grants N/A
	2011	IRWM Projects – Proposition 84 Implementation Round 1	$1,775,000	$1,331,250 (75%)	$443,750 (25%)	Local CIP Budget Awarded	Rates and other grants N/A
	2013	IRWM Projects – Proposition 84 Implementation Round 2	$18,726,330	$4,681,583 (25%)	$14,044,747 (75%)	$430,000 Awarded to fund one of the included projects	Rates and other grants N/A
	2014	IRWM Projects – Proposition 84 Implementation Drought Round	$824,000	$486,160 (59%)	$337,840 (41%)	Not awarded by DWR	Rates and other grants
	2015	IRWM Projects – Proposition 84 Implementation Round	$2,506,234	$1,854,613 (74%)	$651,621 (26%)	Under review by DWR	Rates and other grants

[1] O&M Costs are the responsibility of the project sponsors and are covered through rates, fees, charge and other operating cost funding sources.

4.6. Plan Performance Monitoring

The ECWMA will be responsible for periodically reviewing the progress of the plan in achieving the regional objectives, and reassessing project priorities as needed. Additional project oversight committees will be established as necessary.

As noted earlier, the region's objectives included qualitative or quantitative metrics. These metrics give the RWMG and its members a way to determine if the region is meeting its intent and to assess the IRWM Plan's performance. There may be two levels of monitoring: at the project level and at the IRWM Plan level. Levels of monitoring will be reported and shared with the RWMG so it can determine how well the IRWM Plan implementation is proceeding. The reporting is also valuable because it will provide needed signals of implementation progress that will allow the region to reconsider what objectives and approaches may need to be changed, updated, refined, eliminated, or supplemented. The types of monitoring that may be undertaken are shown in **Table 4-6** and categorized by objective topic.

Table 4-6. Types of Monitoring

Funding for Water-Related Planning and Implementation	• Utility rates • Unit water costs • O&M costs • Grant successes
Water Supply	• Stream flow monitoring • Surface water deliveries • Recycled water deliveries • Groundwater elevation and pumping monitoring
Water Quality and Related Regulations	• Water quality monitoring (surface water, groundwater, recycled water) • Discharge monitoring
Restoration and Enhancement of the Delta Ecosystem and other Environmental Resources	• HCP monitoring • GHG monitoring • CEQA/NEPA compliance
Stormwater and Flood Management	• Discharge monitoring • Improving level of flood protection
Outreach	• Increase participation • DAC projects • Geographic distribution

Key:
CEQA = California Environmental Quality Act
DAC = Disadvantaged Community
GHG = greenhouse gas
HCP = East Contra Costa County Habitat Conservation Plan
NEPA = National Environmental Policy Act
O&M = operations and maintenance

ECCC IRWM member agencies developed a website to collect and disseminate information. This website will be used to manage up-to-date information about planning and implementation activities. The website is being updated in 2015. Agencies and stakeholders will have continuous access to this site for monitoring and review purposes. Occasionally, the ECWMA may discuss current project information on the website and determine if specific actions are required to update the information, summarize the information, or modify the way information is maintained on the website.

4.7. Data Management

The data and information needs of the region are regularly changing depending on the grant cycle and regional activities occurring at any point in time. Technical information on project planning, design, construction, operation, and monitoring is typically collected through the grant administration task of specific grant programs. When the region is preparing grant applications, data and information is collected through the project solicitation process, which is typically facilitated by CCWD or a consultant. When grant opportunities arise, data needs are often driven by the requirements of any particular proposal solicitation package. For example, in addition to project scope, budget, and schedule, information about project benefits, climate change adaptation and mitigation strategies, greenhouse gas reduction, DAC and tribal impacts and benefits are often requested. For the 2019 update to this IRWMP, there are no outstanding data needs at this time.

Data and information about the IRWM Plan and its implementation will be managed using the region's IRWM website (http://www.eccc-irwm.com). The CCWD has served as the lead agency responsible for maintaining the data and website on behalf of the ECCC region. The website provides accessibility to the IRWM process for stakeholders and the general public, including DACs, and is updated periodically to reflect up-to-date information. Information on the website includes project information, interactive maps, and enhanced context and background information on the IRWM Program, all in a user-friendly interface. The website is the way in which the region can collect, disseminate, and store data and information about the IRWM process. Information and data on the website is being updated to be consistent with this 2015 IRWM Plan Update, as well as on-going funding opportunities and successes, applicable planning studies, and updated Guidelines from DWR. With these improvements, the website will facilitate better information dissemination to the RWMG, stakeholders, DWR, and the general public.

The website's best data management feature is with its management of project information. Project proponents can enter projects at any time using a detailed project form with information about project type, status, objectives met, and funding. The project form has been updated consistent with the 2015 IRWM Plan Update and the most recent IRWM Program Guidelines from DWR. Submitted project information is stored in a database, and a limited amount of information is available to the public to encourage collaboration, integration, and transparency. Project information can be updated by the project proponents at any time, by simply making a request to the website administrator.

The interface will also prove to be cost efficient over time because the online project form is easily updated to reflect the latest IRWM Guidelines or region's priorities. Finally, the interface will ensure that regional planning is a living process by allowing for continued adding, evaluating, and prioritizing of projects.

The ECCC IRWM region administrator is responsible for quality assurance and quality control (QA/QC) practices related to the information on the website. Other QA/QC of regional data becomes relevant particularly when proposals are being developed for IRWM funding opportunities. Agencies participating in proposal development are typically responsible for QA/QC of their own data. Similarly, during grant agreement implementation, local project sponsors are responsible for QA/QC of supplied deliverables to support project benefits and completed work. The grant administrator also takes on some QA/QC responsibilities when reviewing progress reports and submitted documentation.

4.8. Adaptability to Future Situations

As part of the region's 2009 Region Acceptance Process application, the ECCC IRWM member agencies formed a RWMG, responsible for navigating jurisdictional complexities, coordinating with other planning efforts, and updating and implementing the ECCC Region's IRWM Plan. This IRWM Plan establishes a strong foundation for future planning and implementation activities. The latest IRWM Program guidelines were followed and all requirements met. While IRWM plans do not have regular update schedules, the RWMG and its members will use monitoring and be responsive to regional and statewide needs to determine the best time to update the IRWM Plan. An IRWM Plan update could be triggered by:

- New IRWM Program guidelines or requirements
- New stakeholders or participants
- A need to change the region's boundary, such as contraction, expansion, or consolidation with another region
- Significant environmental changes or other catastrophic events
- Significant updates to local water planning or local land-use planning, such as the completion of planning efforts soon to be underway associated with the Proposition 84 DWR Round 2 Planning Grant awarded to the region in late 2012
- IRWM Plan monitoring results indicating needed changes

The region plans to follow the established IRWM Plan until there is a significant change in circumstance. The planning framework allows for results and outcomes of future planning efforts to be incorporated into an update of the IRWM Plan. The planning framework will support future requests for implementation grant funding in the final Proposition 84 Round (August 2015) if awarded and other DWR implementation grant programs, as appropriate (e.g., Proposition 1). Furthermore, the RWMG and it members will reexamine the planning process and its components, as needed, to determine if the IRWM Plan or any of its components (e.g., objectives) need updating or revising, and to determine if recent plan enhancements warrant formal adoption of a revised plan. Moving forward, the framework created through this IRWM Plan will continue as a living process the region can rely on it to meet its current and future water management challenge.

Chapter 5. References

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List of Appendices

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Appendix A - List of Grant Standards & Guidelines

Integrated Regional Water Management Plan (IRWMP) Standards are used to describe what must be in an IRWMP and can be used as criteria in Implementation Grant applications. The IRWMP must include the following:

- Governance
- Region Description
- Objectives
- Resource Management Strategies (RMS)
- Integration
- Project Review Process
- Impact and Benefit
- Plan Performance and Monitoring
- Data Management
- Finance
- Technical Analysis
- Relation to Local Water Planning
- Relation to Local Land Use Planning
- Stakeholder Involvement
- Coordination
- Climate Change

Guidance, including the intent of each standard and additional reference, can be found in Appendix C of the California Department of Water Resources' (DWR) Integrated Regional Water Management (IRWM) Grant Program Guidelines (2012 Guidelines). Following is the list of Grant Standards & Guidelines and what section in the ECCC IRWMP fulfills the DWR requirements.

Table A-1. Location of DWR Grant Standards & Guidelines and Location in ECCC IRWMP

#	Description	Location in ECCC IRWMP (Chapter/Section)
A.	**Governance**	
1.	Description of RWMG responsible for development and implementation of the plan.	**Chapter 2, Section 2.3, Chapter 4, Section 4.1**
2.	The RWMG and individual project proponents who adopted the plan.	**Section 2.3**
3.	Description of IRWM governance structure including discussion of how Native American tribes will participate in the RWMG.	**Chapter 2, Section 2.3, Chapter 4, Section 4.1**
4.	Description of how chosen governance addresses and ensures the following:	
	a. Public outreach and involvement processes.	**Section 3.6**
	b. Effective decision making.	**Section 2.3, 3.6**
	c. Balanced access and opportunity for participation in the IRWM process.	**Section 2.2, 3.6**
	d. Effective communication both internal and external to the IRWM region.	**Section 3.6**
	e. Long-term implementation of the IRWM Plan.	**Section 3.4**
	f. Coordination with neighboring RWMG efforts and State and federal agencies.	**Section 3.7**
	g. Collaborative process used to establish Plan objectives.	**Section 3.2**
	h. How interim changes and formal changes to the IRWM Plan will be performed.	**Section 3.2**
	i. Process for updating or amending the IRWM Plan.	**Section 3.2**
B.	**Region Description**	
1.	Description of watersheds/water system	**Section 2.6**
2.	Description of internal boundaries within the region.	**Section 2.4**
3.	Water supply and demand projections for a minimum 20-year planning horizon.	**Section 2.7**
4.	Description of the social and cultural makeup of the regional community and the identification of important cultural or social values.	**Section 2.5**
5.	Description of economic conditions and important trends within the region.	**Section 2.5**
6.	Description of major water-related objectives and conflicts	**Section 3.2**
7.	Explanation of how the IRWM regional boundary was determined.	**Section 2, 2.1, 2.2**
8.	Identification of neighboring or overlapping IRWM regions	**Section 2.2, 2.4, 2.5, 3.7**
9.	Explanation of how plan will help reduce dependence on the Sacramento-San Joaquin Delta for water supply	**Section 1.1, 4.3**
10.	Current and future water quality conditions, including a description of location, extent, and impacts of the contamination; actions undertaken to address the contamination, and a description of any additional actions needed to address the contamination from nitrate, arsenic, perchlorate, or hexavalent chromium.	**Section 2.10**
11.	Description of likely Climate Change impacts on their region as determined from the vulnerability assessment.	**Section 2.9**
C.	**Objectives**	
1.	Description of measureable regional planning objectives.	**Section 3.2**
2.	Description of objective development process.	**Section 3.1, 3.2**

Table A-1. Location of DWR Grant Standards & Guidelines and Location in ECCC IRWMP

#	Description	Location in ECCC IRWMP (Chapter/Section)
3.	Identify quantitative or qualitative metrics and measureable objectives.	**Table 3-1, Section 3.2**
4.	Objective prioritization process.	**Section 3.2**
5.	Reference specific overall goals for the region.	**Section 3.2**
6.	Address adapting to changes in the amount, intensity, timing, quality and variability of runoff and recharge.	**Section 2.9**
7.	Consider the effects of sea level rise (SLR) on water supply conditions and identify suitable adaptation measures.	**Section 2.9**
8.	Reducing energy consumption, especially the energy embedded in water use, and ultimately reducing GHG emissions.	**Section 3.2**
9.	Consider the strategies adopted by CARB in its AB 32 Scoping Plan.	**Section 3.2**
10.	Consider options for carbon sequestration and using renewable energy where such options are integrally tied to supporting IRWM Plan objectives.	**Section 3.2**
D.	**Resource Management Strategies**	
1.	Description of RMS consideration process.	**Section 3.3**
2.	Range of RMS considered to meet the IRWM objectives.	**Section 3.3, Appendix G**
3.	Description of RMSs incorporated into IRWM Plan.	**Section 3.3, Appendix G**
4.	Consideration of the effects of climate change in the RMS.	**Section 2.8, 3.3, Appendix G**
D.	**Integration**	
1.	Description of stakeholder/institutional integration	**Section 3.6, 3.7**
2.	Description of resource integration	**Section 3.7**
3.	Project implementation integration.	**Section 3.7**
E.	**Project Review Process**	
1.	Procedures for submitting a project to the RMWG.	**Section 3.4**
2.	Procedures for review of projects considered for inclusion into the Plan.	**Section 3.4**
3.	Procedures for displaying the list of selected projects.	**Section 3.6**
4.	Contribution to climate change adaptation.	**Section 2.9, 3.3**
5.	Contribution of project in reducing GHGs compared to project alternatives.	**Section 3.3**
6.	Specific benefits to critical water issues for Native American tribal communities.	**Section 2.3, 3.6**
F.	**Impacts and Benefits**	
1.	Discussion of potential impacts and benefits within the region from ECCC IRWMP implementation.	**Section 4.3, 4.4**
2.	Discussion of benefits and impacts between regions.	**Section 4.3, 4.4**
3.	Impacts and benefits directly affecting disadvantaged communities.	**Section 4.3, 4.4, 2.5**
4.	Impacts and benefits directly affecting environmental justice concerns.	**Section 4.3, 4.4, 2.5**
5.	Impacts and benefits directly affecting Native American tribal communities.	**Section 4.3, 4.4, 3.6**
G.	**Plan Performance and Monitoring**	
1.	Group(s) responsible for IRWM implementation evaluation.	**Section 4.1**
2.	Frequency of evaluating project implementation performance.	**Section 4.6**

Table A-1. Location of DWR Grant Standards & Guidelines and Location in ECCC IRWMP

#	Description	Location in ECCC IRWMP (Chapter/Section)
3.	Tracking via Data Management System.	**Section 4.7**
4.	Description of process for using "lessons learned."	**Section 4.8**
5.	Responsibility for development of project-specific monitoring plans and activities,	**Section 4.2, 4.3, 4.6**
6.	Stage of project development that a project specific monitoring plan will be prepared.	**Chapter 4**
7.	Typically required contents of a project-specific monitoring plan.	**Section 4.6**
8.	Project applicability to all rules, laws, and permit requirements	**Section 3.4**
9.	Policies and procedures that promote adaptive management and updates as effects of Climate Change manifest and new tools are developed.	**Section 3.8**
H.	**Data Management**	
1.	Overview of data needs.	**Section 4.7**
2.	Description of typical data collection techniques.	**Section 4.7**
3.	Description of stakeholder data contributions to a DMS.	**Section 4.7**
4.	Entity responsible for maintaining data in the DMS.	**Section 4.7**
5.	Description of the validation or QA/QC measures.	**Section 4.7**
6.	Explanation of how data collected for project implementation will be transferred or shared between members of the RMWG and other interested parties.	**Section 4.7**
7.	Explanation of how the DMS supports the RWMG's efforts to share collected data.	**Section 4.7**
8.	An outline of how the data saved in the DMS will be distributed and remain compatible with State databases.	**Section 4.7**
I.	**Finance**	
1.	List of known, as well as, possible funding sources, programs, and grant opportunities for the development and ongoing funding of the IRWM Plan.	**Section 4.5**
2.	List of funding mechanisms for projects that implement the IRWM Plan.	**Section 4.3, 4.5**
3.	Explanation of the certainty and longevity of known or potential funding for the IRWM Plan and projects.	**Section 4.5**
4.	Explanation of how O&M costs for projects that implement the IRWM Plan would be covered and the certainty of O&M funding.	**Section 4.5**
J.	**Technical Analysis**	
1.	Description of the technical information sources and data sets used to develop the water management needs in the IRWM Plan.	**Section 3.5**
2.	Description of studies, models, or other technical methodologies used to analyze the technical information and data sets.	**Section 3.5**
K.	**Relation to Local Water Planning**	
1.	List of local water plans used in the IRWM Plan.	**Section 3.7, 3.5**
2.	Discussion of how the IRWM Plan relates to planning documents and programs established by local agencies.	**Section 3.7, 3.5, 2.2**
3.	Description of the dynamics between the IRWM Plan and local planning documents.	**Section 3.7**

Table A-1. Location of DWR Grant Standards & Guidelines and Location in ECCC IRWMP

#	Description	Location in ECCC IRWMP (Chapter/Section)
4.	Describe how the RWMG will coordinate its water management planning activities.	**Section 3.7**
5.	Consider and incorporate water management issues and climate change adaptation and mitigation strategies from local plans into the IRWM Plan.	**Section 3.5, Table 3-9**
L.	**Relation to Local Land Use Planning**	
1.	Description of current relationship between local land use planning, regional water issues, and water management objectives.	**Section 3.7**
2.	Description of future efforts to establish a proactive relationship between land use planning and water management.	**Section 3.7, 3.6**
3.	Demonstrate information sharing and collaboration with regional land use planning in order to manage multiple water demands throughout the state, adapt water management systems to climate change, and potentially offset climate change impacts to water supply in California.	**Section 3.7**
M.	**Stakeholder Involvement**	
1.	Description of the public process that provides outreach and an opportunity to participate in IRWM Plan development and implementation to the appropriate local agencies and stakeholders.	**Section 3.6**
2.	The process used to identify, inform, invite, and involve stakeholder groups in the IRWM process during development and implementation of the IRWM Plan.	**Section 3.6**
3.	A discussion on how the RWMG will identify and involve DACs and Native American tribal communities in the IRWM planning effort	**Section 3.6**
4.	Description of the decision making process, including IRWM committees, roles, or positions that stakeholders can occupy and how a stakeholder goes about participating in those committees, roles or positions, regardless of their ability to contribute financially to the Plan.	**Section 3.6, 3.7**
5.	Discussion regarding how stakeholders are necessary to address the objectives and resource management strategies of the IRWM Plan	**Section 3.6, 3.7**
6.	Discussion of how collaborative processes will engage a balance of interest groups in the IRWM process regardless of their ability to contribute financially to the IRWM Plan's development or implementation	**Section 2, 3.6, 3.7**
N.	**Coordination**	
1.	Process for coordination of projects and activities with local participants and stakeholders.	**Section 2, 3.6, 3.7**
2.	Identification of neighboring IRWM efforts and description of coordination between efforts.	**Section 3.7.7**
3.	Discussion of any ongoing water management conflicts with adjacent IRWM efforts.	**Section 3.7.7**
4.	Discussion of State, federal, and local agencies important to the development of the IRWM plan and implementation of projects.	**Sections 2.4.2-2.4.4, 3.7**
O.	**Climate Change**	
1.	Description of plan for further data gathering and analysis.	**Section 2.8**
2.	Include climate change as part of the project review process.	**Table 3-6**
3.	Discussion of the IRWM region's vulnerabilities to the effects of climate change.	**Section 2.8, Appendix D & E**

Table A-1. Location of DWR Grant Standards & Guidelines and Location in ECCC IRWMP

#	Description	Location in ECCC IRWMP (Chapter/Section)
4.	Process that considers GHG emissions when choosing between project alternatives	**Chapter 3, Section 3.3, Section 2.9,**
5.	List of prioritized vulnerabilities based on the vulnerability assessment and the IRWM's decision making process.	**Section 2.9, Appendix D**
6.	Address adapting to changes in the amount, intensity, timing, quality, and variability of runoff and recharge.	**Section 2.9**
7.	Consider the effects of sea level rise (SLR) on water supply conditions and identify suitable adaptation measures.	**Section 2.9**

Key:
DAC = disadvantaged community
DMS = Data Management System
GHG = greenhouse gas
IRWM = Integrated Regional Water Management
O&M = Operations and Maintenance
QA/QC = Quality Assurance/Quality Control
RMS = Resource Management Strategy
RWMG = Regional Water Management Group
State = state of California

Appendix B - Roster of the Governing Board

East County Water Management Association - Governing Board

AGENCY	REPRESENTATIVE	TELEPHONE
City of Antioch	Lamar Thorpe, Mayor Pro Tem P.O. Box 5007 Antioch, CA 94531-5007 lthorpe@ci.antioch.ca.us	925-779-6952 925-779-6897 F
City of Brentwood	Bob Taylor 150 City Park Way Brentwood, CA 94523-1164 btaylor@brentwoodca.gov Diane R. Williams, Executive Assistant (contact) dwilliams@brentwoodca.gov	925-516-5440 925-516-5441 F
Byron-Bethany Irrigation District	Russell Kagehiro Timothy Maggiore 7995 Bruns Road Byron, CA 94514 admin@bbid.org	209-835-0375 209-835-2869 F
Contra Costa County	Supervisor Diane Burgis 3361 Walnut Boulevard, Ste. 140 Brentwood, CA 94513 Dist3@BOS.CCCounty.us Supervisor Federal D. Glover *(Alternate)* 315 E. Leland Road Pittsburg, CA 94565 FGlov@bos.cccounty.us	925-252-4500 925-240-7261 F 925-427-8138
Contra Costa Water District	Bette Boatmun 4004 Salem Street Concord, CA 94521 bboatmun@yahoo.com Constance Holdaway *(Alternate)* 102 Cherry Way Oakley, CA 94561 choldawaywaterdistrict@gmail.com	925-689-9255 H 925-676-0346 F 925-726-7781
Town of Discovery Bay Community Services District	Robert Leete, Board Director 1800 Willow Lake Road Discovery Bay, CA 94505 rleete@todb.ca.gov Bill Pease, Board Director *(Alternate)* bpease@todb.ca.gov Sue Heinl (staff) sheinl@todb.ca.gov	925-634-1131

Delta Diablo	Sean Wright, Antioch Mayor/Board Member 2500 Pittsburg-Antioch Highway Antioch, CA 94509 drseankwright@gmail.com	925-756-1927 925-756-1965 F
Diablo Water District	Ken Crockett 4370 Live Oak Avenue Oakley, CA 94561 Howard Hobbs *(Alternate)* 4370 Neroly Road Oakley, CA 94561 Christine Belleci (staff) cbelleci@diablowater.org	925-625-3798 925-625-0814 F
East Contra Costa County Habitat Conservancy	Randy Pope, Vice Mayor City of Oakley 3231 Main Street Oakley, CA 94561 randypope@ci.oakley.ca.us Joel Bryant, Council Member *(Alternate)* City of Brentwood 150 City Park Way Brentwood, CA 94513 jbryant@brentwoodca.gov	925-625-7007 925-625-9859 F
East Contra Costa Irrigation District	Kenneth W. Smith P. O. Box 140 Knightsen, CA 94548	925-634-5951
Ironhouse Sanitary District	Dawn Morrow 450 Walnut Meadows Drive Oakley, CA 94561 dmorrow@isd.us.com Doug Scheer *(Alternate)* dscheer@isd.us.com	925-625-2279
City of Pittsburg	D. Pete Longmire, Council Member 65 Civic Avenue Pittsburg, CA 94565 plongmire@ci.pittsburg.ca.us	925-252-4850 925-252-4851 F

Governing Board Chair:	Bob Taylor, City of Brentwood
Governing Board Vice-Chair:	Lamar Thorpe, City of Antioch
Governing Board Secretary:	Robert Leete, Town of Discovery Bay
Joint Manager's Committee Chair:	Chad Davisson, Ironhouse Sanitary District
Joint Manager's Committee Vice-Chair:	Ron Bernal, City of Antioch

Appendix C - Handbook Summary Information

C.1 Climate Change Handbook for Regional Water Planning

Developed cooperatively by DWR, The U.S. Environmental Protection Agency, Resources Legacy Fund, and The U.S. Army Corps of Engineers, the Climate Change Handbook for Regional Water Planning provides a framework for considering climate change in water management planning. Key decision considerations, resources, tools, and decision options are presented that will guide resource managers and planners as they develop means of adapting their programs to a changing climate.

The handbook uses DWR's IRWM planning framework as a model into which analysis of climate change impacts and planning for adaptation and mitigation can be integrated.

The Handbook includes:

- The science of climate change, tools and links;
- Evaluating the energy-water connection and greenhouse gas emissions;
- Assessing regional vulnerability to climate change;
- Measuring regional impacts;
- Evaluating projects, resource management strategies, and Integrated Regional Water Management Plans with respect to climate change;
- Implementing and quantifying uncertainty; and
- Case studies illustrating a range of climate change adaptation and mitigation issues within and outside of California.

Individual Report Sections

- Front Matter
- Section 1: Overview of IRWM Planning and Climate Change
- Section 2: The Science of Climate Change
- Section 3: Evaluating the EnergyWater Connection and Greenhouse Gas Emissions
- Section 4: Assessing Regional Vulnerability to Climate Change
- Section 5: Measuring Regional Impacts
- Section 6: Evaluating Projects, Resource Management Strategies, and IRWM Plan Benefits with Climate Change
- Section 7: Implementing Under Uncertainty
- Section 8: References
- Appendix A: Climate Change Literature Review
- Appendix A: Climate Change Literature Review
- Appendix B: Vulnerability Assessment Checklist
- Appendix C: Quantifying Uncertainty in Climate Change Analysis
- Appendix D: Climate Change Analysis Tool

C.2 Vulnerability Assessment Checklist (DWR Appendix B)

I. Water Demand

☐ *Are there major industries that require cooling/process water in your planning region?*

- As average temperatures increase, cooling water needs may also increase.
- Identify major industrial water users in your region and assess their current and projected needs for cooling and process water.

☐ *Does water use vary by more than 50% seasonally in parts of your region?*

- Seasonal water use, which is primarily outdoor water use, is expected to increase as average temperatures increase and droughts become more frequent.
- Where water use records are available, look at total monthly water uses averaged over the last five years (if available). If maximum and minimum monthly water uses vary by more than 25%, then the answer to this question is "yes."
- Where no water use records exist, is crop irrigation responsible for a significant (say >50%) percentage of water demand in parts of your region?

☐ *Are crops grown in your region climate sensitive? Would shifts in daily heat patterns, such as how long heat lingers before nighttime cooling, be prohibitive for some crops?*

- Fruit and nut crops are climate sensitive and may require additional water as the climate warms.

☐ *Do groundwater supplies in your region lack resiliency after drought events?*

- Droughts are expected to become more frequent and more severe in the future. Areas with a more hardened demand may be particularly vulnerable to droughts and may become more dependent on groundwater pumping.

☐ *Are water use curtailment measures effective in your region?*

- Droughts are expected to become more frequent and more severe in the future. Areas with a more hardened demand may be particularly vulnerable to droughts.

☐ *Are some instream flow requirements in your region either currently insufficient to support aquatic life, or occasionally unmet?*

- Changes in snowmelt patterns in the future may make it difficult to balance water demands. Vulnerabilities for ecosystems and municipal/agricultural water needs may be exacerbated by instream flow requirements that are:
  1. not quantified,
  2. not accurate for ecosystem needs under multiple environmental conditions including droughts, and
  3. not met by regional water managers.

II. Water Supply

☐ *Does a portion of the water supply in your region come from snowmelt?*

- Snowmelt is expected to decrease as the climate warms. Water systems supplied by snowmelt are therefore potentially vulnerable to climate change.
- Where watershed planning documents are available, refer to these in identifying parts of your region that rely on surface water for supplies; if your region contains surface water supplies originating in watersheds where snowpack accumulates, the answer to this question is "Yes."
- Where planning documents are not available, identify major rivers in your region with large users. Identify whether the river's headwaters are fed by snowpack.

☐ *Does part of your region rely on water diverted from the Delta, imported from the Colorado River, or imported from other climatesensitive systems outside your region?*

- Some imported or transferred water supplies are sources from climatesensitive watersheds, such as water imported from the Delta and the Colorado River.

☐ *Does part of your region rely on coastal aquifers? Has salt intrusion been a problem in the past?*

- Coastal aquifers are susceptible to salt intrusion as sea levels rise, and many have already observed salt intrusion due to overextraction, such as the West Coast Basin in southern California.

☐ *Would your region have difficulty in storing carryover supply surpluses from year to year?*

- Droughts are expected to become more severe in the future. Systems that can store more water may be more resilient to droughts.

☐ *Has your region faced a drought in the past during which it failed to meet local water demands?*

- Droughts are expected to become more severe in the future. Systems that have already come close to their supply thresholds may be especially vulnerable to droughts in the future.

☐ *Does your region have invasive species management issues at your facilities, along conveyance structures, or in habitat areas?*

- As invasive species are expected to become more prevalent with climate change, existing invasive species issues may indicate an ecological vulnerability to climate change.

III. Water Quality

☐ *Are increased wildfires a threat in your region? If so, does your region include reservoirs with firesusceptible vegetation nearby which could pose a water quality concern from increased erosion?*

- Some areas are expected to become more vulnerable to wildfires over time. To identify whether this is the case for parts of your region, the California Public Interest Energy

Research (PIER) Program has posted wildfire susceptibility projections as a Google Earth application at: http://caladapt.org/fire/. These projections are only the results of a single study and are not intended for analysis, but can aid in qualitatively answering this question. Read the application's disclaimers carefully to be aware of its limitations.

☐ *Does part of your region rely on surface water bodies with current or recurrent water quality issues related to eutrophication, such as low dissolved oxygen or algal blooms? Are there other water quality constituents potentially exacerbated by climate change?*

- Warming temperatures will result in lower dissolved oxygen levels in water bodies, which are exacerbated by algal blooms and in turn enhance eutrophication. Changes in streamflows may alter pollutant concentrations in water bodies.

☐ *Are seasonal low flows decreasing for some waterbodies in your region? If so, are the reduced low flows limiting the waterbodies' assimilative capacity?*

- In the future, low flow conditions are expected to be more extreme and last longer. This may result in higher pollutant concentrations where loadings increase or remain constant.

☐ *Are there beneficial uses designated for some water bodies in your region that cannot always be met due to water quality issues?*

- In the future, low flows are expected decrease, and to last longer. This may result in higher pollutant concentrations where loadings increase or remain constant.

☐ *Does part of your region currently observe water quality shifts during rain events that impact treatment facility operation?*

- While it is unclear how average precipitation will change with temperature, it is generally agreed that storm severity will probably increase. More intense, severe storms may lead to increased erosion, which will increase turbidity in surface waters. Areas that already observe water quality responses to rainstorm intensity may be especially vulnerable.

IV. Sea Level Rise

☐ *Has coastal erosion already been observed in your region?*

- Coastal erosion is expected to occur over the next century as sea levels rise.

☐ *Are there coastal structures, such as levees or breakwaters, in your region?*

- Coastal structures designed for a specific mean sea level may be impacted by sea level rise.

☐ *Is there significant coastal infrastructure, such as residences, recreation, water and wastewater treatment, tourism, and transportation) at less than six feet above mean sea level in your region?*

- Coastal flooding will become more common, and will impact a greater extent of property, as sea levels rise. Critical infrastructure in the coastal floodplain may be at risk.
- Digital elevation maps should be compared with locations of coastal infrastructure.

☐ *Are there climate sensitive low-lying coastal habitats in your region?*

- Low-lying coastal habitats that are particularly vulnerable to climate change include estuaries and coastal wetlands that rely on a delicate balance of freshwater and salt water.

☐ *Are there areas in your region that currently flood during extreme high tides or storm surges?*

- Areas that are already experiencing flooding during storm surges and very high tides, are more likely to experience increased flooding as sea levels rise.

☐ *Is there land subsidence in the coastal areas of your region?*

- Land subsidence may compound the impacts of sea level rise.

☐ *Do tidal gauges along the coastal parts of your region show an increase over the past several decades?*

- Local sea level rise may be higher or lower than state, national, or continental projections.
- Planners can find information on local tidal gauges at http://tidesandcurrents.noaa.gov/sltrends/sltrends_states.shtml?region=ca.

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Appendix D - ECCC Handbook Checklist

Table D-1. Climate Change Vulnerability Checklist and Prioritization

Question	Response	Priority	Justification
I. Water Demand			
• Are there major industries that require cooling/process water in your planning region?	Yes	High	Major water-intensive industries include power production.
• Does water use vary by more than 50% seasonally in parts of your region?	Yes	High	Summer months are as much as 50% higher than the average month and winter months are as much as 50% lower than the average month. Warming temperatures and increased extreme events will likely exacerbate summer demand.
• Are there climate-sensitive crops grown in your region? Would shifts in daily heat patterns, such as how long heat lingers before nighttime cooling, be prohibitive for some crops?	Yes	High	A variety of crop types are grown in the region, including row crops, tree crops, and irrigated grains. Agricultural production in Contra Costa County has a value of approximately $92 million dollars (2011 Annual Crop and Livestock Report for Contra Costa County). Many of these crops are sensitive to climate.
• Do groundwater supplies in your region lack resiliency after drought events?	No	–	Groundwater supplies in the region have proved resilient after drought events.
• Are water use curtailment measures effective in your region?	Yes	Low	Water conservation BMPs are used effectively throughout the region, as detailed in various UWMPs.
• Are some instream flow requirements in your region either currently insufficient to support aquatic life, or occasionally unmet?	No	–	Climate change is expected to place additional stress on low summer flows.
II. Water Supply			
• Does a portion of the water supply in your region come from snowmelt?	Yes	Medium	Runoff from April through July is dominated by snowmelt.
• Does part of your region rely on water diverted from the Delta, imported from the Colorado River, or imported from other climate-sensitive systems outside your region?	Yes	High	The majority of water supplies in the region are from the Delta.
• Does part of your region rely on coastal aquifers? Has salt intrusion been a problem in the past?	No	–	There are coastal aquifers within the region, but these have not shown to have significant problems with salt intrusion in the past.

Table D-1. Climate Change Vulnerability Checklist and Prioritization (contd.)

Question	Response	Priority	Justification
• Would your region have difficulty in storing carryover supply surpluses from year to year?	Yes	Medium	Current operating conditions limit storage opportunities during winter runoff season; increased winter runoff would not necessarily translate into increased storage of water leading into the spring season. Conversely, storage capture of snowmelt runoff has traditionally occurred during the late spring and early summer seasons. Reductions in runoff during this season likely would translate into reductions in storage capture and, likewise, reductions in water supply for warm season delivery (Reclamation 2011)
• Has your region faced a drought in the past during which it failed to meet local water demands?	No	–	The region has not failed to meet local water demands during drought years. However, the potential effects of climate change make this a possibility.
• Does your region have invasive species management issues at your facilities, along conveyance structures, or in habitat areas?	Yes	Medium	Invasive species, including various nonnative fish and plant species, are an ongoing issue within the region.
III. Water Quality			
• Are increased wildfires a threat in your region? If so, does your region include reservoirs with fire-susceptible vegetation nearby that could pose a water quality concern from increased erosion?	No	–	Wildfires are only a moderate hazard in eastern Contra Costa County (Contra Costa County Hazard Mitigation Plan Update (2011).
• Does part of your region rely on surface water bodies with current or recurrent water quality issues related to eutrophication, such as low dissolved oxygen or algal blooms? Are there other water quality constituents that are potentially exacerbated by climate change?	Yes	High	The majority of water supply in the region is from the Delta, which has several water quality concerns, which would be exacerbated by climate change.
• Are seasonal low flows decreasing for some water bodies in your region? If so, are the reduced low flows limiting the water bodies' assimilative capacity?	No	–	Seasonally low flows are not currently decreasing, but this is a potential impact from climate change.

Table D-1. Climate Change Vulnerability Checklist and Prioritization (contd.)

Question	Response	Priority	Justification
• Are there beneficial uses designated for some water bodies in your region that cannot always be met due to water quality issues?	Yes	Low	Beneficial uses on surface water bodies throughout the region are listed as impaired on the Clean Water Act 303 (d) list for water quality constituents, such as mercury and pesticides.
• Does part of your region currently observe water quality shifts during rain events that impact treatment facility operation?	Yes	Medium	Disinfectant byproduct precursors tend to spike during storm events (DWR 2001).
IV. Sea-Level Rise			
• Has coastal erosion already been observed in your region?	Yes	Medium	A portion of the region is in the Delta, which has experienced erosion.
• Are there coastal structures, such as levees or breakwaters, in your region?	Yes	High	There are tidally influenced levees on the Sacramento River on the western boundary of the region.
• Is there significant coastal infrastructure (residences, recreation, water and wastewater treatment, tourism, and transportation) at less than 6 feet above mean sea level in your region?	Yes	High	There is infrastructure adjacent to the Delta that is at or near 6 feet above mean sea level.
• Are there climate-sensitive low-lying coastal habitats in your region?	Yes	Medium	The northern boundary of the region is adjacent to the Delta.
• Are there areas in your region that currently flood during extreme high tides or storm surges?	No	–	There are areas in and adjacent to the Delta that flood during extreme weather events.
• Is there land subsidence in the coastal areas of your region?	Yes	High	Many Delta islands have subsided 15 feet to 25 feet below sea level (Contra Costa County Hazard Mitigation Plan Update [2011]).
• Do tidal gauges along the coastal parts of your region show an increase over the past several decades?	Yes	Low	In recent decades, the mean sea level trend has been an increase of 2.08mm/year (at the nearest tidal gauge to the region (Port Chicago, located in the San Francisco Bay [NOAA 2012]).
V. Flooding			
• Does critical infrastructure in your region lie within the 200-year floodplain? DWR's best floodplain maps are available at: http://www.water.ca.gov/floodmgmt/lrafmo/fmb/fes/best_available_maps/.	Yes	High	Major Infrastructure in floodplains includes major interstate highways and water/wastewater infrastructure (DWR 2012).
• Does part of your region lie within the Sacramento-San Joaquin Drainage District?	Yes	High	The eastern portion of the region lies within the Sacramento-San Joaquin Drainage District.

Table D-1. Climate Change Vulnerability Checklist and Prioritization (contd.)

Question	Response	Priority	Justification
• Does aging critical flood protection infrastructure exist in your region?	Yes	High	Major metropolitan areas, small communities, and rural areas are protected by aging levees, weirs, bypasses, and other flood management infrastructure. These are detailed in the Flood Control System Status Report (DWR 2012).
• Have flood control facilities (such as impoundment structures) been insufficient in the past?	Yes	Medium	Contra Costa County is vulnerable to five flood types: localized flooding, riverine flooding, flash flooding, levee overtopping/failure, and dam failure.
• Are wildfires a concern in parts of your region?	No	–	Only a small area on the western boundary of the region has moderate fire danger (Contra Costa County Hazard Mitigation Plan Update 2011).
VI. Ecosystem and Habitat Vulnerability			
• Does your region include inland or coastal aquatic habitats vulnerable to erosion and sedimentation issues?	Yes	Medium	Wetland and riverine habitats are vulnerable to erosion and sedimentation issues.
• Does your region include estuarine habitats that rely on seasonal freshwater flow patterns?	Yes	Low	The Delta portion of the region relies on seasonal freshwater flow patterns.
• Do climate-sensitive fauna or flora populations live in your region?	Yes	High	Climate-sensitive populations include salmonid species, migratory bird species, and wetland species (CEC 2008).
• Do endangered or threatened species exist in your region? Are changes in species distribution already being observed in parts of your region?	Yes	High	A number of State-listed and federally listed threatened and endangered species exist in the region.
• Does the region rely on aquatic or water-dependent habitats for recreation or other economic activities?	Yes	Low	Boating, hunting, fishing, and bird watching are important recreational and economic activities that rely on aquatic or water-dependent habitats in the region.
• Are there rivers in your region with quantified environmental flow requirements or known water quality/quantity stressors to aquatic life?	Yes	Low	Rivers and creeks in the region do not have flow requirements.

Table D-1. Climate Change Vulnerability Checklist and Prioritization (contd.)

Question	Response	Priority	Justification
• Do estuaries, coastal dunes, wetlands, marshes, or exposed beaches exist in your region? If so, are coastal storms possible/frequent in your region?	Yes	Low	The Bay-Delta estuary, marshes, and seasonal and emergent wetland habitats exist in the region, particularly in the southwestern portion; however, coastal storms are not frequent in the region.
• Does your region include one or more of the habitats described in the Endangered Species Coalition's Top 10 habitats vulnerable to climate change (http://www.itsgettinghotoutthere.org/)?	Yes	High	The region contains portions of the Bay-Delta, which is on the Endangered Species Coalition's Top 10 vulnerable habitats.
• Are there areas of fragmented estuarine, aquatic, or wetland wildlife habitat within your region? Are there movement corridors for species to naturally migrate? Are there infrastructure projects planned that might preclude species movement?	Yes, sometime, Yes	Medium	The combined effect of various stressors has fragmented and/or eliminated extensive areas of wetland and riparian habitat and impeded movement corridors (DWR 2012).
VII. Hydropower			
• Is hydropower a source of electricity in your region?	Yes	Low	Yes, a portion of PG&E's power supply is from hydropower.
• Are energy needs in your region expected to increase in the future? If so, are there future plans for hydropower generation facilities or conditions for hydropower generation in your region?	Yes, No	Low	The population is expected to grow in the future. Future power supply projects would need to be considered, including hydropower sources.

Key:
BMP = best management practice
Delta = Sacramento-San Joaquin Delta
DWR = California Department of Water Resources
PG&E = Pacific Gas and Electric Company
UWMP = Urban Water Management Plan

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Appendix E - List and Descriptions of On-Going and Planned Regional Actions

A list and description of on-going and planned regional actions can be found on the ECCC IRWM Plan web site here:
http://www.eccc-irwm.org/

A table of ECCC IRWM Plan regional projects sorted by different project attributes can be found on the following pages. This table was generated from the project database maintained by the ECCC IRWM Plan web site. The table is titled 'ECCC IRWM Plan Projects Sorted by Different Project Attributes' and includes the following sorted lists:

- Projects Sorted by Project Type
- Projects Sorted by Primary ECCC IRWM Plan Objective Category
- Projects Sorted by Project Score
- Projects Sorted by Resource Management Strategies (RMS) Diversification
- Projects Sorted by Project Status: Design Date
- Projects Sorted by Total Cost
- Projects Sorted by Percent Funded

A table of detailed project data for each of the ECCC IRWM Plan regional projects can be found on the following pages. This table was generated from the project database maintained by the ECCC IRWM Plan web site. This table is titled 'ECCC IRWM Plan Projects Detailed Data' and includes the following information for each regional project:

- Project Name
- Sponsoring Agency/Organization
- Project ID #
- Project Description
- ECCC IRWM Plan Objective(s) *(how the project relates)*
- Program Preferences *(how the project relates)*
- Statewide Priorities *(how the project relates)*
- Resource Management Strategies – Diversification Considerations *(how the project relates)*
- Project Status – Implementation
- Project Costs – Implementation
- Project Funding – Implementation
- Disadvantaged Communities (DACs) *(how the project relates)*
- Environmental Justice *(how the project relates)*
- Climate Change /Greenhouse Gas Emission Reduction *(how the project relates)*

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ECCC IRWM Plan Projects Sorted by Different Project Attributes

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Projects Sorted by Project Type

Project ID #	Project Name	Sponsoring Agency / Organization	Project Type
11	East Antioch Creek Marsh Restoration (#206)	Contra Costa County Flood Control & Water Conservation District	Environmental (e.g., habitat)
12	Marsh Creek Reservoir Capacity and Habitat Restoration (#213)	Contra Costa County Flood Control & Water Conservation District	Environmental (e.g., habitat)
25	Los Vaqueros Pond E-7 Embankment Rehabilitation	Contra Costa Water District	Environmental (e.g., habitat)
42	Watershed and Habitat Protection/Restoration	East Contra Costa County Habitat Conservancy	Environmental (e.g., habitat)
52	Marsh Creek Delta Restoration Project	Reclamation District 830	Environmental (e.g., habitat)
2	BIMID Levee and Pump Station Improvement Project	Bethel Island Municipal Improvement District	Infrastructure - Stormwater / Flood Management
3	Drainage Area 55 - West Antioch Creek Channel Improvements	City of Antioch	Infrastructure - Stormwater / Flood Management
7	East Contra Costa County Green Street Retrofit Network	Contra Costa County	Infrastructure - Stormwater / Flood Management
8	Knightsen Biofilter/Weltand Habitat Restoration	Contra Costa County	Infrastructure - Stormwater / Flood Management
9	Upper Sand Creek Basin Surplus Material (#220)	Contra Costa County Flood & Water Conservation Control District	Infrastructure - Stormwater / Flood Management
10	Deer Creek Reservoir Seismic Assessment (#212)	Contra Costa County Flood Control & Water Conservation District	Infrastructure - Stormwater / Flood Management
13	Marsh Creek Reservoir Seismic Assessment (#210)	Contra Costa County Flood Control & Water Conservation District	Infrastructure - Stormwater / Flood Management
14	Marsh Creek Supplemental Capacity and Basin Development (#215)	Contra Costa County Flood Control & Water Conservation District	Infrastructure - Stormwater / Flood Management
15	Marsh Creek Widening Between Dainty Avenue and Sand Creek (#216)	Contra Costa County Flood Control & Water Conservation District	Infrastructure - Stormwater / Flood Management
16	Oakley and Trembath Detention Basins (#207)	Contra Costa County Flood Control & Water Conservation District	Infrastructure - Stormwater / Flood Management
17	West Antioch Creek Improvements: 10th Street to 'L' Street (#203)	Contra Costa County Flood Control & Water Conservation District	Infrastructure - Stormwater / Flood Management
18	Dry Creek Reservoir Seismic Assessment (#211)	Contra Costa County Flood Control and Water Conservation District	Infrastructure - Stormwater / Flood Management
19	Kellogg Creek Sedimentation Basin (#226)	Contra Costa County Flood Control and Water Conservation District	Infrastructure - Stormwater / Flood Management
20	Lower Sand Creek Basin Construction (#222)	Contra Costa County Flood Control and Water Conservation District	Infrastructure - Stormwater / Flood Management
21	Deer Creek Reservoir Expansion (#217 and #218)	Contra Costa County Flood Control District	Infrastructure - Stormwater / Flood Management
26	Stormwater Management at Meadows Siphon	Contra Costa Water District	Infrastructure - Stormwater / Flood Management
49	Lake Alhambra Sediment Mitigation Antioch Drainage Area 56	Lake Alhambra Property Owners Association	Infrastructure - Stormwater / Flood Management
51	Jersey Island Levee Raising and Widening from Stations 333+00 to 470+00	Reclamation District 830	Infrastructure - Stormwater / Flood Management
1	Recycle Water for AYSC	Antioch Youth Sports Complex	Infrastructure - Wastewater / Recycled Water
28	Advanced Wastewater Treatment	Delta Diablo Sanitation District	Infrastructure - Wastewater / Recycled Water
29	DDSD Advanced Water Treatment	Delta Diablo Sanitation District	Infrastructure - Wastewater / Recycled Water
30	DDSD Recycled Water Distribution System Expansion	Delta Diablo Sanitation District	Infrastructure - Wastewater / Recycled Water
31	Recycled Water Facility Renewable Energy System	Delta Diablo Sanitation District	Infrastructure - Wastewater / Recycled Water
32	Total Dissolved Solids Reduction / Salinity Management	Delta Diablo Sanitation District	Infrastructure - Wastewater / Recycled Water
33	Wastewater Renewable Energy Enhancement	Delta Diablo Sanitation District	Infrastructure - Wastewater / Recycled Water
43	Ironhouse Sanitary District Recycled Water Implementation - Phase B	Ironhouse Sanitary District	Infrastructure - Wastewater / Recycled Water
44	Ironhouse Sanitary District Recycled Water Implementation - Phase C	Ironhouse Sanitary District	Infrastructure - Wastewater / Recycled Water
45	Ironhouse Sanitary District Recycled Water Implementation -Phase A	Ironhouse Sanitary District	Infrastructure - Wastewater / Recycled Water

Projects Sorted by Project Type

Project ID #	Project Name	Sponsoring Agency / Organization	Project Type
46	Oakley Sewers	Ironhouse Sanitary District	Infrastructure - Wastewater / Recycled Water
48	Septage Receiving Station	Ironhouse Sanitary District	Infrastructure - Wastewater / Recycled Water
53	Viera Water and Sewer Service, NE Antioch	City of Antioch	Infrastructure - Water / Water Quality
4	City of Pittsburg Water Treatment Plant Improvements Project	City of Pittsburg	Infrastructure - Water / Water Quality
5	Rossmoor Well Replacement Project/Groundwater Monitoring Well System expansion	City of Pittsburg	Infrastructure - Water / Water Quality
23	BBID-CCWD Regional Intertie	Contra Costa Water District	Infrastructure - Water / Water Quality
24	Contra Costa Canal Levee Elimination and Flood Protection Project	Contra Costa Water District	Infrastructure - Water / Water Quality
27	Canal Liner Rehabilitation and Slope Stability at Milepost 23.03	Contra Costa Water District	Infrastructure - Water / Water Quality
35	Beacon West Arsenic Replacement Well	Diablo Water District	Infrastructure - Water / Water Quality
36	Bethel Island Water Supply Pipeline	Diablo Water District	Infrastructure - Water / Water Quality
38	Leak Detection and Repair	Diablo Water District/Contra Costa Water District	Infrastructure - Water / Water Quality
41	Treatment of Brackish Groundwater	Diablo Water District	Infrastructure - Water / Water Quality
50	Jersey Island Cutoff Levees	Reclamation District 830	Infrastructure - Water / Water Quality
39	Phase 3 Well Utilization Project	Diablo Water District	Infrastructure - Water / Water Quality
40	Tracy Subbasin Safe Yield Analysis	Diablo Water District	Monitoring
22	Marsh Ceek Methylmercury and Dissolved Oxygen Assessment	Contra Costa Flood Control and Water Conservation District	Monitoring
34	Advanced Metering and Leak Detection (AMLD) Project	Diablo Water District	Monitoring
47	Salinity Reduction	Ironhouse Sanitary District	Other
54	DDSD Salinity Reduction - Softener Rebate Program	Delta Diablo Sanitation District	Other
37	High Efficiency Toilets and Landscape Water Conservation	Diablo Water District	Other
6	Mercury Reduction Benefits of Low Impact Development	Contra Costa Clean Water Program	Research

Projects Sorted by Primary ECCC IRWM Plan Objective Category

Project ID #	Project Name	Sponsoring Agency / Organization	Primary ECCC IRWM Plan Objective Category	Primary ECCC IRWM Plan Objective
23	BBID-CCWD Regional Intertie	Contra Costa Water District	Funding for Water-Related Planning and Implementation	Increase regional cost efficiencies in treatment and delivery of water, wastewater, and recycled water
31	Recycled Water Facility Renewable Energy System	Delta Diablo Sanitation District	Funding for Water-Related Planning and Implementation	Increase regional cost efficiencies in treatment and delivery of water, wastewater, and recycled water
33	Wastewater Renewable Energy Enhancement	Delta Diablo Sanitation District	Funding for Water-Related Planning and Implementation	Increase regional cost efficiencies in treatment and delivery of water, wastewater, and recycled water
34	Advanced Metering and Leak Detection (AMLD) Project	Diablo Water District	Funding for Water-Related Planning and Implementation	Increase regional cost efficiencies in treatment and delivery of water, wastewater, and recycled water
43	Ironhouse Sanitary District Recycled Water Implementation - Phase B	Ironhouse Sanitary District	Funding for Water-Related Planning and Implementation	Increase regional cost efficiencies in treatment and delivery of water, wastewater, and recycled water
44	Ironhouse Sanitary District Recycled Water Implementation - Phase C	Ironhouse Sanitary District	Funding for Water-Related Planning and Implementation	Increase regional cost efficiencies in treatment and delivery of water, wastewater, and recycled water
45	Ironhouse Sanitary District Recycled Water Implementation -Phase A	Ironhouse Sanitary District	Funding for Water-Related Planning and Implementation	Increase regional cost efficiencies in treatment and delivery of water, wastewater, and recycled water
48	Septage Receiving Station	Ironhouse Sanitary District	Funding for Water-Related Planning and Implementation	Increase regional cost efficiencies in treatment and delivery of water, wastewater, and recycled water
39	Phase 3 Well Utilization Project	Diablo Water District	Funding for Water-Related Planning and Implementation	Increase regional cost efficiencies in treatment and delivery of water, wastewater, and recycled water
8	Knightsen Biofilter/Weltand Habitat Restoration	Contra Costa County	Restoration and Enhancement of the Delta Ecosystem and Other Environmental Resources	Enhance and restore habitat in the Delta and connected waterways
11	East Antioch Creek Marsh Restoration (#206)	Contra Costa County Flood Control & Water Conservation District	Restoration and Enhancement of the Delta Ecosystem and Other Environmental Resources	Enhance and restore habitat in the Delta and connected waterways
12	Marsh Creek Reservoir Capacity and Habitat Restoration (#213)	Contra Costa County Flood Control & Water Conservation District	Restoration and Enhancement of the Delta Ecosystem and Other Environmental Resources	Enhance and restore habitat in the Delta and connected waterways
42	Watershed and Habitat Protection/Restoration	East Contra Costa County Habitat Conservancy	Restoration and Enhancement of the Delta Ecosystem and Other Environmental Resources	Enhance and restore habitat in the Delta and connected waterways
52	Marsh Creek Delta Restoration Project	Reclamation District 830	Restoration and Enhancement of the Delta Ecosystem and Other Environmental Resources	Enhance and restore habitat in the Delta and connected waterways
25	Los Vaqueros Pond E-7 Embankment Rehabilitation	Contra Costa Water District	Restoration and Enhancement of the Delta Ecosystem and Other Environmental Resources	Minimize impacts to the Delta ecosystem and other environmental resources
2	BIMID Levee and Pump Station Improvement Project	Bethel Island Municipal Improvement District	Stormwater and Flood Management	Improve regional flood risk management
9	Upper Sand Creek Basin Surplus Material (#220)	Contra Costa County Flood & Water Conservation Control District	Stormwater and Flood Management	Improve regional flood risk management
10	Deer Creek Reservoir Seismic Assessment (#212)	Contra Costa County Flood Control & Water Conservation District	Stormwater and Flood Management	Improve regional flood risk management
13	Marsh Creek Reservoir Seismic Assessment (#210)	Contra Costa County Flood Control & Water Conservation District	Stormwater and Flood Management	Improve regional flood risk management
14	Marsh Creek Supplemental Capacity and Basin Development (#215)	Contra Costa County Flood Control & Water Conservation District	Stormwater and Flood Management	Improve regional flood risk management
15	Marsh Creek Widening Between Dainty Avenue and Sand Creek (#216)	Contra Costa County Flood Control & Water Conservation District	Stormwater and Flood Management	Improve regional flood risk management

Projects Sorted by Primary ECCC IRWM Plan Objective Category

Project ID #	Project Name	Sponsoring Agency / Organization	Primary ECCC IRWM Plan Objective Category	Primary ECCC IRWM Plan Objective
16	Oakley and Trembath Detention Basins (#207)	Contra Costa County Flood Control & Water Conservation District	Stormwater and Flood Management	Improve regional flood risk management
17	West Antioch Creek Improvements: 10th Street to 'L' Street (#203)	Contra Costa County Flood Control & Water Conservation District	Stormwater and Flood Management	Improve regional flood risk management
18	Dry Creek Reservoir Seismic Assessment (#211)	Contra Costa County Flood Control and Water Conservation District	Stormwater and Flood Management	Improve regional flood risk management
20	Lower Sand Creek Basin Construction (#222)	Contra Costa County Flood Control and Water Conservation District	Stormwater and Flood Management	Improve regional flood risk management
21	Deer Creek Reservoir Expansion (#217 and #218)	Contra Costa County Flood Control District	Stormwater and Flood Management	Improve regional flood risk management
3	Drainage Area 55 - West Antioch Creek Channel Improvements	City of Antioch	Stormwater and Flood Management	Manage local stormwater within the region
6	Mercury Reduction Benefits of Low Impact Development	Contra Costa Clean Water Program	Stormwater and Flood Management	Manage local stormwater within the region
19	Kellogg Creek Sedimentation Basin (#226)	Contra Costa County Flood Control and Water Conservation District	Stormwater and Flood Management	Manage local stormwater within the region
49	Lake Alhambra Sediment Mitigation Antioch Drainage Area 56	Lake Alhambra Property Owners Association	Stormwater and Flood Management	Manage local stormwater within the region
40	Tracy Subbasin Safe Yield Analysis	Diablo Water District	Water Quality and Related Regulations	Increase understanding of groundwater quality and potential threats to groundwater quality
7	East Contra Costa County Green Street Retrofit Network	Contra Costa County	Water Quality and Related Regulations	Limit quantity and improve quality of stormwater discharges to the Delta
54	DDSD Salinity Reduction - Softener Rebate Program	Delta Diablo Sanitation District	Water Quality and Related Regulations	Maintain/improve regional recycled water quality
32	Total Dissolved Solids Reduction / Salinity Management	Delta Diablo Sanitation District	Water Quality and Related Regulations	Maintain/improve regional recycled water quality
4	City of Pittsburg Water Treatment Plant Improvements Project	City of Pittsburg	Water Quality and Related Regulations	Maintain/improve regional treated drinking water quality
5	Rossmoor Well Replacement Project/Groundwater Monitoring Well System expansion	City of Pittsburg	Water Quality and Related Regulations	Maintain/improve regional treated drinking water quality
22	Marsh Ceek Methylmercury and Dissolved Oxygen Assessment	Contra Costa Flood Control and Water Conservation District	Water Quality and Related Regulations	Meet current and future water quality requirements for discharges to the Delta
28	Advanced Wastewater Treatment	Delta Diablo Sanitation District	Water Quality and Related Regulations	Meet current and future water quality requirements for discharges to the Delta
53	Viera Water and Sewer Service, NE Antioch	City of Antioch	Water Quality and Related Regulations	Protect/improve source water quality
24	Contra Costa Canal Levee Elimination and Flood Protection Project	Contra Costa Water District	Water Quality and Related Regulations	Protect/improve source water quality
35	Beacon West Arsenic Replacement Well	Diablo Water District	Water Quality and Related Regulations	Protect/improve source water quality
36	Bethel Island Water Supply Pipeline	Diablo Water District	Water Quality and Related Regulations	Protect/improve source water quality

Projects Sorted by Primary ECCC IRWM Plan Objective Category

Project ID #	Project Name	Sponsoring Agency / Organization	Primary ECCC IRWM Plan Objective Category	Primary ECCC IRWM Plan Objective
46	Oakley Sewers	Ironhouse Sanitary District	Water Quality and Related Regulations	Protect/improve source water quality
47	Salinity Reduction	Ironhouse Sanitary District	Water Quality and Related Regulations	Protect/improve source water quality
50	Jersey Island Cutoff Levees	Reclamation District 830	Water Quality and Related Regulations	Protect/improve source water quality
51	Jersey Island Levee Raising and Widening from Stations 333+00 to 470+00	Reclamation District 830	Water Quality and Related Regulations	Protect/improve source water quality
38	Leak Detection and Repair	Diablo Water District/Contra Costa Water District	Water Supply	Increase water conservation and water use efficiency
1	Recycle Water for AYSC	Antioch Youth Sports Complex	Water Supply	Increase water conservation and water use efficiency
26	Stormwater Management at Meadows Siphon	Contra Costa Water District	Water Supply	Increase water conservation and water use efficiency
27	Canal Liner Rehabilitation and Slope Stability at Milepost 23.03	Contra Costa Water DIstrict	Water Supply	Increase water conservation and water use efficiency
37	High Efficiency Toilets and Landscape Water Conservation	Diablo Water District	Water Supply	Increase water conservation and water use efficiency
41	Treatment of Brackish Groundwater	Diablo Water District	Water Supply	Pursue water supplies that are less subject to Delta influences and drought, such as recycled water and desalination
29	DDSD Advanced Water Treatment	Delta Diablo Sanitation District	Water Supply	Pursue water supplies that are less subject to Delta influences and drought, such as recycled water and desalination
30	DDSD Recycled Water Distribution System Expansion	Delta Diablo Sanitation District	Water Supply	Pursue water supplies that are less subject to Delta influences and drought, such as recycled water and desalination

Projects Sorted by Project Score

Project ID #	Project Name	Sponsoring Agency / Organization	Project Score
4	City of Pittsburg Water Treatment Plant Improvements Project	City of Pittsburg	26.00
5	Rossmoor Well Replacement Project/Groundwater Monitoring Well System expansion	City of Pittsburg	25.00
29	DDSD Advanced Water Treatment	Delta Diablo Sanitation District	24.00
30	DDSD Recycled Water Distribution System Expansion	Delta Diablo Sanitation District	24.00
3	Drainage Area 55 - West Antioch Creek Channel Improvements	City of Antioch	22.00
28	Advanced Wastewater Treatment	Delta Diablo Sanitation District	21.00
7	East Contra Costa County Green Street Retrofit Network	Contra Costa County	19.00
24	Contra Costa Canal Levee Elimination and Flood Protection Project	Contra Costa Water District	19.00
22	Marsh Ceek Methylmercury and Dissolved Oxygen Assessment	Contra Costa Flood Control and Water Conservation District	17.00
43	Ironhouse Sanitary District Recycled Water Implementation - Phase B	Ironhouse Sanitary District	17.00
44	Ironhouse Sanitary District Recycled Water Implementation - Phase C	Ironhouse Sanitary District	17.00
45	Ironhouse Sanitary District Recycled Water Implementation - Phase A	Ironhouse Sanitary District	17.00
47	Salinity Reduction	Ironhouse Sanitary District	17.00
49	Lake Alhambra Sediment Mitigation Antioch Drainage Area 56	Lake Alhambra Property Owners Association	17.00
50	Jersey Island Cutoff Levees	Reclamation District 830	16.00
40	Tracy Subbasin Safe Yield Analysis	Diablo Water District	16.00
38	Leak Detection and Repair	Diablo Water District/Contra Costa Water District	15.00
2	BIMID Levee and Pump Station Improvement Project	Bethel Island Municipal Improvement District	14.00
54	DDSD Salinity Reduction - Softener Rebate Program	Delta Diablo Sanitation District	14.00
32	Total Dissolved Solids Reduction / Salinity Management	Delta Diablo Sanitation District	14.00
51	Jersey Island Levee Raising and Widening from Stations 333+00 to 470+00	Reclamation District 830	14.00
23	BBID-CCWD Regional Intertie	Contra Costa Water District	13.00
8	Knightsen Biofilter/Weltand Habitat Restoration	Contra Costa County	11.00
26	Stormwater Management at Meadows Siphon	Contra Costa Water District	11.00
31	Recycled Water Facility Renewable Energy System	Delta Diablo Sanitation District	11.00
41	Treatment of Brackish Groundwater	Diablo Water District	10.00
53	Viera Water and Sewer Service, NE Antioch	City of Antioch	10.00
11	East Antioch Creek Marsh Restoration (#206)	Contra Costa County Flood Control & Water Conservation District	10.00
12	Marsh Creek Reservoir Capacity and Habitat Restoration (#213)	Contra Costa County Flood Control & Water Conservation District	10.00
27	Canal Liner Rehabilitation and Slope Stability at Milepost 23.03	Contra Costa Water DIstrict	10.00
37	High Efficiency Toilets and Landscape Water Conservation	Diablo Water District	10.00
6	Mercury Reduction Benefits of Low Impact Development	Contra Costa Clean Water Program	9.00
16	Oakley and Trembath Detention Basins (#207)	Contra Costa County Flood Control & Water Conservation District	9.00
33	Wastewater Renewable Energy Enhancement	Delta Diablo Sanitation District	9.00

Projects Sorted by Project Score

Project ID #	Project Name	Sponsoring Agency / Organization	Project Score
36	Bethel Island Water Supply Pipeline	Diablo Water District	9.00
42	Watershed and Habitat Protection/Restoration	East Contra Costa County Habitat Conservancy	9.00
39	Phase 3 Well Utilization Project	Diablo Water District	7.00
9	Upper Sand Creek Basin Surplus Material (#220)	Contra Costa County Flood & Water Conservation Control District	7.00
19	Kellogg Creek Sedimentation Basin (#226)	Contra Costa County Flood Control and Water Conservation District	7.00
20	Lower Sand Creek Basin Construction (#222)	Contra Costa County Flood Control and Water Conservation District	7.00
34	Advanced Metering and Leak Detection (AMLD) Project	Diablo Water District	7.00
14	Marsh Creek Supplemental Capacity and Basin Development (#215)	Contra Costa County Flood Control & Water Conservation District	6.00
52	Marsh Creek Delta Restoration Project	Reclamation District 830	6.00
10	Deer Creek Reservoir Seismic Assessment (#212)	Contra Costa County Flood Control & Water Conservation District	5.00
15	Marsh Creek Widening Between Dainty Avenue and Sand Creek (#216)	Contra Costa County Flood Control & Water Conservation District	5.00
17	West Antioch Creek Improvements: 10th Street to 'L' Street (#203)	Contra Costa County Flood Control & Water Conservation District	5.00
18	Dry Creek Reservoir Seismic Assessment (#211)	Contra Costa County Flood Control and Water Conservation District	5.00
35	Beacon West Arsenic Replacement Well	Diablo Water District	5.00
46	Oakley Sewers	Ironhouse Sanitary District	5.00
1	Recycle Water for AYSC	Antioch Youth Sports Complex	4.00
13	Marsh Creek Reservoir Seismic Assessment (#210)	Contra Costa County Flood Control & Water Conservation District	4.00
21	Deer Creek Reservoir Expansion (#217 and #218)	Contra Costa County Flood Control District	4.00
25	Los Vaqueros Pond E-7 Embankment Rehabilitation	Contra Costa Water District	4.00
48	Septage Receiving Station	Ironhouse Sanitary District	2.00

Projects Sorted by Resource Management Strategies (RMS) Diversification

Project ID #	Project Name	Sponsoring Agency / Organization	Resource Management Strategies (RMS) Diversification
4	City of Pittsburg Water Treatment Plant Improvements Project	City of Pittsburg	10
29	DDSD Advanced Water Treatment	Delta Diablo Sanitation District	9
12	Marsh Creek Reservoir Capacity and Habitat Restoration (#213)	Contra Costa County Flood Control & Water Conservation District	7
28	Advanced Wastewater Treatment	Delta Diablo Sanitation District	7
24	Contra Costa Canal Levee Elimination and Flood Protection Project	Contra Costa Water District	6
27	Canal Liner Rehabilitation and Slope Stability at Milepost 23.03	Contra Costa Water DIstrict	6
3	Drainage Area 55 - West Antioch Creek Channel Improvements	City of Antioch	5
7	East Contra Costa County Green Street Retrofit Network	Contra Costa County	5
8	Knightsen Biofilter/Weltand Habitat Restoration	Contra Costa County	5
11	East Antioch Creek Marsh Restoration (#206)	Contra Costa County Flood Control & Water Conservation District	5
15	Marsh Creek Widening Between Dainty Avenue and Sand Creek (#216)	Contra Costa County Flood Control & Water Conservation District	5
22	Marsh Ceek Methylmercury and Dissolved Oxygen Assessment	Contra Costa Flood Control and Water Conservation District	5
30	DDSD Recycled Water Distribution System Expansion	Delta Diablo Sanitation District	5
41	Treatment of Brackish Groundwater	Diablo Water District	5
5	Rossmoor Well Replacement Project/Groundwater Monitoring Well System expansion	City of Pittsburg	4
9	Upper Sand Creek Basin Surplus Material (#220)	Contra Costa County Flood & Water Conservation Control District	4
13	Marsh Creek Reservoir Seismic Assessment (#210)	Contra Costa County Flood Control & Water Conservation District	4
14	Marsh Creek Supplemental Capacity and Basin Development (#215)	Contra Costa County Flood Control & Water Conservation District	4
16	Oakley and Trembath Detention Basins (#207)	Contra Costa County Flood Control & Water Conservation District	4
19	Kellogg Creek Sedimentation Basin (#226)	Contra Costa County Flood Control and Water Conservation District	4
20	Lower Sand Creek Basin Construction (#222)	Contra Costa County Flood Control and Water Conservation District	4
21	Deer Creek Reservoir Expansion (#217 and #218)	Contra Costa County Flood Control District	4
23	BBID-CCWD Regional Intertie	Contra Costa Water District	4
26	Stormwater Management at Meadows Siphon	Contra Costa Water District	4
54	DDSD Salinity Reduction - Softener Rebate Program	Delta Diablo Sanitation District	4
32	Total Dissolved Solids Reduction / Salinity Management	Delta Diablo Sanitation District	4
49	Lake Alhambra Sediment Mitigation Antioch Drainage Area 56	Lake Alhambra Property Owners Association	4
2	BIMID Levee and Pump Station Improvement Project	Bethel Island Municipal Improvement District	3
53	Viera Water and Sewer Service, NE Antioch	City of Antioch	3

Projects Sorted by Resource Management Strategies (RMS) Diversification

Project ID #	Project Name	Sponsoring Agency / Organization	Resource Management Strategies (RMS) Diversification
10	Deer Creek Reservoir Seismic Assessment (#212)	Contra Costa County Flood Control & Water Conservation District	3
17	West Antioch Creek Improvements: 10th Street to 'L' Street (#203)	Contra Costa County Flood Control & Water Conservation District	3
18	Dry Creek Reservoir Seismic Assessment (#211)	Contra Costa County Flood Control and Water Conservation District	3
36	Bethel Island Water Supply Pipeline	Diablo Water District	3
42	Watershed and Habitat Protection/Restoration	East Contra Costa County Habitat Conservancy	3
50	Jersey Island Cutoff Levees	Reclamation District 830	3
38	Leak Detection and Repair	Diablo Water District/Contra Costa Water District	3
40	Tracy Subbasin Safe Yield Analysis	Diablo Water District	2
1	Recycle Water for AYSC	Antioch Youth Sports Complex	2
6	Mercury Reduction Benefits of Low Impact Development	Contra Costa Clean Water Program	2
31	Recycled Water Facility Renewable Energy System	Delta Diablo Sanitation District	2
35	Beacon West Arsenic Replacement Well	Diablo Water District	2
37	High Efficiency Toilets and Landscape Water Conservation	Diablo Water District	2
39	Phase 3 Well Utilization Project	Diablo Water District	2
43	Ironhouse Sanitary District Recycled Water Implementation - Phase B	Ironhouse Sanitary District	2
44	Ironhouse Sanitary District Recycled Water Implementation - Phase C	Ironhouse Sanitary District	2
45	Ironhouse Sanitary District Recycled Water Implementation -Phase A	Ironhouse Sanitary District	2
47	Salinity Reduction	Ironhouse Sanitary District	2
51	Jersey Island Levee Raising and Widening from Stations 333+00 to 470+00	Reclamation District 830	2
52	Marsh Creek Delta Restoration Project	Reclamation District 830	2
25	Los Vaqueros Pond E-7 Embankment Rehabilitation	Contra Costa Water District	1
33	Wastewater Renewable Energy Enhancement	Delta Diablo Sanitation District	1
34	Advanced Metering and Leak Detection (AMLD) Project	Diablo Water District	1
46	Oakley Sewers	Ironhouse Sanitary District	1
48	Septage Receiving Station	Ironhouse Sanitary District	1

Projects Sorted by Project Status: Design Date

Project ID #	Project Name	Sponsoring Agency / Organization	Project Status: Design Date
35	Beacon West Arsenic Replacement Well	Diablo Water District	7/1/2012
9	Upper Sand Creek Basin Surplus Material (#220)	Contra Costa County Flood & Water Conservation Control District	8/1/2012
24	Contra Costa Canal Levee Elimination and Flood Protection Project	Contra Costa Water District	9/1/2012
34	Advanced Metering and Leak Detection (AMLD) Project	Diablo Water District	9/1/2012
43	Ironhouse Sanitary District Recycled Water Implementation - Phase B	Ironhouse Sanitary District	9/1/2012
44	Ironhouse Sanitary District Recycled Water Implementation - Phase C	Ironhouse Sanitary District	9/1/2012
45	Ironhouse Sanitary District Recycled Water Implementation - Phase A	Ironhouse Sanitary District	9/1/2012
46	Oakley Sewers	Ironhouse Sanitary District	9/1/2012
48	Septage Receiving Station	Ironhouse Sanitary District	9/1/2012
50	Jersey Island Cutoff Levees	Reclamation District 830	9/1/2012
51	Jersey Island Levee Raising and Widening from Stations 333+00 to 470+00	Reclamation District 830	9/1/2012
52	Marsh Creek Delta Restoration Project	Reclamation District 830	9/1/2012
25	Los Vaqueros Pond E-7 Embankment Rehabilitation	Contra Costa Water District	4/1/2013
33	Wastewater Renewable Energy Enhancement	Delta Diablo Sanitation District	4/1/2013
27	Canal Liner Rehabilitation and Slope Stability at Milepost 23.03	Contra Costa Water DIstrict	5/1/2013
31	Recycled Water Facility Renewable Energy System	Delta Diablo Sanitation District	6/1/2013
49	Lake Alhambra Sediment Mitigation Antioch Drainage Area 56	Lake Alhambra Property Owners Association	6/1/2013
38	Leak Detection and Repair	Diablo Water District/Contra Costa Water District	6/1/2013
40	Tracy Subbasin Safe Yield Analysis	Diablo Water District	9/1/2013
32	Total Dissolved Solids Reduction / Salinity Management	Delta Diablo Sanitation District	10/1/2013
37	High Efficiency Toilets and Landscape Water Conservation	Diablo Water District	12/1/2013
6	Mercury Reduction Benefits of Low Impact Development	Contra Costa Clean Water Program	1/1/2014
3	Drainage Area 55 - West Antioch Creek Channel Improvements	City of Antioch	4/1/2014
5	Rossmoor Well Replacement Project/Groundwater Monitoring Well System expansion	City of Pittsburg	7/1/2014
8	Knightsen Biofilter/Weltand Habitat Restoration	Contra Costa County	7/1/2014
26	Stormwater Management at Meadows Siphon	Contra Costa Water District	7/1/2014
42	Watershed and Habitat Protection/Restoration	East Contra Costa County Habitat Conservancy	7/1/2014
41	Treatment of Brackish Groundwater	Diablo Water District	9/1/2014
23	BBID-CCWD Regional Intertie	Contra Costa Water District	9/1/2014

Projects Sorted by Project Status: Design Date

29	DDSD Advanced Water Treatment	Delta Diablo Sanitation District	10/1/2014
30	DDSD Recycled Water Distribution System Expansion	Delta Diablo Sanitation District	10/1/2014
16	Oakley and Trembath Detention Basins (#207)	Contra Costa County Flood Control & Water Conservation District	12/1/2014
21	Deer Creek Reservoir Expansion (#217 and #218)	Contra Costa County Flood Control District	1/1/2015
4	City of Pittsburg Water Treatment Plant Improvements Project	City of Pittsburg	6/1/2015
39	Phase 3 Well Utilization Project	Diablo Water District	9/1/2015
7	East Contra Costa County Green Street Retrofit Network	Contra Costa County	9/1/2015
36	Bethel Island Water Supply Pipeline	Diablo Water District	9/1/2015
28	Advanced Wastewater Treatment	Delta Diablo Sanitation District	6/1/2016
12	Marsh Creek Reservoir Capacity and Habitat Restoration (#213)	Contra Costa County Flood Control & Water Conservation District	9/1/2017
20	Lower Sand Creek Basin Construction (#222)	Contra Costa County Flood Control and Water Conservation District	9/1/2017
11	East Antioch Creek Marsh Restoration (#206)	Contra Costa County Flood Control & Water Conservation District	8/1/2020
17	West Antioch Creek Improvements: 10th Street to 'L' Street (#203)	Contra Costa County Flood Control & Water Conservation District	8/1/2020
19	Kellogg Creek Sedimentation Basin (#226)	Contra Costa County Flood Control and Water Conservation District	8/1/2020
14	Marsh Creek Supplemental Capacity and Basin Development (#215)	Contra Costa County Flood Control & Water Conservation District	9/1/2020
15	Marsh Creek Widening Between Dainty Avenue and Sand Creek (#216)	Contra Costa County Flood Control & Water Conservation District	9/1/2020
1	Recycle Water for AYSC	Antioch Youth Sports Complex	-
2	BIMID Levee and Pump Station Improvement Project	Bethel Island Municipal Improvement District	-
53	Viera Water and Sewer Service, NE Antioch	City of Antioch	-
10	Deer Creek Reservoir Seismic Assessment (#212)	Contra Costa County Flood Control & Water Conservation District	-
13	Marsh Creek Reservoir Seismic Assessment (#210)	Contra Costa County Flood Control & Water Conservation District	-
18	Dry Creek Reservoir Seismic Assessment (#211)	Contra Costa County Flood Control and Water Conservation District	-
22	Marsh Ceek Methylmercury and Dissolved Oxygen Assessment	Contra Costa Flood Control and Water Conservation District	-
54	DDSD Salinity Reduction - Softener Rebate Program	Delta Diablo Sanitation District	-
47	Salinity Reduction	Ironhouse Sanitary District	-

Projects Sorted by Total Cost

Project ID #	Project Name	Sponsoring Agency / Organization	Total Cost
28	Advanced Wastewater Treatment	Delta Diablo Sanitation District	$ 80,000,000
24	Contra Costa Canal Levee Elimination and Flood Protection Project	Contra Costa Water District	$ 58,500,000
29	DDSD Advanced Water Treatment	Delta Diablo Sanitation District	$ 50,000,000
36	Bethel Island Water Supply Pipeline	Diablo Water District	$ 30,000,000
50	Jersey Island Cutoff Levees	Reclamation District 830	$ 27,300,000
30	DDSD Recycled Water Distribution System Expansion	Delta Diablo Sanitation District	$ 25,000,000
41	Treatment of Brackish Groundwater	Diablo Water District	$ 20,000,000
44	Ironhouse Sanitary District Recycled Water Implementation - Phase C	Ironhouse Sanitary District	$ 11,813,000
4	City of Pittsburg Water Treatment Plant Improvements Project	City of Pittsburg	$ 10,580,000
43	Ironhouse Sanitary District Recycled Water Implementation - Phase B	Ironhouse Sanitary District	$ 10,243,800
45	Ironhouse Sanitary District Recycled Water Implementation -Phase A	Ironhouse Sanitary District	$ 10,243,800
16	Oakley and Trembath Detention Basins (#207)	Contra Costa County Flood Control & Water Conservation District	$ 10,051,000
52	Marsh Creek Delta Restoration Project	Reclamation District 830	$ 9,751,000
3	Drainage Area 55 - West Antioch Creek Channel Improvements	City of Antioch	$ 9,263,600
11	East Antioch Creek Marsh Restoration (#206)	Contra Costa County Flood Control & Water Conservation District	$ 9,220,000
39	Phase 3 Well Utilization Project	Diablo Water District	$ 8,100,000
8	Knightsen Biofilter/Weltand Habitat Restoration	Contra Costa County	$ 7,525,000
9	Upper Sand Creek Basin Surplus Material (#220)	Contra Costa County Flood & Water Conservation Control District	$ 7,080,000
51	Jersey Island Levee Raising and Widening from Stations 333+00 to 470+00	Reclamation District 830	$ 7,000,000
2	BIMID Levee and Pump Station Improvement Project	Bethel Island Municipal Improvement District	$ 6,720,000
53	Viera Water and Sewer Service, NE Antioch	City of Antioch	$ 6,625,000
20	Lower Sand Creek Basin Construction (#222)	Contra Costa County Flood Control and Water Conservation District	$ 6,215,000
46	Oakley Sewers	Ironhouse Sanitary District	$ 6,200,000
12	Marsh Creek Reservoir Capacity and Habitat Restoration (#213)	Contra Costa County Flood Control & Water Conservation District	$ 5,356,000
17	West Antioch Creek Improvements: 10th Street to 'L' Street (#203)	Contra Costa County Flood Control & Water Conservation District	$ 4,906,000
15	Marsh Creek Widening Between Dainty Avenue and Sand Creek (#216)	Contra Costa County Flood Control & Water Conservation District	$ 4,043,000
31	Recycled Water Facility Renewable Energy System	Delta Diablo Sanitation District	$ 3,800,000
14	Marsh Creek Supplemental Capacity and Basin Development (#215)	Contra Costa County Flood Control & Water Conservation District	$ 3,664,000
54	DDSD Salinity Reduction - Softener Rebate Program	Delta Diablo Sanitation District	$ 3,000,000
32	Total Dissolved Solids Reduction / Salinity Management	Delta Diablo Sanitation District	$ 2,500,000

Projects Sorted by Total Cost

Project ID #	Project Name	Sponsoring Agency / Organization	Total Cost
47	Salinity Reduction	Ironhouse Sanitary District	$ 2,500,000
21	Deer Creek Reservoir Expansion (#217 and #218)	Contra Costa County Flood Control District	$ 2,469,000
49	Lake Alhambra Sediment Mitigation Antioch Drainage Area 56	Lake Alhambra Property Owners Association	$ 2,200,000
19	Kellogg Creek Sedimentation Basin (#226)	Contra Costa County Flood Control and Water Conservation District	$ 2,094,000
34	Advanced Metering and Leak Detection (AMLD) Project	Diablo Water District	$ 2,010,000
42	Watershed and Habitat Protection/Restoration	East Contra Costa County Habitat Conservancy	$ 1,670,000
38	Leak Detection and Repair	Diablo Water District/Contra Costa Water District	$ 1,460,000
5	Rossmoor Well Replacement Project/Groundwater Monitoring Well System expansion	City of Pittsburg	$ 1,300,000
33	Wastewater Renewable Energy Enhancement	Delta Diablo Sanitation District	$ 1,200,000
40	Tracy Subbasin Safe Yield Analysis	Diablo Water District	$ 1,150,000
6	Mercury Reduction Benefits of Low Impact Development	Contra Costa Clean Water Program	$ 1,000,000
27	Canal Liner Rehabilitation and Slope Stability at Milepost 23.03	Contra Costa Water DIstrict	$ 638,000
7	East Contra Costa County Green Street Retrofit Network	Contra Costa County	$ 500,000
22	Marsh Ceek Methylmercury and Dissolved Oxygen Assessment	Contra Costa Flood Control and Water Conservation District	$ 500,000
48	Septage Receiving Station	Ironhouse Sanitary District	$ 500,000
13	Marsh Creek Reservoir Seismic Assessment (#210)	Contra Costa County Flood Control & Water Conservation District	$ 471,000
37	High Efficiency Toilets and Landscape Water Conservation	Diablo Water District	$ 420,000
18	Dry Creek Reservoir Seismic Assessment (#211)	Contra Costa County Flood Control and Water Conservation District	$ 363,004
26	Stormwater Management at Meadows Siphon	Contra Costa Water District	$ 337,000
10	Deer Creek Reservoir Seismic Assessment (#212)	Contra Costa County Flood Control & Water Conservation District	$ 253,002
25	Los Vaqueros Pond E-7 Embankment Rehabilitation	Contra Costa Water District	$ 209,800
23	BBID-CCWD Regional Intertie	Contra Costa Water District	$ 200,000
35	Beacon West Arsenic Replacement Well	Diablo Water District	$ 110,000
1	Recycle Water for AYSC	Antioch Youth Sports Complex	$ 100,000

Projects Sorted by Percent Funded

Project ID #	Project Name	Sponsoring Agency / Organization	Percent Funded
3	Drainage Area 55 - West Antioch Creek Channel Improvements	City of Antioch	66%
10	Deer Creek Reservoir Seismic Assessment (#212)	Contra Costa County Flood Control & Water Conservation District	50%
4	City of Pittsburg Water Treatment Plant Improvements Project	City of Pittsburg	50%
5	Rossmoor Well Replacement Project/Groundwater Monitoring Well System expansion	City of Pittsburg	50%
27	Canal Liner Rehabilitation and Slope Stability at Milepost 23.03	Contra Costa Water DIstrict	50%
18	Dry Creek Reservoir Seismic Assessment (#211)	Contra Costa County Flood Control and Water Conservation District	48%
26	Stormwater Management at Meadows Siphon	Contra Costa Water District	47%
42	Watershed and Habitat Protection/Restoration	East Contra Costa County Habitat Conservancy	45%
19	Kellogg Creek Sedimentation Basin (#226)	Contra Costa County Flood Control and Water Conservation District	43%
12	Marsh Creek Reservoir Capacity and Habitat Restoration (#213)	Contra Costa County Flood Control & Water Conservation District	37%
13	Marsh Creek Reservoir Seismic Assessment (#210)	Contra Costa County Flood Control & Water Conservation District	37%
2	BIMID Levee and Pump Station Improvement Project	Bethel Island Municipal Improvement District	34%
20	Lower Sand Creek Basin Construction (#222)	Contra Costa County Flood Control and Water Conservation District	32%
16	Oakley and Trembath Detention Basins (#207)	Contra Costa County Flood Control & Water Conservation District	30%
23	BBID-CCWD Regional Intertie	Contra Costa Water District	25%
25	Los Vaqueros Pond E-7 Embankment Rehabilitation	Contra Costa Water District	25%
21	Deer Creek Reservoir Expansion (#217 and #218)	Contra Costa County Flood Control District	20%
6	Mercury Reduction Benefits of Low Impact Development	Contra Costa Clean Water Program	20%
22	Marsh Ceek Methylmercury and Dissolved Oxygen Assessment	Contra Costa Flood Control and Water Conservation District	15%
40	Tracy Subbasin Safe Yield Analysis	Diablo Water District	13%
34	Advanced Metering and Leak Detection (AMLD) Project	Diablo Water District	10%
39	Phase 3 Well Utilization Project	Diablo Water District	10%
35	Beacon West Arsenic Replacement Well	Diablo Water District	9%
14	Marsh Creek Supplemental Capacity and Basin Development (#215)	Contra Costa County Flood Control & Water Conservation District	7%
15	Marsh Creek Widening Between Dainty Avenue and Sand Creek (#216)	Contra Costa County Flood Control & Water Conservation District	6%
41	Treatment of Brackish Groundwater	Diablo Water District	5%
37	High Efficiency Toilets and Landscape Water Conservation	Diablo Water District	5%
36	Bethel Island Water Supply Pipeline	Diablo Water District	3%
38	Leak Detection and Repair	Diablo Water District/Contra Costa Water District	2%
11	East Antioch Creek Marsh Restoration (#206)	Contra Costa County Flood Control & Water Conservation District	2%

Projects Sorted by Percent Funded

Project ID #	Project Name	Sponsoring Agency / Organization	Percent Funded
17	West Antioch Creek Improvements: 10th Street to 'L' Street (#203)	Contra Costa County Flood Control & Water Conservation District	2%
9	Upper Sand Creek Basin Surplus Material (#220)	Contra Costa County Flood & Water Conservation Control District	1%
30	DDSD Recycled Water Distribution System Expansion	Delta Diablo Sanitation District	1%
1	Recycle Water for AYSC	Antioch Youth Sports Complex	0%
53	Viera Water and Sewer Service, NE Antioch	City of Antioch	0%
7	East Contra Costa County Green Street Retrofit Network	Contra Costa County	0%
8	Knightsen Biofilter/Weltand Habitat Restoration	Contra Costa County	0%
24	Contra Costa Canal Levee Elimination and Flood Protection Project	Contra Costa Water District	0%
28	Advanced Wastewater Treatment	Delta Diablo Sanitation District	0%
29	DDSD Advanced Water Treatment	Delta Diablo Sanitation District	0%
54	DDSD Salinity Reduction - Softener Rebate Program	Delta Diablo Sanitation District	0%
31	Recycled Water Facility Renewable Energy System	Delta Diablo Sanitation District	0%
32	Total Dissolved Solids Reduction / Salinity Management	Delta Diablo Sanitation District	0%
33	Wastewater Renewable Energy Enhancement	Delta Diablo Sanitation District	0%
43	Ironhouse Sanitary District Recycled Water Implementation - Phase B	Ironhouse Sanitary District	0%
44	Ironhouse Sanitary District Recycled Water Implementation - Phase C	Ironhouse Sanitary District	0%
45	Ironhouse Sanitary District Recycled Water Implementation - Phase A	Ironhouse Sanitary District	0%
46	Oakley Sewers	Ironhouse Sanitary District	0%
47	Salinity Reduction	Ironhouse Sanitary District	0%
48	Septage Receiving Station	Ironhouse Sanitary District	0%
49	Lake Alhambra Sediment Mitigation Antioch Drainage Area 56	Lake Alhambra Property Owners Association	0%
50	Jersey Island Cutoff Levees	Reclamation District 830	0%
51	Jersey Island Levee Raising and Widening from Stations 333+00 to 470+00	Reclamation District 830	0%
52	Marsh Creek Delta Restoration Project	Reclamation District 830	0%

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ECCC IRWM Plan Projects Detailed Data

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Project Name			Recycle Water for AYSC	BIMID Levee and Pump Station Improvement Project	Drainage Area 55 – West Antioch Creek Channel Improvements	Viera Water and Sewer Service, NE Antioch	City of Pittsburg Water Treatment Plant Improvements Projects
Sponsoring Agency/Organization			Antioch Youth Sports Complex	Bethel Island Municipal Improvement District	City of Antioch	City of Antioch	City of Pittsburg
Project ID #			**1**	**2**	**3**	**53**	**4**
Project Description	Project Type		Infrastructure – Wastewater/Recycled Water	Infrastructure – Stormwater/Flood Management	Infrastructure – Stormwater/Flood Management	Infrastructure - Water/Water Quality	Infrastructure – Water/Water Quality
	Describe the project		Use recycled water to irrigate the 20 acres of youth sports fields. This will reduce the cost of water for AYSC and allow AYSC to keep the fields green during drought years.	To ensure the continued safety of the island residents and maintain property values, the Bethel Island Municipal Improvement District (BIMID) developed a Bethel Island Levee and Drainage Revitalization Plan with the following goals: raising the Bethel Island levee to meet current height standards, place riprap on the entire 11.5 miles of Bethel Island levee, and clean and re-grade 19.1 miles of Bethel Island drainage ditches to improve proper water flow. To meet these goals, the following capital projects are needed: 1) placement of riprap on 11.5 miles of levees, 2) installation of an all-weather surface for the entire levee crown, 3) completing levee raising to Public Law 84-99 Standards, 4) culvert replacement, and 5) elevation of two (2) pump stations with trash capture components (screens). These projects, when combined with special maintenance projects, will upgrade the flood protection for Bethel Island to current standards.	The City of Antioch is partnering with the Contra Costa County Flood Control District (CCCFCD) to replace an undersized concrete trapezoidal channel & arch culverts, & desilt 3,000 feet of West Antioch Creek to eliminate flooding to properties adjacent to the channel and within a DAC. In 1993 CCCFCD constructed channel improvements for West Antioch Creek and improved flood capacity to a 25-year level of protection. The project extended from the San Joaquin River to 8th St. in Antioch; as a result, a 650 foot gap exists between the 1993 improvements and the earthen canal on the Antioch Fairgrounds property. The project will install 4 14'x7' Caltrans Standard Box Culverts, 620' long to address the chronic flooding at the gap. The project will prevent the chronic problem of flood waters leaving West Antioch Creek, flooding local residential, commercial and industrial areas, and then returning to San Joaquin River basin and ultimately the Delta, as a contaminated source.	City of Antioch project to install sewer and water infrastructure for the Viera area, a residential area of 120 homes included in proposed Antioch NE Annexation. Area is a DAC.	The City owns & operates a 32 mgd Water Treatment Plant (WTP) that was last expanded/upgraded in 1990 & is in need of improvements to mitigate current operating problems, prepare to reliably treat the flow rates for which it was originally designed, & meet current and future drinking water regulations. CDPH sent a letter to the City in 12/2010 requesting the City seek solutions to mitigate the filter backwash recycled water turbidity problem as it often exceeds 2 NTU, the turbidity limit recommended by the Cryptosporidium Action Plan. The City prepared a WTP Improvements Study (July 2011) identifying 3 phases of high priority improvements to the City's WTP to be implemented as part of the proposed Project. Phase 1: influent blending & chlorine dioxide contact, chlorine dioxide generation and chemical storage and chlorinator modification, ammonia feed relocation, & spent filter backwash treatment. Phase 2: sludge management improvements. Phase 3: add a 0.5 MG backwash basin.
	Project Partners	Agency/Organization Name	-	Contra Costa County	Contra Costa Flood Control & Water Conservation District	-	-
ECCC IRWM Plan Objective(s) – Ranking Criteria #1	Funding for Water-Related Planning and Implementation	Increase regional cost efficiencies in treatment and delivery of water, wastewater, and recycled water	-	-	-	-	Additional: The Project would allow the City to comply with the Filter Backwash Recycling Rule, increasing the quantity of water recycled within the treatment process, more effectively pretreat the well water supply, and reducing reliance on Delta supplies.
		Implement projects that have region-wide benefits	-	-	Additional: The project will provide significant benefits to the region including improving stormwater/flood management, reducing pollution to the Delta, and protecting aquatic habitat in the Delta.	-	Additional: The Project would provide significant benefits to the region, including improving stormwater management, reducing pollution to the Bay-Delta, reducing reliance on Delta supplies, and protecting aquatic habitat in the Delta.
	Water Supply	Pursue water supplies that are less subject to Delta influences and drought, such as recycled water and desalination	Additional: Allow AYSC to keep the fields green during drought years	-	-	-	Additional: The Project would allow the City to increase the quantity of water recycled within the treatment process, reducing reliance on Delta supplies.
		Increase water conservation and water use efficiency	Primary: Reduce the amount of drinking water that the complex uses	-	-	-	Additional: The Project would allow the City to increase the quantity of water recycled within the treatment process, improving water use efficiency.

Project Name			Recycle Water for AYSC	BIMID Levee and Pump Station Improvement Project	Drainage Area 55 – West Antioch Creek Channel Improvements	Viera Water and Sewer Service, NE Antioch	City of Pittsburg Water Treatment Plant Improvements Projects
Sponsoring Agency/Organization			Antioch Youth Sports Complex	Bethel Island Municipal Improvement District	City of Antioch	City of Antioch	City of Pittsburg
		Increase water transfers	-	-	-	-	-
		Pursue regional exchanges for emergencies, ideally using existing infrastructure	-	-	-	-	-
		Enhance understanding of how groundwater fits into the water portfolio and investigate groundwater as a regional source (e.g., conjunctive use)	-	-	-	-	-
	Water Quality and Related Regulations	Protect/Improve source water quality	-	Additional: Trash screens that can capture trash down to the size of cigarette butts are proposed for the two pump stations to reduce the trash. The Delta waters are used by some downstream municipalities as a drinking water source.	Additional: The project will improve stormwater/flood management and reduce pollution to the Delta, improving source water quality for Delta users statewide.	Primary: Providing public water and sewer in place of private wells and septic system in this area will protect/improve surface and groundwater sources in this area.	Additional: The Project would improve stormwater management and reduce pollution to the Bay-Delta, improving source water quality for Delta users statewide.
		Maintain/Improve regional treated drinking water quality	-	-	-	-	Primary: Upgrading the WTP is necessary in order to improve drinking water quality, improve system reliability and meet regulatory requirements.
		Maintain/Improve regional recycled water quality	-	-	-	-	Additional: The project would improve source water quality. Improved source water quality will, in turn, result in improved wastewater and recycled water quality for the region.
		Increase understanding of groundwater quality and potential threats to groundwater quality	-	-	-	-	-
		Meet current and future water quality requirements for discharges to the Delta	-	Additional: The trash capture component of this project will contribute to Contra Costa County's compliance with the trash load reduction requirements in its MS4 NPDES Permits.	Additional: There will be reduced pollutant loading to the Delta.	-	Additional: There will be reduced pollutant loading to the Delta.
		Limit quantity and improve quality of stormwater discharges to the Delta	-	Additional: The intent is to include measures that will reduce the trash and other pollutants discharging via the pumps to Delta waters.	Additional: There will be reduced pollutant loading resulting from the elimination of flooding.	-	Additional: There will be reduced pollutant loading resulting from the elimination of stormwater overflows of the lagoon.
	Restoration and Enhancement of the Delta Ecosystem and Other Environmental	Enhance and restore habitat in the Delta and connected waterways	-	Additional: Reduction in the trash loads improves habitat quality.	Additional: By eliminating flooding, the project will reduce pollutant loading to the Delta, improving Delta water quality and associated aquatic habitat.	-	Additional: The Project would reduce pollution to the Bay-Delta, improving Delta water quality and associated aquatic habitat.
		Minimize Impacts to the Delta ecosystem and other environmental resources	-	Additional: Reduction in trash loads will reduce impacts to the Delta ecosystem and environmental resources.	Additional: The project will eliminate flooding in an urbanized area and subsequent introduction of polluted flood waters into the Delta, resulting in benefits to the Delta ecosystem.	Additional: Providing public water and sewer in place of private wells and septic system will protect Delta ecosystem and environmental resources.	Additional: There will be reduced pollutant loading resulting from the elimination of stormwater overflows to Willow Creek, resulting in benefits to the Bay-Delta ecosystem.

Project Name			Recycle Water for AYSC	BIMID Levee and Pump Station Improvement Project	Drainage Area 55 – West Antioch Creek Channel Improvements	Viera Water and Sewer Service, NE Antioch	City of Pittsburg Water Treatment Plant Improvements Projects
Sponsoring Agency/Organization			Antioch Youth Sports Complex	Bethel Island Municipal Improvement District	City of Antioch	City of Antioch	City of Pittsburg
		Reduce greenhouse gas emissions	-	-	Additional: By reducing flooding impacts, this project will also reduce the major cleanup efforts necessary to repair damages caused by flooding. It will prevent greenhouse gas emissions associated with cleaning up flood damage.	-	Additional: The Project would allow the City to increase the quantity of water recycled within the treatment process. Energy needs and GHGs generated by water recycled onsite are less than those of pumping and treating additional Delta supply.
		Provide better accessibility to waterways for subsistence fishing and recreation	-	-	-	-	-
	Stormwater and Flood Management	Manage local stormwater	-	Additional: The intent is to include measures that will reduce the trash and other pollutants discharging via the pumps to Delta waters.	Primary: This project will improve the flooding problems along the 620' gap by replacing an inadequate trapezoidal concrete ditch and will be able to pass ~10 times more stormwater than the existing system.	-	Additional: The project will improve stormwater management by constructing a new 0.5 mgd backwash basin designed to eliminate stormwater overflows of the lagoon.
		Improve regional flood risk management	-	Primary: The levee improvements and pump station upgrades will reduce the flood risks on Bethel Island.	Additional: The project will eliminate flooding in the area and provide flood protection up to the 25-year storm	-	Additional: The project will reduce flood risks by eliminating stormwater overflows of the lagoon which could exacerbate flooding issues during wet weather.
	Water-Related Outreach	Collaborate with and involve DACs in the IRWM process	-	Additional: Bethel Island is a DAC per the 2010 Census. BIMID serves the entire island and will provide opportunities for involvement by all members of the community.	Additional: The DAC will see benefits through project implementation & be involved through public outreach efforts during project development/ implementation. Without the project, DAC customers would continue to face damages caused by floods on an annual basis.	Additional: This project would provide public water and sewer to a DAC.	Additional: DACs within the City's service area will see benefits through project implementation and be involved with the public outreach efforts during project development.
		Increase awareness of water resources management issues and projects with the general public	-	-	Additional: The project will involve outreach to stakeholders and DACs, assisting in educating the public about regional water resources management issues and projects.	-	Additional: The project will involve outreach through the IRWMP, City Water System newsletters, City e-mails and Council presentations, and other vehicles. This will assist in educating the public about regional water management issues.
	Please elaborate on any benefits that your project may provide outside of the stated objectives		-	-	-	-	The primary purpose of the project is to upgrade the City's WTP to mitigate current operating and regulatory compliance problems, and also prepare the Plant to handle higher flow rates (for which it was originally designed) reliably while meeting current and anticipated future drinking water regulations, and protecting downstream habitat.
Program Preferences – Ranking Criteria #2	CALFED Objectives	Resolves Water-Related Conflicts	-	-	-	-	Yes: By increasing the quantity of water recycled within the plant, the project will reduce dependence on Delta supplies.
		Improve the state's water quality from source to tap	-	Yes: This will be accomplished by reducing overland flooding that washes pollutants into the drainage system and then is pumped to the Delta. Trash screens will also reduce pollution of the state's water.	Yes: The project will reduce pollutant loading to the Delta, improving the source water quality for Delta users statewide.	Yes: Providing public water and sewer in place of private wells and septic system in this area will protect/improve surface and groundwater sources in this area.	Yes: The WTP Improvements Project will improve water quality and allow the City of Pittsburg to meet necessary regulatory requirements. In addition, it will reduce pollutant loading to the Delta, improving water quality for Delta users statewide.

Project Name			Recycle Water for AYSC	BIMID Levee and Pump Station Improvement Project	Drainage Area 55 – West Antioch Creek Channel Improvements	Viera Water and Sewer Service, NE Antioch	City of Pittsburg Water Treatment Plant Improvements Projects
Sponsoring Agency/Organization			Antioch Youth Sports Complex	Bethel Island Municipal Improvement District	City of Antioch	City of Antioch	City of Pittsburg
		Protect water supplies needed for ecosystems, cities, industry and farms by reducing the threat of levee failures that would lead to seawater intrusion.	-	Yes: The levee improvements will guard against levee failure.	-	-	-
		Allow for the increase of water supplies and more efficient and flexible use of water resources	-	-	-	-	Yes: The Project would allow the City to comply with the Filter Backwash Recycling Rule, increasing the quantity of water recycled within the treatment process, improving process efficiency, and reducing reliance on Delta supplies.
		Improve the ecological health of the Bay-Delta watershed	-	Yes: Overland flooding washes pollutants to the pump station, if the pumps upgrade will reduce the frequency of overland flooding. Removal of trash will reduce the degree of trash impairment of receiving waters.	Yes: Reducing pollutant loading to the Delta will improve its ecological health.	Yes: Providing public water and sewer in place of private wells and septic system will protect Delta ecosystem and environmental resources.	Yes: The Project would reduce pollution to the Bay-Delta, improving Delta water quality and protecting aquatic habitat.
		Effectively Integrate Water Management with Land Use Planning	-	-	Yes: Currently, development within the project area is subject to frequent, severe flooding. This project integrates water management and land use planning by eliminating the annual damages caused by development within an area of flooding.	Yes: Provides City water and sewer infrastructure to residents in urban area.	Yes: Improvements to the WTP will help improve water supply reliability and provide necessary treatment capacity to meet the needs of the community as projected based on land use planning.
Statewide Priorities – Ranking Criteria #3		Drought Preparedness	Yes	-	-	-	-
		Use and Reuse Water More Efficiently	Yes	-	-	-	-
		Climate Change Response Actions	-	-	Yes	-	Yes
		Expand Environmental Stewardship	-	-	Yes	Yes	Yes
		Practice Integrated Flood Management	-	Yes	Yes	-	-
		Protects Surface Water and Groundwater Quality	-	Yes	Yes	Yes	-
		Improve Tribal Water and Natural Resources	-	-	-	-	-
		Ensure Equitable Distribution of Benefits	-	-	Yes	Yes	-
Resource Management Strategies – Diversification Considerations	Reduce Water Demand	Agricultural Water Use Efficiency	-	-	-	-	-
		Urban Water Use Efficiency	Yes	-	-	-	Yes
	Improve Operational Efficiency	Conveyance – Delta		-	-	-	-
		Conveyance – Regional/Local	-	-	-	Yes	-
		System Reoperation	-	-	-	-	Yes
		Water Transfers	-	-	-	-	-

Project Name			Recycle Water for AYSC	BIMID Levee and Pump Station Improvement Project	Drainage Area 55 – West Antioch Creek Channel Improvements	Viera Water and Sewer Service, NE Antioch	City of Pittsburg Water Treatment Plant Improvements Projects
Sponsoring Agency/Organization			Antioch Youth Sports Complex	Bethel Island Municipal Improvement District	City of Antioch	City of Antioch	City of Pittsburg
	Increase Water Supply	Conjunctive Management & Groundwater Storage	-	-	-	-	-
		Desalination	-	-	-	-	-
		Precipitation Enhancement	-	-	-	-	-
		Recycled Municipal Water	Yes	-	-	-	Yes
		Surface Storage – CALFED	-	-	-	-	-
		Surface Storage – Regional/Local	-	-	-	-	-
	Improve Water Quality	Drinking Water Treatment and Distribution	-	-	-	-	Yes
		Groundwater Remediation/Aquifer Remediation	-	-	-	-	-
		Matching Quality to Use	-	-	-	-	Yes
		Pollution Prevention	-	Yes	Yes	Yes	Yes
		Salt and Salinity Management	-	-	-	-	-
		Urban Runoff Management	-	Yes	Yes	-	Yes
	Improve Flood Management	Flood Risk Management	-	Yes	Yes	-	Yes
	Practice Resources Stewardship	Agricultural Lands Stewardship	-	-	-	-	-
		Economic Incentives (Loans, Grants and Water Pricing)	-	-	-	Yes	-
		Ecosystem Restoration	-	-	Yes	-	Yes
		Forest Management	-	-	-	-	-
		Recharge Area Protection	-	-	-	-	-
		Water-Dependent Recreation	-	-	-	-	-
		Watershed Management	-	-	Yes	-	Yes
	Other Strategies	Crop Idling for Water Transfers	-	-	-	-	-
		Dewvaporation or Atmospheric Pressure Desalination	-	-	-	-	-
		Fog Collection	-	-	-	-	-
		Irrigated Land Retirement	-	-	-	-	-
		Rainfed Agriculture	-	-	-	-	-
		Waterbag Transport/ Storage Technology	-	-	-	-	-
Project Status	Planning	Project Status	Not Started	Completed	Completed	Not Applicable	Completed

Project Name			Recycle Water for AYSC	BIMID Levee and Pump Station Improvement Project	Drainage Area 55 – West Antioch Creek Channel Improvements	Viera Water and Sewer Service, NE Antioch	City of Pittsburg Water Treatment Plant Improvements Projects
Sponsoring Agency/Organization			Antioch Youth Sports Complex	Bethel Island Municipal Improvement District	City of Antioch	City of Antioch	City of Pittsburg
		Est. Completion Date	7/1/2013	9/1/2012	1/1/2012	-	1/1/2012
	Feasibility	Project Status	Not Started	Not Applicable	Completed	Not Applicable	Not Applicable
		Est. Completion Date	7/1/2013	-	1/1/2012	-	-
	Environ-mental Assess.	Project Status	Not Applicable	Not Applicable	Completed	Not Applicable	Not Started
		Est. Completion Date	-	-	9/23/14	-	3/1/2014
	Pre-Project Monitoring	Project Status	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
		Est. Completion Date	-	-	-	-	-
	Design	Project Status	Not Applicable	Not Applicable	In Progress	Not Applicable	Not Started 7/1/2014
		Est. Completion Date	-	-	12/31/15	-	6/1/2015 8/15/2015
	Environ-mental Permits	Project Status	Not Applicable	Not Applicable	In Progress	Not Applicable	Not Started
		Est. Completion Date	-	-	11/1/15	-	3/1/2014 10/5/210 5 Phase 2
	Building/Other Permits	Project Status	Not Applicable	Not Applicable	Not Started	Not Applicable	Not Applicable
		Est. Completion Date	-	-	12/31/15	-	-
	Construction/ Implementation	Project Status	Not Applicable	Not Applicable	Not Started	Not Applicable	Not Started 7/1/2014 Phase 1 October 2015 Phase 2
		Est. Completion Date	-	-	10/6/17	-	12/1/2016 7/1/2017
	Post Project Monitoring	Project Status	Not Applicable	Not Applicable	Not Started	Not Applicable	Not Applicable
		Est. Completion Date	-	-	10/6/20	-	-

Project Name			Recycle Water for AYSC	BIMID Levee and Pump Station Improvement Project	Drainage Area 55 – West Antioch Creek Channel Improvements	Viera Water and Sewer Service, NE Antioch	City of Pittsburg Water Treatment Plant Improvements Projects
Sponsoring Agency/Organization			Antioch Youth Sports Complex	Bethel Island Municipal Improvement District	City of Antioch	City of Antioch	City of Pittsburg
	Environmental Permits	Describe any required	-	Permits related to working in local drainage ditches will likely be required. Research into the permitting requirements has not been started.	Nationwide Permit 31-Clean Water Act, Section 404 from ACOE; Section 7 Consultation with USFWS and NOAA NMFS; NPDES Permit for Stormwater Discharges Associated with Construction Activities from Central Valley RWQCB; Streambed Alteration Agreement and Section 7 Consultation with CDFG.	-	A permit from the California Department of Public Health will be required.
		Status?	-	It is unknown if permits have been applied for yet.	Permitting acquisition has begun for the ACOE 404 permit. The process for obtaining the other permits has not been initiated. An EIR was completed in 1985 for the West Antioch Creek Improvement Project & several were constructed in 1993, the CEQA documentation for this project has been completed for the 620' gap or desilting portion of the project. Streambed alteration agreement w/CDFW has been obtained.	-	The permit has not yet been obtained. Applying for and receiving the necessary permit is expected to be straightforward.
	Other Permits (e.g., Encroachment, Building)	Describe any required	-	Grading, encroachment, and building permits will likely be different phases of this project.	Encroachment permit from Burlington Northern Santa Fe Railroad; Tree removal permit from City of Antioch Planning Dept.	-	N/A
		Status?	-	It is unlikely that any of these permits have been applied for yet.	The process for obtaining these permits has been initiated.	-	N/A
	Project Schedule Available?		-	-	Yes	-	-
	Describe any data gaps or uncertainties		Whether or not the City of Antioch decides to continue paying for water for AYSC. Whether or not the recycled water line is extended past AYSC so that AYSC can tie into it at minimal cost. Whether or not AYSC decides to use groundwater to irrigate its fields.	Unknown	-	-	There are no significant data gaps that could affect project feasibility; the City prepared a Water Treatment Plant Improvements Study detailing the phases of the project and its feasibility which was finalized in July 2011.
Project Costs - Implementation	[illegible]		Unknown	Unknown	$2,300,000	Unknown	NA
	[illegible]		Unknown	Unknown	$400,00	Unknown	NA
	[illegible]		Unknown	Unknown	$1,000,000	Unknown	$1,000,000
	[illegible]		Unknown	Unknown	$400,000	Unknown	$2,000
	[illegible]		Unknown	Unknown	$200,000	Unknown	$1,000
	[illegible]		Unknown	Unknown	$6,050,000	Unknown	$9,577,000
	[illegible]		Unknown	Unknown	$800,000	Unknown	NA
	[illegible]		Unknown	$6,720,000	$1,400,000	$6,625,000	NA
	[illegible]		$100,000	$6,720,000	$12,550,000	$6,625,000	$10,580,000
	[illegible]		-	Yes	Yes	-	-
Project Funding - Impleme	Agency; funds or in kind contribut	Amount	-	$40,000	$4,100,000	-	$5,290,000
		Regional Assessments	-	-	-	-	-
		Developmental Fees	-	-	-	-	-
		User Rates	-	-	-	-	Yes
		User Fees	-	-	-	-	-

Project Name			Recycle Water for AYSC	BIMID Levee and Pump Station Improvement Project	Drainage Area 55 – West Antioch Creek Channel Improvements	Viera Water and Sewer Service, NE Antioch	City of Pittsburg Water Treatment Plant Improvements Projects
Sponsoring Agency/Organization			Antioch Youth Sports Complex	Bethel Island Municipal Improvement District	City of Antioch	City of Antioch	City of Pittsburg
		Bonded Debt Financing	-	-	-	-	-
		Property Tax	-	-	-	-	-
		Contributions	-	-	-	-	-
		Other	-	Yes	Yes	-	-
	Existing grants	Amount	-	$2,250,000	$2,997,300	-	-
		State Grants	-	-	Yes	-	-
		State funding for flood control/flood prevention projects	-	Yes	-	-	-
		Local Grants	-	-	-	-	-
		Federal Grants	-	-	-	-	-
		[redacted]	$100,000	$4,430,000	$4,500,000	$6,625,000	$5,290,000
		[redacted]	-	-	Yes	-	-
Disadvantaged Communities (DAs)	Does (will) the project help to address critical water supply and water quality needs of DACs within the ECCC region?		-	Yes: The project will reduce the occurrence of overland flooding and pollution of the storm water.	Yes: Implementing the project will eliminate severe flooding in the DAC which occurs on an annual basis and poses public health implications associated with degraded water quality of flood water in urbanized areas.	Yes: This project would provide public water and sewer to a DAC currently on septic systems and private wells.	Yes: DACs within the City's service area will have improved water supply reliability & increased water quality protection as the WTP will comply with State/federal requirements.
	What Community(ies)?		-	Bethel Island	City of Antioch	NE Antioch, Viera area	Communities within the City boundaries.
	How were the DACs included in the planning or development of the project?		-	The project outreach has been to the entire population of Bethel Island.	Outreach to DACs will be performed through the East Contra Costa County IRWM planning process and through individual outreach efforts.	Part of annexation planning	Outreach to DACs will be performed through the East County IRWM planning process, the City Water System newsletters, and/or City email distribution lists.
Environmental Justice – Ranking Criteria #4	Does (will) the project help to address any environmental justice concerns?		-	-	Yes: By eliminating flooding and improving water quality in the DAC, the project corrects the environmental justice issue for the DAC.	-	Yes: By allowing the WTP to comply with water quality regulations, the project corrects any environmental justice issue for disadvantaged communities in the City of Pittsburg.
	Does (will) the project create/raise any environmental justice concerns?		-	--	-	-	-
Climate Change/Greenhouse Gas Emission Reduction - Ranking Criteria #4	Does (will) the project consider and/or address the effects of climate change on the region?		-	-	Yes: Climate change may increase the frequency of severe storms; this project will improve stormwater capacity and help be better prepared for uncertain storm patterns frequency, and severity. It will also eliminate GHG impacts from flood cleanup.	-	Yes: By improving operational efficiency at the WTP, improving water supply reliability and reducing dependence on the Delta, there will be more flexibility in the future for water supply planning.
	Does (will) the project reduce greenhouse gas emissions?		-	-	Yes: The project will also eliminate GHG impacts from flood cleanup.	-	Yes: The project would allow the City to increase the quantity of water recycled within the treatment process. Energy needs and GHGs generated by water recycled onsite are less than those of pumping and treating additional Delta supply.

Project Name				Rossmoor Well Replacement Project/Groundwater Monitoring Well System Expansion	Mercury Reduction Benefits of Low Impact Development	East Contra Costa County Green Street Retrofit Network	Knightsen Biofilter/ Wetland Habitat Restoration	Upper Sand Creek Basin Surplus Material (#220)
Sponsoring Agency/Organization				City of Pittsburg	Contra Costa Clean Water Program	Contra Costa County	Contra Costa County	Contra Costa County Flood & Water Conservation Control District
Project ID #				**5**	**6**	**7**	**8**	**9**
Project Description	Project Type			Infrastructure – Water/ Water Quality	Research	Infrastructure – Stormwater/Flood Management	Infrastructure – Stormwater/Flood Management	Infrastructure – Stormwater/Flood Management
	Describe the project			In order to meet future water demands, the City of Pittsburg will replace the existing Rossmoor Groundwater Well with a larger capacity well (~1,200 gallons per minute [gpm]), and about 1,500 feet of the 8-inch pipeline will be replaced with 10- or 12-inch pipeline to allow for increased use of the Pittsburg Groundwater Basin. The City currently relies mostly on purchased raw surface water from the Delta from Contra Costa Water District, and supplements the remaining water demands with groundwater (GW). These two supplies are treated at the City's water treatment plant prior to delivery to its residents. The City produces GW from two wells, one of which, the Rossmoor well, has experienced biofouling which has caused a noticeable decline in the GW production. By replacing the existing well, and expanding the GW monitoring system, the City will obtain a more reliable GW supply and will be able to meet customer demands now and in the future, while reducing dependence on the Delta.	The goal of this project is to evaluate the treatment benefits of LID for reducing mercury and methylmercury discharges from stormwater to the Bay. Contra Costa County has established a policy making low-impact development (LID) the preferred method of treatment to meet requirements for stormwater treatment established under NPDES Permits for Urban Stormwater. Although LID-type treatment devices are known to be highly effective at removing sediment from urban stormwater, to date very little information is available on the effectiveness of LID for reducing mercury and methylmercury. Monitoring information would be developed to evaluate the concentrations and forms of mercury in urban stormwater before and after treatment by LID.	This project will implement Low Impact Development (LID) "Green Street" retrofits to treat stormwater runoff from roads in unincorporated Contra Costa County. Streets will be retrofitted with bioretention facilities and/or infiltration measures to remove pollutants from runoff. Monitoring will be conducted to demonstrate the treatment and flow control effectiveness of the projects. Educational signage will be posted to provide a public education component. Green Streets projects will demonstrate several approaches to managing street runoff, such as within medians, "bump-outs" and sidewalk raingardens. This project will be especially informative since some retrofits will be conducted in areas that lack a piped storm drain infrastructure. Disadvantaged Communities (including Bay Point and Bethel Island) will be prioritized for Green Streets projects. Where appropriate, pedestrian and bicycle improvements (where appropriate) will also be incorporated into Green Street retrofits.	This is a much-needed restoration project with substantial water quality benefits to the town of Knightsen. It would capitalize on the opportunity to integrate: a) long-standing interest in treatment wetlands near Knightsen, b) new information on historical ecological conditions in the area, c) renewed interest in restoring tidal wetlands in the Delta, and d) the opportunity to purchase a 645-acre property ideally situated to achieve all these goals on a large scale. This project will construct a tidal wetland to treat stormwater before being discharged to the Delta. This will reduce flooding in Knightsen, improve local water quality, and improve drinking water quality to residents in Contra Costa County.	This project seeks to reuse surplus material from the Upper Sand Creek Basin construction. Upper Sand Creek Basin is currently in an interim condition and is set to be expanded to contain about 1,000 acre-feet of storage under a separate project in summer 2013. The construction of the basin is expected to result in approximately 500,000 cy of surplus material stockpiled onsite for future reuse. This Upper Sand Creek Basin Surplus Material project will find a permanent home for some or all of this surplus material. Likely end users of this material include contractors, developers and other agencies needing high quality fill material. If integrated into another project, this project can be the borrow source for some or all of this material. If this remains a standalone project, the project consists of loading, hauling, placing and compacting the surplus material at an appropriate, permanent disposal site.
	Project Partners	Agency/Organization Name		-	Bay Area Stormwater Management Agencies Association, United States Environmental Protection Agency	-	Knightsen Town Advisory Committee, East Contra Costa County Habitat Conservancy, California Department of Fish and Game	-
ECCC IRWM Plan Objective(s) – Ranking Criteria #1	Funding for Water-Related Planning and Implementation	Increase regional cost efficiencies in treatment and delivery of water, wastewater, and recycled water		Additional: The project will decrease water supply costs by enhancing the City's ability to utilize local groundwater supplies, a lower-cost alternative to Delta supplies. Increased groundwater capacity will also provide improved operational flexibility.	-	-	-	-
		Implement projects that have region-wide benefits		Additional: The project will reduce the City's dependence on Delta supplies. As such, it provides benefits to the Delta; the East County Region which is located in the Delta and relies heavily on Delta supplies; and statewide Delta water user.	-	-	-	Additional: Excess material from this project can be reused in another project in the region.
	Water Supply	Pursue water supplies that are less subject to Delta influences and drought, such as recycled water and desalination		Primary: This project will reduce the City's dependence on Delta supplies, providing a reliable groundwater supply that is not subject to Delta influences and minimally affected by drought.	-	-	-	-

Project Name			Rossmoor Well Replacement Project/Groundwater Monitoring Well System Expansion	Mercury Reduction Benefits of Low Impact Development	East Contra Costa County Green Street Retrofit Network	Knightsen Biofilter/ Wetland Habitat Restoration	Upper Sand Creek Basin Surplus Material (#220)
Sponsoring Agency/Organization			City of Pittsburg	Contra Costa Clean Water Program	Contra Costa County	Contra Costa County	Contra Costa County Flood & Water Conservation Control District
		Increase water conservation and water use efficiency	Additional: By increasing the City's ability to use groundwater supplies, the project will provide operational flexibility, enabling more efficient conjunctive use of surface and groundwater supplies.	-	-	-	-
		Increase water transfers	-	-	-	-	-
		Pursue regional exchanges for emergencies, ideally using existing infrastructure	-	-	-	-	-
		Enhance understanding of how groundwater fits into the water portfolio and investigate groundwater as a regional source (e.g., conjunctive use)	Additional: Data collected from the well, additional groundwater monitoring wells and pressure transducers will help better understand potential for conjunctive use projects in the future.	-	-	-	-
	Water Quality and Related Regulations	Protect/Improve source water quality	Additional: By reducing the City's reliance on Delta supplies, the project could result in additional supply left in the Delta. This would, in turn, provide water quality benefits for Delta supplies.	-	Additional: This project will remove pollutants from road runoff prior to its discharge to receiving waters, will replenish groundwater (where appropriate), and will reduce erosion/sediment impacts related to road runoff within project watersheds.	-	-
		Maintain/Improve regional treated drinking water quality	Additional: Replacing the existing Rossmoor well will improve the quality of drinking water provided to City of Pittsburg residents. Leaving more water in the Delta will improve Delta water quality for users statewide.	-	-	Additional: Contaminated stormwater from this area drains to Rock Slough and adjacent Delta waterways. Rock Slough is the location for the intake to the Contra Costa Canal, a primary source of drinking water for central and eastern Contra Costa County.	-
		Maintain/Improve regional recycled water quality	Additional: This project will increase water supply reliability while maintaining quality.	-	-	-	-
		Increase understanding of groundwater quality and potential threats to groundwater quality	Additional: Data collected from the well, additional monitoring wells, and pressure transducers will increase knowledge regarding Pittsburg Plain groundwater quality.	-	-	-	-
		Meet current and future water quality requirements for discharges to the Delta	Additional: This project will increase water supply reliability while maintaining quality, thus maintaining the quality of wastewater conveyed to DDSD and discharged to the Delta.	-	Additional: Municipal Separate Storm Sewer System NPDES permits regulating Contra Costa County require implementation of "Green Street Pilot Projects". This project is expected to reduce loads of some pollutants of concern, and will capture trash.	-	-
		Limit quantity and improve quality of stormwater discharges to the Delta	-	-	Primary: This project will remove pollutants from road runoff prior to its discharge; replenish groundwater (where appropriate); reduce runoff volumes, flow rates and durations;	Additional: Constructed wetlands will improve the quality of stormwater discharges to the Delta from the Knightsen area.	-

Project Name			Rossmoor Well Replacement Project/Groundwater Monitoring Well System Expansion	Mercury Reduction Benefits of Low Impact Development	East Contra Costa County Green Street Retrofit Network	Knightsen Biofilter/ Wetland Habitat Restoration	Upper Sand Creek Basin Surplus Material (#220)
Sponsoring Agency/Organization			City of Pittsburg	Contra Costa Clean Water Program	Contra Costa County	Contra Costa County	Contra Costa County Flood & Water Conservation Control District
					and reduce erosion/sediment impacts related to road runoff.		
	Restoration and Enhancement of the Delta Ecosystem and Other Environmental Resources	Enhance and restore habitat in the Delta and connected waterways	Additional: By reducing the City's reliance on Delta supplies, the project could result in additional supply left in the Delta. This would, in turn, provide water quality benefits for Delta supplies, resulting in higher quality aquatic habitat in the Delta.	-	Additional: The project will remove pollutants; reduce road runoff volumes, rates, and durations; and reduce erosion/sedimentation impacts. This will improve habitat value in receiving waters and surrounding environs.	Primary: This project will take advantage of new scholarship about historical ecological conditions in the Delta to restore wetlands which will provide valuable habitat.	-
		Minimize Impacts to the Delta ecosystem and other environmental resources	Additional: By reducing the City's reliance on Delta supplies, the project minimizes impacts to the Delta ecosystem and environmental resources that could be generated by an increased dependence on Delta supplies.	-	Additional: This project will reduce impacts (related to road runoff) to the Delta ecosystem and other environmental resources. This will be accomplished by removing pollutants from runoff and providing hydrograph modification management to the extent feasible.	-	-
		Reduce greenhouse gas emissions	Additional: This energy use and associated GHG emissions needed to pump and treat local groundwater supplies are estimated to be less than the energy use and GHG emissions associated with expanded use of Delta supplies.	-	-	-	-
		Provide better accessibility to waterways for subsistence fishing and recreation	-	Additional: Reducing mercury loads through LID is part of an overall regional strategy to reduce mercury levels in fish.	-	-	-
	Stormwater and Flood Management	Manage local stormwater	-	Primary: This project will develop information needed to guide future design and implementation of LID, and to evaluate the benefits of LID to attain TMDL goals.	Additional: This project will provide treatment and flow control for street runoff in watersheds where retrofits are implemented.	Additional: This project will create drainage system for stormwater from Knightsen to a constructed wetland.	Additional: The basin detains high storm flow events and meters out the water downstream. This reduces the likelihood of flooding downstream of the basin. Use the excess material from the basin for someone else's project?
		Improve regional flood risk management	-	-	Additional: Although it is not a primary driver of this project, since the project will reduce the volume of flows from impervious surfaces (streets) it will serve to slightly reduce flood risks downstream of projects.	Additional: Knightsen has had historical problems with flooding. This drainage system/constructed wetland will prevent future flooding in the area.	Primary: The basin detains high storm flow events and meters out the water downstream. Removing the surplus material expands the storage capacity of the basin and thus reduces the likelihood of flooding downstream for the Cities of Brentwood and Oakley.
	Water-Related Outreach	Collaborate with and involve DACs in the IRWM process	Additional: DACs will be involved in public outreach efforts for the Rossmoor Well Replacement/ Groundwater Monitoring Well Project and will see benefits from implementation of the project.	-	Additional: This project will prioritize projects located within DACs, including Bay Point and Bethel Island. Other DACs may subsequently be identified (other than by census block) and prioritized.	-	-
		Increase awareness of water resources management issues and projects with the general public	Additional: The project will involve public outreach through the IRWQMP, City Water System newsletters, and/or City e-mails and Council presentations. This will assist in educating the public about water management issues in the Delta and the City of Pittsburg.	-	Additional: This project will include signage to educate members of the public about issues related to stormwater runoff, methods of providing treatment and flow control, and other ways the public can help protect water quality.	-	-
	Please elaborate on any benefits that your project may provide outside of the stated objectives		-	-	This project will introduce landscape features where they currently do not exist, which will improve the	-	This project seeks to find a partner that needs up to 500,000 cy of high quality fill material. Can be used for levee

Project Name			Rossmoor Well Replacement Project/Groundwater Monitoring Well System Expansion	Mercury Reduction Benefits of Low Impact Development	East Contra Costa County Green Street Retrofit Network	Knightsen Biofilter/ Wetland Habitat Restoration	Upper Sand Creek Basin Surplus Material (#220)
Sponsoring Agency/Organization			City of Pittsburg	Contra Costa Clean Water Program	Contra Costa County	Contra Costa County	Contra Costa County Flood & Water Conservation Control District
					communities in which retrofits are conducted (including DACs). Related pedestrian/bicycle improvements will enhance alternative transportation opportunities. Monitoring of runoff from project areas before and after the retrofit projects are implemented will help build the base of knowledge of how effectively LID retrofit projects remove pollutants and (if possible) provide flow control.		construction/raising, building pads (the pad for the Kaiser hospital campus came from this site), or for other purposes. Want to avoid hauling to landfill for use as cover material and instead find a reuse opportunity for this material Dirt has been tested and is clean.
Program Preferences – Ranking Criteria #2		Resolves Water-Related Conflicts	Yes: If the Rossmoor well is not replaced with a new well, capacity will continue to decline, reducing water supply available to the City. The City would otherwise need to increase the Delta supplies purchased from Contra Costa Water District.	-	-	-	-
	CALFED Objectives	Improve the state's water quality from source to tap	Yes: By reducing the City's reliance on Delta supplies, the project could result in additional supply left in the Delta. This would improve the quality of Delta supplies, resulting in improved water quality for Delta users statewide.	-	Yes: This project will remove pollutants from stormwater runoff from roads prior to that runoff entering receiving waters (the Delta). Delta waters serve as a drinking water source.	Yes: Contaminated storm water drains to Rock Slough and adjacent Delta waterways. Rock Slough is the location for the intake to the Contra Costa Canal, a primary source of drinking water for central and eastern Contra Costa County.	-
		Protect water supplies needed for ecosystems, cities, industry and farms by reducing the threat of levee failures that would lead to seawater intrusion.	-	-	-	-	Yes: 500,000 cy of material available for use to strengthen or augment levees. Located in Antioch and can be transported to delta levees starting in late 2013 and beyond. A past project brought material to Jersey Island and was used in levee project.
		Allow for the increase of water supplies and more efficient and flexible use of water resources	Yes: By increasing the City's ability to use groundwater supplies, the project will provide operational flexibility, enabling more efficient conjunctive use of surface and groundwater supplies.	-	-	-	-
		Improve the ecological health of the Bay-Delta watershed	Yes: By reducing the City's reliance on Delta supplies, the project could result in additional supply left in the Delta. This would, in turn, provide water quality benefits for Delta supplies, resulting in higher quality aquatic habitat in the Delta.	Yes: Reducing mercury loads and understanding how management actions affect methylmercury in receiving waters is an identified goal of the Calfed Ecosystem Restoration Program.	Yes: This project will remove pollutants from stormwater runoff from roads prior to that runoff entering receiving waters. This will avoid deleterious impacts of the pollutants to which the pollutants may have contributed.	Yes: The constructed wetlands will improve the quality of water being discharged directly into the Delta.	-
		Effectively Integrate Water Management with Land Use Planning	Yes: Replacing the well will help improve water supply reliability and provide necessary treatment capacity to meet the needs of the community as projected based on land use planning.	Yes: Guiding LID implementation with sound science related to pollutant loads and impacts is essential to effective land use planning that accounts for long-term water quality goals.	Yes: This project will implement stormwater treatment and flow control in already-developed areas, thereby reducing runoff volumes and flow durations, and improving the quality of runoff, while improving streetscapes in existing urbanized areas.	-	Yes: The basin yielding this excess material is part of a master planned drainage system. The surrounding area was planned to accommodate this basin, and the basin was planned to accommodate surrounding land uses.
State wide Priorities –		Drought Preparedness	-	-	-	-	-
		Use and Reuse Water More Efficiently	-	-	-	-	-

Project Name			Rossmoor Well Replacement Project/Groundwater Monitoring Well System Expansion	Mercury Reduction Benefits of Low Impact Development	East Contra Costa County Green Street Retrofit Network	Knightsen Biofilter/ Wetland Habitat Restoration	Upper Sand Creek Basin Surplus Material (#220)
Sponsoring Agency/Organization			City of Pittsburg	Contra Costa Clean Water Program	Contra Costa County	Contra Costa County	Contra Costa County Flood & Water Conservation Control District
		Climate Change Response Actions	Yes	-	-	-	-
		Expand Environmental Stewardship	Yes	Yes	Yes	Yes	Yes
		Practice Integrated Flood Management	-	Yes	Yes	Yes	Yes
		Protects Surface Water and Groundwater Quality	-	Yes	Yes	Yes	-
		Improve Tribal Water and Natural Resources	-	-	-	Yes	-
		Ensure Equitable Distribution of Benefits	-	Yes	Yes	-	-
Resource Management Strategies – Diversification Considerations	Reduce Water Demand	Agricultural Water Use Efficiency	-	-	-	-	-
		Urban Water Use Efficiency	Yes	-	-	-	-
	Improve Operational Efficiency	Conveyance – Delta	-	-	-	-	-
		Conveyance – Regional/Local	-	-	-	-	-
		System Reoperation	Yes	-	-	-	-
		Water Transfers	-	-	-	-	-
	Increase Water Supply	Conjunctive Management & Groundwater Storage	Yes	-	-	-	-
		Desalination	-	-	-	-	-
		Precipitation Enhancement	-	-	-	-	-
		Recycled Municipal Water	-	-	-	-	-
		Surface Storage – CALFED	-	-	-	-	-
		Surface Storage – Regional/Local	-	-	-	-	-
	Improve Water Quality	Drinking Water Treatment and Distribution	-	-	-	-	-
		Groundwater Remediation/Aquifer Remediation	-	-	-	-	-
		Matching Quality to Use	-	-	Yes	-	-
		Pollution Prevention	-	-	Yes	-	-
		Salt and Salinity Management	-	-	-	-	-
		Urban Runoff Management	-	Yes	Yes	Yes	Yes

Project Name			Rossmoor Well Replacement Project/Groundwater Monitoring Well System Expansion	Mercury Reduction Benefits of Low Impact Development	East Contra Costa County Green Street Retrofit Network	Knightsen Biofilter/ Wetland Habitat Restoration	Upper Sand Creek Basin Surplus Material (#220)
Sponsoring Agency/Organization			City of Pittsburg	Contra Costa Clean Water Program	Contra Costa County	Contra Costa County	Contra Costa County Flood & Water Conservation Control District
	Improve Flood Management	Flood Risk Management	-	-	Yes	Yes	Yes
	Practice Resources Stewardship	Agricultural Lands Stewardship	-	-	-	-	-
		Economic Incentives (Loans, Grants and Water Pricing)	-	-	-	-	-
		Ecosystem Restoration	Yes	Yes	-	Yes	Yes
		Forest Management	-	-	-	-	-
		Recharge Area Protection	-	-	-	Yes	-
		Water-Dependent Recreation	-	-	-	-	-
		Watershed Management	-	-	Yes	Yes	Yes
	Other Strategies	Crop Idling for Water Transfers	-	-	-	-	-
		Dewvaporation or Atmospheric Pressure Desalination	-	-	-	-	-
		Fog Collection	-	-	-	-	-
		Irrigated Land Retirement	-	-	-	-	-
		Rainfed Agriculture	-	-	-	-	-
		Waterbag Transport/ Storage Technology	-	-	-	-	-
Project Status - Implementation	Planning	Project Status	Not Started	In Progress	Not Started	In Progress	Completed
		Est. Completion Date	4/1/2014	6/1/2013	9/1/2014	7/1/2013	6/1/2012
	Feasibility	Project Status	Not Applicable	Not Applicable	Not Started	In Progress	Completed
		Est. Completion Date	-	-	9/1/2014	7/1/2013	1/1/2012
	Environ-mental Assess.	Project Status	Not Started	Not Applicable	Not Started	Not Started	Completed
		Est. Completion Date	3/1/2014	-	9/1/2014	7/1/2014	1/1/2012
	Pre-Project Monitoring	Project Status	Not Applicable	Not Started	Not Started	Not Started	In Progress
		Est. Completion Date	-	9/1/20-13	5/1/2015	7/1/2014	9/1/2012

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Sponsoring Agency/Organization			City of Pittsburg	Contra Costa Clean Water Program	Contra Costa County	Contra Costa County	Contra Costa County Flood & Water Conservation Control District
	Design	Project Status	Not Started	In Progress	Not Started	Not Started	Completed
		Est. Completion Date	7/1/201 9/1/2015	1/1/2014	9/1/215	7/1/2014	8/1/2012
	Environ-mental Permits	Project Status	Not Started Complete	Not Started	Not Started	Not Started	In Progress
		Est. Completion Date	3/1/2014	6/1/2014	9/1/2015	7/1/2014	2/1/2013
	Building/Other Permits	Project Status	Not Applicable	In Progress	Not Applicable	Not Started	Not Applicable
		Est. Completion Date	-	6/1/2014	-	7/1/2014	-
	Construction/ Implementation	Project Status	Not Started 9/2/2104	Not Started	Not Started	Not Started	Not Started
		Est. Completion Date	9/1/2015 5/1/2106	9/1/2014	9/1/2016	7/1/2016	4/1/2014
	Post Project Monitoring	Project Status	Not Applicable	Not Started	Not Started	Not Started	Not Applicable
		Est. Completion Date	-	2/1/2015	5/1/2020	7/1/2016	-
	Environmental Permits	Describe any required	A permit from the California Department of Public Health will be required as well as a Well Construction Permit from the County.	Depending on project scope for new LID facilities, some CEQA analysis may be needed. Neg Dec or Mitigated Neg Dec anticipated for projects contemplated.	None anticipated.	CEQA and NEPA documents will need to be submitted for this project.	The 2013 basin construction project will place the surplus material in a designated temporary stockpile site, for later off haul and reuse. Full permits will be secured to build the basin and create this stockpile.
		Status?	These permits have not yet been obtained. Applying for and receiving the necessary permits is expected to be straightforward.	Not started yet.	N/A	Work on these permits has not yet begun.	Full permits expected in spring of 2013 before basin construction.
	Other Permits (e.g., Encroachment, Building)	Describe any required	An IS/MND will be prepared for the Project. In parallel, planning & design will be completed. Currently, there is no specific design for the well beyond the size & materials. Well design (intervals & lengths of well screen/casing) will be completed following drilling & will be based on site-specific hydrogeology as observed in the field.	File NOI under Construction General Permit.	None anticipated.	N/A	Project is covered under East CC HCP.
		Status?	-	Not started yet.	N/A	N/A	PSR (project study report) completed, project approved by HCP board for 2013 construction. Partial fees paid. Balance to be paid prior to construction. Stockpile covered by HCP PSR.

Project Name			Rossmoor Well Replacement Project/Groundwater Monitoring Well System Expansion	Mercury Reduction Benefits of Low Impact Development	East Contra Costa County Green Street Retrofit Network	Knightsen Biofilter/ Wetland Habitat Restoration	Upper Sand Creek Basin Surplus Material (#220)
Sponsoring Agency/Organization			City of Pittsburg	Contra Costa Clean Water Program	Contra Costa County	Contra Costa County	Contra Costa County Flood & Water Conservation Control District
	Project Schedule Available?		-	-	-	-	Yes
	Describe any data gaps or uncertainties		There are no data gaps or uncertainties that could impact the technical feasibility. The existing Rossmoor Well will be replaced with proven technologies.	-	This project has not yet selected specific locations where Green Street retrofits will be implemented. Although this constitutes an uncertainty, it does also impart the project with a degree of flexibility that increases the probability that a number of retrofit projects will be successfully implemented.	-	-
Project Costs - Implementation	Land Purchase/Easement		NA	NA	NA	$6,000,000	NA
	Planning		NA	$50,000	Unknown	$150,000	$20,000
	Design		$98,800	$150,000	Unknown	$150,000	NA
	Environmental Review		Unknown	$25,000	Unknown	$100,000	$25,000
	Permits		$1,000	$25,000	NA	$75,000	$10,000
	Construction/Implementation		$1,200,000	$750,000	Unknown	$1,000,000	$7,000,000
	Environmental Mitigation/Compliance		NA	NA	NA	$50,000	$10,000
	Other		NA	NA	$500,000	NA	NA
	Total Project Cost		$1,300,000	$1,000,000	$500,000	$7,525,000	$7,080,000
	Cost Estimate Available?		-	-	-	-	-
Project Funding - Implementation	Agency; funds or in kind contributions	Amount	$ 900,000	$200,000	-	-	$80,000
		Regional Assessments	-	-	-	-	-
		Developmental Fees	-	-	-	-	Yes
		User Rates	-	-	-	-	-
		User Fees	-	Yes	-	-	-
		Bonded Debt Financing	-	-	-	-	-
		Property Tax	-	-	-	-	Yes
		Contributions	-	-	-	-	-
		Other	Yes	-	-	-	-
	Existing grants	Amount	-	-	-	-	-
		State Grants	-$430,000	-	-	-	-
		State funding for flood control/flood prevention projects	-	-	-	-	-
		Local Grants	-	-	-	-	-
		Federal Grants	-	-	-	-	-
	Currently unfunded			$800,000	$500,000	$7,525,000	$7,000,000
	Economic Feasibility Analysis Available?		-	-	-	-	Yes
Disadvantaged Communities (DAs)	Does (will) the project help to address critical water supply and water quality needs of DACs within the ECCC region?		Yes: The project addresses a critical water supply need for DACs within the City of Pittsburg service area by ensuring a consistently high quality, reliable water supply at a relatively low cost.	-	Yes: This project will beautify streetscapes and will improve water quality, habitat value, and recreational value in and around DACs.	-	-
	What Community(ies)?		Communities within City boundaries	-	Bethel Island, Bay Point, possibly other communities (not designated as DACs by census block).	-	-
	How were the DACs included in the planning or development of the project?		Outreach to DACs will be conducted during completion off the Pittsburg Plain GWPM, through East County	-	The DACs have not yet been engaged in the process; this would be premature until specific locations	-	-

Project Name		Rossmoor Well Replacement Project/Groundwater Monitoring Well System Expansion	Mercury Reduction Benefits of Low Impact Development	East Contra Costa County Green Street Retrofit Network	Knightsen Biofilter/ Wetland Habitat Restoration	Upper Sand Creek Basin Surplus Material (#220)
Sponsoring Agency/Organization		City of Pittsburg	Contra Costa Clean Water Program	Contra Costa County	Contra Costa County	Contra Costa County Flood & Water Conservation Control District
		IRWM planning outreach, through City Water system newsletters, and City email distribution lists.		for Green Street retrofit projects have been selected.		
Environmental Justice – Ranking Criteria #4	Does (will) the project help to address any environmental justice concerns?	Yes: By improving drinking water quality delivered to disadvantaged communities within the City's boundaries, the project will assist in correcting an environmental justice issue.	Yes: Mercury in fish for subsistence fishers has been identified as an environmental justice issue.	Yes: This project will improve surface water quality within DACs.	-	-
	Does (will) the project create/raise any environmental justice concerns?	-	-	-	-	-
Climate Change/Greenhouse Gas Emission Reduction - Ranking Criteria #4	Does (will) the project consider and/or address the effects of climate change on the region?	Yes: The project will improve the City's operational flexibility and will allow the City to expand use of climate-resilient groundwater supplies in lieu of vulnerable Delta supplies.	-	Yes: This project will consider the effects of climate change. It is not anticipated to exacerbate climate change in any way, and the (secondary) flood control benefits associated with the project may be magnified by climate change.	-	-
	Does (will) the project reduce greenhouse gas emissions?	Yes: The energy use and associated GHG emissions needed to pump and treat local groundwater supplies are estimated to be less than the energy use and GHG emissions associated with expanded use of Delta supplies.	-	-	-	-

Project Name			Deer Creek Reservoir Seismic Assessment (#212)	East Antioch Creek Marsh Restoration (#206)	Marsh Creek Reservoir Capacity and Habitat Restoration (#213)	Marsh Creek Reservoir Seismic Assessment (#210)	Marsh Creek Supplemental Capacity and Basin Development (#215)
Sponsoring Agency/Organization			Contra Costa County Flood Control & Water Conservation District	Contra Costa County Flood Control & Water Conservation District	Contra Costa County Flood Control & Water Conservation District	Contra Costa County Flood Control & Water Conservation District	Contra Costa County Flood Control & Water Conservation District
Project ID #			**10**	**11**	**12**	**13**	**14**
Project Description	Project Type		Infrastructure – Stormwater/Flood Management	Environmental (e.g., habitat)	Environmental (e.g., habitat)	Infrastructure – Stormwater/Flood Management	Infrastructure – Stormwater/Flood Management
	Describe the project		This project assesses the seismic performance of an existing dam embankment and recommends retrofit improvements, if needed. It includes a two-phase approach: starting with a hazard assessment, and then proceeding to more detailed geotechnical analysis if warranted. The dam was constructed in the 1960s and is unlikely to withstand an earthquake under today's more stringent standards. The actual seismic retrofit of the dam, if warranted, is scoped as a separate project.	Design and construct marsh and floodplain improvements on East Antioch Creek downstream of Cavallo Road. Includes marina outlet channel (or equivalent), hazardous material clean-up of affected portion of Hickmont cannery site, and three new box culverts under Wilbur Avenue.	Marsh Creek Reservoir was constructed in the early 1960s as a dry reservoir, namely that it only fills and stores water during large storm events. 99%+ of the time, the reservoir stands empty except for a few acre feet of water stored below the elevation of the primary spillway. After construction, willows grew up around the main stem of Marsh Creek and around the wet pool. With 50+ years of intensive grazing, the only habitat is provided by the 50-year old willows that are nearing the end of their lifespan. Because of the grazing, there have been no new trees to replace those that are aging. The restoration plan maintains or improves level of flood protection, improves surrounding habitat, is compatible with surrounding state park uses, deals appropriately with accumulated mercury and accommodates mercury that will arrive at the basin in the next 50 years.	The project assesses seismic performance of an existing earthfill dam and recommends retrofit improvements, if needed. It includes a two-phase approach: start with hazard assessment, and proceed to more detailed geotechnical analysis if warranted. The dam was constructed to "modern" seismic standards in 1964 and is unlikely to withstand an earthquake by today's more stringent standards. The actual seismic retrofit of the dam, if warranted, is scoped as a separate project.	A 2010 Flood Control District study identified portions of Marsh Creek that will not have sufficient capacity upon general plan buildout of the watershed. The regional drainage master plan calls for construction of a number of upstream reservoirs and detention basins to store and hold back storm flows. But even when all of these basins are constructed, Marsh Creek will still have portions of its channels that do not have sufficient capacity. This project will selectively raise channel banks and levees, and constructed floodwalls at various locations to contain 100-year flood flows and contain 50-year flood flows with freeboard along Marsh Creek. Optional project upgrades (not included in current budget) would increase the level of protection to containment of a 200-year flood event.
	Project Partners	Agency/Organization Name	-	-	-	-	-
ECCC IRWM Plan Objective(s) – Ranking Criteria #1	Funding for Water-Related Planning and Implementation	Increase regional cost efficiencies in treatment and delivery of water, wastewater, and recycled water	-	-	-	-	-
		Implement projects that have region-wide benefits	Additional: Ensure the structural stability of the basin that captures the runoff from the upstream watershed to reduce the flow rates downstream to include the City of Brentwood, City of Oakley and Unincorporated Contra Costa County.	-	-	Additional: Ensure the structural stability of the basin that captures the runoff from the upstream watershed to reduce the flow rates downstream in the City of Brentwood, City of Oakley and unincorporated Contra Costa County.	-
	Water Supply	Pursue water supplies that are less subject to Delta influences and drought, such as recycled water and desalination	-	-	-	-	-
		Increase water conservation and water use efficiency	-	-	-	-	-
		Increase water transfers	-	-	-	-	-
		Pursue regional exchanges for emergencies, ideally using existing infrastructure	-	-	-	-	-

Project Name			Deer Creek Reservoir Seismic Assessment (#212)	East Antioch Creek Marsh Restoration (#206)	Marsh Creek Reservoir Capacity and Habitat Restoration (#213)	Marsh Creek Reservoir Seismic Assessment (#210)	Marsh Creek Supplemental Capacity and Basin Development (#215)
Sponsoring Agency/Organization			Contra Costa County Flood Control & Water Conservation District	Contra Costa County Flood Control & Water Conservation District	Contra Costa County Flood Control & Water Conservation District	Contra Costa County Flood Control & Water Conservation District	Contra Costa County Flood Control & Water Conservation District
		Enhance understanding of how groundwater fits into the water portfolio and investigate groundwater as a regional source (e.g., conjunctive use)	-	-	-	-	-
	Water Quality and Related Regulations	Protect/Improve source water quality	-	-	-	-	-
		Maintain/Improve regional treated drinking water quality	-	-	-	-	-
		Maintain/Improve regional recycled water quality	-	-	-	-	-
		Increase understanding of groundwater quality and potential threats to groundwater quality	-	-	-	-	-
		Meet current and future water quality requirements for discharges to the Delta	-	-	-	-	-
		Limit quantity and improve quality of stormwater discharges to the Delta	Additional: Ensure the structural stability of the basin that captures the runoff from the upstream watershed to reduce the turbidity in the creek by acting as a trap for sediment.	Additional: This will improve the quality of stormwater discharge to the Delta by improving the function of a degraded and polluted marsh.	Additional: This project will improve the quality of stormwater discharged to the Delta. Marsh Creek has a mercury TMDL, and significant quantities of mercury are impounded in sediment behind the reservoir.	Additional: Ensure the structural stability of the basin that captures the runoff from the upstream watershed to reduce the turbidity in the creek by acting as a trap for sediment and mercury from the upstream mine. Marsh Creek has a TMDL for mercury.	Additional: Keeping water in Marsh Creek keeps the Delta cleaner. When floods occur, escaped floodwaters flow east (towards Knightsen), mix with septic overflows and the resulting polluted water is pumped over the Rock Slough levee into the Delta for disposal.
	Restoration and Enhancement of the Delta Ecosystem and Other Environmental Resources	Enhance and restore habitat in the Delta and connected waterways	-	Primary: Restore the marsh habitat at the mouth of East Antioch Creek.	Primary: This project will prepare and implement a plan to restore various habitats located in the Marsh Creek Reservoir.	-	-
		Minimize Impacts to the Delta ecosystem and other environmental resources	-	Additional: Cleans up a hazardous waste site that has not been remediated to date.	Additional: Restores upland and wetland habitat and examines methods of minimizing mercury methylation and downstream transport.	-	Additional: Keeping water in Marsh Creek keeps the Delta cleaner. When floods occur, escaped floodwaters flow east (towards Knightsen), mix with septic overflows and the resulting polluted water is pumped over the Rock Slough levee into the Delta for disposal.
		Reduce greenhouse gas emissions	-	-	-	-	-
		Provide better accessibility to waterways for subsistence fishing and recreation	-	Additional: Local stakeholders have proposed adding a recreation component to the project that includes bird watching platforms and other passive public access.	Additional: Long-term goal is to reopen the reservoir for recreation. Has been closed to the public since mid-1970s due to elevated mercury levels in fish and concern about fishing and eating these fish.	-	-
	Stormwater and Flood Management	Manage local stormwater	Additional: Basin capture and meters stormwater flows to prevent downstream flooding.	Additional: Increase the conveyance of flows to the delta.	Additional: Project may also improve basin capacity and stormwater detention.	-	Additional: This project will increase creek capacity to handle storm runoff and reduce the potential of flooding of neighboring communities along the creek.
		Improve regional flood risk management	Primary: Ensure the structural stability of the dam embankment of a vital flood control facility.	Additional: Increase the conveyance of flows to the delta.	Additional: Project may also improve basin capacity and stormwater detention.	Primary: Ensure the structural stability of the dam embankment of a vital flood control facility.	Primary: This project to reduce the potential of flooding of neighboring communities along the creek.

Project Name			Deer Creek Reservoir Seismic Assessment (#212)	East Antioch Creek Marsh Restoration (#206)	Marsh Creek Reservoir Capacity and Habitat Restoration (#213)	Marsh Creek Reservoir Seismic Assessment (#210)	Marsh Creek Supplemental Capacity and Basin Development (#215)
Sponsoring Agency/Organization			Contra Costa County Flood Control & Water Conservation District	Contra Costa County Flood Control & Water Conservation District	Contra Costa County Flood Control & Water Conservation District	Contra Costa County Flood Control & Water Conservation District	Contra Costa County Flood Control & Water Conservation District
	Water-Related Outreach	Collaborate with and involve DACs in the IRWM process	-	Additional: This project is located within the large DAC in Antioch and that DAC is the primary beneficiary of the reduced flood risk and remediation of a hazardous waste site.	-	-	-
		Increase awareness of water resources management issues and projects with the general public	-	-	Additional: Public will be involved in the planning process.	-	-
	Please elaborate on any benefits that your project may provide outside of the stated objectives		The seismic safety of this dam is especially critical because a very large (2,100 student) high school is located immediately downstream of the dam. The emergency spillway actually passes through the sports fields of the high school.	-	-	-	-
Program Preferences – Ranking Criteria #2		Resolves Water-Related Conflicts	-	-	-	-	-
	CALFED Objectives	Improve the state's water quality from source to tap	-	-	-	-	-
		Protect water supplies needed for ecosystems, cities, industry and farms by reducing the threat of levee failures that would lead to seawater intrusion.	-	-	-	-	-
		Allow for the increase of water supplies and more efficient and flexible use of water resources	-	-	-	-	-
		Improve the ecological health of the Bay-Delta watershed	-	Yes: Cleans up un-remediated hazardous waste site located adjacent to the Delta.	Yes: Restoration of this important portion of the watershed will improve the area's ecological health and will limit the amount of mercury available for bioutilization.	-	-
		Effectively Integrate Water Management with Land Use Planning	-	-	-	-	Yes: Creek hydrology model assumes an infiltration rate based on GIS and the land use.
Statewide Priorities – Ranking Criteria #3		Drought Preparedness	-	-	-	-	-
		Use and Reuse Water More Efficiently	-	-	-	-	-
		Climate Change Response Actions	-	-	-	-	-
		Expand Environmental Stewardship	-	Yes	Yes	-	-
		Practice Integrated Flood Management	Yes	-	Yes	Yes	Yes
		Protects Surface Water and Groundwater Quality	-	Yes	-	-	-
		Improve Tribal Water and Natural Resources	-	-	-	-	-
		Ensure Equitable Distribution of Benefits	-	-	-	-	-

Project Name			Deer Creek Reservoir Seismic Assessment (#212)	East Antioch Creek Marsh Restoration (#206)	Marsh Creek Reservoir Capacity and Habitat Restoration (#213)	Marsh Creek Reservoir Seismic Assessment (#210)	Marsh Creek Supplemental Capacity and Basin Development (#215)
Sponsoring Agency/Organization			Contra Costa County Flood Control & Water Conservation District	Contra Costa County Flood Control & Water Conservation District	Contra Costa County Flood Control & Water Conservation District	Contra Costa County Flood Control & Water Conservation District	Contra Costa County Flood Control & Water Conservation District
Resource Management Strategies – Diversification Considerations	Reduce Water Demand	Agricultural Water Use Efficiency	-	-	-	-	-
		Urban Water Use Efficiency	-	-	-	-	-
	Improve Operational Efficiency	Conveyance – Delta	-	-	-	-	-
		Conveyance – Regional/Local	-	-	-	-	-
		System Reoperation	-	-	-	-	-
		Water Transfers	-	-	-	-	-
	Increase Water Supply	Conjunctive Management & Groundwater Storage	-	-	-	-	-
		Desalination	-	-	-	-	-
		Precipitation Enhancement	-	-	-	-	-
		Recycled Municipal Water	-	-	-	-	-
		Surface Storage – CALFED	-	-	-	-	-
		Surface Storage – Regional/Local	-	-	-	-	-
	Improve Water Quality	Drinking Water Treatment and Distribution	-	-	-	-	-
		Groundwater Remediation/Aquifer Remediation	-	-	-	-	-
		Matching Quality to Use	-	-	-	-	-
		Pollution Prevention	-	Yes	Yes	Yes	Yes
		Salt and Salinity Management	-	-	-	-	-
		Urban Runoff Management	Yes	Yes	Yes	Yes	Yes
	Improve Flood Management	Flood Risk Management	Yes	Yes	Yes	Yes	Yes
	Practice Resources Stewardship	Agricultural Lands Stewardship	-	-	Yes	-	-
		Economic Incentives (Loans, Grants and Water Pricing)	-	-	-	-	-
		Ecosystem Restoration	-	Yes	Yes	-	-
		Forest Management	-	-	Yes	-	-
		Recharge Area Protection	-	-	-	-	-
		Water-Dependent Recreation	-	-	-	-	-
		Watershed Management	Yes	Yes	Yes	Yes	Yes

Project Name			Deer Creek Reservoir Seismic Assessment (#212)	East Antioch Creek Marsh Restoration (#206)	Marsh Creek Reservoir Capacity and Habitat Restoration (#213)	Marsh Creek Reservoir Seismic Assessment (#210)	Marsh Creek Supplemental Capacity and Basin Development (#215)
Sponsoring Agency/Organization			Contra Costa County Flood Control & Water Conservation District	Contra Costa County Flood Control & Water Conservation District	Contra Costa County Flood Control & Water Conservation District	Contra Costa County Flood Control & Water Conservation District	Contra Costa County Flood Control & Water Conservation District
	Other Strategies	Crop Idling for Water Transfers	-	-	-	-	-
		Dewvaporation or Atmospheric Pressure Desalination	-	-	-	-	-
		Fog Collection	-	-	-	-	-
		Irrigated Land Retirement	-	-	-	-	-
		Rainfed Agriculture	-	-	-	-	-
		Waterbag Transport/ Storage Technology	-	-	-	-	-
Project Status - Implementation	Planning	Project Status	In Progress	Not Started	Not Started	Not Started	In Progress
		Est. Completion Date	7/1/2014	8/1/2020	9/1/2014	6/1/2015	9/1/2016
	Feasibility	Project Status	Not Applicable	Not Started	Not Started	Not Applicable	Completed
		Est. Completion Date	-	8/1/2020	9/1/2014	-	1/1/2012
	Environ-mental Assess.	Project Status	Not Started	Not Started	Not Started	Not Applicable	Not Started
		Est. Completion Date	7/1/2014	8/1/2020	9/1/2016	-	9/1/2020
	Pre-Project Monitoring	Project Status	Not Applicable	Not Started	Not Applicable	Not Applicable	Not Applicable
		Est. Completion Date	-	8/1/2020	-	-	-
	Design	Project Status	Not Applicable	Not Started	Not Started	Not Applicable	Not Started
		Est. Completion Date	-	8/1/2020	9/1/2017	-	9/1/2020
	Environ-mental Permits	Project Status	Not Applicable	Not Started	Not Started	Not Applicable	Not Started
		Est. Completion Date	-	8/1/2020	9/1/2017	-	9/1/2020
	Building/Other Permits	Project Status	Not Applicable	Not Started	Not Applicable	Not Applicable	Not Started
		Est. Completion Date	-	8/1/2020	-	-	9/1/2020
	Construction/ Imple-	Project Status	Not Started	Not Started	Not Started	Not Started	Not Started

Project Name			Deer Creek Reservoir Seismic Assessment (#212)	East Antioch Creek Marsh Restoration (#206)	Marsh Creek Reservoir Capacity and Habitat Restoration (#213)	Marsh Creek Reservoir Seismic Assessment (#210)	Marsh Creek Supplemental Capacity and Basin Development (#215)
Sponsoring Agency/Organization			Contra Costa County Flood Control & Water Conservation District	Contra Costa County Flood Control & Water Conservation District	Contra Costa County Flood Control & Water Conservation District	Contra Costa County Flood Control & Water Conservation District	Contra Costa County Flood Control & Water Conservation District
		Est. Completion Date	7/1/2014	8/1/2020	9/1/2017	6/1/2015	9/1/2020
	Post Project Monitoring	Project Status	Not Applicable	Not Started	Not Started	Not Applicable	Not Applicable
	Post Project Monitoring	Est. Completion Date	-	8/1/2020	9/1/2020	-	-
	Environmental Permits	Describe any required	-	USACE 404, RWQCB Water Quality Cert., DFG 1600 ECC HCP coverage (PSR needed)	USACE 404, RWQCB Water Quality Cert., DFG 1600 ECC HCP (PSR needed)	-	USACE 404, RWQCB Water Quality Cert., DFG 1600, ECCHCP coverage (PSR needed)
	Environmental Permits	Status?	-	Permitting has not begun.	Permitting has not begun, but will occur closer to construction.	-	They have not been started yet.
	Other Permits (e.g., Encroachment, Building)	Describe any required	DSOD will need to be involved in any assessment and will ultimately need to issue a permit for any dam reconstruction or modification.	N/A	None	DSOD will need to be involved in any assessment and will ultimately need to issue a permit for any dam reconstruction or modification.	N/A
	Other Permits (e.g., Encroachment, Building)	Status?	DSOD is familiar with the dam and inspects it annually. Specific permit application will follow seismic assessment.	-	N/A	DSOD is familiar with the dam and inspects it annually. Specific permit application will follow seismic assessment.	-
	Project Schedule Available?		-	-	-	-	-
	Describe any data gaps or uncertainties		-	Funding is an issue.	Funding may be an issue.	-	Funding is an issue.
Project Costs - Implementation	Land Purchase/Easement		NA	$815,000	NA	NA	$230,000
Project Costs - Implementation	Planning		$215,000	$200,000	$515,000	$425,000	$160,000
Project Costs - Implementation	Design		$1	$576,000	$70,000	NA	$130,000
Project Costs - Implementation	Environmental Review		$15,000	$576,000	$80,000	$15,000	$100,000
Project Costs - Implementation	Permits		Unknown	Unknown	NA	Unknown	$65,000
Project Costs - Implementation	Construction/Implementation		$1	$4,728,000	$3,580,000	NA	$2,645,000
Project Costs - Implementation	Environmental Mitigation/Compliance		Unknown	Unknown	$560,000	NA	$283,000
Project Costs - Implementation	Other		$23,000	$1,700,000	$491,000	$31,000	$51,000
Project Costs - Implementation	Total Project Cost		$253,000	$9,220,000	$5,356,000	$471,000	$3,664,000
Project Costs - Implementation	Cost Estimate Available?		-	-	-	-	-
Project Funding - Implementation	Agency, funds or in kind contributions	Amount	$127,000	$200,000	$2,000,000	$175,000	$250,000
Project Funding - Implementation	Agency, funds or in kind contributions	Regional Assessments	-	-	-	Yes	-
Project Funding - Implementation	Agency, funds or in kind contributions	Developmental Fees	Yes	Yes	Yes	Yes	Yes
Project Funding - Implementation	Agency, funds or in kind contributions	User Rates	-	-	-	-	-
Project Funding - Implementation	Agency, funds or in kind contributions	User Fees	-	-	-	-	-
Project Funding - Implementation	Agency, funds or in kind contributions	Bonded Debt Financing	-	-	-	-	-
Project Funding - Implementation	Agency, funds or in kind contributions	Property Tax	Yes	-	Yes	Yes	Yes
Project Funding - Implementation	Agency, funds or in kind contributions	Contributions	-	-	-	-	-

Project Name			Deer Creek Reservoir Seismic Assessment (#212)	East Antioch Creek Marsh Restoration (#206)	Marsh Creek Reservoir Capacity and Habitat Restoration (#213)	Marsh Creek Reservoir Seismic Assessment (#210)	Marsh Creek Supplemental Capacity and Basin Development (#215)
Sponsoring Agency/Organization			Contra Costa County Flood Control & Water Conservation District	Contra Costa County Flood Control & Water Conservation District	Contra Costa County Flood Control & Water Conservation District	Contra Costa County Flood Control & Water Conservation District	Contra Costa County Flood Control & Water Conservation District
		Other	-	-	-	-	-
	Existing grants	Amount	-	-	-	-	-
		State Grants	-	-	-	-	-
		State funding for flood control/flood prevention projects	-	-	-	-	-
		Local Grants	-	-	-	-	-
		Federal Grants	-	-	-	-	-
	Currently unfunded		$126,000	$9,020,000	$3,356,000	$296,000	$3,414,000
	Economic Feasibility Analysis Available?		-	-	-	-	-
Disadvantaged Communities (DAs)	Does (will) the project help to address critical water supply and water quality needs of DACs within the ECCC region?		-	-	-	-	-
	What Community(ies)?		-	-	-	-	-
	How were the DACs included in the planning or development of the project?		-	-	-	-	-
Environmental Justice – Ranking Criteria #4	Does (will) the project help to address any environmental justice concerns?		-	-	-	-	-
	Does (will) the project create/raise any environmental justice concerns?		-	-	-	-	-
Climate Change/Greenhouse Gas Emission Reduction - Ranking	Does (will) the project consider and/or address the effects of climate change on the region?		-	-	-	-	-
	Does (will) the project reduce greenhouse gas emissions?		-	-	-	-	-

Project Name			Marsh Creek Widening Between Dainty Avenue and Sand Creek (#216)	Oakley and Trembath Detention Basins (#207)	West Antioch Creek Improvements; 10th Street to "L" Street (#203)	Dry Creek Reservoir Seismic Assessment (#211)	Kellogg Creek Sedimentation Basin (#226)
Sponsoring Agency/Organization			Contra Costa County Flood Control & Water Conservation District	Contra Costa County Flood Control & Water Conservation District	Contra Costa County Flood Control & Water Conservation District	Contra Costa County Flood Control & Water Conservation District	Contra Costa County Flood Control & Water Conservation District
Project ID #			**15**	**16**	**17**	**18**	**19**
Project Description	Project Type		Infrastructure – Stormwater/ Flood Management	Infrastructure – Stormwater/ Flood Management	Infrastructure – Stormwater/ Flood Management	Infrastructure – Stormwater/ Flood Management	Infrastructure – Stormwater/ Flood Management
	Describe the project		The master plan for Marsh Creek included a series of detention basins as well as selective widening of the channel. This project is one of the selective widening projects. It extends from the Dainty Road crossing of the creek downstream to the creek's confluence with Sand Creek. The project is needed to contain 100-year flood flows and 50-year flood flows with freeboard in the creek and prevent damaging, polluted overflows into adjacent areas.	Oakley and Trembath Basins are important components of the master planned drainage infrastructure for the East Antioch Creek watershed in Antioch. The main stern of East Antioch Creek features three main detention basins which temporarily store stormwater and release it slowly once the storm has passed. One of these basins (Lindsey) is functionally complete. Of the other two, Oakley Basin is partially constructed and Trembath Basin, located just downstream of Oakley Basin, has yet to be constructed. This project will complete Oakley Basin and construct Trembath Basin. Trembath Basin will consist of a 20-foot high earthen dam and appurtenant structures, and wetland enhancement and mitigation. Oakley Basin work would consist of excavating material to expand the impound volume. The projects are needed to reduce flood risk to communities in Antioch within the East Antioch Creek watershed.	Design and construct channel improvements from the downstream end of "L" Street Crossing to the upstream end of the 10th Street culverts in conjunction with the City of Antioch. Project includes selective channel widening and floodwalls, and additional culverts under the Union Pacific Railroad.	The project assesses seismic performance of existing earthfill dam embankments and recommends retrofit improvements, if needed. It includes a two-phase approach: start with hazard assessment, and proceed to more detailed geotechnical analysis if warranted. The dam was constructed in the 1960s and is unlikely to withstand an earthquake by today's more stringent standards. The actual seismic retrofit of the dam, if warranted, is scoped as a separate project.	This project proposes to construct an approximately 4-acre biofilter to treat flows and removed sediment from Kellogg Creek before entering Discovery Bay. Dredging Discovery Bay near Newport Drive is very expensive and also it has been difficult to secure the needed regulatory permits. This project will remove a minimum of 50 percent of the sediment load and associated pollutants from Kellogg Creek. A majority of the sediment load in Kellogg Creek comes from agricultural tailwater return in the summer irrigation season. As such, the basin will capture more summertime flows and pass most winter storm flows. Sediment will settle out and pollutants will be treated in the biofilter using natural processes.
	Project Partners	Agency/Organization Name	-	City of Antioch	City of Antioch	-	Contra Costa County Flood Control and Water Conservation District
ECCC IRWM Plan Objective(s) – Ranking Criteria #1	Funding for Water-Related Planning and Implementation	Increase regional cost efficiencies in treatment and delivery of water, wastewater, and recycled water	-	-	-	-	-
		Implement projects that have region-wide benefits	-	Additional: This project has flood risk reduction benefits not only at the project site, but all the way down to the confluence with the San Joaquin River.	-	Additional: Ensure the structural stability of the basin that captures the runoff from the upstream watershed to reduce the flow rates downstream to include the City of Brentwood, City of Oakley and Unincorporated Contra Costa County.	Additional: The sedimentation basin will operate to serve 10,900 acres of agricultural farmland and open space downstream of the Los Vaqueros Reservoir. Erosion from the upper watershed would be contained in the basin versus Discovery Bay and the Delta Sloughs.
	Water Supply	Pursue water supplies that are less subject to Delta influences and drought, such as recycled water and desalination	-	-	-	-	-
		Increase water conservation and water use efficiency	-	-	-	-	-
		Increase water transfers	-	-	-	-	-
		Pursue regional exchanges for emergencies, ideally	-	-	-	-	-

Project Name			Marsh Creek Widening Between Dainty Avenue and Sand Creek (#216)	Oakley and Trembath Detention Basins (#207)	West Antioch Creek Improvements; 10th Street to "L" Street (#203)	Dry Creek Reservoir Seismic Assessment (#211)	Kellogg Creek Sedimentation Basin (#226)
Sponsoring Agency/Organization			Contra Costa County Flood Control & Water Conservation District	Contra Costa County Flood Control & Water Conservation District	Contra Costa County Flood Control & Water Conservation District	Contra Costa County Flood Control & Water Conservation District	Contra Costa County Flood Control & Water Conservation District
		using existing infrastructure					
		Enhance understanding of how groundwater fits into the water portfolio and investigate groundwater as a regional source (e.g., conjunctive use)	-	-	-	-	-
	Water Quality and Related Regulations	Protect/Improve source water quality	-	-	-	-	Additional: Improves the Delta water quality by passively removing the silt from the creek flow.
		Maintain/Improve regional treated drinking water quality	-	-	-	-	-
		Maintain/Improve regional recycled water quality	-	-	-	-	-
		Increase understanding of groundwater quality and potential threats to groundwater quality	-	-	-	-	-
		Meet current and future water quality requirements for discharges to the Delta	-	-	-	-	-
		Limit quantity and improve quality of stormwater discharges to the Delta	Additional: Keeping water in Marsh Creek keeps the Delta cleaner. When floods occur, escaped floodwaters flow east (towards Knightsen), mix with septic overflows and the resulting polluted water is pumped over the Rock Slough levee into the Delta for disposal.	Additional: The detention basins in this project will trap significant amounts of sediment as well as trash, resulting in cleaner stormwater reaching the Delta.	-	Additional: Ensure the structural stability of the basin that captures the runoff from the upstream watershed to reduce the turbidity in the creek by acting as a trap for sediment.	Additional: Improves the Delta water quality by passively removing the silt from the creek storm flows.
	Restoration and Enhancement of the Delta Ecosystem and Other Environmental Resources	Enhance and restore habitat in the Delta and connected waterways	-	-	-	-	-
		Minimize Impacts to the Delta ecosystem and other environmental resources	Additional: Keeping water in Marsh Creek keeps the Delta cleaner. When floods occur, escaped floodwaters flow east (towards Knightsen), mix with septic overflows and the resulting polluted water is pumped over the Rock Slough levee into the Delta for disposal.	-	-	-	-
		Reduce greenhouse gas emissions	-	-	-	-	-
		Provide better accessibility to waterways for subsistence fishing and recreation	-	-	-	-	-
	Stormwater and Flood Management	Manage local stormwater	Additional: This project will increase creek capacity to handle storm runoff and reduce the potential of flooding for the neighboring communities along the creek.	Additional: The detention basins will retain storm flows and meter storm flows out of the basin at a lower rate.	Additional: Improvement of the existing channel to handle and prevent storm water flows from overbanking the creek and flooding the adjacent properties/DAC.	Additional: Basin capture and meters stormwater flows to prevent downstream flooding.	Primary: Manages stormwater within the region by passively removing the silt from the Kellogg Creek storm flows.

Project Name			Marsh Creek Widening Between Dainty Avenue and Sand Creek (#216)	Oakley and Trembath Detention Basins (#207)	West Antioch Creek Improvements; 10th Street to "L" Street (#203)	Dry Creek Reservoir Seismic Assessment (#211)	Kellogg Creek Sedimentation Basin (#226)
Sponsoring Agency/Organization			Contra Costa County Flood Control & Water Conservation District	Contra Costa County Flood Control & Water Conservation District	Contra Costa County Flood Control & Water Conservation District	Contra Costa County Flood Control & Water Conservation District	Contra Costa County Flood Control & Water Conservation District
		Improve regional flood risk management	Primary: This project will reduce the potential of flooding for the neighboring communities along the creek.	Primary: The detention basin will retain storm flows and meter storm flows out of the basin at a lower rate.	Primary: Improvement of the existing channel to handle and prevent stormwater flows from overbanking the creek and flooding the adjacent properties/DAC.	Primary: Ensure the structural stability of the dam embankments of a vital flood control facility.	-
	Water-Related Outreach	Collaborate with and involve DACs in the IRWM process	-	Additional: This project is located directly upstream of the large DAC in Antioch and that DAC is the primary beneficiary of the reduced flood risk.	Additional: This project will significantly reduce the flooding potential for the adjacent DAC area.	-	-
		Increase awareness of water resources management issues and projects with the general public	-	-	-	-	-
	Please elaborate on any benefits that your project may provide outside of the stated objectives			-	-	-	-
Program Preferences – Ranking Criteria #2		Resolves Water-Related Conflicts	-	-	-	-	-
	CALFED Objectives	Improve the state's water quality from source to tap	-	-	-	-	-
		Protect water supplies needed for ecosystems, cities, industry and farms by reducing the threat of levee failures that would lead to seawater intrusion.	-	-	-	-	-
		Allow for the increase of water supplies and more efficient and flexible use of water resources	-	-	-	-	-
		Improve the ecological health of the Bay-Delta watershed	-	Yes: This project includes regional detention basin facilities that provide floodwater storage as well as traps for sediment and trash. Wetland restoration is also a project component; all of this improves the quality of stormwater in the watershed.	-	-	Yes: Construction of the basin will reduce the sediment and associated pollutant load to Kellogg Creek before it enters Discovery Bay and the Delta.
		Effectively Integrate Water Management with Land Use Planning	-	-	-	-	-
Statewide Priorities – Ranking Criteria #3		Drought Preparedness	-	-	-	-	-
		Use and Reuse Water More Efficiently	-	-	-	-	-
		Climate Change Response Actions	-	-	-	-	-
		Expand Environmental Stewardship	-	-	-	-	Yes
		Practice Integrated Flood Management	Yes	Yes	Yes	Yes	-
		Protects Surface Water and Groundwater Quality	-	-	-	-	Yes

Project Name			Marsh Creek Widening Between Dainty Avenue and Sand Creek (#216)	Oakley and Trembath Detention Basins (#207)	West Antioch Creek Improvements; 10th Street to "L" Street (#203)	Dry Creek Reservoir Seismic Assessment (#211)	Kellogg Creek Sedimentation Basin (#226)
Sponsoring Agency/Organization			Contra Costa County Flood Control & Water Conservation District	Contra Costa County Flood Control & Water Conservation District	Contra Costa County Flood Control & Water Conservation District	Contra Costa County Flood Control & Water Conservation District	Contra Costa County Flood Control & Water Conservation District
		Improve Tribal Water and Natural Resources	-	-	-	-	-
		Ensure Equitable Distribution of Benefits	-	Yes	-	-	-
Resource Management Strategies – Diversification Considerations	Reduce Water Demand	Agricultural Water Use Efficiency	-	-	-	-	-
		Urban Water Use Efficiency	-	-	-	-	-
	Improve Operational Efficiency	Conveyance – Delta	-	-	-	-	-
		Conveyance – Regional/Local	Yes	-	-	-	-
		System Reoperation	-	-	-	-	-
		Water Transfers	-	-	-	-	-
	Increase Water Supply	Conjunctive Management & Groundwater Storage	-	-	-	-	-
		Desalination	-	-	-	-	-
		Precipitation Enhancement	-	-	-	-	-
		Recycled Municipal Water	-	-	-	-	-
		Surface Storage – CALFED	-	-	-	-	-
		Surface Storage – Regional/Local	-	-	-	-	-
	Improve Water Quality	Drinking Water Treatment and Distribution	-	-	-	-	-
		Groundwater Remediation/Aquifer Remediation	-	-	-	-	-
		Matching Quality to Use	-	-	-	-	-
		Pollution Prevention	Yes	Yes	Yes	-	Yes
		Salt and Salinity Management					
		Urban Runoff Management	Yes	Yes	Yes	Yes	Yes
	Improve Flood Management	Flood Risk Management	Yes	Yes	Yes	Yes	-
	Practice Resources Stewardship	Agricultural Lands Stewardship	-	-	-	-	Yes
		Economic Incentives (Loans, Grants and Water Pricing)	-	-	-	-	-
		Ecosystem Restoration	-	Yes	-	-	-
		Forest Management	-	-	-	-	-

Project Name			Marsh Creek Widening Between Dainty Avenue and Sand Creek (#216)	Oakley and Trembath Detention Basins (#207)	West Antioch Creek Improvements; 10th Street to "L" Street (#203)	Dry Creek Reservoir Seismic Assessment (#211)	Kellogg Creek Sedimentation Basin (#226)
Sponsoring Agency/Organization			Contra Costa County Flood Control & Water Conservation District	Contra Costa County Flood Control & Water Conservation District	Contra Costa County Flood Control & Water Conservation District	Contra Costa County Flood Control & Water Conservation District	Contra Costa County Flood Control & Water Conservation District
		Recharge Area Protection	-	-	-	-	-
		Water-Dependent Recreation	-	-	-	-	-
		Watershed Management	Yes	-	-	Yes	Yes
	Other Strategies	Crop Idling for Water Transfers	-	-	-	-	-
		Dewvaporation or Atmospheric Pressure Desalination	-	-	-	-	-
		Fog Collection	-	-	-	-	-
		Irrigated Land Retirement	-	-	-	-	-
		Rainfed Agriculture	-	-	-	-	-
		Waterbag Transport/ Storage Technology	-	-	-	-	-
Project Status - Implementation	Planning	Project Status	In Progress	In Progress	In Progress	In Progress	In Progress
		Est. Completion Date	9/1/2016	8/1/2014	8/1/2017	7/1/2014	8/1/2013
	Feasibility	Project Status	Completed	Completed	Completed	Not Applicable	In Progress
		Est. Completion Date	1/1/2012	8/1/2012	1/1/2012	-	8/1/2013
	Environ-mental Assess.	Project Status	Not Started	In Progress	Not Started	Not Started	In Progress
		Est. Completion Date	9/1/2020	8/1/2014	8/1/2020	7/1/2014	8/1/2013
	Pre-Project Monitoring	Project Status	Not Applicable	In Progress	Not Started	Not Applicable	Not Applicable
		Est. Completion Date	-	9/1/2014	8/1/2020	-	-
	Design	Project Status	Not Started	Not Started	Not Started	Not Applicable	Not Started
		Est. Completion Date	9/1/2020	12/1/2014	8/1/2020	-	8/1/2020
	Environ-mental Permits	Project Status	Not Started	Not Started	Not Started	Not Applicable	Not Started
		Est. Completion Date	9/1/2020	4/1/2015	8/1/2020	-	8/1/2020
	Building/ Other	Project Status	Not Started	Not Applicable	Not Started	Not Applicable	Not Applicable

Project Name			Marsh Creek Widening Between Dainty Avenue and Sand Creek (#216)	Oakley and Trembath Detention Basins (#207)	West Antioch Creek Improvements; 10th Street to "L" Street (#203)	Dry Creek Reservoir Seismic Assessment (#211)	Kellogg Creek Sedimentation Basin (#226)
Sponsoring Agency/Organization			Contra Costa County Flood Control & Water Conservation District	Contra Costa County Flood Control & Water Conservation District	Contra Costa County Flood Control & Water Conservation District	Contra Costa County Flood Control & Water Conservation District	Contra Costa County Flood Control & Water Conservation District
		Est. Completion Date	9/1/2020	-	8/1/2020	-	-
	Construction/ Implementation	Project Status	Not Started	Not Started	Not Started	Not Started	Not Started
		Est. Completion Date	9/1/2020	4/1/2015	8/1/2020	7/1/2015	8/1/2020
	Post Project Monitoring	Project Status	Not Applicable	Not Started	Not Applicable	Not Applicable	Not Started
		Est. Completion Date	-	8/1/2016	-	-	8/1/2020
	Environmental Permits	Describe any required	USACE 404, RWQCB Water Quality Cert., DFG 1600, ECC HCP coverage (PSR needed)	USACE 404, RWQCB Water Quality Cert., DFG 1600, ECC HCP coverage (PSR needed)	USACE 404, DFG 1600, RWQCB Water Quality Cert.	-	USACE 404, RWQCB Water Quality Cert., DFG 1600, ECC HCP coverage (PSR needed)
		Status?	They have not been started yet.	Many baseline studies have been completed in support of the HCP Project Study Report (PSR). Other applications will be submitted closer to project advertise.	Permits have not been started. Will commence process when closer to construction and funding has been secured.	-	Preliminary studies have been started.
	Other Permits (e.g., Encroachment, Building)	Describe any required	N/A	Approval of Division of Safety of Dams for dam construction.	-	DSOD will need to be involved in any assessment and will ultimately need to issue a permit for any dam reconstruction or modification.	N/A
		Status?	-	Initial meeting with DSOD completed. Design guidance received from DSOD.	-	DSOD is familiar with the dam and inspects it annually. Specific permit application will follow seismic assessment.	N/A
	Project Schedule Available?		-	-	-	-	-
	Describe any data gaps or uncertainties		Funding is an issue.	Funding is an issue. Fiscal ability of maintenance entity (City of Antioch) to assume ownership may become an issue.	Local match is a challenge in this area. Another project located just downstream on West Antioch Creek is under design and will be implemented soon.	-	Funding is an issue. Mitigation requirements by environmental agencies have increased project costs.
Project Costs - Implementation	Land Purchase/Easement		$420,000	$1,280,000	$155,000	NA	NA
	Planning		$295,000	$842,000	$345,000	$315,000	$134,000
	Design		$90,000	$1,560,000	$180,000	$1	$237,000
	Environmental Review		$545,000	$250,000	$80,000	$15,000	$168,000
	Permits		$65,000	Unknown	$90,000	$1	$30,000
	Construction/Implementation		$2,325,000	$5,009,000	$3,240,000	$1	$325,000
	Environmental Mitigation/Compliance		$283,000	Unknown	$370,000	$1	$1,200,000
	Other		$20,000	Unknown	$446,000	$33,000	NA
	Total Project Cost		$4,043,000	$10,051,000	$4,906,000	$363,004	$2,094,000
	Cost Estimate Available?		-	-	-	-	-

Project Name			Marsh Creek Widening Between Dainty Avenue and Sand Creek (#216)	Oakley and Trembath Detention Basins (#207)	West Antioch Creek Improvements; 10th Street to "L" Street (#203)	Dry Creek Reservoir Seismic Assessment (#211)	Kellogg Creek Sedimentation Basin (#226)
Sponsoring Agency/Organization			Contra Costa County Flood Control & Water Conservation District	Contra Costa County Flood Control & Water Conservation District	Contra Costa County Flood Control & Water Conservation District	Contra Costa County Flood Control & Water Conservation District	Contra Costa County Flood Control & Water Conservation District
Project Funding - Implementation	Agency; funds or in kind contributions	Amount	$250,000	$3,000,000	$100,000	$175,000	$894,000
		Regional Assessments	-	-	-	-	-
		Developmental Fees	Yes	Yes	Yes	Yes	-
		User Rates	-	-	-	-	Yes
		User Fees	-	-	-	-	-
		Bonded Debt Financing	-	-	-	-	-
		Property Tax	Yes	-	-	Yes	-
		Contributions	-	-	-	-	-
		Other	-	-	-	-	-
	Existing grants	Amount	-	-	-	-	-
		State Grants	-	-	-	-	-
		State funding for flood control/flood prevention projects	-	-	-	-	-
		Local Grants	-	-	-	-	-
		Federal Grants	-	-	-	-	-
	Currently unfunded		$3,793,000	$7,051,000	$4,806,000	$188,004	$1,200,000
	Economic Feasibility Analysis Available?		-	-	-	-	-
Disadvantaged Communities (DAs)	Does (will) the project help to address critical water supply and water quality needs of DACs within the ECCC region?		-	Yes: This project will reduce flood risk to the Antioch DAC. If the project was not implemented and the area was to flood, the residents of the DAC would be exposed to toxic stormwater.	Yes: This project will reduce the amount of flooding and the damages associated with the flooding. It further prevents public health risks associated with exposure to bacterial or chemical pollutants that are present in floodwaters.	-	-
	What Community(ies)?		-	City of Antioch	DACs within the City of Antioch	-	-
	How were the DACs included in the planning or development of the project?		-	The project EIR included public notification of project alternatives.	City of Antioch has performed community outreach.	-	-
Environmental Justice – Ranking Criteria #4	Does (will) the project help to address any environmental justice concerns?		-	-	-	-	-
	Does (will) the project create/raise any environmental justice concerns?		-	-	-	-	-
Climate Change/Greenhouse Gas Emission Reduction - Ranking Criteria #4	Does (will) the project consider and/or address the effects of climate change on the region?		-	-	-	-	-
	Does (will) the project reduce greenhouse gas emissions?		-	-	-	-	-

Project Name			Lower Sand Creek Basin Construction (#222)	Deer Creek Reservoir Expansion (#217 and #218)	Marsh Creek Methylmercury and Dissolved Oxygen Assessment	BBID-CCWD Regional Intertie	Contra Costa Canal Levee Elimination and Flood Protection Project
Sponsoring Agency/Organization			Contra Costa County Flood Control and Water Conservation District	Contra Costa County Flood Control District	Contra Costa Flood Control and Water Conservation District	Contra Costa Water District	Contra Costa Water District
Project ID #			**20**	**21**	**22**	**23**	**24**
Project Description	Project Type		Infrastructure – Stormwater/ Flood Management	Infrastructure – Stormwater/ Flood Management	Monitoring	Infrastructure – Water/Water Quality	Infrastructure – Water/Water Quality
	Describe the project		This project will construct a 300 ac-ft regional detention basin on Sand Creek. The existing 40 ac-ft basin will be expanded into a 300 ac-ft offline basin with the addition of a new intake structure, primary and emergency spillways, a low flow channel, and a riparian mitigation area. This will reduce the flood potential downstream of this facility.	This project will excavate and expand the storage area of the existing Deer Creek Reservoir to increase stormwater holding capacity and reduce flood flows downstream. The Deer Creek Reservoir dam was built in 1960 for a 50-year capacity. The expansion of the facility is needed to provide 100-year capacity to the developing areas of Brentwood downstream, including Heritage High School, which is immediately downstream from the facility. This project will also acquire additional land rights over an area currently encumbered by only a flowage easement, which is insufficient. The project will upgrade the flowage easement to a drainage easement.	Marsh Creek Reservoir is located downstream of the Mt. Diablo Mercury Mine. Remedial actions for the mine are being investigated by the United States Army Corps of Engineers (USACE); however, the scope of the USACE assessment is limited to the mine site, Marsh Creek above the reservoir, and the reservoir. This project will investigate whether low dissolved oxygen conditions exist seasonally within the reservoir and whether the presence of legacy mercury contamination in reservoir sediments and/or low dissolved oxygen conditions in the reservoir promote the production of methylmercury within the reservoir or downstream in Marsh Creek. Low dissolved oxygen in reservoirs has been shown to cause elevated mercury concentrations in other reservoirs. This project would monitor mercury and methylmercury in water and sediments of the reservoir and downstream, as well as DO profiles in the reservoir. The project would also monitor mercury in sentinel species (e.g., crayfish) and small fish.	BBID and CCWD are working together to connect their water systems with an intertie that will improve the ability to sustain adequate water supply for drought preparedness and after catastrophic events such as earthquakes, while also increasing the ability for these agencies to develop and share water resources more efficiently. Water can be shared between these two ECWMA members as well as delivered from CCWD through BBID and to agencies that have access to water supplies from the South Bay Aqueduct. The immediate project consists of approximately 200 feet of 48" pipeline to interconnect the two agencies and will be designed to allow for the installation of temporary pumps. A pump station may be added in a future phase to increase capacity.	The full, five-phased Contra Costa Canal Levee Elimination and Flood Protection Project (Project) will replace 21,000 feet of the unlined Contra Costa Canal (the Canal) with a pipeline to improve source water quality by preventing intrusion of poor quality groundwater; eliminate up to 8 miles of 1930's Canal embankments not designed for flood protection; and improve security and public safety by preventing access to the open water Canal. Phase 1 included 1,900 feet of pipeline, and was completed in 2009. Phase 2 will commence as early as 2013 and will install 7,000 feet of pipeline and a Canal flood isolation structure. The ultimate project includes improvements to the Canal Pumping Plant No. 1 to maintain existing flows to CCWD and its regional partners. The project will also require approximately 225,000 cubic yards of fill material. At this time, the expectation is that this borrow material can be obtained from the Sand Creek Detention Basin that is an IRWM Project.
	Project Partners	Agency/Organization Name	City of Brentwood	-	BASMAA Regional Monitoring Coalition, Contra Costa Clean Water Program	Byron Bethany Irrigation District	Department of Water Resources, United States Bureau of Reclamation, Army Corps of Engineers, State Water Resources Control Board, California Department of Public Health
ECCC IRWM Plan Objective(s) – Ranking Criteria #1	Funding for Water-Related Planning and Implementation	Increase regional cost efficiencies in treatment and delivery of water, wastewater, and recycled water	-	-	-	Primary: The project increases water supply reliability while also increasing the opportunities for water agencies in both the East Contra Costa & Bay Area regions to develop and share water resources more efficiently and in an environmentally sensitive way.	Additional: Encasing the unlined Canal improves water quality since this eliminates high TDS shallow groundwater from entering the Contra Costa Canal. All downstream water users benefit from improvements in source water quality including recycled water.
		Implement projects that have region-wide benefits	Additional: This basin will help to provide flood protection downstream for the Cities of Brentwood and Oakley. This basin is planned to be part of Brentwood's recreational park systems by having soccer fields in the bottom of the basin, next to a public park.	Additional: This project will reduce flood risk in Deer Creek and Marsh Creek, the largest stream in the area.	Additional: This study may lead to control measures addressing TMDLs for mercury established by both the Central Valley and the San Francisco Bay Regional Water Quality Control Board's 9 Marsh Creek discharges to the Delta just upstream of the Region 2 boundary.	Additional: The project increases water supply reliability while also increasing the opportunities for water agencies in both the East Contra Costa & Bay Area regions to develop and share water resources.	Additional: Benefits all water users within Central and Eastern Contra Costa County, DWD, City of Brentwood, Antioch, Pittsburg, Bay Point, Concord, Martinez and portions of Walnut Creek and Pleasant Hill
	Water Supply	Pursue water supplies that are less subject to Delta influences and drought, such as recycled water and desalination	-	-	-	Additional: The intertie could facilitate the transfer of water between agencies participating in the Bay Area Regional Desalination Project.	-

Project Name			Lower Sand Creek Basin Construction (#222)	Deer Creek Reservoir Expansion (#217 and #218)	Marsh Creek Methylmercury and Dissolved Oxygen Assessment	BBID-CCWD Regional Intertie	Contra Costa Canal Levee Elimination and Flood Protection Project
Sponsoring Agency/Organization			Contra Costa County Flood Control and Water Conservation District	Contra Costa County Flood Control District	Contra Costa Flood Control and Water Conservation District	Contra Costa Water District	Contra Costa Water District
		Increase water conservation and water use efficiency	-	-	-	-	Additional: Placing the unlined Canal within a pipeline serves water by minimizing evaporation and loss of canal water to the ground.
		Increase water transfers	-	-	-	Additional: The intertie could facilitate the transfer of water between CCWD and BBID, agencies participating in the Bay Area Regional Desalination Project, and between CCWD and agencies connected to the South Bay Aqueduct.	-
		Pursue regional exchanges for emergencies, ideally using existing infrastructure	-	-	-	Additional: The intertie is a short interconnection between two existing pipelines in close proximity to each other.	-
		Enhance understanding of how groundwater fits into the water portfolio and investigate groundwater as a regional source (e.g., conjunctive use)	-	-	-	-	-
	Water Quality and Related Regulations	Protect/Improve source water quality	-	-	-	-	Primary: The full, 5-phased CCWD Canal Levee Elimination and Flood Protection Project will replace 4 miles of the unlined Contra Costa Canal with a pipeline to improve source water quality available to CCWD by preventing intrusion of poor quality groundwater.
		Maintain/Improve regional treated drinking water quality	-	-	-	-	-
		Maintain/Improve regional recycled water quality	-	-	-	-	-
		Increase understanding of groundwater quality and potential threats to groundwater quality	-	-	-	-	-
		Meet current and future water quality requirements for discharges to the Delta	-	-	Primary: This study may lead to control measures addressing TMDLs for mercury established by both the Central Valley and the San Francisco Bay Regional Water Quality Control Boards.	-	-
		Limit quantity and improve quality of stormwater discharges to the Delta	Additional: Basin will have an in-line treatment wetlands for low flows and stormwater. Most of the urban watershed does not have modern stormwater BMPs because it was developed in the 1980s and 1990s. The Basin can serve this role to improve SW quality.	-	Additional: This is part of an overall mercury control strategy implemented as a requirement of stormwater dischargers in Eastern Contra Costa County.	-	-
	Restoration and Enhancement of	Enhance and restore habitat in the Delta and connected waterways	Additional: Can enhance habitat within the basin by having a mitigation/low flow area designated for planning and habitat.	-	Additional: Reducing mercury sources and addressing processes that contribute to mercury methylation is a stated goal of the Calfed Ecosystem Restoration	-	Additional: The Project is identified as Early Action by the Delta Stewardship Council in the Interim Delta Plan. If the Project doesn't move forward, DWR's Dutch Slough Tidal Marsh Restoration

Project Name			Lower Sand Creek Basin Construction (#222)	Deer Creek Reservoir Expansion (#217 and #218)	Marsh Creek Methylmercury and Dissolved Oxygen Assessment	BBID-CCWD Regional Intertie	Contra Costa Canal Levee Elimination and Flood Protection Project
Sponsoring Agency/Organization			Contra Costa County Flood Control and Water Conservation District	Contra Costa County Flood Control District	Contra Costa Flood Control and Water Conservation District	Contra Costa Water District	Contra Costa Water District
					Program. Mercury accumulation in fish is a known threat to wildlife habitat.		Project (mandated, SBX7-1 Section 85085) will be delayed.
		Minimize Impacts to the Delta ecosystem and other environmental resources	-	-	Additional: Reducing mercury sources and addressing processes that contribute to mercury methylation is a stated goal of the Calfed Ecosystem Restoration Program.	Additional: The intertie would support the transfer of water via existing facilities that have state-of-the-art fish screens. This will minimize and avoid impacts on sensitive aquatic species and improve the Delta ecosystem.	-
		Reduce greenhouse gas emissions	-	-	-	-	-
		Provide better accessibility to waterways for subsistence fishing and recreation	-	-	Additional: Reducing mercury levels in fish will, over time, increase the amount of fish that can be safely consumed by subsistence fishers.	-	-
	Stormwater and Flood Management	Manage local stormwater	Additional: This off-line detention facility is to reduce the flow rate in Sand Creek by detaining flow within the basin and metering the outflows. This action will provide flood protection downstream of the basin.	Additional: This project will increase the available capacity in Deer Creek Reservoir behind the existing dam by selectively excavating the storage area. The expanded reservoir will store runoff and meter flows out of the basin, preventing flooding downstream.	Additional: This is part of an overall mercury control strategy implemented as a requirement of stormwater dischargers in Eastern Contra Costa County.	-	-
		Improve regional flood risk management	Primary: This basin will help to provide flood protection downstream for the Cities of Brentwood and Oakley. The basin is an important component of the regional flood master plan for the Marsh Creek watershed.	Primary: This project will increase the available capacity in Deer Creek Reservoir by selectively excavating the storage area. It will reduce the flood risk on Deer Creek and downstream communities along Marsh Creek, including Heritage High School.	-	-	Additional: The project will also eliminate up to 8 miles of aging canal embankments that were not intended to provide flood protection, yet are currently relied upon for that purpose.
	Water-Related Outreach	Collaborate with and involve DACs in the IRWM process	-	-	Additional: DACs surround the fishable receiving waters that would benefit from any methylmercury reduction measures applied to Marsh Creek.	-	Additional: The project improves source water quality to all of CCWD customers, many of which are located in DAC areas.
		Increase awareness of water resources management issues and projects with the general public	-	-	Additional: Conducting this project with regional stakeholders will increase awareness of the impacts due to legacy mercury mines and potential control measures available to downstream reservoir owners.	-	-
	Please elaborate on any benefits that your project may provide outside of the stated objectives		-	-	Investigating the potential linkages between low dissolved oxygen in a reservoir and methylmercury production could provide valuable lessons learned applicable to lakes and reservoirs throughout the state. This would be important to the Mercury in Lakes Policy currently being scoped by the State Water Resources Control Board.	-	The project further improves source water quality by eliminating direct access and stormwater intrusion into a water supply. It will improve security and public safety by preventing access to the open water canal.
Program Preferences – Ranking		Resolves Water-Related Conflicts	-	-	-	Yes: The intertie would facilitate the transfer of water between the ECCC and Bay Area IRWM regions with minimal environmental effects.	Yes: Replacement of the Contra Costa Canal with a pipeline allow DWR Dutch Slough Tidal Restoration Project to proceed, and provides available upstream supplies to support CVP and SWP.

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Sponsoring Agency/Organization			Contra Costa County Flood Control and Water Conservation District	Contra Costa County Flood Control District	Contra Costa Flood Control and Water Conservation District	Contra Costa Water District	Contra Costa Water District
	CALFED Objectives	Improve the state's water quality from source to tap	-	-	-	-	Yes: The Project improves source water quality by preventing intrusion of saline groundwater and by eliminating access and stormwater intrusion into the open water canal.
		Protect water supplies needed for ecosystems, cities, industry and farms by reducing the threat of levee failures that would lead to seawater intrusion.	-	-	-	-	Yes: Without the Project, the risk of flood-related damages under catastrophic failure of the earthen embankments, Delta levee failure, or a significant seismic event will persist, inundating adjacent areas, damaging property, and endangering the public.
		Allow for the increase of water supplies and more efficient and flexible use of water resources	-	-	-	Yes: The project increases water supply reliability for two IRWM regions, facilitates water transfers, and pre-empts the need for duplicative conveyance facilities.	Yes: The Canal is a compliance point for water quality in the Delta; improved water quality reduces required upstream releases and increases available water supplies. Encasing the Canal eliminates groundwater infiltration and water quality degradation.
		Improve the ecological health of the Bay-Delta watershed	-	-	Yes: Contribute to mercury methylation is a stated goal of the Calfed Ecosystem Restoration Program. Mercury accumulation in fish is a known threat to wildlife habitat.	Yes: Using a state-of-the-art fish screen to export water from the Delta minimizes impacts to sensitive habitat.	Yes: The completion of DWR's Dutch Slough Tidal Marsh Restoration Project is legislatively mandated (SBX7-1) and is dependent on the construction of 11,000 ft of the pipeline adjacent to the Dutch Slough project site.
		Effectively Integrate Water Management with Land Use Planning	-	-	-	Yes: Uses existing pipelines to convey water minimizes the need for new pipeline right-of-ways.	Yes: The project strives to create a more compatible land use with adjacent housing projects.
Statewide Priorities – Ranking Criteria #3		Drought Preparedness	-	-	-	Yes	-
		Use and Reuse Water More Efficiently	-	-	-	Yes	-
		Climate Change Response Actions	-	-	-	-	Yes
		Expand Environmental Stewardship	-	-	Yes	Yes	Yes
		Practice Integrated Flood Management	Yes	Yes	Yes	-	Yes
		Protects Surface Water and Groundwater Quality	Yes	-	Yes	-	Yes
		Improve Tribal Water and Natural Resources	-	-	Yes	-	-
		Ensure Equitable Distribution of Benefits	-	-	Yes	-	-
-	Reduce Water Demand	Agricultural Water Use Efficiency	-	-	Yes	-	-
		Urban Water Use Efficiency	-	-	-	-	-
	Improve Operational Efficiency	Conveyance – Delta	-	-	-	Yes	-
		Conveyance – Regional/Local	-	-	-	Yes	-
		System Reoperation	-	-	-	-	-
		Water Transfers	-	-	-	Yes	-

Project Name			Lower Sand Creek Basin Construction (#222)	Deer Creek Reservoir Expansion (#217 and #218)	Marsh Creek Methylmercury and Dissolved Oxygen Assessment	BBID-CCWD Regional Intertie	Contra Costa Canal Levee Elimination and Flood Protection Project
Sponsoring Agency/Organization			Contra Costa County Flood Control and Water Conservation District	Contra Costa County Flood Control District	Contra Costa Flood Control and Water Conservation District	Contra Costa Water District	Contra Costa Water District
	Increase Water Supply	Conjunctive Management & Groundwater Storage	-	-	-	-	-
		Desalination	-	-	-	Yes	-
		Precipitation Enhancement	-	-	-	-	-
		Recycled Municipal Water	-	-	-	-	-
		Surface Storage – CALFED	-	-	-	-	-
		Surface Storage – Regional/Local	-	-	-	-	Yes
	Improve Water Quality	Drinking Water Treatment and Distribution	-	-	-	-	-
		Groundwater Remediation/Aquifer Remediation	-	-	-	-	-
		Matching Quality to Use	-	-	Yes	-	-
		Pollution Prevention	Yes	Yes	Yes	-	Yes
		Salt and Salinity Management	-	-	-	-	Yes
		Urban Runoff Management	Yes	Yes	-	-	Yes
	Improve Flood Management	Flood Risk Management	Yes	Yes	-	-	Yes
	Practice Resources Stewardship	Agricultural Lands Stewardship	-	-	-	-	-
		Economic Incentives (Loans, Grants and Water Pricing)	-	-	-	-	-
		Ecosystem Restoration	-	-	Yes	-	Yes
		Forest Management	-	-	-	-	-
		Recharge Area Protection	-	-	-	-	-
		Water-Dependent Recreation	-	-	-	-	-
		Watershed Management	Yes	Yes	Yes	-	-
	Other Strategies	Crop Idling for Water Transfers	-	-	-	-	-
		Dewvaporation or Atmospheric Pressure Desalination	-	-	-	-	-
		Fog Collection	-	-	-	-	-
		Irrigated Land Retirement	-	-	-	-	-
		Rainfed Agriculture	-	-	-	-	-
		Waterbag Transport/ Storage Technology	-	-	-	-	-
Project Status -	Planning	Project Status	In Progress	In Progress	In Progress	In Progress	Completed

Project Name			Lower Sand Creek Basin Construction (#222)	Deer Creek Reservoir Expansion (#217 and #218)	Marsh Creek Methylmercury and Dissolved Oxygen Assessment	BBID-CCWD Regional Intertie	Contra Costa Canal Levee Elimination and Flood Protection Project
Sponsoring Agency/Organization			Contra Costa County Flood Control and Water Conservation District	Contra Costa County Flood Control District	Contra Costa Flood Control and Water Conservation District	Contra Costa Water District	Contra Costa Water District
		Est. Completion Date	9/1/2013	12/1/2013	6/1/2013	1/1/2013	9/1/2012
	Feasibility	Project Status	Completed	Completed	Not Applicable	In Progress	Completed
		Est. Completion Date	1/1/2012	1/1/2012	-	1/1/2013	9/1/2012
	Environ-mental Assess.	Project Status	Completed	Not Started	Not Applicable	Not Started	Completed
		Est. Completion Date	1/1/2012	9/1/2014	-	1/1/2014	9/1/2012
	Pre-Project Monitoring	Project Status	Not Applicable	Not Applicable	Not Started	Not Applicable	Completed
		Est. Completion Date	-	-	12/1/2016	-	9/1/2012
	Design	Project Status	In Progress	Not Started	Not Applicable	Not Started	Completed
		Est. Completion Date	9/1/2017	1/1/2015	-	9/1/2014	9/1/2012
	Environ-mental Permits	Project Status	In Progress	Not Started	Not Applicable	Not Started	Completed
		Est. Completion Date	9/1/2017	3/1/2015	-	9/1/2014	9/1/2012
	Building/Other Permits	Project Status	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Completed
		Est. Completion Date	-	-	-	-	9/1/2012
	Construction/ Implementation	Project Status	Not Started	Not Started	Not Applicable	Not Started	Not Applicable
		Est. Completion Date	9/1/2017	7/1/2015	-	9/1/2014	-
	Post Project Monitoring	Project Status	Not Started	Not Applicable	Not Applicable	Not Started	Not Applicable
		Est. Completion Date	9/1/2020	-	-	9/1/2015	-
	Environmental Permits	Describe any required	USACE 404, RWQCB Water Quality Cert., DFG 1600, ECC HCP Coverage (PSR in progress)	USACE 404, RWQCB Water Quality Cert., DFG 1600, ECC HCP coverage (PSR needed)	CDFG permits may be required for collection of biological samples and working in streams.	California Environmental Quality Act (CEQA) Notice of Exemption (NOE)	CEQA was satisfied through filing a Notice of Determination in November 2006. NEPA was satisfied through an EA/FONSI in July 2007. All applicable federal, state, and local permit applications were obtained in 2007.

Project Name			Lower Sand Creek Basin Construction (#222)	Deer Creek Reservoir Expansion (#217 and #218)	Marsh Creek Methylmercury and Dissolved Oxygen Assessment	BBID-CCWD Regional Intertie	Contra Costa Canal Levee Elimination and Flood Protection Project
Sponsoring Agency/Organization			Contra Costa County Flood Control and Water Conservation District	Contra Costa County Flood Control District	Contra Costa Flood Control and Water Conservation District	Contra Costa Water District	Contra Costa Water District
		Status?	Baseline studies for the basin are underway.	These permits have not been initiated yet.	Not yet applied for but can be obtained in relatively short timeframes.	CEQA NOE pending receipt of conceptual design and approval to proceed.	For future phases, permits will be updated or amended to reflect changed field conditions. For example, implementation of the Rock Slough Fish Screen should allow for more flexible work windows since sensitive aquatic species are no longer able to enter the Canal.
	Other Permits (e.g., Encroachment, Building)	Describe any required	-	-	Encroachment permits may be needed from Contra Costa Flood Control and Water District. Sampling on private lands would require owner permission.	TBD. Expect that no additional permits are required.	MP 620, Bureau of Reclamation. Obtained in Spring 2007, update for each segment. WAPA Power Line Relocation Agreement, update for each segment.
		Status?	-	-	Not yet applied for but can be obtained in relatively short timeframes.	-	DFG 1600 permit 25 years. File amendments as new segment commence. DFG 2081 GGS Take Permit, needed for each segment. Army Corps 404 Permit, renew for an additional 10 years on August 1, 2017. CVRWQCB 401 Permit, good for the life of the project. Provide notification.
	Project Schedule Available?		-	-	-	-	-
	Describe any data gaps or uncertainties		Funding is an issue.	Funding is an issue.	-	Unknown	-
Project Costs - Implementation	Land Purchase/Easement		$130,000	$214,000	NA	NA	$430,000
	Planning		$340,000	$180,000	$50,000	NA	$200,000
	Design		$530,000	$100,000	NA	NA	$750,000
	Environmental Review		$50,000	$240,000	NA	NA	$100,000
	Permits		$25,000	$145,000	NA	NA	$20,000
	Construction/Implementation		$3,140,000	$1,340,000	$450,000	NA	$55,000,000
	Environmental Mitigation/Compliance		$1,750,000	$250,000	NA	NA	NA
	Other		$250,000	NA	NA	$200,000	$2,000,000
	Total Project Cost		$6,215,000	$2,469,000	$500,000	$200,000	$58,500,000
	Cost Estimate Available?		-	-	-	-	-
Project Funding - Implementation	Agency; funds or in kind contributions	Amount	$2,000,000	$500,000	$75,000	$50,000	-
		Regional Assessments	-	-	-	-	-
		Developmental Fees	Yes	-	-	-	Yes
		User Rates	-	-	-	-	Yes
		User Fees	-	-	Yes	Yes	-
		Bonded Debt Financing	-	-	-	-	Yes
		Property Tax	Yes	-	-	-	-
		Contributions	-	-	-	-	-
		Other	-	-	-	-	Yes
	Existing grants	Amount	-	-	-	-	-
		State Grants	-	-	-	-	-
		State funding for flood control/flood prevention projects	-	-	-	-	-
		Local Grants	-	-	-	-	-

Project Name		Lower Sand Creek Basin Construction (#222)	Deer Creek Reservoir Expansion (#217 and #218)	Marsh Creek Methylmercury and Dissolved Oxygen Assessment	BBID-CCWD Regional Intertie	Contra Costa Canal Levee Elimination and Flood Protection Project
Sponsoring Agency/Organization		Contra Costa County Flood Control and Water Conservation District	Contra Costa County Flood Control District	Contra Costa Flood Control and Water Conservation District	Contra Costa Water District	Contra Costa Water District
	Federal Grants	-	-	-	-	-
	Currently unfunded	$4,215,000	$1,969,000	$425,000	$150,000	$58,500,000
	Economic Feasibility Analysis Available?	-	-	-	-	-
Disadvantaged Communities (DAs)	Does (will) the project help to address critical water supply and water quality needs of DACs within the ECCC region?	-	-	Yes: DACs surround the fishable receiving waters that would benefit from any methylmercury reduction measures applied to Marsh Creek.	-	Yes: Supports higher quality water service to DAC areas within Contra Costa County, Antioch, Pittsburg, Bay Point, and Concord.
	What Community(ies)?	-	-	Solano County, Sacramento County, Antioch, Pittsburg, Bethel Island/Franks Tracts	-	Portions of Contra Costa County, Bay Point, Pittsburg, Antioch, and Concord.
	How were the DACs included in the planning or development of the project?	-	-	This project is still in the planning/development phase.	-	The CCWD service area includes Antioch, Pittsburg, and Bay Point which are largely composed of DACs. CCWD regularly communicates with these communities through the ECWMA and targeted outreach activities via the environmental review process.
Environmental Justice – Ranking Criteria #4	Does (will) the project help to address any environmental justice concerns?	-	-	Yes: Reducing mercury concentrations in fish will increase available food supplies and reduce potential health risks for subsistence fishers.	-	-
	Does (will) the project create/raise any environmental justice concerns?	-	-	-	-	-
Climate Change/Greenhouse Gas Emission Reduction - Ranking Criteria #4	Does (will) the project consider and/or address the effects of climate change on the region?	-	-	-	-	-
	Does (will) the project reduce greenhouse gas emissions?	-	-	Yes: Should DO management of Marsh Creek Reservoir be identified as a potential control measure, that action may also reduce methane emissions from the reservoir. Methane is a powerful greenhouse gas.	-	Yes: Lowers the amount of pumping from CCWD's alternative supply sources.

Project Name			Los Vaqueros Pond E-7 Embankment Rehabilitation	Stormwater Management of Meadows Siphon	Canal Liner Rehabilitation and Slope Stability at Milepost 23.03	Advanced Wastewater Treatment	DDSD Advanced Water Treatment
Sponsoring Agency/Organization			Contra Costa Water District	Contra Costa Water District	Contra Costa Water District	Delta Diablo	Delta Diablo
Project ID #			**25**	**26**	**27**	**28**	**29**
Project Description	Project Type		Environmental (e.g., habitat)	Infrastructure – Stormwater/Flood Management	Infrastructure – Water/Water Quality	Infrastructure – Wastewater/Recycled Water	Infrastructure – Wastewater/Recycled Water
	Describe the project		Los Vaqueros (LV) Pond E-7 is man-made and is used to promote red legged frog and California tiger salamander habitat in the Los Vaqueros Watershed. The Pond's earthen embankment is 150 feet long by 12 feet high. The embankment has failed on CCWD property, which was caused by one or more storm events that could not be passed by the existing undersized and clogged spillway culvert. The failed embankment does not support objectives of the pond and the embankment could further erode during future storms causing damage and further limiting use of the pond.	The Contra Costa Canal meadows siphon is located below a low-lying area north of Buchanan Road in the City of Pittsburg. The low-lying area functions as an accidental detention basin which accepts stormwater from the Highlands Ranch development fed from multiple storm drain pipes as well as runoff from nearby drainage areas. Water collected in this low area flows out through a 48-inch pipe that feeds an existing detention basin downstream. The terrain of the low lying area does not provide for positive drainage resulting in year-round ponding. The growth of trees and vegetation in the year-round wet environment of the low area directly over the canal siphon is a major concern. Tree roots can damage the siphon and wetlands prevent routine maintenance. This project may include the corrective option to install a junction box to connect all storm drains. The junction box would allow overflow to utilize the low area for water storage during peak flows.	The 48 mile long Contra Costa Canal transports water from the Delta at Rock Slough to industrial, municipal, commercial, residential customers, and water treatment plants in Contra Costa County. The uphill embankment of the Contra Costa Canal near Milepost 23.03 in Bay Point experienced visible movement last winter causing a significant bulge in the liner. Temporary sheet pipes were installed for winter slope protection. This project will provide permanent repairs to stabilize the slope and prevent further movement of the Canal liner and replacement of the bulging liner. Bypass pumping or piping will be implemented to facilitate the repair work.	The State has indicated that excess nutrients may be impacting Delta species, and is currently evaluating the role of ammonia in the Bay-Delta ecosystem. DDSD discharges wastewater into the New York Slough, and has an exemplary record of eight consecutive years of 100% compliance with permit requirements. As regulations get more stringent or constituents of emerging concern (CECs) are identified, planning and engineering are needed to design advanced treatment facilities that may be needed to improve effluent quality and ensure that receiving water quality and beneficial uses are maintained. This project involves the planning, design and construction of advanced wastewater treatment facilities in order to address future treatment needs for reduction of nutrients and emerging constituents of concern in wastewater effluent. DDSD is currently studying advanced treatment alternatives to determine suitability for consideration during the project planning phase.	This project involves the planning, design, and construction of an advanced water treatment facility at DDSD designed to take wastewater secondary effluent or brackish water and treat it to high-purity water standards. New facilities will include microfiltration and reverse osmosis treatment units, as well as pumps, storage, and piping. This treatment facility will have capability to expand using modular units; the current project is sized for a 5 MGD facility. Advanced treatment of secondary effluent will significantly reduce TDS, ammonia, and other constituents. When this high-purity water is used for cooling water, it will reduce chemical usage and increase the number of cycles at the power plant, thus freeing up recycled water capacity for other users. A drought-tolerant, available high-purity supply can provide water for clean industrial manufacturing and other uses.
	Project Partners	Agency/Organization Name	East Contra Costa Agricultural Trust (ECCAT), East Bay Regional Park District (EBRPD)	City of Pittsburg	-	-	City of Antioch
ECCC IRWM Plan Objective(s) – Ranking Criteria #1	Funding for Water-Related Planning and Implementation	Increase regional cost efficiencies in treatment and delivery of water, wastewater, and recycled water	-	Additional: Damage to the siphon from tree roots would allow for infiltration and increase sediment load in the canal which carries source water to treatment plants. Increased sediment requires greater treatment.	Additional: Prevent debris resulting from earth movement from increasing sediments in the canal which carries source water to the treatment plants. Increased sediment in source water requires greater treatment at the plants.	-	Additional: The project has the potential to increase regional cost efficiencies. A high-quality supply can result in decreased chemical use and cost when used in cooling towers.
		Implement projects that have region-wide benefits	Additional: Three agencies (Contra Costa Water District, East Contra Costa Agricultural Trust, and East Bay Regional Park District) are beneficiaries to this project.	-	-	Additional: DDSD treatment plant serves Antioch, Pittsburg, and Bay Point, providing regional wastewater treatment. Improved water quality will provide region-wide benefits. Improved recycled water quality will expand supply and uses.	Additional: This project will increase water supply for the region, providing a high purity supply for many potential uses.
	Water Supply	Pursue water supplies that are less subject to Delta influences and drought, such as recycled water and desalination	-	-	-	Additional: Advanced treated effluent that is sent to the recycled water facility will result in improved recycled water quality, expanding supply and use.	Primary: This region relies heavily on water from the Delta. Advanced treatment of secondary effluent and brackish water will provide an increased, drought-tolerant supply for the region that is less subject to Delta influences.
		Increase water conservation and water use efficiency	-	Primary: Eliminating the year-round storage of surface run-off at the low lying area at the canal siphon would	Primary: Stabilizing the slope will minimize future ground movement in the vicinity of the canal. Repair of the	-	Additional: Increasing recycled water supply and availability can offset urban water use and help water suppliers to

Project Name			Los Vaqueros Pond E-7 Embankment Rehabilitation	Stormwater Management of Meadows Siphon	Canal Liner Rehabilitation and Slope Stability at Milepost 23.03	Advanced Wastewater Treatment	DDSD Advanced Water Treatment
Sponsoring Agency/Organization			Contra Costa Water District	Contra Costa Water District	Contra Costa Water District	Delta Diablo	Delta Diablo
				eliminate trees and other vegetative growth that can cause root damage to the siphon resulting in leaks and water loss.	damaged concrete liner will prevent further leaks and water loss.		meet 20% by 2020 potable water conservation targets.
		Increase water transfers	-	-	Additional: Repair of the damaged concrete liner will prevent leaks and water loss allowing more to be distributed within the canal system.	-	-
		Pursue regional exchanges for emergencies, ideally using existing infrastructure	-	-	-	-	-
		Enhance understanding of how groundwater fits into the water portfolio and investigate groundwater as a regional source (e.g., conjunctive use)	-	-	-	-	-
	Water Quality and Related Regulations	Protect/Improve source water quality	-	Additional: Damage to the siphon from tree roots would allow for infiltration and increase sediment load in the canal which carries source water to treatment plants.	Additional: Among many industries, the canal delivers raw water to municipal water treatment plants. Slope stabilization will minimize earth and debris to slough into the canal causing higher source water sediment.	Additional: While DDSD meets all discharge standards, advanced wastewater treatment will further reduce nutrients, TDS, and constituents of emerging concern. The discharge to NY Slough is mixed with receiving waters that serve as source water.	Additional: Treating secondary effluent with advanced treatment will reduce mass loadings in discharge water, helping to protect source water quality.
		Maintain/Improve regional treated drinking water quality	-	Additional: Damage to the siphon from tree roots would allow for infiltration and increase sediment load in the canal which carries source water to treatment plants. Increase sediment requires greater treatment.	-	-	-
		Maintain/Improve regional recycled water quality	-	-	-	Additional: Advanced treatment of wastewater effluent will improve the recycled water quality that is produced at DDSD's recycled water facility.	Additional: This project will implement advanced treatment to improve regional recycled water quality.
		Increase understanding of groundwater quality and potential threats to groundwater quality	-	-	-	-	-
		Meet current and future water quality requirements for discharges to the Delta	-	-	-	Primary: The purpose of this project is to plan, design and construct advanced wastewater treatment facilities to meet future water quality requirements for discharges to the Delta.	Additional: Increased use of advanced treated secondary effluent will decrease wastewater discharges and associated mass loading to the Delta.
		Limit quantity and improve quality of stormwater discharges to the Delta	-	Additional: The project would provide for detention of peak storm flows and settlement of debris and controlled downstream discharge.	-	-	-
	Restoration and Enhancement of the Delta Ecosystem	Enhance and restore habitat in the Delta and connected waterways	-	-	-	-	-
		Minimize Impacts to the Delta ecosystem and other environmental resources	Primary: Lessen impact to egg mass and larvae stage of red legged frog and California tiger salamander.	-	Additional: The project will provide protection against further earth movement that would disrupt habitats along the hillside.	Additional: Improved wastewater discharge quality to the Bay/Delta would minimize impacts to the	Additional: Expanded recycled water use may offset delta supplies, which may offset demands and reduce diversions; this may allow greater

Project Name			Los Vaqueros Pond E-7 Embankment Rehabilitation	Stormwater Management of Meadows Siphon	Canal Liner Rehabilitation and Slope Stability at Milepost 23.03	Advanced Wastewater Treatment	DDSD Advanced Water Treatment
Sponsoring Agency/Organization			Contra Costa Water District	Contra Costa Water District	Contra Costa Water District	Delta Diablo	Delta Diablo
						ecosystem and other environmental resources.	instream flows and improve Delta ecosystem health.
		Reduce greenhouse gas emissions	-	-	-	-	-
		Provide better accessibility to waterways for subsistence fishing and recreation	-	-	-	-	-
	Stormwater and Flood Management	Manage local stormwater	-	Additional: By allowing the peak storm runoff to overflow and detained locally, the impact to the downstream detention basin at Los Medanos College downstream is minimized.	-	-	-
	Stormwater and Flood Management	Improve regional flood risk management	-	Additional: By allowing the peak storm runoff to overflow and detained locally, the impact to the downstream detention basin at Los Medanos College downstream is minimized.	Additional: The project will reduce further damage to the concrete canal liner that may blow out if a landslide occurs and causes flooding to properties downhill.	-	-
	Water-Related Outreach	Collaborate with and involve DACs in the IRWM process	-	-	-	Additional: Census tracts with DACs as defined by the State are located across the DDSD service area in Bay Point, Pittsburg, and Antioch. The community will have opportunities for involvement in this project and the IRWM process.	Additional: There are DACs within DDSD's service area in Bay Point, Pittsburg, and Antioch, and water supply and treatment planning will involve these DACs.
	Water-Related Outreach	Increase awareness of water resources management issues and projects with the general public	-	-	-	Additional: The public will be informed and have opportunities to be involved in this project as it proceeds towards planning. Information will also be provided to increase awareness of water resource management issues.	Additional: Development and distribution of public information through DDSD's website, print materials, or through the CEQA process will increase awareness of water resource management issues and projects with the general public.
	Please elaborate on any benefits that your project may provide outside of the stated objectives		-	-	-	-	-
Program Preferences – Ranking Criteria #2		Resolves Water-Related Conflicts	Yes: This project if grant funded will resolve a conflict within the ECCC Region. The East Contra Costa Agricultural Trust (ECCAT) indicated they have no funding for the LV Pond E-7 Embankment Rehabilitation.	-	-	Yes: Water supply, water quality and habitat are issues of concern across the Bay-Delta. This project seeks to further improve effluent quality, reducing loadings to the Delta and expanding recycled water supply and use opportunities across the region.	Yes: This project can improve water supply, quality, and reliability for the region, helping to address potential water-related conflicts resulting from climate change or increasing Delta constraints.
Program Preferences – Ranking Criteria #2	CALFED Objectives	Improve the state's water quality from source to tap	-	Yes: Reduce sediment from entering the canal system from cracks caused by trees and heavy vegetation.	Yes: Earth movement causes earth and debris to fall into the canal resulting in high sedimentation of this source water that is delivered to the local water treatment plants.	-	Yes: An advanced treatment facility that takes in brackish water from existing intakes can improve water quality from source to tap.
Program Preferences – Ranking Criteria #2	CALFED Objectives	Protect water supplies needed for ecosystems, cities, industry and farms by reducing the threat of levee failures that would lead to seawater intrusion.	-	-	-	-	-

Project Name			Los Vaqueros Pond E-7 Embankment Rehabilitation	Stormwater Management of Meadows Siphon	Canal Liner Rehabilitation and Slope Stability at Milepost 23.03	Advanced Wastewater Treatment	DDSD Advanced Water Treatment
Sponsoring Agency/Organization			Contra Costa Water District	Contra Costa Water District	Contra Costa Water District	Delta Diablo	Delta Diablo
		Allow for the increase of water supplies and more efficient and flexible use of water resources	-	Yes: Minimizes damage to the canal system from tree roots that can cause leaks and water loss.	Yes: Replacement of the bulging concrete liner will reduce or eliminate leaks in this section of the canal, thus increasing supplies for downstream users.	Yes: Expanded recycled water use increases the region's water supplies. Combined with improved quality, this source also allows more efficient and flexible use of water resources.	Yes: This facility will increase water supplies, and will provide more efficient and flexible use of water resources as it will be capable of treating water of varying quality and producing high purity water for expanded uses.
		Improve the ecological health of the Bay-Delta watershed	-	-	-	Yes: Improved effluent quality, recycled water quality and quantity can contribute to improvement in ecological health of the Bay-Delta watershed.	Yes: Improved water quality may improve ecological health.
		Effectively Integrate Water Management with Land Use Planning	-	-	-	Yes: This project will identify water resource availability and quality, fostering communication with land use planners and informing land use plans.	Yes: The planning process will foster increased communication and collaboration of planners and water managers. Information on increased water supply and quality will inform land use plans and provide increased opportunities for use of this water.
Statewide Priorities – Ranking Criteria #3		Drought Preparedness	-	-	-	Yes	Yes
		Use and Reuse Water More Efficiently	-	Yes	Yes	Yes	Yes
		Climate Change Response Actions	-	-	-	Yes	Yes
		Expand Environmental Stewardship	Yes	-	-	Yes	Yes
		Practice Integrated Flood Management	-	-	-	-	-
		Protects Surface Water and Groundwater Quality	-	Yes	Yes	Yes	Yes
		Improve Tribal Water and Natural Resources	-	-	-	-	-
		Ensure Equitable Distribution of Benefits	-	-	-	Yes	Yes
-	Reduce Water Demand	Agricultural Water Use Efficiency	-	-	-	-	-
		Urban Water Use Efficiency	-	-	-	Yes	Yes
	Improve Operational Efficiency	Conveyance – Delta	-	-	Yes	-	-
		Conveyance – Regional/Local	-	Yes	Yes	-	Yes
		System Reoperation	-	-	-	-	-
		Water Transfers	-	-	-	-	-
	Increase Water Supply	Conjunctive Management & Groundwater Storage	-	-	-	-	-
		Desalination	-	-	-	-	Yes
		Precipitation Enhancement	-	-	-	-	-
		Recycled Municipal Water	-	-	-	Yes	Yes
		Surface Storage – CALFED	-	-	-	-	-
		Surface Storage – Regional/Local	-	-	-	-	-

Project Name			Los Vaqueros Pond E-7 Embankment Rehabilitation	Stormwater Management of Meadows Siphon	Canal Liner Rehabilitation and Slope Stability at Milepost 23.03	Advanced Wastewater Treatment	DDSD Advanced Water Treatment
Sponsoring Agency/Organization			Contra Costa Water District	Contra Costa Water District	Contra Costa Water District	Delta Diablo	Delta Diablo
	Improve Water Quality	Drinking Water Treatment and Distribution	-	Yes	Yes	-	Yes
		Groundwater Remediation/Aquifer Remediation	-	-	-	-	-
		Matching Quality to Use	-	-	-	Yes	Yes
		Pollution Prevention	-	-	Yes	Yes	-
		Salt and Salinity Management	-	-	-	Yes	Yes
		Urban Runoff Management	-	Yes	Yes	-	-
	Improve Flood Management	Flood Risk Management	-	Yes	Yes	-	-
	Practice Resources Stewardship	Agricultural Lands Stewardship	-	-	-	-	Yes
		Economic Incentives (Loans, Grants and Water Pricing)	-	-	-	Yes	Yes
		Ecosystem Restoration	Yes	-	-	-	-
		Forest Management	-	-	-	-	-
		Recharge Area Protection	-	-	-	-	-
		Water-Dependent Recreation	-	-	-	Yes	-
		Watershed Management	-	-	-	-	-
	Other Strategies	Crop Idling for Water Transfers	-	-	-	-	-
		Dewvaporation or Atmospheric Pressure Desalination	-	-	-	-	-
		Fog Collection	-	-	-	-	-
		Irrigated Land Retirement	-	-	-	-	-
		Rainfed Agriculture	-	-	-	-	-
		Waterbag Transport/ Storage Technology	-	-	-	-	-
Project Status - Implementation	Planning	Project Status	Not Applicable	In Progress	In Progress	Not Started	In Progress
		Est. Completion Date	-	7/1/2013	9/1/2012	6/1/2016	12/1/2012
	Feasibility	Project Status	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
		Est. Completion Date	-	-	-	-	-
	Environmental	Project Status	In Progress	Not Started	Not Started	Not Started	In Progress

Project Name			Los Vaqueros Pond E-7 Embankment Rehabilitation	Stormwater Management of Meadows Siphon	Canal Liner Rehabilitation and Slope Stability at Milepost 23.03	Advanced Wastewater Treatment	DDSD Advanced Water Treatment
Sponsoring Agency/Organization			Contra Costa Water District	Contra Costa Water District	Contra Costa Water District	Delta Diablo	Delta Diablo
		Est. Completion Date	2/1/2013	7/1/2014	4/1/2013	6/1/2016	10/1/2013
	Pre-Project Monitoring	Project Status	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
		Est. Completion Date	-	-	-	-	-
	Design	Project Status	In Progress	Not Started	Not Started	Not Started	Not Started
		Est. Completion Date	4/1/2013	7/1/2014	5/1/2013	6/1/2016	10/1/2014
	Environ-mental Permits	Project Status	Not Started	Not Started	Not Started	Not Applicable	Not Applicable
		Est. Completion Date	2/1/2013	7/1/2014	5/1/2013	-	-
	Building/Other Permits	Project Status	Not Started	Not Applicable	Not Applicable	Not Applicable	Not Applicable
		Est. Completion Date	2/1/2019	-	-	-	-
	Construction/ Implementation	Project Status	Not Started	Not Started	Not Started	Not Started	Not Started
		Est. Completion Date	8/1/2013	7/1/2015	12/1/2013	9/1/2020	3/1/2016
	Post Project Monitoring	Project Status	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
		Est. Completion Date	-	-	-	-	-
	Environmental Permits	Describe any required	Permits include a DFG streambed alteration permit, USACE Nationwide 404 permit, and RWQCB 401 water quality certification.	1. United States Bureau of Reclamation (USBR) National Environmental Policy Act (NEPA) Categorical Exclusion Checklist (CEC). 2. California Environmental Quality Act (CEQA) Notice of Exemption (NOE).	1. United States Bureau of Reclamation (USBR) National Environmental Policy Act (NEPA) Categorical Exclusion Checklist (CEC). 2) Notice of Exemption (NOE) under California Environmental Quality Act (CEQA).	-	-
		Status?	Permits not yet submitted.	NEPA and CEQA will be finalized in the first half of 2013.	NEPA and CEQA will be completed in the first half of 2013.	-	-
	Other Permits (e.g., Encroachment, Building)	Describe any required	Contra Costa County Grading Permit.	MP 620 approval by USBR for modification and improvements to the Contra Costa Canal.	1. MP 620 Permit. Issued by USBR for modifications/repairs to the Contra Costa Canal.	-	-
		Status?	Permit not yet submitted.	MP 620 will be submitted once engineering design and NEPA are prepared.	MP 620 can be issued once NEPA is completed and engineering design is approved.	-	-

Project Name			Los Vaqueros Pond E-7 Embankment Rehabilitation	Stormwater Management of Meadows Siphon	Canal Liner Rehabilitation and Slope Stability at Milepost 23.03	Advanced Wastewater Treatment	DDSD Advanced Water Treatment
Sponsoring Agency/Organization			Contra Costa Water District	Contra Costa Water District	Contra Costa Water District	Delta Diablo	Delta Diablo
	Project Schedule Available?		-	-	-	-	-
	Describe any data gaps or uncertainties		-	-	-	-	-
Project Costs - Implementation	Land Purchase/Easement		NA	NA	NA	Unknown	Unknown
	Planning		$2,800	$27,000	NA	Unknown	Unknown
	Design		$29,000	$60,000	$70,000	Unknown	Unknown
	Environmental Review		$3,000	Unknown	$8,000	Unknown	Unknown
	Permits		$5,000	Unknown	Unknown	Unknown	Unknown
	Construction/Implementation		$145,000	$250,000	$550,000	Unknown	Unknown
	Environmental Mitigation/Compliance		$25,000	Unknown	Unknown	Unknown	Unknown
	Other		NA	NA	$10,000	$80,000,000	$50,000,000
	Total Project Cost		$209,800	$337,000	$638,000	$80,000,000	$50,000,000
	Cost Estimate Available?		Yes	-	-	-	-
Project Funding - Implementation	Agency; funds or in kind contributions	Amount	$52,000	$160,000	$319,000	-	-
		Regional Assessments	-	-	-	-	-
		Developmental Fees	-	-	-	-	-
		User Rates	Yes	Yes	Yes	-	-
		User Fees	-	-	-	-	-
		Bonded Debt Financing	-	-	-	-	-
		Property Tax	-	-	-	-	-
		Contributions	-	-	-	-	-
		Other	-	-	-	-	-
	Existing grants	Amount	-	-	-	-	-
		State Grants	-	-	-	-	-
		State funding for flood control/flood prevention projects	-	-	-	-	-
		Local Grants	-	-	-	-	-
		Federal Grants	-	-	-	-	-
	Currently unfunded		$157,800	$177,000	$319,000	$80,000,000	$50,000,000
	Economic Feasibility Analysis Available?		-	-	-	-	-
Disadvantaged Communities (DAs)	Does (will) the project help to address critical water supply and water quality needs of DACs within the ECCC region?		-	-	-	Yes: Water supply benefits to DACs include improved water reliability through recycled water expansion, which can reduce dependence on Delta supplies. Water quality improvements will also benefit the region and may provide economic improvements.	Yes: Census tracts show significant areas in Pittsburg, Bay Point, and Antioch meeting the DAC definition. Adequate water supply and quality is a critical issue for this region. This project seeks to expand water supply and improve water quality.
	What Community(ies)?		-	-	-	DAC census tracts in Bay Point, Pittsburg and Antioch.	Bay Point, Pittsburg, and Antioch.
	How were the DACs included in the planning or development of the project?		-	-	-	TBD – planning has not yet started.	DACs will be involved as the project moves into planning.
Environmental Justice	Does (will) the project help to address any environmental justice concerns?		-	-	-	Yes: This project improves water quality and expands water supply, which provides greater access to clean water and recreation.	Yes: Will provide greater availability and access to clean water.

Project Name		Los Vaqueros Pond E-7 Embankment Rehabilitation	Stormwater Management of Meadows Siphon	Canal Liner Rehabilitation and Slope Stability at Milepost 23.03	Advanced Wastewater Treatment	DDSD Advanced Water Treatment
Sponsoring Agency/Organization		Contra Costa Water District	Contra Costa Water District	Contra Costa Water District	Delta Diablo	Delta Diablo
	Does (will) the project create/raise any environmental justice concerns?	-	-	-	-	-
Climate Change/Greenhouse Gas Emission Reduction - Ranking Criteria #4	Does (will) the project consider and/or address the effects of climate change on the region?	-	-	-	Yes: Climate change is expected to result in drought and decreased water supply. Recycled water is the most drought-tolerant supply available. Expansion of recycled water use will help the region address this aspect of climate change.	Yes: Climate change is expected to result in droughts and declining water supplies. Recycled water is the most drought-tolerant, reliable supply available. Expansion of recycled water use will help the region address this aspect of climate change.
	Does (will) the project reduce greenhouse gas emissions?	-	-	-	-	-

Project Name			DDSD Recycled Water Distribution System Expansion	DDSD Salinity Reduction – Softener Rebate Program	Recycled Water Facility Renewable Energy System	Total Dissolved Solids Reduction/Salinity Management	Wastewater Renewable Energy Enhancement
Sponsoring Agency/Organization			Delta Diablo	Delta Diablo	Delta Diablo	Delta Diablo	Delta Diablo
Project ID #			**30**	**54**	**31**	**32**	**33**
Project Description	Project Type		Infrastructure – Wastewater/Recycled Water	Other	Infrastructure – Wastewater/Recycled Water	Infrastructure – Wastewater/Recycled Water	Infrastructure – Wastewater/Recycled Water
	Describe the project		This project helps to meet water demands and reduce dependence on the Delta by expanding the recycled water system to serve industrial and irrigation users within the cities of Antioch and Pittsburg. The expansion project involves the installation of pipelines, storage, pumps and retrofits that can be implemented in phases to serve demands as opportunities arise. Facilities in this expansion include the construction of a storage tank (0.9 MG), approximately 47,000 LF of new recycled water pipeline, rehabilitation of 48,200 LF of existing pipeline, a pump station, control and isolation valves, and site retrofits to serve 22 irrigation and industrial customers. This project will be capable of meeting recycled water average annual demands of 4,200 AFY.	Total dissolved solids (TDS) concentration and salinity management are potential water quality concerns in the region. Water softeners from residences in the service area can contribute to higher salinity and TDS concentrations in the wastewater influent. This project involves implementation of a water softener rebate program for residents in order to reduce salinity and TDS loading to the wastewater treatment plant. Reducing TDS in the influent will improve recycled water quality and help reduce salinity.	In California, water-related energy use consumes a significant percent of the State's electricity and natural gas. In addition, there is a substantial water requirement for non-renewable forms of electricity generation. This is the basis of the water-energy nexus. This project will install a 1.1 MW PV solar energy system to offset 50-60% of the energy use and associated costs at the recycled water facility. This project is part of a Regional Renewable Energy Procurement Project, which provides additional cost savings through volume pricing. This project will improve recycled water facility sustainability, reducing greenhouse gas (GHG) emissions, and providing energy cost savings through cost control/stability of on-site renewable energy generation.	Total dissolved solids concentrations and salinity management are potential water quality concerns in the region. DDSD operates a recycled water facility, and closely monitors the TDS concentration. Water with higher TDS concentrations has limits to its usefulness, and conventional treatment facilities have limited ability to significantly reduce TDS. Therefore, TDS management at treatment facilities is an important factor for producing high-quality recycled water. This project involves the installation of 10,500 LF of HDPE pipe to carry high TDS-containing water from Dow in Pittsburg to the optimal location at the treatment plant in order to reduce TDS concentration in the water produced at the recycled water facility. By improving water quality, this project can also increase water supply by increasing reuse and freeing up capacity for other users.	Fats, oils and greases (FOG) that are improperly disposed into the sanitary sewer system are a major contributor to pipe blockages and sewer overflows. FOG that makes its way to the headworks of the treatment plant can negatively impact equipment and treatment. FOG discharges can come from both residences and commercial facilities within DDSD's 42 sq. mile service area of Antioch, Bay Point, and Pittsburg. This project will design and construct a facility to accept up to 20,000 gallons of FOG per day from waste haulers, which will then be fed into digesters for treatment and biogas production. Construction involves modifying concrete pad, removing and replacing tank, and installing piping. This project will help keep greasy wastes out of the sanitary sewer collection system and the environment, reducing overflows, while enhancing biogas production at the treatment plant.
	Project Partners	Agency/Organization Name	City of Pittsburg, City of Antioch, U.S. DOI, Bureau of Reclamation	-	-	Dow	-
ECCC IRWM Plan Objective(s) – Ranking Criteria #1	Funding for Water-Related Planning and Implementation	Increase regional cost efficiencies in treatment and delivery of water, wastewater, and recycled water	Additional: This project will incorporate efficiencies to reduce system operating cost. Also, DDSD recycled water rates are lower than raw/treated water rates, and provide landscape irrigation users with a source of nutrients, saving money for City parks.	Additional: By reducing the amount of TDS/salinity in wastewater influent, DDSD can improve wastewater and recycled water treatment cost efficiencies. Improved recycled quality can reduce chemical usage and cost for cooling tower use.	Primary: On-site generation of electricity will provide cost savings for recycled water production and distribution.	Additional: By controlling the introduction of high TDS wastewater into the treatment plant, DDSD can improve wastewater and recycled water treatment cost efficiencies. Improved quality can reduce chemical usage and cost for cooling towers.	Primary: Keeping FOG discharges out of the sewer system decreases system and equipment maintenance costs. A regional FOG receiving facility provides increased efficiency for waste haulers. Biogas enhancement decreases cost to purchase additional natural gas.
		Implement projects that have region-wide benefits	Additional: This project expands recycled water use in Pittsburg and Antioch, helping to meet the region's water supply needs. Recycled water system expansion across the region is also being coordinated with Ironhouse Sanitary District and City of Brentwood.	Additional: Decreasing salinity of recycled water used for irrigation can benefit salinity management programs in Pittsburg and Antioch.	Additional: This project can reduce demand on regional energy generation and transmission infrastructure. Region-wide benefits include addressing impacts of climate change. The regional energy procurement program is available to public agencies in Contra Costa.	Additional: Decreasing TDS concentrations of recycled water used for irrigation can benefit salinity management programs in Pittsburg and Antioch.	Additional: This project will expand a regional FOG collection facility, of benefit to DDSD's 42 square mile service area and the surrounding communities.
	Water Supply	Pursue water supplies that are less subject to Delta influences and drought, such as recycled water and desalination	Primary: Delta water is the major supply for Pittsburg and Antioch. This project will expand recycled water service to irrigation and industrial users in Antioch and Pittsburg, providing a drought-tolerant supply that is less subject to Delta influences.	Additional: Improving recycled water quality can potentially expand its use for industrial and irrigation purposes.	-	Additional: This project seeks to improve recycled water quality, thus potentially expanding its use for industrial and irrigation purposes.	-
		Increase water conservation and water use efficiency	Additional: Switching irrigation and industrial uses from potable supplies to recycled water can offset urban water use and help water suppliers to	-	-	-	-

Project Name			DDSD Recycled Water Distribution System Expansion	DDSD Salinity Reduction – Softener Rebate Program	Recycled Water Facility Renewable Energy System	Total Dissolved Solids Reduction/Salinity Management	Wastewater Renewable Energy Enhancement
Sponsoring Agency/Organization			Delta Diablo	Delta Diablo	Delta Diablo	Delta Diablo	Delta Diablo
			meet 20% by 2020 potable water conservation targets.				
		Increase water transfers	-	-	-	-	-
		Pursue regional exchanges for emergencies, ideally using existing infrastructure	-	-	-	-	-
		Enhance understanding of how groundwater fits into the water portfolio and investigate groundwater as a regional source (e.g., conjunctive use)	-	-	-	-	-
	Water Quality and Related Regulations	Protect/Improve source water quality	Additional: Expanded recycled water use can replace Delta supplies, which can offset demands and reduce diversions; this may help reduce salinity/saltwater intrusion and protect source water quality.	-	-	-	-
		Maintain/Improve regional treated drinking water quality	-	-	-	-	-
		Maintain/Improve regional recycled water quality	Additional: This project expands recycled water distribution in the region for irrigation and industrial uses, and maintains recycled water quality.	Primary: This project will improve recycled water quality by decreasing salinity/TDS concentration of the water entering the treatment facility.	Additional: Providing on-site renewable energy for the recycled water facility will improve sustainability and help to maintain the recycled water facility.	Primary: This project will improve recycled water quality by decreasing TDS concentration of the water entering the treatment facility.	-
		Increase understanding of groundwater quality and potential threats to groundwater quality	-	-	-	-	-
		Meet current and future water quality requirements for discharges to the Delta	Additional: While DDSD expects to remain in compliance with water quality and discharge regulations, increasing recycled water production and use reduces wastewater discharges and mass loading to the Sacramento-San Joaquin Delta.	Additional: Increased recycled water production and use will decrease effluent discharges to the Delta.	-	Additional: Increased recycled water production and use will decrease effluent discharges to the Delta.	-
		Limit quantity and improve quality of stormwater discharges to the Delta	-	-	-	-	-
	Restoration and Enhancement of the Delta Ecosystem and Other Environmental Resources	Enhance and restore habitat in the Delta and connected waterways	-	-	-	-	-
		Minimize Impacts to the Delta ecosystem and other environmental resources	Additional: Expanded recycled water use can offset Delta supplies, which may offset demands and reduce diversions; this may allow greater in-stream flows and improve Delta ecosystem health.	Additional: Improved recycled water quality and expanded use can offset Delta supplies, which may offset demands and reduce diversions; this may allow greater in-stream flows and improve Delta ecosystem health.	Additional: Solar power is clean energy. Switching from fossil fuel to renewable energy sources generated on-site may help minimize impacts to environmental resources.	Additional: Improved recycled water quality and expanded use can offset Delta supplies, which may offset demands and reduce diversions; this may allow greater in-stream flows and improve Delta ecosystem health.	Additional: Sewer overflows are detrimental to the environment. Providing a local FOG receiving facility may reduce improper discharges of FOG into the sewer system, thus reducing blockages and overflows.

Project Name			DDSD Recycled Water Distribution System Expansion	DDSD Salinity Reduction – Softener Rebate Program	Recycled Water Facility Renewable Energy System	Total Dissolved Solids Reduction/Salinity Management	Wastewater Renewable Energy Enhancement
Sponsoring Agency/Organization			Delta Diablo	Delta Diablo	Delta Diablo	Delta Diablo	Delta Diablo
		Reduce greenhouse gas emissions	Additional: Greater use of local, recycled water can be less energy intensive than conveying and treating imported water. This project will increase operating efficiency resulting in lower energy use and the associated GHG emissions from fossil fuel sources.	-	Additional: Switching from fossil fuel to renewable energy sources will reduce GHG emissions. This project will reduce GHG emissions by up to 642 annual metric tons of CO_2.	-	Additional: Providing a local/regional FOG receiving facility can minimize trucking miles for waste haulers, thus reducing associated vehicle/greenhouse gas emissions. The nearest FOG collection facility is over 35 miles away.
		Provide better accessibility to waterways for subsistence fishing and recreation	-	-	-	-	-
	Stormwater and Flood Management	Manage local stormwater	-	-	-	-	-
		Improve regional flood risk management	-	-	-	-	-
	Water-Related Outreach	Collaborate with and involve DACs in the IRWM process	Additional: There are DACs within DDSD's service area, and recycled water project planning will include involvement of these DACs in Pittsburg and Antioch.	-	Additional: Census tracts with DACs as defined by the State are located across the DDSD service area. The community will have opportunities for involvement in this project and the IRWM process.	-	-
		Increase awareness of water resources management issues and projects with the general public	Additional: DDSD website and project flyers will include information on the benefits of recycled water and its role in water management.	-	Additional: DDSD will provide project information to the general public and seek to increase awareness on water resource management issues, including the water energy nexus.	-	Additional: This project will be widely publicized to promote use and understanding of proper FOG disposal, and associated benefits to the environment.
	Please elaborate on any benefits that your project may provide outside of the stated objectives		-	-	-	-	-
Program Preferences – Ranking Criteria #2		Resolves Water-Related Conflicts	Yes: Regional recycled water planning can improve water supply reliability through more effective use of resources, and cooperative planning to address future water supply related conflicts related to climate change and increasing Delta constraints.	-	-	-	-
	CALFED Objectives	Improve the state's water quality from source to tap	-	-	-	-	-
		Protect water supplies needed for ecosystems, cities, industry and farms by reducing the threat of levee failures that would lead to seawater intrusion.	-	-	-	-	-
		Allow for the increase of water supplies and more efficient and flexible use of water resources	Yes: Expanded recycled water use increases the region's water supplies, allowing more efficient and flexible use of water resources.	Yes: Improved recycled water quality can expand the uses for industrial purposes, providing more efficient and flexible use of this recycled water supply. Improved quality can increase cycles/reuse in cooling towers, freeing up capacity for other users.	Yes: There may be indirect water increase through the offsetting of water loss from fossil fuel energy production.	Yes: Improved recycled water quality can expand the uses for industrial purposes, providing more efficient and flexible use of this recycled water supply. Improved quality can increase	-

Project Name			DDSD Recycled Water Distribution System Expansion	DDSD Salinity Reduction – Softener Rebate Program	Recycled Water Facility Renewable Energy System	Total Dissolved Solids Reduction/Salinity Management	Wastewater Renewable Energy Enhancement
Sponsoring Agency/Organization			Delta Diablo	Delta Diablo	Delta Diablo	Delta Diablo	Delta Diablo
						cycles/reuse in cooling towers, freeing up capacity for other users.	
		Improve the ecological health of the Bay-Delta watershed	Yes: Increased use of recycled water can positively impact Bay-Delta water supply and water quality, by potentially reducing Delta diversions, and decreasing wastewater discharges. These contribute to Bay-Delta ecological health.	Yes: Better control and reduction of TDS concentration in the recycled water that is used for irrigation purpose can help salinity management programs in Pittsburg and Antioch.	-	Yes: Better control and reduction of TDS concentration in the recycled water that is used for irrigation purposes can help salinity management programs in Pittsburg and Antioch.	Yes: Prevention of sewer overflows helps to protect human health, wildlife and water quality in the watershed.
		Effectively Integrate Water Management with Land Use Planning	Yes: Recycled water distribution expansion planning will identify water resource availability and quality, fostering communication with county and city land use planners and informing their land use plans.	-	-	-	-
Statewide Priorities – Ranking Criteria #3		Drought Preparedness	Yes	Yes	-	Yes	-
		Use and Reuse Water More Efficiently	Yes	Yes	-	Yes	-
		Climate Change Response Actions	Yes	Yes	Yes	Yes	Yes
		Expand Environmental Stewardship	Yes	Yes	Yes	Yes	Yes
		Practice Integrated Flood Management	-	-	-	-	-
		Protects Surface Water and Groundwater Quality	Yes	Yes	-	Yes	Yes
		Improve Tribal Water and Natural Resources	-	-	-	-	-
		Ensure Equitable Distribution of Benefits	Yes	-	-	-	-
-	Reduce Water Demand	Agricultural Water Use Efficiency	-	-	-	-	-
		Urban Water Use Efficiency	Yes	Yes	-	Yes	-
	Improve Operational Efficiency	Conveyance – Delta	-	-	-	-	-
		Conveyance – Regional/Local	Yes	-	Yes	-	-
		System Reoperation	-	-	-	-	-
		Water Transfers	-	-	-	-	-
	Increase Water Supply	Conjunctive Management & Groundwater Storage	-	-	-	-	-
		Desalination	-	-	-	-	-
		Precipitation Enhancement	-	-	-	-	-
		Recycled Municipal Water	Yes	Yes	-	Yes	-
		Surface Storage – CALFED	-	-	-	-	-
		Surface Storage – Regional/Local	-	-	-	-	-

Project Name			DDSD Recycled Water Distribution System Expansion	DDSD Salinity Reduction – Softener Rebate Program	Recycled Water Facility Renewable Energy System	Total Dissolved Solids Reduction/Salinity Management	Wastewater Renewable Energy Enhancement
Sponsoring Agency/Organization			Delta Diablo	Delta Diablo	Delta Diablo	Delta Diablo	Delta Diablo
	Improve Water Quality	Drinking Water Treatment and Distribution	-	-	-	-	-
		Groundwater Remediation/Aquifer Remediation	-	-	-	-	-
		Matching Quality to Use	Yes	Yes	-	Yes	-
		Pollution Prevention	-	-	-	-	Yes
		Salt and Salinity Management	-	Yes	-	Yes	-
		Urban Runoff Management	-	-	-	-	-
	Improve Flood Management	Flood Risk Management	-	-	-	-	-
	Practice Resources Stewardship	Agricultural Lands Stewardship	-	-	-	-	-
		Economic Incentives (Loans, Grants and Water Pricing)	Yes	-	Yes	-	-
		Ecosystem Restoration	-	-	-	-	-
		Forest Management	-	-	-	-	-
		Recharge Area Protection	-	-	-	-	-
		Water-Dependent Recreation	-	-	-	-	-
		Watershed Management	-	-	-	-	-
	Other Strategies	Crop Idling for Water Transfers	-	-	-	-	-
		Dewvaporation or Atmospheric Pressure Desalination	-	-	-	-	-
		Fog Collection	-	-	-	-	-
		Irrigated Land Retirement	-	-	-	-	-
		Rainfed Agriculture	-	-	-	-	-
		Waterbag Transport/ Storage Technology	-	-	-	-	-
-	Planning	Project Status	In Progress	Not Started	In Progress	Not Started	Completed
		Est. Completion Date	12/1/2012	5/1/2013	9/1/2012	4/1/2013	-
	Feasibility	Project Status	Not Applicable	Not Started	Completed	Not Applicable	Completed
		Est. Completion Date	-	6/1/2013	9/1/2012	-	-
	Environmental Ass	Project Status	In Progress	Not Applicable	Not Started	Not Applicable	Completed

Project Name			DDSD Recycled Water Distribution System Expansion	DDSD Salinity Reduction – Softener Rebate Program	Recycled Water Facility Renewable Energy System	Total Dissolved Solids Reduction/Salinity Management	Wastewater Renewable Energy Enhancement
Sponsoring Agency/Organization			Delta Diablo	Delta Diablo	Delta Diablo	Delta Diablo	Delta Diablo
		Est. Completion Date	10/1/2013	-	6/1/2013	-	-
	Pre-Project Monitoring	Project Status	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
		Est. Completion Date	-	-	-	-	-
	Design	Project Status	Not Started	Not Applicable	Not Started	Not Started	Not Started
		Est. Completion Date	10/1/2014	-	6/1/2013	10/1/2013	4/1/2016
	Environ-mental Permits	Project Status	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
		Est. Completion Date	-	-	-	-	-
	Building/Other Permits	Project Status	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
		Est. Completion Date	-	-	-	-	-
	Construction/ Implementation	Project Status	Not Started	Not Started	Not Started	Not Started	Not Started
		Est. Completion Date	3/1/2016	7/1/2015	6/1/2014	4/1/2014	10/1/2016
	Post Project Monitoring	Project Status	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
		Est. Completion Date	-	-	-	-	-
	Environmental Permits	Describe any required	-	-	-	-	-
		Status?	-	-	-	-	-
	Other Permits (e.g., Encroachment, Building)	Describe any required	-	-	-	-	-
		Status?	Not started.	-	-	-	-

Project Name			DDSD Recycled Water Distribution System Expansion	DDSD Salinity Reduction – Softener Rebate Program	Recycled Water Facility Renewable Energy System	Total Dissolved Solids Reduction/Salinity Management	Wastewater Renewable Energy Enhancement
Sponsoring Agency/Organization			Delta Diablo	Delta Diablo	Delta Diablo	Delta Diablo	Delta Diablo
	Project Schedule Available?		-	-	-	-	-
	Describe any data gaps or uncertainties		The list of potential water users and water demands was developed through the DDSD Recycled Water Master Plan. There are no expected impacts related to technical feasibility; the only uncertainties are related to the timing of recycled water connection for some users. Therefore, it is expected that users will be added in phases based on readiness and water demand.	-	-	Changing the entry point of the high-TDS, low-volume waste stream into the treatment process requires review and approval by the SWRCB. This review is underway to confirm the feasibility of the proposal and identify any regulatory issues and requirements.	-
Project Costs - Implementation	Land Purchase/Easement		Unknown	Unknown	Unknown	Unknown	Unknown
	Planning		Unknown	Unknown	Unknown	Unknown	Unknown
	Design		Unknown	Unknown	Unknown	Unknown	Unknown
	Environmental Review		Unknown	Unknown	Unknown	Unknown	Unknown
	Permits		Unknown	Unknown	Unknown	Unknown	Unknown
	Construction/Implementation		Unknown	Unknown	Unknown	Unknown	Unknown
	Environmental Mitigation/Compliance		Unknown	Unknown	Unknown	Unknown	Unknown
	Other		$25,000,000	$3,000,000	$3,800,000	$2,500,000	$500,000
	Total Project Cost		$25,000,000	$3,000,000	$3,800,000	$2,500,000	$500,000
	Cost Estimate Available?		-	-	-	-	-
Project Funding - Implementation	Agency; funds or in kind contributions	Amount	-	-	-	-	-
		Regional Assessments	-	-	-	-	-
		Developmental Fees	-	-	-	-	-
		User Rates	-	-	-	-	-
		User Fees	-	-	-	-	-
		Bonded Debt Financing	-	-	-	-	-
		Property Tax	-	-	-	-	-
		Contributions	-	-	-	-	-
		Other	-	-	-	-	-
	Existing grants	Amount	$270,000	-	-	-	-
		State Grants	Yes	-	-	-	-
		State funding for flood control/flood prevention projects	-	-	-	-	-
		Local Grants	-	-	-	-	-
		Federal Grants	Yes	-	-	-	-
	Currently unfunded		$24,730,000	$3,000,000	$3,800,000	$2,500,000	$500,000
	Economic Feasibility Analysis Available?		-	-	-	-	-
Disadvantaged Communities (DAs)	Does (will) the project help to address critical water supply and water quality needs of DACs within the ECCC region?		Yes: The water supply benefits to DACs in this project include improved water reliability through recycled water expansion. This project will reduce dependence on Delta supplies, is drought tolerant, and has the potential to improve economic development.	-	-	-	-
	What Community(ies)?		Census tract areas in Pittsburg and Antioch, esp. north of Hwy. 4.	-	-	-	-

Project Name		DDSD Recycled Water Distribution System Expansion	DDSD Salinity Reduction – Softener Rebate Program	Recycled Water Facility Renewable Energy System	Total Dissolved Solids Reduction/Salinity Management	Wastewater Renewable Energy Enhancement
Sponsoring Agency/Organization		Delta Diablo	Delta Diablo	Delta Diablo	Delta Diablo	Delta Diablo
	How were the DACs included in the planning or development of the project?	Outreach and involvement are underway, as this project is in the early planning stages.	-	-	-	-
Environmental Justice – Ranking Criteria #4	Does (will) the project help to address any environmental justice concerns?	Yes: DDSD's recycled water is a reliable, affordable resource, resulting in water and fertilizer cost savings compared to current irrigation. This can be a benefit to cities when used on parks which provide recreation access to the community.	-	-	-	-
	Does (will) the project create/raise any environmental justice concerns?	-	-	-	-	-
Climate Change/Greenhouse Gas Emission Reduction - Ranking Criteria #4	Does (will) the project consider and/or address the effects of climate change on the region?	Yes: Climate change is expected to result in drought and decreased water supplies. Recycled water is the most drought-tolerant supply available. Expansion of recycled water use will help the region address this aspect of climate change.	Yes: Will allow more efficient use/reuse of water, expanding a drought-tolerant supply for the region.	Yes: Potential impact of climate change include decreased water supplies and increased energy demand. Switching from distributed energy/fossil fuel to on-site renewable energy can reduce/offset water and energy demand over current power generation.	Yes: Will allow more efficient use/reuse of water, expanding a drought-tolerant supply for the region.	-
	Does (will) the project reduce greenhouse gas emissions?	Yes: This expansion project evaluates system operation, identifying efficiencies and optimization to reduce power use. Reduction of power use will decrease the associated greenhouse gas emissions generated from conventional power production.	-	Yes: The renewable energy project (solar) will reduce GHG emissions over current energy sources for the recycled water facility. The project is expected to reduce GHG emissions by up to 642 annual metric eTons of CO_2.	Yes: Improved operational efficiency/reduced treatment will reduce energy consumption at the wastewater treatment plant and recycled water facility, resulting in subsequent GHG emission reduction for energy sources derived from fossil fuels.	Yes: A FOG collection facility in this region will reduce trucking miles for waste haulers, thus reducing associated greenhouse gas emissions from vehicles.

Project Name			Advanced Metering and Leak Detection (AMLD) Project	Beacon West Arsenic Replacement Well	Bethel Island Water Supply Pipeline	High Efficiency Toilets and Landscape Water Conservation	Phase 3 Well Utilization Project
Sponsoring Agency/Organization			Diablo Water District	Diablo Water District	Diablo Water District	Diablo Water District	Diablo Water District
Project ID #			**34**	**35**	**36**	**37**	**38**
Project Description	Project Type		Monitoring	Infrastructure – Water/Water Quality	Infrastructure – Water/Water Quality	Other	Infrastructure – Water/Water Quality
	Describe the project		The Advanced Metering and Leak Detection (AMLD) Project will assist the Diablo Water District improve its water management practices by converting 10,000 outdated meters to "smart" meters. The project will help the District conserve water and better manage its water issues by providing the technology necessary to mitigate customer leaks through real-time meter reading capabilities. Existing meters are more than a decade old and have diminished capabilities to accurately meter or report water usage. This has led to undetected leaks and unaccounted-for water and loss for the District's customers. Some of the meters have even stopped turning. The new meters are magnetic read with no moving parts and are capable of alerting the District when a customer has water flowing 24 hrs/day which is an indication of a leak.	Beacon West Well serves a Disadvantaged Community of approximately 22 homes and has arsenic levels of more than double the current Primary Drinking Water Standards. This project would be for the construction of a new well into an aquifer with water having arsenic levels that are below the Primary Drinking Water Standards. In September 2009, Diablo Water District received a Non-Compliance Order from the Contra Costa County Department of Environmental Health, for exceeding the arsenic MCL in the Disadvantaged Community's supply well. Since that time, Diablo Water District has been working to find funding to help this community come into compliance with the drinking water standards.	Extend treated water service onto Bethel Island to replace poor quality groundwater supply for approximately 1,000 island residents.	Provide rebates for the installation of high efficiency toilets (HET) including cost of installation in addition to landscape conservation incentives.	Third phase of groundwater utilization project for the Oakley area.
	Project Partners	Agency/Organization Name	-	-	-	-	-
ECCC IRWM Plan Objective(s) – Ranking Criteria #1	Funding for Water-Related Planning and Implementation	Increase regional cost efficiencies in treatment and delivery of water, wastewater, and recycled water	Primary: AMR will help customers better control their water usage.	-	-	Additional: Reducing water conservation improves delivery efficiency and conserves water.	Primary: Reduces cost of delivering drinking water as opposed to pumping and treating surface water.
		Implement projects that have region-wide benefits	-	-	-	Additional: Using less water will help other agencies in the region with more available supply.	Additional: Reduces demand on Delta water supplies which leaves more supply for others in the region and the State.
	Water Supply	Pursue water supplies that are less subject to Delta influences and drought, such as recycled water and desalination	-	-	-	-	-
		Increase water conservation and water use efficiency	Additional: AMR system detects customer leaks that can be repaired, reducing water consumption and increase efficiency.	-	-	Primary: Reducing water consumption improves delivery efficiency and conserves water.	-
		Increase water transfers	-	-	-	-	-
		Pursue regional exchanges for emergencies, ideally using existing infrastructure	-	-	-	-	-
		Enhance understanding of how groundwater fits into the water portfolio and investigate groundwater as a regional source (e.g., conjunctive use)	-	-	-	-	Additional: Project looks to utilize additional groundwater supply in the District's conjunctive use program.

Project Name			Advanced Metering and Leak Detection (AMLD) Project	Beacon West Arsenic Replacement Well	Bethel Island Water Supply Pipeline	High Efficiency Toilets and Landscape Water Conservation	Phase 3 Well Utilization Project
Sponsoring Agency/Organization			Diablo Water District	Diablo Water District	Diablo Water District	Diablo Water District	Diablo Water District
	Water Quality and Related Regulations	Protect/Improve source water quality	-	Primary: Provides source water to the DAC with arsenic levels below Primary Drinking Water Standards.	Primary: Replace poor groundwater that does not meet primary and secondary drinking water standards with high quality treated surface water.	-	-
		Maintain/Improve regional treated drinking water quality	-	-	Additional: Replace poor groundwater that does not meet primary and secondary drinking water standards with high quality treated surface water.	-	-
		Maintain/Improve regional recycled water quality	-	-	-	-	-
		Increase understanding of groundwater quality and potential threats to groundwater quality	-	Additional: Project will identify areas of high and low arsenic levels in drinking water supplies.	-	-	-
		Meet current and future water quality requirements for discharges to the Delta	-	-	Additional: Improved source water quality will improve wastewater quality by lowering salt content of waste discharges from Ironhouse Sanitary District.	-	-
		Limit quantity and improve quality of stormwater discharges to the Delta	-	-	-	-	-
	Restoration and Enhancement of the Delta Ecosystem and Other Environmental Resources	Enhance and restore habitat in the Delta and connected waterways	-	-	-	-	-
		Minimize Impacts to the Delta ecosystem and other environmental resources	-	-	-	-	-
		Reduce greenhouse gas emissions	Additional: Customer leaks waste power needed to pump water into distribution mains. Less power utilized by the District will reduce greenhouse gasses.	-	-	Additional: Excessive toilet water use wastes power needed to pump water. Less power utilized by the District will reduce greenhouse gasses.	-
		Provide better accessibility to waterways for subsistence fishing and recreation	-	-	-	-	-
	Stormwater and Flood Management	Manage local stormwater	-	-	-	-	-
		Improve regional flood risk management	-	-	-	-	-
	Water-Related Outreach	Collaborate with and involve DACs in the IRWM process	-	Additional: Letters have been sent to the members of this Disadvantaged Community advising them of the high arsenic levels and the District's efforts to find funding to resolve the problem.	Additional: Letters have been sent to the members of this Disadvantaged Community advising them of the high arsenic levels and the District's efforts to find funding to resolve the problem. Meetings have been held with Island residents explaining the project.	-	-
		Increase awareness of water resources	-	-	-	-	-

Project Name			Advanced Metering and Leak Detection (AMLD) Project	Beacon West Arsenic Replacement Well	Bethel Island Water Supply Pipeline	High Efficiency Toilets and Landscape Water Conservation	Phase 3 Well Utilization Project
Sponsoring Agency/Organization			Diablo Water District	Diablo Water District	Diablo Water District	Diablo Water District	Diablo Water District
		management issues and projects with the general public					
	Please elaborate on any benefits that your project may provide outside of the stated objectives		-	-	-	-	-
Program Preferences – Ranking Criteria #2		Resolves Water-Related Conflicts	-	-	-	-	-
	CALFED Objectives	Improve the state's water quality from source to tap	-	-	Yes: Improved water quality to residents of Bethel Island.	-	-
		Protect water supplies needed for ecosystems, cities, industry and farms by reducing the threat of levee failures that would lead to seawater intrusion.	-	-	-	-	-
		Allow for the increase of water supplies and more efficient and flexible use of water resources	Yes: Using less water from the Delta will provide for an increase of water supplies and a more efficient use of resources.	-	-	Yes: Reducing water consumption will reduce the quantity of water that Diablo Water District will need to use from the Delta which benefits the region and the State.	Yes: Provides use of groundwater during times of drought and augments the District's surface water supply.
		Improve the ecological health of the Bay-Delta watershed	-	-	Yes: Reduces salt loading on wastewater system and discharges to the Delta.	Yes: More water left in the Delta improves the ecological health of the Bay-Delta watershed.	Yes: Using less water from the Delta will provide for an increase of water supplies that will improve the ecological health of the Bay-Delta.
		Effectively Integrate Water Management with Land Use Planning	-	-	-	-	Yes: Impacts on growth and land use planning were a part of the project EIR.
Statewide Priorities – Ranking Criteria #3		Drought Preparedness	-	-	-	Yes	Yes
		Use and Reuse Water More Efficiently	Yes	-	-	Yes	-
		Climate Change Response Actions	Yes	-	-	Yes	-
		Expand Environmental Stewardship	-	-	Yes	Yes	-
		Practice Integrated Flood Management	-	-	-	-	-
		Protects Surface Water and Groundwater Quality	-	-	Yes	-	-
		Improve Tribal Water and Natural Resources	-	-	-	-	-
		Ensure Equitable Distribution of Benefits	-	-	-	-	-
-	Reduce Water Demand	Agricultural Water Use Efficiency	-	-	-	-	-
		Urban Water Use Efficiency	Yes	-	-	Yes	Yes
	Improve Operational Efficiency	Conveyance – Delta	-	-	-	-	-
		Conveyance – Regional/Local	-	-	-	-	-
		System Reoperation	-	-	-	-	-
		Water Transfers	-	-	-	-	-

Project Name			Advanced Metering and Leak Detection (AMLD) Project	Beacon West Arsenic Replacement Well	Bethel Island Water Supply Pipeline	High Efficiency Toilets and Landscape Water Conservation	Phase 3 Well Utilization Project
Sponsoring Agency/Organization			Diablo Water District	Diablo Water District	Diablo Water District	Diablo Water District	Diablo Water District
	Increase Water Supply	Conjunctive Management & Groundwater Storage	-	-	-	Yes	Yes
		Desalination	-	-	-	-	-
		Precipitation Enhancement	-	-	-	-	-
		Recycled Municipal Water	-	-	-	-	-
		Surface Storage – CALFED	-	-	-	-	-
		Surface Storage – Regional/Local	-	-	-	-	-
	Improve Water Quality	Drinking Water Treatment and Distribution	-	Yes	Yes	-	-
		Groundwater Remediation/Aquifer Remediation	-	-	-	-	-
		Matching Quality to Use	-	Yes	Yes	-	-
		Pollution Prevention	-	-	-	-	-
		Salt and Salinity Management	-	-	Yes	-	-
		Urban Runoff Management	-	-	-	-	-
	Improve Flood Management	Flood Risk Management	-	-	-	-	-
	Practice Resources Stewardship	Agricultural Lands Stewardship	-	-	-	-	-
		Economic Incentives (Loans, Grants and Water Pricing)	-	-	-	-	-
		Ecosystem Restoration	-	-	-	-	-
		Forest Management	-	-	-	-	-
		Recharge Area Protection	-	-	-	-	-
		Water-Dependent Recreation	-	-	-	-	-
		Watershed Management	-	-	-	-	-
	Other Strategies	Crop Idling for Water Transfers	-	-	-	-	-
		Dewvaporation or Atmospheric Pressure Desalination	-	-	-	-	-
		Fog Collection	-	-	-	-	-
		Irrigated Land Retirement	-	-	-	-	-
		Rainfed Agriculture	-	-	-	-	-
		Waterbag Transport/ Storage Technology	-	-	-	-	-
-	Planning	Project Status	Completed	Completed	Not Started	Completed	Completed

Project Name			Advanced Metering and Leak Detection (AMLD) Project	Beacon West Arsenic Replacement Well	Bethel Island Water Supply Pipeline	High Efficiency Toilets and Landscape Water Conservation	Phase 3 Well Utilization Project
Sponsoring Agency/Organization			Diablo Water District	Diablo Water District	Diablo Water District	Diablo Water District	Diablo Water District
		Est. Completion Date	9/1/2012	7/1/2012	9/1/2013	9/1/2013	9/1/2012
	Feasibility	Project Status	Completed	Completed	Not Started	Completed	Completed
		Est. Completion Date	9/1/2012	7/1/2012	9/1/2014	9/1/2013	9/1/2012
	Environ-mental Assess.	Project Status	In Progress	Not Started	Not Started	Not Applicable	Completed
		Est. Completion Date	9/1/2013	7/1/2012	9/1/2014	-	9/1/2012
	Pre-Project Monitoring	Project Status	In Progress	Completed	Not Started	Not Started	Not Started
		Est. Completion Date	9/1/2012	7/1/2012	9/1/2014	9/1/2013	9/1/2014
	Design	Project Status	Completed	In Progress	Not Started	Not Started	Not Started
		Est. Completion Date	9/1/2012	7/1/2012	9/1/2015	12/1/2013	9/1/2015
	Environ-mental Permits	Project Status	Not Applicable	In Progress	Not Started	Not Applicable	Completed
		Est. Completion Date	-	7/1/2012	9/1/2015	-	9/1/2015
	Building/Other Permits	Project Status	Not Applicable	In Progress	Not Started	Not Applicable	Not Started
		Est. Completion Date	-	7/1/2012	9/1/2015	-	9/1/2015
	Construction/ Implementation	Project Status	Not Started	Not Started	Not Started	Not Started	Not Started
		Est. Completion Date	9/1/2015	7/1/2012	12/1/2016	6/1/2015	12/1/2016
	Post Project Monitoring	Project Status	Not Started	Not Started	Not Started	Not Started	Not Started
		Est. Completion Date	12/1/2015	7/1/2012	9/1/2017	9/1/2015	9/1/2017
	Environmental Permits	Describe any required	Project will fall under CEQA Categorical Exemption.	Preparation of a Negative Declaration.	Mitigated Neg. Dec. or EIR will most likely be required.	Project is exempt.	EIR for the project was completed in December 2018. NOD filed 12/18/2008.

Project Name			Advanced Metering and Leak Detection (AMLD) Project	Beacon West Arsenic Replacement Well	Bethel Island Water Supply Pipeline	High Efficiency Toilets and Landscape Water Conservation	Phase 3 Well Utilization Project
Sponsoring Agency/Organization			Diablo Water District	Diablo Water District	Diablo Water District	Diablo Water District	Diablo Water District
		Status?	Yet to be adopted and NOD filed.	Not started.	Not started.	-	NOD filed 12/18/2008.
	Other Permits (e.g., Encroachment, Building)	Describe any required	-	County Encroachment Permit and County Environmental Health Permit.	County Encroachment Permit.	Homeowners may need to secure individual building permits.	City of Oakley Encroachment Permit will be required for pipeline construction.
		Status?	-	County Environmental Health has indicated that they are ready to issue a permit.	Not started.	-	Will be secured just prior to start of construction.
	Project Schedule Available?		-	-	-	-	-
	Describe any data gaps or uncertainties		-	Uncertain about the exact water quality we will encounter at the depths we are targeting.	-	-	-
Project Costs - Implementation	Land Purchase/Easement		NA	NA	$1,000,000	NA	$150,000
	Planning		NA	$3,000	$400,000	NA	NA
	Design		$8,000	$10,000	$1,000,000	$20,000	$400,000
	Environmental Review		$2,000	$15,000	$200,000	Unknown	NA
	Permits		NA	$2,000	$500,000	Unknown	$50,000
	Construction/Implementation		$2,000,000	$80,000	$26,400,000	$400,000	$7,000,000
	Environmental Mitigation/Compliance		NA	NA	$500,000	NA	$500,000
	Other		NA	NA	NA	NA	NA
	Total Project Cost		$2,010,000	$110,000	$30,000,000	$420,000	$8,100,000
	Cost Estimate Available?		-	-	-	-	-
Project Funding - Implementation	Agency; funds or in kind contributions	Amount	$210,000	$10,000	$1,000,000	$20,000	$810,000
		Regional Assessments	-	-	-	-	-
		Developmental Fees	-	-	-	-	Yes
		User Rates	Yes	Yes	Yes	Yes	Yes
		User Fees	-	-	Yes	-	-
		Bonded Debt Financing	-	-	-	-	-
		Property Tax	-	-	-	-	-
		Contributions	-	-	-	-	-
		Other	-	-	-	-	-
	Existing grants	Amount	-	-	-	-	-
		State Grants	-	-	-	-	-
		State funding for flood control/flood prevention projects	-	-	-	-	-
		Local Grants	-	-	-	-	-
		Federal Grants	-	-	-	-	-
	Currently unfunded		$1,800,000	$100,000	$29,000,000	$400,000	$7,290,000
	Economic Feasibility Analysis Available?		-	-	-	-	-
Disadvantaged Communities	Does (will) the project help to address critical water supply and water quality needs of DACs within the ECCC region?		-	Yes: Project will allow the DAC served by this groundwater to receive water meeting the current drinking water standards for arsenic.	Yes: Provides improved water quality to DACs on Bethel Island.	-	-
	What Community(ies)?		-	North area of Bethel Island	Beacon West and Bethel Island	-	-

Project Name		Advanced Metering and Leak Detection (AMLD) Project	Beacon West Arsenic Replacement Well	Bethel Island Water Supply Pipeline	High Efficiency Toilets and Landscape Water Conservation	Phase 3 Well Utilization Project
Sponsoring Agency/Organization		Diablo Water District	Diablo Water District	Diablo Water District	Diablo Water District	Diablo Water District
	How were the DACs included in the planning or development of the project?	-	Letters have been sent to the DAC informing them of the options the District is pursuing to resolve the high arsenic issue in their water supply.	Public meetings informing them of the proposal.	-	-
Environmental Justice – Ranking Criteria #4	Does (will) the project help to address any environmental justice concerns?	-	Yes: Project will allow the DAC served by this groundwater to receive water meeting the current drinking water standards for arsenic.	-	-	-
	Does (will) the project create/raise any environmental justice concerns?	-	-	-	-	-
Climate Change/Greenhouse Gas Emission Reduction - Ranking Criteria #4	Does (will) the project consider and/or address the effects of climate change on the region?	Yes: Less water consumption reduces the power required for pumping and thus greenhouse gasses which affects climate change.	-	-	-	-
	Does (will) the project reduce greenhouse gas emissions?	Yes: Less water consumption reduces the power required for pumping and thus greenhouse gasses which affects climate change.	-	-	Yes: Lower pumping due to water conservation will reduce power consumption which reduces greenhouse gasses.	Yes: Groundwater pumping utilizes 666 kWh/Mg less power as compared to utilizing treated surface water which is a reduction of 237,187 lbs of CO_2 emissions/Mg.

Project Name			Tracy Subbasin Safe Yield Analysis	Treatment of Brackish Groundwater	Leak Detection and Repair	Watershed and Habitat Protection/Restoration	Ironhouse Sanitary District Recycled Water Implementation – Phase B
Sponsoring Agency/Organization			Diablo Water District	Diablo Water District	Diablo Water District/Contra Costa Water District	East Contra Costa County Habitat Conservancy	Ironhouse Sanitary District
Project ID #			**39**	**40**	**41**	**42**	**43**
Project Description	Project Type		Monitoring	Infrastructure – Water/Water Quality	Infrastructure – Water/Water Quality	Environmental (e.g., habitat)	Infrastructure – Wastewater/Recycled Water
	Describe the project		Determine the safe yield of the Tracy Subbasin for the District's municipal water system and to preserve the safety and reliability of sources, of supply for other small water systems within its sphere of influence.	Construct reverse osmosis system for treatment of brackish groundwater.	Project will identify and prioritize leaks in drinking water distribution system water mains (DWD) and untreated water laterals (CCWD) and provide funding to make repairs including water mains and laterals in DAC areas. Project costs are $425,000 for DWD and $1 million for CCWD.	This project will be implemented by the East Contra Costa County Habitat Conservancy as part of the implementation to the HCP/NCCP. The proposed project will have 3 primary tasks: Land acquisition, Habitat Restoration Design, and Construction. Land acquisition will occur in pre-identified priority areas in eastern Contra Costa County. The project will include primarily creek, pond or wetland habitats. The specific project/acquisition that the funding will be used for depends on the timing of the award. The location of this project could be exclusively in the ECCC IRWMP area, or in the area of overlap with the SF Bay Area IRWMP.	The project involved installation of 24,600 feet of 12-inch and 6-inch recycled water piping along city streets and ROW's to provide 809 acre-feet per year of recycled water to a proposed power plant, parks, medians, and vineyards. The project also involves construction of a new recycled water pump station.
	Project Partners	Agency/Organization Name	-	-	-	East Bay Regional Park District, U.S. Fish and Wildlife Service, CA Department of Fish and Game	-
	Funding for Water-Related Planning and Implementation	Increase regional cost efficiencies in treatment and delivery of water, wastewater, and recycled water	Additional: Use of groundwater is less costly than treated surface water, and uses less chemicals and power.	-	Additional: Reducing leaks in water mains and laterals improves delivery efficiency and conserves water.	-	Primary: Reduces the amount of water that needs treatment and delivery for potable uses.
		Implement projects that have region-wide benefits	Additional: Understanding the groundwater basin yield will benefit the communities of Oakley, Bethel Island, Knightsen, Brentwood, and Discovery Bay.	Additional: Reduced use of Delta water has regional benefits.	Additional: Project is proposed to cover the areas of Brentwood, Oakley, Antioch, Discovery Bay and Pittsburg.	Additional: The HCP/NCCP is a regional project that when implemented will create a preserve system that will provide regional environmental benefits as well as recreation opportunities for people in the region.	Additional: Benefits all of California by reducing demand for Delta water supplies.
	Water Supply	Pursue water supplies that are less subject to Delta influences and drought, such as recycled water and desalination	Additional: Groundwater is not impacted by levee breaches that severely affect Delta water quality.	Primary: Reduced use of Delta water has regional benefits.	-	-	-
		Increase water conservation and water use efficiency	-	-	Primary: Reducing leaks in water mains and laterals improves delivery efficiency and conserves water.	-	Additional: Allows potable supplies to be available for other potable uses.
		Increase water transfers	-	-	-	-	-
		Pursue regional exchanges for emergencies, ideally using existing infrastructure	-	-	-	-	-
		Enhance understanding of how groundwater fits into the water portfolio and investigate groundwater as a	Additional: Determining subbasin yield is critical to identifying the maximum amount of groundwater that can be relied upon for the District's conjunctive use program.	Additional: Reduced use of Delta water has regional benefits.	-	-	-

Project Name			Tracy Subbasin Safe Yield Analysis	Treatment of Brackish Groundwater	Leak Detection and Repair	Watershed and Habitat Protection/Restoration	Ironhouse Sanitary District Recycled Water Implementation – Phase B
Sponsoring Agency/Organization			Diablo Water District	Diablo Water District	Diablo Water District/Contra Costa Water District	East Contra Costa County Habitat Conservancy	Ironhouse Sanitary District
		regional source (e.g., conjunctive use)					
	Water Quality and Related Regulations	Protect/Improve source water quality	Additional: Overdrafting a groundwater basin would damage groundwater quality.	Additional: RO water has higher quality.	-	Additional: Headwaters of creeks in the ECCC IRWMP area are within the high priority acquisition zones identified in the plane. Protecting these areas helps preserve water quality in the Delta.	Additional: Reduces the amount of water that is taken from the Delta thereby improving the water quality of the Delta.
		Maintain/Improve regional treated drinking water quality	Additional: Overdrafting a groundwater basin would damage groundwater quality.	Additional: RO water has higher quality.	Additional: Reduces possibility of ground contaminants from entering into drinking water mains.	-	Additional: Reduces the amount of water that is taken from the Delta thereby improving the water quality of the Delta for 23 million Californians.
		Maintain/Improve regional recycled water quality	-	Additional: Higher drinking water.	Quality improves wastewater available to improve recycled water quality.	-	-
		Increase understanding of groundwater quality and potential threats to groundwater quality	Primary: Subbasin yield is directly linked to groundwater quality.	-	-	-	-
		Meet current and future water quality requirements for discharges to the Delta	Additional: Groundwater quality impacts customer treated water quality which in turn impacts the quality of the water being discharged by the Ironhouse Sanitary District into the Delta.	-	-	-	Additional: Would decrease the amount of wastewater effluent discharged to the Delta.
		Limit quantity and improve quality of stormwater discharges to the Delta	-	-	-	-	-
	Restoration and Enhancement of the Delta Ecosystem and Other Environmental Resources	Enhance and restore habitat in the Delta and connected waterways	-	-	-	Primary: This project will protect watersheds and restore aquatic habitats within the IRWMP area.	-
		Minimize Impacts to the Delta ecosystem and other environmental resources	-	-	-	Additional: This project will protect watersheds and restore aquatic habitats within the IRWMP area.	Additional: Reduces the amount of water that is taken from the Delta thereby improving the water quality and ecosystem of the Delta.
		Reduce greenhouse gas emissions	Additional: Energy required to pump groundwater uses 666 kWh/Mg less than treated surface water resulting in 237,793 CO_2 lb/Mg less of equivalent carbon dioxide.	-	Additional: Distribution and untreated water system losses waste power needed to pump water into distribution mains and keep pressure up. Less power utilized by the Districts will reduce greenhouse gasses.	-	-
		Provide better accessibility to waterways for subsistence fishing and recreation	-	-	-	-	-
	Stormwater and Flood Management	Manage local stormwater	-	-	-	-	-
		Improve regional flood risk management	-	-	-	-	-
	Water-Related	Collaborate with and involve DACs in the IRWM process	Additional: DACs rely on groundwater in the basin area and will be involved with the basin yield analysis.	-	Additional: Part of the program will monitor and repair water mains in the Beacon West DAC community.	-	-

Project Name			Tracy Subbasin Safe Yield Analysis	Treatment of Brackish Groundwater	Leak Detection and Repair	Watershed and Habitat Protection/Restoration	Ironhouse Sanitary District Recycled Water Implementation – Phase B
Sponsoring Agency/Organization			Diablo Water District	Diablo Water District	Diablo Water District/Contra Costa Water District	East Contra Costa County Habitat Conservancy	Ironhouse Sanitary District
		Increase awareness of water resources management issues and projects with the general public	Additional: Several mutual water companies and other small water systems rely on the basin as their only source of water and will be included in the public outreach portion of the project.	-	-	-	Additional: The project would provide recycled water for uses that currently use potable water which would address water resource management issues.
	Please elaborate on any benefits that your project may provide outside of the stated objectives		-	-	-	-	-
Program Preferences – Ranking Criteria #2		Resolves Water-Related Conflicts	-	-	-	Yes: Please see explanations in previous IRWMP documents that explain the relationship of the HCP/NCCP to CCWD's water allotment from the Delta.	Yes: Free up potable water for other uses.
	CALFED Objectives	Improve the state's water quality from source to tap	-	-	Yes: Leaks in watermains can be sources of contamination.	-	Yes: Reduce the amount of water that is taken from the Delta thereby improving the water quality and ecosystem of the Delta. Reduces the amount of wastewater effluent discharged to the Delta.
		Protect water supplies needed for ecosystems, cities, industry and farms by reducing the threat of levee failures that would lead to seawater intrusion.	Yes: Overpumping could lead to seawater intrusion.	-	-	-	Yes: Reduces the amount of water that is taken from the Delta thereby improving the water quality and ecosystem of the Delta.
		Allow for the increase of water supplies and more efficient and flexible use of water resources	Yes: Understanding limits on groundwater basin yields will solidify actual groundwater pumping limits.	Yes: Treatment of brackish supplies provides greater flexibility of water resources.	Yes: Using less water from the Delta will provide for an increase of water supplies and a more efficient use of resources.	Yes: Please see explanations in previous IRWMP documents that explain the relationship of the HCP/NCCP to CCWD's water allotment from the Delta.	Yes: Free up potable water for other uses.
		Improve the ecological health of the Bay-Delta watershed	-	-	Yes: Using less water from the Delta will provide for an increase of water supplies that will improve the ecological health of the Bay-Delta.	Yes: Preservation, restoration and management of lands within the Bay-Delta watershed will improve the quality of water that runs off into the Bay-Delta.	Yes: Reduces the amount of water that is taken from the Delta thereby improving the water quality and ecosystem of the Delta. Reduces the amount of wastewater effluent discharged to the Delta.
		Effectively Integrate Water Management with Land Use Planning	-	-	-	Yes: The HCP/NCCP is a regional plan for permitting development, mitigating that development and above those basic mitigation requirements, contributing to the recovery of special status species in the region.	-
Statewide Priorities – Ranking Criteria #3		Drought Preparedness	Yes	Yes	Yes	-	Yes
		Use and Reuse Water More Efficiently	-	Yes	Yes	-	Yes
		Climate Change Response Actions	-	-	Yes	-	-
		Expand Environmental Stewardship	-	-	Yes	-	Yes
		Practice Integrated Flood Management	-	-	-	-	-
		Protects Surface Water and Groundwater Quality	Yes	-	-	-	Yes
		Improve Tribal Water and Natural Resources	-	-	-	-	-
		Ensure Equitable Distribution of Benefits	-	-	-	-	-

Project Name			Tracy Subbasin Safe Yield Analysis	Treatment of Brackish Groundwater	Leak Detection and Repair	Watershed and Habitat Protection/Restoration	Ironhouse Sanitary District Recycled Water Implementation – Phase B
Sponsoring Agency/Organization			Diablo Water District	Diablo Water District	Diablo Water District/Contra Costa Water District	East Contra Costa County Habitat Conservancy	Ironhouse Sanitary District
-	Reduce Water Demand	Agricultural Water Use Efficiency	-	-	-	-	-
		Urban Water Use Efficiency	-	-	Yes	-	Yes
	Improve Operational Efficiency	Conveyance – Delta	-	-	-	-	-
		Conveyance – Regional/Local	-	-	-	-	-
		System Reoperation	-	-	-	-	-
		Water Transfers	-	Yes	-	-	-
	Increase Water Supply	Conjunctive Management & Groundwater Storage	Yes	Yes	-	-	-
		Desalination	-	Yes	-	-	-
		Precipitation Enhancement	-	-	-	-	-
		Recycled Municipal Water	-	-	-	-	Yes
		Surface Storage – CALFED	-	-	-	-	-
		Surface Storage – Regional/Local	-	-	-	-	-
	Improve Water Quality	Drinking Water Treatment and Distribution	-	Yes	Yes	-	-
		Groundwater Remediation/Aquifer Remediation	-	-	-	-	-
		Matching Quality to Use	-	-	Yes	-	-
		Pollution Prevention	-	-	-	-	-
		Salt and Salinity Management	Yes	Yes	-	-	-
		Urban Runoff Management	-	-	-	-	-
	Improve Flood Management	Flood Risk Management	-	-	-	-	-
	Practice Resources Stewardship	Agricultural Lands Stewardship	-	-	-	Yes	-
		Economic Incentives (Loans, Grants and Water Pricing)	-	-	-	-	-
		Ecosystem Restoration	-	-	-	Yes	-
		Forest Management	-	-	-	-	-
		Recharge Area Protection	-	-	-	-	-
		Water-Dependent Recreation	-	-	-	-	-
		Watershed Management	-	-	-	Yes	-
	Other	Crop Idling for Water Transfers	-	-	-	-	-

Project Name			Tracy Subbasin Safe Yield Analysis	Treatment of Brackish Groundwater	Leak Detection and Repair	Watershed and Habitat Protection/Restoration	Ironhouse Sanitary District Recycled Water Implementation – Phase B
Sponsoring Agency/Organization			Diablo Water District	Diablo Water District	Diablo Water District/Contra Costa Water District	East Contra Costa County Habitat Conservancy	Ironhouse Sanitary District
		Dewvaporation or Atmospheric Pressure Desalination	-	-	-	-	-
		Fog Collection	-	-	-	-	-
		Irrigated Land Retirement	-	-	-	-	-
		Rainfed Agriculture	-	-	-	-	-
		Waterbag Transport/ Storage Technology	-	-	-	-	-
	Planning	Project Status	In Progress	Not Started	Completed	In Progress	Completed
		Est. Completion Date	9/1/2013	9/1/2013	9/1/2012	1/1/2014	5/1/2012
	Feasibility	Project Status	Not Started	Not Started	Completed	Not Started	In Progress
		Est. Completion Date	6/1/2013	9/1/2013	9/1/2012	1/1/2014	1/1/2014
	Environ-mental Assess.	Project Status	Not Started	Not Started	Not Started	Not Started	Not Started
		Est. Completion Date	9/1/2013	9/1/2014	3/1/2013	1/1/2014	9/1/2012
	Pre-Project Monitoring	Project Status	Not Started	Not Started	Not Applicable	Not Started	Not Started
		Est. Completion Date	9/1/2013	9/1/2013	-	6/1/2014	9/1/2012
	Design	Project Status	Not Started	Not Started	Not Started	Not Started	Not Started
		Est. Completion Date	9/1/2013	9/1/2014	6/1/2013	7/1/2014	9/1/2012
	Environ-mental Permits	Project Status	Not Started	Not Started	Not Applicable	Not Started	Not Started
		Est. Completion Date	9/1/2013	9/1/2015	-	7/1/2014	9/1/2012
	Building/Other Permits	Project Status	Not Started	Not Started	Not Applicable	Not Started	Not Started
		Est. Completion Date	9/1/2013	9/1/2015	-	7/1/2014	9/1/2012
	Construction/ Imple	Project Status	Not Started	Not Started	Not Started	Not Started	Not Started

Project Name			Tracy Subbasin Safe Yield Analysis	Treatment of Brackish Groundwater	Leak Detection and Repair	Watershed and Habitat Protection/Restoration	Ironhouse Sanitary District Recycled Water Implementation – Phase B
Sponsoring Agency/Organization			Diablo Water District	Diablo Water District	Diablo Water District/Contra Costa Water District	East Contra Costa County Habitat Conservancy	Ironhouse Sanitary District
		Est. Completion Date	9/1/2015	9/1/2016	6/1/2014	11/1/2014	9/1/2012
	Post Project Monitoring	Project Status	Not Started	Not Started	Not Started	Not Started	Not Started
		Est. Completion Date	12/1/2016	9/1/2017	7/1/2014	12/1/2015	9/1/2012
	Environmental Permits	Describe any required	Unknown at this time.	Unknown at this time.	Project will fall under CEQA Categorical Exemptions.	U.S. Army Corps., DFG streambed alteration agreement, USFWS, 401 Certification.	-
		Status?	-	-	Yet to be adopted and NOD filed.	Not started.	-
	Other Permits (e.g., Encroachment, Building)	Describe any required	-	Unknown at this time.	Standard City of Oakley Encroachment Permits.	Contra Costa Grading Permit.	-
		Status?	-	-	Will be secured just prior to construction.	Not started.	-
	Project Schedule Available?		-	-	-	-	-
	Describe any data gaps or uncertainties		-	Unknown at this time.	None. Standard leak detection and repair methods will be used.	-	-
Project Costs - Implementation	Land Purchase/Easement		$200,000	$500,000	NA	$1,000,000	Unknown
	Planning		$150,000	$500,000	$15,000	NA	Unknown
	Design		$150,000	$1,000,000	$35,000	$120,000	$2,240,800
	Environmental Review		$50,000	$500,000	$5,000	NA	Unknown
	Permits		$50,000	$100,000	$2,000	$50,000	Unknown
	Construction/Implementation		$500,000	$15,400,000	$403,000	$500,000	$8,003,000
	Environmental Mitigation/Compliance		$50,000	$2,000,000	NA	NA	Unknown
	Other		Unknown	Unknown	$1,000,000	NA	Unknown
	Total Project Cost		$1,150,000	$20,000,000	$1,460,000	$1,670,000	$10,243,800
	Cost Estimate Available?		-	-	-	-	-
Project Funding - Implementation	Agency; funds or in kind contributions	Amount	$150,000	$1,000,000	$35,000	-	-
		Regional Assessments	-	-	-	-	-
		Developmental Fees	-	-	-	-	-
		User Rates	-	Yes	Yes	-	-
		User Fees	-	Yes	-	-	-
		Bonded Debt Financing	-	-	-	-	-
		Property Tax	-	-	-	-	-
		Contributions	-	-	-	-	-

Project Name			Tracy Subbasin Safe Yield Analysis	Treatment of Brackish Groundwater	Leak Detection and Repair	Watershed and Habitat Protection/Restoration	Ironhouse Sanitary District Recycled Water Implementation – Phase B
Sponsoring Agency/Organization			Diablo Water District	Diablo Water District	Diablo Water District/Contra Costa Water District	East Contra Costa County Habitat Conservancy	Ironhouse Sanitary District
		Other	-	-	-	-	-
	Existing grants	Amount	-	-	-	$750,000	-
		State Grants	-	-	-	-	-
		State funding for flood control/flood prevention projects	-	-	-	-	-
		Local Grants	-	-	-	Yes	-
		Federal Grants	-	-	-	Yes	-
	Currently unfunded		$1,000,000	$19,000,000	$1,425,000	$920,000	$10,243,800
	Economic Feasibility Analysis Available?		-	-	-	-	-
Disadvantaged Communities (DAs)	Does (will) the project help to address critical water supply and water quality needs of DACs within the ECCC region?		Yes: DACs utilize the same groundwater basin as the project area.	-	Yes: Repairing watermain and lateral leaks in DAC areas will improve supply and water quality for that community.	-	-
	What Community(ies)?		Beacon West Bethel Island	-	Beacon West at the north end of Bethel Island.	-	-
	How were the DACs included in the planning or development of the project?		Not yet.	-	DWD owns and operates the DAC water system. The DAC residents will be informed of the water main leak detection and repairs prior to commencing the project.	-	-
Environmental Justice – Ranking Criteria #4	Does (will) the project help to address any environmental justice concerns?		-	-	-	-	-
	Does (will) the project create/raise any environmental justice concerns?		-	-	-	-	-
Climate Change/Greenhouse Gas Emission Reduction - Ranking Criteria #4	Does (will) the project consider and/or address the effects of climate change on the region?		-	Yes: Climate change will be addressed during environmental review.	Yes: Fewer watermain and lateral leaks reduce the power required for pumping and thus greenhouse gasses which affects climate change.	Yes: The HCP/NCCP considered climate change in the Plan and associated environmental documents.	-
	Does (will) the project reduce greenhouse gas emissions?		-	-	Yes: Fewer watermain and lateral leaks reduce the power required for pumping and thus greenhouse gasses which affects climate change.	-	-

Project Name			Ironhouse Sanitary District Recycled Water Implementation – Phase C	Ironhouse Sanitary District Recycled Water Implementation – Phase A	Oakley Sewers	Salinity Reduction	Septage Receiving Station
Sponsoring Agency/Organization			Ironhouse Sanitary District	Ironhouse Sanitary District	Ironhouse Sanitary District	Ironhouse Sanitary District	Ironhouse Sanitary District
Project ID #			**44**	**45**	**46**	**47**	**48**
Project Description	Project Type		Infrastructure – Wastewater/Recycled Water	Infrastructure – Wastewater/Recycled Water	Infrastructure – Wastewater/Recycled Water	Other	Infrastructure – Wastewater/Recycled Water
	Describe the project		The project involves installation of 33,000 feet of 12-inch, 8-inch and 6-inch recycled water piping along city streets to provide 377 acre-feet per year of recycled water to parks and medians. The project also involves construction of a new recycled water pump station.	The project involves installation of 65,800 feet of 16-inch, 10-inch and 6-inch recycled water piping along city streets to provide 695 acre-feet per year of recycled water to parks, medians, and vineyards. The project also involves construction of a new recycled water pump station.	The project involves sewering areas in the City of Oakley currently on septic systems.	Salinity management is of utmost importance in the Central Valley and our region. To assist Ironhouse Sanitary District meet salinity requirements imposed by the Central Valley Regional Water Quality Control Board, a rebate program to remove discharging water softeners from homes and businesses will be established.	The project involves construction of a septage receiving facility at Ironhouse Sanitary District's Water Recycling Facility. The purpose is to provide a place for septage haulers to dispose of their wastes at a local facility.
	Project Partners	Agency/Organization Name	-	-	-	Diablo Water District, Oakley Generating Station	-
-	Funding for Water-Related Planning and Implementation	Increase regional cost efficiencies in treatment and delivery of water, wastewater, and recycled water	Primary: Reduces the amount of water that needs treatment and delivery for potable uses.	Primary: Reduces the amount of water that needs treatment and delivery for potable uses.	-	Additional: Reducing salinity in the wastewater influent improves the effluent quality providing the following benefits: Better quality effluent for recycled water, improved Delta water quality.	Primary: A septic receiving station at the ISD Water Recycling facility will provide a more local means for discharge of septic waste, which means less travel time for the septic hauler.
		Implement projects that have region-wide benefits	Additional: Benefits all of California by reducing demand for Delta water supplies.	Additional: Benefits all of California by reducing demand for Delta water supplies.	-	Additional: The Delta is a region-wide resource. Reducing salinity will improve the water quality in the Delta and provide a better wastewater effluent for recycled water users.	Additional: A septic receiving station at the ISD Water Recycling Facility will provide a more local means for discharge of septic waste, which means less travel time for the septic hauler.
	Water Supply	Pursue water supplies that are less subject to Delta influences and drought, such as recycled water and desalination	-	-	-	-	-
		Increase water conservation and water use efficiency	Additional: Allows potable supplies to be available for other potable uses.	Additional: Allows potable supplies to be available for other potable uses.	-	-	-
		Increase water transfers	-	-	-	-	-
		Pursue regional exchanges for emergencies, ideally using existing infrastructure	-	-	-	-	-
		Enhance understanding of how groundwater fits into the water portfolio and investigate groundwater as a regional source (e.g., conjunctive use)	-	-	-	-	-
	Water Quality and Related Regulations	Protect/Improve source water quality	Additional: Reduces the amount of water that is taken from the Delta thereby improving the water quality of the Delta.	Additional: Reduces the amount of water that is taken from the Delta thereby improving the water quality of the Delta.	Primary: Groundwater quality will be improved.	Primary: Less salinity in the wastewater effluent means better source water quality in the Delta.	-
		Maintain/Improve regional treated drinking water quality	Additional: Reduces the amount of water that is taken from the Delta thereby improving the water quality for 23 million Californians.	Additional: Reduces the amount of water that is taken from the Delta thereby improving the water quality of the Delta for 23 million Californians.	-	Additional: Less salinity in the wastewater effluent means better source water quality in the Delta.	-

Project Name			Ironhouse Sanitary District Recycled Water Implementation – Phase C	Ironhouse Sanitary District Recycled Water Implementation – Phase A	Oakley Sewers	Salinity Reduction	Septage Receiving Station
Sponsoring Agency/Organization			Ironhouse Sanitary District	Ironhouse Sanitary District	Ironhouse Sanitary District	Ironhouse Sanitary District	Ironhouse Sanitary District
		Maintain/Improve regional recycled water quality	-	-	-	Additional: Lower salinity levels will improve recycled water quality opening up more uses for the recycled water.	-
		Increase understanding of groundwater quality and potential threats to groundwater quality	-	-	-	-	-
		Meet current and future water quality requirements for discharges to the Delta	Additional: Would decrease the amount of wastewater effluent discharged to the Delta.	Additional: Would decrease the amount of wastewater effluent discharged to the Delta.	-	Additional: Ironhouse Sanitary District has very stringent salinity requirements for discharge into the San Joaquin River. Lower the salinity of the influent will assist ISD in meeting the discharge requirements.	-
		Limit quantity and improve quality of stormwater discharges to the Delta	-	-	-	-	-
	Restoration and Enhancement of the Delta Ecosystem and Other Environmental Resources	Enhance and restore habitat in the Delta and connected waterways	-	-	-	Additional: Lower salinity in the effluent discharged to the Delta will enhance and restoring habitat present in the Delta.	-
		Minimize Impacts to the Delta ecosystem and other environmental resources	Additional: Reduces the amount of water that is taken from the Delta thereby improving the water quality and ecosystem of the Delta.	Additional: Reduces the amount of water that is taken from the Delta thereby improving the water quality and ecosystem of the Delta.	-	Additional: Lower salinity in the effluent discharged to the Delta will enhance and restoring habitat present in the Delta.	-
		Reduce greenhouse gas emissions	-	-	-	-	-
		Provide better accessibility to waterways for subsistence fishing and recreation	-	-	-	-	-
	Stormwater and Flood Management	Manage local stormwater	-	-	-	-	-
		Improve regional flood risk management	-	-	-	-	-
	Water-Related Outreach	Collaborate with and involve DACs in the IRWM process	-	-	-	-	-
		Increase awareness of water resources management issues and projects with the general public	Additional: The project would provide recycled water for uses that currently use potable water which would address water resource management issues.	Additional: The project would provide recycled water for uses that currently use potable water which would address water resource management issues.	-	Additional: Through ISD's newsletters the general public has been informed on why salinity reduction is important. By implementing the rebate program the public will become aware of how important it is to reduce salinity in wastewater influent.	-
	Please elaborate on any benefits that your project may provide outside of the stated objectives		-	-	-	-	-
Pro gra m Pre		Resolves Water-Related Conflicts	Yes: Free up potable water for other uses.	Yes: Free up potable water for other uses.	-	Yes: The project will provide better quality wastewater effluent discharged to the Delta.	-

Project Name			Ironhouse Sanitary District Recycled Water Implementation – Phase C	Ironhouse Sanitary District Recycled Water Implementation – Phase A	Oakley Sewers	Salinity Reduction	Septage Receiving Station
Sponsoring Agency/Organization			Ironhouse Sanitary District	Ironhouse Sanitary District	Ironhouse Sanitary District	Ironhouse Sanitary District	Ironhouse Sanitary District
	CALFED Objectives	Improve the state's water quality from source to tap	Yes: Reduces the amount of water that is taken from the Delta thereby improving the water quality and ecosystem of the Delta. Reduces the amount of wastewater effluent discharged to the Delta.	Yes: Reduces the amount of water that is taken from the Delta thereby improving the water quality and ecosystem of the Delta. Reduces that amount of wastewater effluent discharged to the Delta.	Yes: Project will improve groundwater quality.	Yes: The project will provide better quality wastewater effluent discharged to the Delta.	-
		Protect water supplies needed for ecosystems, cities, industry and farms by reducing the threat of levee failures that would lead to seawater intrusion.	Yes: Reduces the amount of water that is taken from the Delta thereby improving the water quality and ecosystem of the Delta.	Yes: Reduces the amount of water that is taken from the Delta thereby improving the water quality and ecosystem of the Delta.	-	-	-
		Allow for the increase of water supplies and more efficient and flexible use of water resources	Yes: Frees up potable water for other uses.	Yes: Frees up potable water for other uses.	Yes: Improving groundwater quality will enhance the groundwater used for potable water use.	Yes: A decrease in salinity in source water will allow for more uses.	-
		Improve the ecological health of the Bay-Delta watershed	Yes: Reduces the amount of water that is taken from the Delta thereby improving the water quality and ecosystem of the Delta. Reduces the amount of wastewater effluent discharged to the Delta.	Yes: Reduces the amount of water that is taken from the Delta thereby improving the water quality and ecosystem of the Delta. Reduces that amount of wastewater effluent discharged to the Delta.	-	Yes: A lower salinity effluent will improve the ecological health of the Delta.	-
		Effectively Integrate Water Management with Land Use Planning	-	-	-	-	-
Statewide Priorities – Ranking Criteria #3		Drought Preparedness	Yes	Yes	Yes	Yes	-
		Use and Reuse Water More Efficiently	Yes	Yes	-	Yes	-
		Climate Change Response Actions	-	-	-	-	-
		Expand Environmental Stewardship	Yes	Yes	-	Yes	-
		Practice Integrated Flood Management	-	-	-	-	-
		Protects Surface Water and Groundwater Quality	Yes	Yes	Yes	Yes	-
		Improve Tribal Water and Natural Resources	-	-	-	-	-
		Ensure Equitable Distribution of Benefits	-	-	-	-	-
-	Reduce Water Demand	Agricultural Water Use Efficiency	-	-	-	-	-
		Urban Water Use Efficiency	Yes	Yes	-	-	-
	Improve Operational Efficiency	Conveyance – Delta	-	-	-	-	-
		Conveyance – Regional/Local	-	-	-	-	Yes
		System Reoperation	-	-	-	-	-
		Water Transfers	-	-	-	-	-
	Increase Water Supply	Conjunctive Management & Groundwater Storage	-	-	-	-	-
		Desalination	-	-	-	-	-
		Precipitation Enhancement	-	-	-	-	-
		Recycled Municipal Water	Yes	Yes	-	Yes	-

Project Name			Ironhouse Sanitary District Recycled Water Implementation – Phase C	Ironhouse Sanitary District Recycled Water Implementation – Phase A	Oakley Sewers	Salinity Reduction	Septage Receiving Station
Sponsoring Agency/Organization			Ironhouse Sanitary District	Ironhouse Sanitary District	Ironhouse Sanitary District	Ironhouse Sanitary District	Ironhouse Sanitary District
		Surface Storage – CALFED	-	-	-	-	-
		Surface Storage – Regional/Local	-	-	-	-	-
	Improve Water Quality	Drinking Water Treatment and Distribution	-	-	-	-	-
		Groundwater Remediation/Aquifer Remediation	-	-	-	-	-
		Matching Quality to Use	-	-	-	-	-
		Pollution Prevention	-	-	Yes	-	-
		Salt and Salinity Management	-	-	-	Yes	-
		Urban Runoff Management	-	-	-	-	-
	Improve Flood Management	Flood Risk Management	-	-	-	-	-
	Practice Resources Stewardship	Agricultural Lands Stewardship	-	-	-	-	-
		Economic Incentives (Loans, Grants and Water Pricing)	-	-	-	-	-
		Ecosystem Restoration	-	-	-	-	-
		Forest Management	-	-	-	-	-
		Recharge Area Protection	-	-	-	-	-
		Water-Dependent Recreation	-	-	-	-	-
		Watershed Management	-	-	-	-	-
	Other Strategies	Crop Idling for Water Transfers	-	-	-	-	-
		Dewvaporation or Atmospheric Pressure Desalination	-	-	-	-	-
		Fog Collection	-	-	-	-	-
		Irrigated Land Retirement	-	-	-	-	-
		Rainfed Agriculture	-	-	-	-	-
		Waterbag Transport/ Storage Technology	-	-	-	-	-
	Planning	Project Status	Completed	Completed	Not Started	In Progress	In Progress
		Est. Completion Date	5/1/2012	5/1/2012	9/1/2012	1/1/2012	9/1/2012
	Feasibility	Project Status	In Progress	In Progress	Not Started	In Progress	In Progress
		Est. Completion Date	1/1/2014	1/1/2014	9/1/2012	6/1/2013	9/1/2012
	Environ-me	Project Status	Not Started	Not Started	Not Started	Not Applicable	Not Started

Project Name			Ironhouse Sanitary District Recycled Water Implementation – Phase C	Ironhouse Sanitary District Recycled Water Implementation – Phase A	Oakley Sewers	Salinity Reduction	Septage Receiving Station
Sponsoring Agency/Organization			Ironhouse Sanitary District	Ironhouse Sanitary District	Ironhouse Sanitary District	Ironhouse Sanitary District	Ironhouse Sanitary District
		Est. Completion Date	9/1/2012	9/1/2012	9/1/2012	-	9/1/2012
	Pre-Project Monitoring	Project Status	Not Started	Not Started	Not Started	Not Applicable	Not Started
		Est. Completion Date	9/1/2012	9/1/2012	9/1/2012	-	9/1/2012
	Design	Project Status	Not Started	Not Started	Not Started	Not Applicable	Not Started
		Est. Completion Date	9/1/2012	9/1/2012	9/1/2012	-	9/1/2012
	Environ-mental Permits	Project Status	Not Started	Not Started	Not Started	Not Applicable	Not Applicable
		Est. Completion Date	9/1/2012	9/1/2012	9/1/2012	-	-
	Building/Other Permits	Project Status	Not Started	Not Started	Not Started	Not Applicable	Not Applicable
		Est. Completion Date	9/1/2012	9/1/2012	9/1/2012	-	-
	Construction/ Implementation	Project Status	Not Started	Not Started	Not Started	Not Applicable	Not Started
		Est. Completion Date	9/1/2012	9/1/2012	9/1/2012	-	9/1/2012
	Post Project Monitoring	Project Status	Not Started	Not Started	Not Started	Not Applicable	Not Started
		Est. Completion Date	9/1/2012	9/1/2012	9/1/2012	-	9/1/2012
	Environmental Permits	Describe any required	-	-	-	-	None.
		Status?	-	-	-	-	-

Project Name			Ironhouse Sanitary District Recycled Water Implementation – Phase C	Ironhouse Sanitary District Recycled Water Implementation – Phase A	Oakley Sewers	Salinity Reduction	Septage Receiving Station
Sponsoring Agency/Organization			Ironhouse Sanitary District	Ironhouse Sanitary District	Ironhouse Sanitary District	Ironhouse Sanitary District	Ironhouse Sanitary District
	Other Permits (e.g., Encroachment, Building)	Describe any required	-	-	-	-	-
		Status?	-	-	-	-	-
	Project Schedule Available?		-	-	-	-	-
	Describe any data gaps or uncertainties		-	-	-	-	-
Project Costs - Implementation	Land Purchase/Easement		Unknown	Unknown	Unknown	NA	NA
	Planning		Unknown	Unknown	Unknown	NA	Unknown
	Design		$2,559,000	$2,240,800	$1,240,000	NA	Unknown
	Environmental Review		Unknown	Unknown	Unknown	NA	NA
	Permits		Unknown	Unknown	Unknown	NA	NA
	Construction/Implementation		$9,254,000	$8,003,000	$4,960,000	$2,500,000	$500,000
	Environmental Mitigation/Compliance		Unknown	Unknown	Unknown	NA	NA
	Other		Unknown	Unknown	Unknown	NA	NA
	Total Project Cost		$11,813,000	$10,243,800	$6,200,000	$2,500,000	$500,000
	Cost Estimate Available?		-	-	-	-	-
Project Funding - Implementation	Agency; funds or in kind contributions	Amount	-	-	-	-	-
		Regional Assessments	-	-	-	-	-
		Developmental Fees	-	-	-	-	-
		User Rates	-	-	Yes	-	-
		User Fees	-	-	-	-	-
		Bonded Debt Financing	-	-	-	-	-
		Property Tax	-	-	-	-	-
		Contributions	-	-	-	-	-
		Other	-	-	-	-	-
	Existing grants	Amount	-	-	-	-	-
		State Grants	-	-	-	-	-
		State funding for flood control/flood prevention projects	-	-	-	-	-
		Local Grants	-	-	-	-	-
		Federal Grants	-	-	-	-	-
	Currently unfunded		$11,813,000	$10,243,800	$6,200,000	$2,500,000	$500,000
	Economic Feasibility Analysis Available?		-	-	-	-	-
Disadvantaged Communities (DAs)	Does (will) the project help to address critical water supply and water quality needs of DACs within the ECCC region?		-	-	-	-	-
	What Community(ies)?		-	-	-	-	-

Project Name		Ironhouse Sanitary District Recycled Water Implementation – Phase C	Ironhouse Sanitary District Recycled Water Implementation – Phase A	Oakley Sewers	Salinity Reduction	Septage Receiving Station
Sponsoring Agency/Organization		Ironhouse Sanitary District	Ironhouse Sanitary District	Ironhouse Sanitary District	Ironhouse Sanitary District	Ironhouse Sanitary District
	How were the DACs included in the planning or development of the project?	-	-	-	-	-
Environmental Justice – Ranking Criteria #4	Does (will) the project help to address any environmental justice concerns?	-	-	-	-	-
	Does (will) the project create/raise any environmental justice concerns?	-	-	-	-	-
Climate Change/Greenhouse Gas Emission Reduction - Ranking	Does (will) the project consider and/or address the effects of climate change on the region?	-	-	-	-	-
	Does (will) the project reduce greenhouse gas emissions?	-	-	-	-	-

Project Name				Wastewater Storage Pond Management	Lake Alhambra Sediment Mitigation Antioch Drainage Area 56	Jersey Island Cutoff Levees	Jersey Island Levee Raising and Widening from Stations 333+00 to 470+00	Marsh Creek Delta Restoration Project
Sponsoring Agency/Organization				Ironhouse Sanitary District	Lake Alhambra Property Owners Association	Reclamation District 830	Reclamation District 830	Reclamation District 830
Project ID #				**55**	**49**	**50**	**51**	**52**
Project Description	Project Type			Infrastructure – Wastewater/Recycled Water	Infrastructure – Stormwater/Flood Management	Infrastructure – Water/Water Quality	Infrastructure – Stormwater/Flood Management	Environmental (e.g., habitat)
	Describe the project			Create an earthen berm within a 17-acre wastewater storage pond to create a smaller area for wastewater storage. This will minimize cleanup and odors when the pond is used during small events. For large flow events the entire storage pond will still be available for usage.	Lake Alhambra is a residential lake completed in the late 1950's as part of a housing subdivision that includes 240 single family homes in north central Antioch. The lake is at the end of E Antioch Creek that drains an area of 7,000 acres from the foothills of Mt. Diablo to the Delta. A study done around 1981 indicated that approximately 50,000 cubic yards of sediment had been deposited in the lake and the depth of the lake had gone from 10.5 to 7 or 8 feet as a result. According to the Lake Alhambra POA an equal amount has been deposited since for a total of 100,000 cubic yards of sediment deposited in the lake since its completion. The lake depth is now at 3 or 4 feet. This drainage area has experienced growth of light industrial and residential land use resulting in reduced permeable area, increased stormwater flow, and sediment from poor erosion controls. The project involves dredging to remove sediment to increase lake capacity (flood/sediment control) and restore beneficial uses.	The project is constructed of two cut-off levees, one approximately 8,000 feet and the other approximately 3,000 feet on Jersey Island to divide the island into three parts. Jersey Island is one of the 8 western islands critical to protection of water quality for 23 million Californians. Construction of these levees would limit the amount of salt water intrusion into the drinking water supply.	The project entrails raising and widening a levee section on Jersey Island from Station 333+00 to 470+00 for levee stability to prevent flooding of the island.	The Marsh Creek Delta Restoration Project would create up to 100 acres of marsh, riparian, and upland habitats on lands adjacent to the Dutch Slough Tidal Marsh Restoration Project.
	Project Partners	Agency/Organization Name		Contra Costa County Flood Control and Water Conservation District	City of Antioch, Contra Costa Flood Control and Water Conservation District	-	Ironhouse Sanitary District	Ironhouse Sanitary District
-	Funding for Water-Related Planning and Implementation	Increase regional cost efficiencies in treatment and delivery of water, wastewater, and recycled water		-	-	-	Additional: Protecting Jersey Island from flooding will help maintain water quality in the Delta for 23 million Californians.	-
		Implement projects that have region-wide benefits		Additional: Dirt from the Upper Sand Creek Detention Basin project will be used for the Wastewater Storage Pond Management Project.	-	-	Additional: Protecting Jersey Island from flooding will help maintain water quality in the Delta for 23 million Californians.	Additional: Creation of up to 100 acres of marsh, riparian, and upland habitats will improve the Delta which benefit the region.
	Water Supply	Pursue water supplies that are less subject to Delta influences and drought, such as recycled water and desalination		-	-	-	-	-
		Increase water conservation and water use efficiency		-	-	-	-	-
		Increase water transfers		-	-	-	-	-
		Pursue regional exchanges for emergencies, ideally using existing infrastructure		-	-	Additional: Construction of the levees would minimize the amount of salt water intrusion into the drinking water supply for 23	-	-

Project Name			Wastewater Storage Pond Management	Lake Alhambra Sediment Mitigation Antioch Drainage Area 56	Jersey Island Cutoff Levees	Jersey Island Levee Raising and Widening from Stations 333+00 to 470+00	Marsh Creek Delta Restoration Project
Sponsoring Agency/Organization			Ironhouse Sanitary District	Lake Alhambra Property Owners Association	Reclamation District 830	Reclamation District 830	Reclamation District 830
					million Californians in the event of a levee failure on Jersey Island.		
		Enhance understanding of how groundwater fits into the water portfolio and investigate groundwater as a regional source (e.g., conjunctive use)	-	-	-	-	-
	Water Quality and Related Regulations	Protect/Improve source water quality	Additional: Eliminates discharge of non-compliance wastewater discharge to the San Joaquin River and land application areas.	-	Primary: Construction of the levees would minimize the amount of salt water intrusion into the drinking water supply for 23 million Californians in the event of a levee failure on Jersey Island.	Primary: Protecting Jersey Island from flooding will help maintain water quality in the Delta for 23 million Californians.	-
		Maintain/Improve regional treated drinking water quality	-	-	Additional: Construction of the levees would minimize the amount of salt water intrusion into the drinking water supply for 23 million Californians in the event of a levee failure on Jersey Island.	Additional: Protecting Jersey Island from flooding will help maintain water quality in the Delta for 23 million Californians.	-
		Maintain/Improve regional recycled water quality	-	-	-	Additional: Protecting Jersey Island from flooding will help maintain water quality in the Delta for 23 million Californians. The salinity in the Delta has a direct correlation to quality of recycled water provided to end users.	-
		Increase understanding of groundwater quality and potential threats to groundwater quality	-	-	-	-	-
		Meet current and future water quality requirements for discharges to the Delta	Primary: Eliminates discharge of non-compliant wastewater discharge to the San Joaquin River and land application areas.	Additional: The capacity of the lake has been reduced by 50% decreasing the sediment removal capability of the lake by 50% and increasing the sediment load to the Delta. Other projects upstream and downstream should also be considered to reduce sediment to the lake.	-	-	-
		Limit quantity and improve quality of stormwater discharges to the Delta	-	Additional: Removing sediment will increase the lake capacity by 50% decreasing the sediment load to the Delta and increasing water retention and infiltration. Other projects upstream and downstream should also be considered.	-	-	-
	Restoration and Enhancement of the Delta Ecosystem and Other Environmental Resources	Enhance and restore habitat in the Delta and connected waterways	Additional: Eliminates discharge of non-compliant wastewater discharge to the San Joaquin River and land application areas.	Additional: The capacity of the lake has been reduced >50% and increasing sediment load to the Delta. Because the lake is at the end of the watershed, it is the last infiltration mechanism before the Delta.	Additional: Construction of the levees would allow intentional flooding of a portion of Jersey Island. This flooded portion could be used for habitat restoration.	Additional: Protecting Jersey Island from flooding will help maintain water quality in the Delta and help to maintain habitat in the Delta.	Primary: Restore mosaic habitats. Restore tidal marsh. Provide habitat for a broad range of sensitive species. Provide up to 600,000 cubic yards of material for the Dutch Slough Property. Restore a complex Delta system at the mouth of Marsh Creek.
		Minimize Impacts to the Delta ecosystem and other environmental resources	Additional: Eliminates discharge of non-compliant wastewater discharge to the San Joaquin River and land application areas.	-	-	Additional: Protecting Jersey Island from flooding will help maintain water quality in the Delta and help to maintain the Delta ecosystem.	-

Project Name			Wastewater Storage Pond Management	Lake Alhambra Sediment Mitigation Antioch Drainage Area 56	Jersey Island Cutoff Levees	Jersey Island Levee Raising and Widening from Stations 333+00 to 470+00	Marsh Creek Delta Restoration Project
Sponsoring Agency/Organization			Ironhouse Sanitary District	Lake Alhambra Property Owners Association	Reclamation District 830	Reclamation District 830	Reclamation District 830
		Reduce greenhouse gas emissions	-	-	Additional: Construction of the levees would allow intentional flooding of a portion of Jersey Island. This flooded portion would reduce greenhouse gasses by sequestering carbon production from peat oxidation.	-	-
		Provide better accessibility to waterways for subsistence fishing and recreation	-	-	-	-	-
	Stormwater and Flood Management	Manage local stormwater	-	Primary: Lake Alhambra has lost >50% of its capacity due to siltation with similar decrease in flood control. With development, stormwater flows will increase. Because the lake is at the end of the watershed, it is the last filtration mechanism before the Delta.	-	-	-
		Improve regional flood risk management	-	Additional: Removing sediment increases capacity of the lake. Storm flows are held in the lake, then slowly released to the marsh area downstream of the lake and then to the Delta. Lake Alhambra protects residences in the flat downstream area of the watershed.	Additional: Construction of the levees would prevent complete flooding of a critical western Delta island.	Additional: Maintaining the levees on Jersey Island will help prevent the flooding of Jersey Island.	-
	Water-Related Outreach	Collaborate with and involve DACs in the IRWM process	-	Additional: The Lake Alhambra subdivision is a DAC.	-	-	-
		Increase awareness of water resources management issues and projects with the general public	-	-	Additional: Construction of the levees would minimize the amount of salt water intrusion into the drinking water supply for 23 million Californians in the event of a levee failure on Jersey Island.	-	Additional: The project once completed will be open to the public for viewing of the created habitat.
	Please elaborate on any benefits that your project may provide outside of the stated objectives		-	The aesthetics of the lake have been deteriorated by the presence of shallow sediment that is at the surface in many areas. The beneficial uses have been severely impacted. The shallower water is also heated to higher temperatures resulting in increased algal growth rates (and likely mosquitoes and other potential vectors) requiring increased maintenance by the POA. The presence of sediment and shallower lake bottom has also reduced the recreational benefits of the lake.	-	-	-
Program Preferences – Ranking Criteria #2		Resolves Water-Related Conflicts	-	Yes: The POA has been discussing this issue with the City and the Flood Control Agency (incl. litigation). The POC believes the City and Flood Control Agency have allowed or caused the deposition of sediment and	-	Yes: Protecting Jersey Island from flooding will help maintain water quality in the Delta for 23 million Californians.	-

Project Name			Wastewater Storage Pond Management	Lake Alhambra Sediment Mitigation Antioch Drainage Area 56	Jersey Island Cutoff Levees	Jersey Island Levee Raising and Widening from Stations 333+00 to 470+00	Marsh Creek Delta Restoration Project
Sponsoring Agency/Organization			Ironhouse Sanitary District	Lake Alhambra Property Owners Association	Reclamation District 830	Reclamation District 830	Reclamation District 830
				impairment to the lake and should be responsible.			
	CALFED Objectives	Improve the state's water quality from source to tap	Yes: Eliminates discharge of non-compliant wastewater discharge to the San Joaquin River and land application areas.	Yes: Reduce the sediment load to the Delta which is a surface water drinking supply. Because the lake is at the end of the watershed, it is the last filtration mechanism before the Delta. Sediment and contaminants are settled out and retained in the lake.	Yes: Provides water supply protection and reliability from a levee failure in the western Delta.	Yes: Protecting Jersey Island from flooding will help maintain water quality in the Delta for 23 million Californians.	-
		Protect water supplies needed for ecosystems, cities, industry and farms by reducing the threat of levee failures that would lead to seawater intrusion.	-	-	Yes: Provides water supply protection and reliability from a levee failure in the western Delta. Also, a portion of the island could intentionally flood.	Yes: Protecting Jersey Island from flooding will help maintain water quality in the Delta and help to maintain the Delta ecosystem.	-
		Allow for the increase of water supplies and more efficient and flexible use of water resources	-	-	Yes: In the event a levee fails on Jersey Island, the water supply amount available for use would be impacted. If the cut-off levees were constructed, a less amount of water supply would be impacted.	-	-
		Improve the ecological health of the Bay-Delta watershed	Yes: Eliminates discharge of non-compliant wastewater discharge to the San Joaquin River and land application areas.	Yes: Reduce the sediment load to the Delta. Because the lake is at the end of the watershed, it is the last filtration mechanism before the Delta. Sediment and contaminants are settled out and retained in the lake.	Yes: If the cut-off levees were installed and a portion of Jersey Island was intentionally flooded, the flooded area could provide habitat restoration, help with subsidence reversal and provide the ability to sequester carbon production from peat oxidation.	Yes: Protecting Jersey Island from flooding will help maintain water quality in the Delta and help to maintain the Delta ecosystem.	Yes: Restore mosaic habitats. Restore tidal marsh. Provide habitat for a broad range of sensitive species. Provide up to 600,000 cubic yards of material for the Dutch Slough property. Restore a complex Delta system at the mouth of Marsh Creek.
		Effectively Integrate Water Management with Land Use Planning	-	Yes: Land use has exceeded the capacity of the stormwater system. The sediment load is too high and the current system is unsustainable. Upstream and downstream measures need to be considered to stop sediment depositing in the lake (not POA controlled).	-	-	-
Statewide Priorities – Ranking Criteria #3		Drought Preparedness	-	-	Yes	-	-
		Use and Reuse Water More Efficiently	-	-	-	-	-
		Climate Change Response Actions	-	Yes	-	-	-
		Expand Environmental Stewardship	-	Yes	Yes	-	Yes
		Practice Integrated Flood Management	-	-	Yes	Yes	-
		Protects Surface Water and Groundwater Quality	Yes	Yes	Yes	Yes	-
		Improve Tribal Water and Natural Resources	-	-	-	-	Yes
		Ensure Equitable Distribution of Benefits	-	Yes	-	-	-
-	Reduce Water Demand	Agricultural Water Use Efficiency	-	-	-	-	-
		Urban Water Use Efficiency	-	-	-	-	-

Project Name			Wastewater Storage Pond Management	Lake Alhambra Sediment Mitigation Antioch Drainage Area 56	Jersey Island Cutoff Levees	Jersey Island Levee Raising and Widening from Stations 333+00 to 470+00	Marsh Creek Delta Restoration Project
Sponsoring Agency/Organization			Ironhouse Sanitary District	Lake Alhambra Property Owners Association	Reclamation District 830	Reclamation District 830	Reclamation District 830
	Improve Operational Efficiency	Conveyance – Delta	-	-	-	-	-
		Conveyance – Regional/Local	-	-	-	-	-
		System Reoperation	-	-	-	-	-
		Water Transfers	-	-	-	-	-
	Increase Water Supply	Conjunctive Management & Groundwater Storage	-	-	-	-	-
		Desalination	-	-	-	-	-
		Precipitation Enhancement	-	-	-	-	-
		Recycled Municipal Water	-	-	-	-	-
		Surface Storage – CALFED	-	-	-	-	-
		Surface Storage – Regional/Local	-	-	-	-	-
	Improve Water Quality	Drinking Water Treatment and Distribution	-	-	-	-	-
		Groundwater Remediation/Aquifer Remediation	-	-	-	-	-
		Matching Quality to Use	-	-	-	-	-
		Pollution Prevention	Yes	-	-	-	-
		Salt and Salinity Management	-	-	Yes	Yes	-
		Urban Runoff Management	-	Yes	-	-	-
	Improve Flood Management	Flood Risk Management	-	Yes	Yes	Yes	-
	Practice Resources Stewardship	Agricultural Lands Stewardship	-	-	-	-	-
		Economic Incentives (Loans, Grants and Water Pricing)	-	-	-	-	-
		Ecosystem Restoration	-	Yes	-	-	Yes
		Forest Management	-	-	-	-	-
		Recharge Area Protection	-	-	-	-	-
		Water-Dependent Recreation	-	-	-	-	-
		Watershed Management	-	Yes	Yes	-	Yes
	Other Strategies	Crop Idling for Water Transfers	-	-	-	-	-
		Dewvaporation or Atmospheric Pressure Desalination	-	-	-	-	-
		Fog Collection	-	-	-	-	-
		Irrigated Land Retirement	-	-	-	-	-

Project Name			Wastewater Storage Pond Management	Lake Alhambra Sediment Mitigation Antioch Drainage Area 56	Jersey Island Cutoff Levees	Jersey Island Levee Raising and Widening from Stations 333+00 to 470+00	Marsh Creek Delta Restoration Project
Sponsoring Agency/Organization			Ironhouse Sanitary District	Lake Alhambra Property Owners Association	Reclamation District 830	Reclamation District 830	Reclamation District 830
		Rainfed Agriculture	-	-	-	-	-
		Waterbag Transport/ Storage Technology	-	-	-	-	-
-	Planning	Project Status	Completed	Not Started	Not Started	Completed	In Progress
		Est. Completion Date	11/1/2012	12/1/2012	9/1/2012	9/1/2012	9/1/2012
	Feasibility	Project Status	Completed	Not Started	Not Started	Completed	Not Started
		Est. Completion Date	11/1/2012	12/1/2012	9/1/2012	9/1/2012	9/1/2012
	Environ-mental Assess.	Project Status	Not Applicable	Not Started	Not Started	Completed	Not Started
		Est. Completion Date	-	3/1/2013	9/1/2012	9/1/2012	9/1/2012
	Pre-Project Monitoring	Project Status	Not Applicable	Not Applicable	Not Started	Completed	Not Started
		Est. Completion Date	-	-	9/1/2012	9/1/2012	9/1/2012
	Design	Project Status	Not Applicable	Not Started	Not Started	Completed	Not Started
		Est. Completion Date	-	6/1/2013	9/1/2012	9/1/2012	9/1/2012
	Environ-mental Permits	Project Status	Not Applicable	Not Started	Not Started	In Progress	Not Started
		Est. Completion Date	-	3/1/2013	9/1/2012	9/1/2012	9/1/2012
	Building/Other Permits	Project Status	Not Applicable	Not Applicable	Not Started	Not Applicable	Not Started
		Est. Completion Date	-	-	9/1/2012	-	9/1/2012
	Construction/ Implementation	Project Status	In Progress	Not Started	Not Started	Not Started	Not Started
		Est. Completion Date	11/1/2012	9/1/2012	9/1/2012	9/1/2012	9/1/2012
	Post Project Mo	Project Status	Not Applicable	Not Applicable	Not Started	Not Started	Not Started

Project Name			Wastewater Storage Pond Management	Lake Alhambra Sediment Mitigation Antioch Drainage Area 56	Jersey Island Cutoff Levees	Jersey Island Levee Raising and Widening from Stations 333+00 to 470+00	Marsh Creek Delta Restoration Project
Sponsoring Agency/Organization			Ironhouse Sanitary District	Lake Alhambra Property Owners Association	Reclamation District 830	Reclamation District 830	Reclamation District 830
		Est. Completion Date	-	-	9/1/2012	9/1/2012	9/1/2012
	Environmental Permits	Describe any required	-	Potential permits include USACE 404, CDF&G 1602, and RWQCB water quality certification 401.	Army Corps of Engineers	DF&G Streambed Alteration	-
		Status?	-	Not started, funding is needed to begin.	Not started.	-	-
	Other Permits (e.g., Encroachment, Building)	Describe any required	-	-	-	-	-
		Status?	-	-	-	-	-
	Project Schedule Available?		-	-	-	-	-
	Describe any data gaps or uncertainties		-	Evaluating re-use or disposal options for the dredged and dewatered sediment is a major component of the project planning.	-	-	-
Project Costs - Implementation	Land Purchase/Easement		NA	NA	NA	NA	Unknown
	Planning		NA	$20,000	Unknown	NA	Unknown
	Design		NA	$40,000	Unknown	NA	Unknown
	Environmental Review		NA	$100,000	Unknown	NA	Unknown
	Permits		NA	$40,000	Unknown	Unknown	Unknown
	Construction/Implementation		$144,000	$2,000,000	$27,300,000	$7,000,000	$9,751,000
	Environmental Mitigation/Compliance		NA	Unknown	Unknown	Unknown	Unknown
	Other		NA	NA	Unknown	NA	Unknown
	Total Project Cost		$144,000	$2,200,000	$27,300,000	$7,000,000	$9,751,000
	Cost Estimate Available?		-	-	-	-	-
-	Agency; funds or in kind contributions	Amount	$8,000	-	-	-	-
		Regional Assessments	-	-	-	-	-
		Developmental Fees	-	-	-	-	-
		User Rates	-	-	-	-	-
		User Fees	-	-	-	-	-
		Bonded Debt Financing	-	-	-	-	-
		Property Tax	-	-	-	-	-
		Contributions	-	-	-	-	-
		Other	-	-	-	-	-
	Existing grants	Amount	-	-	-	-	-
		State Grants	-	-	-	-	-
		State funding for flood control/flood prevention projects	-	-	-	-	-
		Local Grants	-	-	-	-	-
		Federal Grants	-	-	-	-	-
	Currently unfunded		$136,000	$2,200,000	$27,300,000	$7,000,000	$9,751,000

Project Name		Wastewater Storage Pond Management	Lake Alhambra Sediment Mitigation Antioch Drainage Area 56	Jersey Island Cutoff Levees	Jersey Island Levee Raising and Widening from Stations 333+00 to 470+00	Marsh Creek Delta Restoration Project
Sponsoring Agency/Organization		Ironhouse Sanitary District	Lake Alhambra Property Owners Association	Reclamation District 830	Reclamation District 830	Reclamation District 830
	Economic Feasibility Analysis Available?	-	-	-	-	-
Disadvantaged Communities (DAs)	Does (will) the project help to address critical water supply and water quality needs of DACs within the ECCC region?	-	Yes: Reduce/eliminate impairment of quality. Manage flood flows that threaten the habitability of dwellings.	Yes: Provides water supply protection and reliability for 23 million Californians, some of which are from disadvantaged communities.	-	-
	What Community(ies)?	-	Lake Alhambra	Whatever communities that currently receive their potable water supply from the Delta.	-	-
	How were the DACs included in the planning or development of the project?	-	The Lake Alhambra POA is submitting this project. The City of Antioch and Contra Costa Flood Control District are listed as partners, but have not yet agreed to any form of collaboration.	No planning or development started.	-	-
Environmental Justice – Ranking Criteria #4	Does (will) the project help to address any environmental justice concerns?	-	Yes: Sediments and contaminants from urban runoff within the 11.4 square mile East Antioch Creek drainage area are deposited in Lake Alhambra burdening the residents of this disadvantaged community (DAC). Sediment is from development and ongoing land use.	-	-	-
	Does (will) the project create/raise any environmental justice concerns?	-	-	-	-	-
Climate Change/Greenhouse Gas Emission Reduction - Ranking Criteria #4	Does (will) the project consider and/or address the effects of climate change on the region?	-	Yes: The project improves flood control. Additional measures downstream should be considered to address sea level rise.	-	-	-
	Does (will) the project reduce greenhouse gas emissions?	-	-	Yes: Sequestering carbon production from peat oxidation reduces greenhouse gas emissions.	-	-

Project Name			Coordinated Brine Disposal Pipeline Feasibility Study	Booster Pump from Antioch to MPP	Brentwood Reliable Supply Analysis	Brentwood Wastewater Treatment Plant	Regional Emergency Aid, Assistance, and Response Preparation
Sponsoring Agency/Organization			City of Antioch/City of Brentwood/Diablo Water District	City of Antioch/Contra Costa Water District	City of Brentwood	City of Brentwood	Contra Costa Water District
Project ID #			**56**	**57**	**58**	**59**	**60**
Project Description	Project Type		Infrastructure – Wastewater/Recycled Water	Infrastructure – Water/Water Quality	Infrastructure – Water/Water Quality	Infrastructure – Wastewater/Recycled Water	Planning – Emergency Preparedness
	Describe the project		This project would analyze the feasibility of, and develop preliminary pipeline size and alignment alternatives for, a brine disposal pipeline from central Brentwood, through Diablo Water District, across Antioch to reach the Delta Diablo Sanitation District effluent outfall to New York Slough. This would assist in evaluating the potential development of potential groundwater desalination facilities.	The purpose of this project is to determine the appropriate size and location of an Antioch to MPP intertie booster pump station. With one WTP offline, CCWD can meet a majority of its demands through interties with Antioch and Pittsburg; however, these intertie supplies required boosting to meet CCWD minimum system pressure. The Pittsburg/CCWD intertie on the MPP was constructed with flanges that could be adapted for pumping to CCWD when necessary. The Antioch to MPP intertie was not constructed with a booster pump or with flanges that could be adapted for pumping to CCWD when necessary. The Antioch to MPP intertie would need to be retrofitted with a booster pump station that could be used in emergencies and potentially during other operational conditions that may occur more often than during an emergency.	Project description and purpose: The purpose of this project is to analyze improvements to Brentwood's supply portfolio to address the need for reliable supplies when Delta water quality is negatively impacted and during short-term emergencies. Based on the regional emergency scenario conducted in the Regional Capacity Study for a western Delta levee failure having increased chloride levels over a six month period with a 14-island failure, almost all supply for the region would be from Los Vaqueros, and Brentwood's supply shortfall ranges from 40 percent to 55 percent due to the high chloride levels in its supply which is from Rock Slough. Brentwood could improve emergency supply reliability with additional reliable supply sources such as additional supply capacity from Los Vaqueros or an additional supply source that would not be impacted by Delta levee failure as well as increasing supply reliability through an intertie with the City of Antioch. In addition, there is no backup pumping power supplies for the segment of the Canal that conveys the ECCID supply from Rock Slough to Brentwood in the event of a regional power outage. The need for backup power to improve supply reliability will also be evaluated.	The project includes upgrades to the Brentwood Wastewater Treatment Plant (WWTP) and the recycled water distribution system to increase deliveries of recycled water. Improvements include the addition of five 50-hp pumps to the existing Brentwood WWTP pump station, construction of two 1.5 MG storage tanks (for a total storage increase of 3 MG) at the Brentwood WWTP and the Roddy Ranch Pump Station, and a total of 17,143 linear feet of new recycled water pipelines. It would retrofit 36 users and add 86 new recycled water users for a total increase in recycled water deliveries of 1,406 AFY.	The purpose of this project is to improve the region's ability to provide aid and assistance and respond adequately and in a timely manner during an emergency that impacts water supply. While some PAs have existing emergency aid agreements with one another, there is still a need for mutual aid agreements between other PAs. Current and accurate mutual aid and assistance agreements are important so that agencies can quickly respond during an emergency. This preparation is also important so that agencies can be appropriately reimbursed by one another, as well as by other potential reimbursement agencies such as FEMA, following an emergency. The ultimate goal of this project is to increase physical and administrative preparedness for an emergency so that impacts from water supply emergencies are limited.
	Project Partners	Agency/Organization Name	City of Antioch, City of Brentwood, Diablo Water District	City of Martinez, Contra Costa Water District	-	-	City of Antioch, City of Brentwood, Martinez, City of Pittsburg, Diablo Water District
-	Funding for Water-Related Planning and Implementation	Increase regional cost efficiencies in treatment and delivery of water, wastewater, and recycled water	-	Additional: Improves efficiency of water conveyance through interties between Antioch to MPP.	-	-	-
		Implement projects that have region-wide benefits	Additional: A brineline would allow both DWD and Brentwood to utilize high-salinity groundwater as a water supply source.	-	-	-	Establishes regional emergency preparedness plans and cooperative agreements between agencies and organizations to allow them to efficiently assist one another during water-related emergencies.

Project Name			Coordinated Brine Disposal Pipeline Feasibility Study	Booster Pump from Antioch to MPP	Brentwood Reliable Supply Analysis	Brentwood Wastewater Treatment Plant	Regional Emergency Aid, Assistance, and Response Preparation
Sponsoring Agency/Organization			City of Antioch/City of Brentwood/Diablo Water District	City of Antioch/Contra Costa Water District	City of Brentwood	City of Brentwood	Contra Costa Water District
	Water Supply	Pursue water supplies that are less subject to Delta influences and drought, such as recycled water and desalination	Additional: A feasible brineline would help assess the feasibility of groundwater desalination, which may be less subject to Delta influences and drought.	-	Additional: Project would evaluate water supply and supply diversification options for Brentwood, which could include supplies less subject to Delta influences and drought.	Primary: Project would increase recycled water deliveries. Recycled water is les subject to Delta influences and is a drought-proof supply.	-
		Increase water conservation and water use efficiency	-	-	-	Additional: Project would increase the use of recycled water, conserving potable water for potable uses.	-
		Increase water transfers	-	-	-	-	-
		Pursue regional exchanges for emergencies, ideally using existing infrastructure	-	Additional: Construction of booster pump station improves interties between CCWD and Antioch and Pittsburgh	-	-	Enables efficient water transfers during emergencies.
		Enhance understanding of how groundwater fits into the water portfolio and investigate groundwater as a regional source (e.g., conjunctive use)	Additional: A feasible brineline would allow for use of high-salinity groundwater through groundwater desalination.	-	Additional: Supply options evaluated by this project could include groundwater supplies.	-	-
	Water Quality and Related Regulations	Protect/Improve source water quality	-	-	-	-	-
		Maintain/Improve regional treated drinking water quality	-	-	-	-	-
		Maintain/Improve regional recycled water quality	-	-	-	-	-
		Increase understanding of groundwater quality and potential threats to groundwater quality	-	-	-	-	-
		Meet current and future water quality requirements for discharges to the Delta	Additional: The analysis included in the feasibility study would include an assessment of potential water quality impacts of brine disposal and ensure any potential brineline would be designed and operated to meet water quality requirements for discharges to the Delta.	-	-	-	-
		Limit quantity and improve quality of stormwater discharges to the Delta	-	-	-	-	-
	Restoration and Enhancement of the Delta Ecosystem and Other Environmental Resources	Enhance and restore habitat in the Delta and connected waterways	-	-	-.	-	-
		Minimize Impacts to the Delta ecosystem and other environmental resources	Additional: Evaluates potential impacts to Delta ecosystem and other environmental resources from a potential brineline and its alternatives to allow for consideration of minimization of impacts.	-	-	Additional: Increase recycled water use could reduce pumping from the Delta due to reduced potable demands, thereby providing benefit to Delta ecosystems.	-

Project Name			Coordinated Brine Disposal Pipeline Feasibility Study	Booster Pump from Antioch to MPP	Brentwood Reliable Supply Analysis	Brentwood Wastewater Treatment Plant	Regional Emergency Aid, Assistance, and Response Preparation
Sponsoring Agency/Organization			City of Antioch/City of Brentwood/Diablo Water District	City of Antioch/Contra Costa Water District	City of Brentwood	City of Brentwood	Contra Costa Water District
		Reduce greenhouse gas emissions	-	-	-	-	-
		Provide better accessibility to waterways for subsistence fishing and recreation	-	-	-	-	-
	Stormwater and Flood	Manage local stormwater	-	-	-	-	-
		Improve regional flood risk management	-	-	-	-	-
	Water-Related Outreach	Collaborate with and involve DACs in the IRWM process	-	-	-	-	-
		Increase awareness of water resources management issues and projects with the general public	-	-	-	-	-
	Please elaborate on any benefits that your project may provide outside of the stated objectives		-	-	-	-	-
Program Preferences – Ranking Criteria #2		Resolves Water-Related Conflicts	Yes: Project would allow for development of potential groundwater desalination facilities, reducing pumping from the Delta, thereby reducing Delta-related conflicts.	-	Yes: Project would analyze improvements that would increase water supply reliability, reducing potential conflicts resulting from emergency scenarios.	Yes: Reducing potable water demand through increased recycled water use could reduce conflicts related to potable water supplies.	Yes: Helps to reduce water-related conflicts in the event of an emergency
	CALFED Objectives	Improve the state's water quality from source to tap	Yes: Project supports development of future groundwater desalination facilities, which would provide high quality potable water to customers.	-	-	-	-
		Protect water supplies needed for ecosystems, cities, industry and farms by reducing the threat of levee failures that would lead to seawater intrusion.	-	-	Yes: Analyzes options for water supply reliability in the face of potential levee failures and other emergencies.	-	-
		Allow for the increase of water supplies and more efficient and flexible use of water resources	Yes: Supports development of future groundwater desalination facilities, increasing available supplies, and diversifying the water supply portfolio in the region.	Yes: Improves intertie between systems in the region, allowing for increased flexibility in supplies and for infrastructure to be taken offline (e.g., for upgrades or in the event of an unplanned outage) while continuing to meet customer demands.	Yes: Analyzes water supply options and improvements to increase water supply reliability.	Yes: Project would increase recycled water use, thereby increasing water supplies and providing for bother more efficient and more flexible use of water resources	Yes: Enables efficient water transfers during emergencies and create flexibility in providing assistance during water related emergencies
		Improve the ecological health of the Bay-Delta watershed	Yes: Would support future groundwater desalination, potentially reducing pumping from the Delta, while evaluating brineline alternatives that could meet	-	-	-	-

Project Name			Coordinated Brine Disposal Pipeline Feasibility Study	Booster Pump from Antioch to MPP	Brentwood Reliable Supply Analysis	Brentwood Wastewater Treatment Plant	Regional Emergency Aid, Assistance, and Response Preparation
Sponsoring Agency/Organization			City of Antioch/City of Brentwood/Diablo Water District	City of Antioch/Contra Costa Water District	City of Brentwood	City of Brentwood	Contra Costa Water District
			discharge requirements to the Delta.				
		Effectively Integrate Water Management with Land Use Planning	-	-	-	-	-
Statewide Priorities – Ranking Criteria #3		Drought Preparedness	Yes: By supporting future groundwater desalination, this project would allow use of groundwater, providing an alternative to surface water supplies that experience greater fluctuations during drought than groundwater.	-	Yes: Analyzes water supply options and improvements to increase water supply reliability.	-	Yes: Allows for transfers between agencies during water emergencies, including drought.
		Use and Reuse Water More Efficiently	Yes: Project supports the use of future groundwater desalination to more efficiently use existing groundwater supplies that currently experience high salinity.	-	-	Yes: Increasing recycled water use conserves potable water for potable uses.	-
		Climate Change Response Actions	-	-	-	-	-
		Expand Environmental Stewardship	-	-	-	-	-
		Practice Integrated Flood Management	-	-	-	-	-
		Protects Surface Water and Groundwater Quality	-	-	-	-	-
		Improve Tribal Water and Natural Resources	-	-	-	-	-
		Ensure Equitable Distribution of Benefits	-	-	-	-	-
-	Reduce Water Demand	Agricultural Water Use Efficiency	-	-	-	-	-
		Urban Water Use Efficiency	-	-	-	Yes: Project would provide recycled water to urban users.	-
	Improve Operational Efficiency	Conveyance – Delta	-	-	-	-	-
		Conveyance – Regional/Local	-	Yes: Pump station allows for improved use of intertie between local conveyance systems.	Yes: Water supply options may include regional and local conveyance projects.	Yes: Project constructs recycled water conveyance pipelines.	-
		System Reoperation	-	-	-	-	-
		Water Transfers	-	Yes: Pump station allows for improved water transfers between local agencies.	-	-	-
	Increase Water Supply	Conjunctive Management & Groundwater Storage	-	-	Yes: water supply options may include consideration of groundwater and conjunctive use.	-	-
		Desalination	Yes: Supports future groundwater desalination.	-	-	-	-
		Precipitation Enhancement	-	-	-	-	-
		Recycled Municipal Water	-	-	-	Yes: Project increases recycled water use.	-
		Surface Storage – CALFED	-	-	-	-	-

Project Name			Coordinated Brine Disposal Pipeline Feasibility Study	Booster Pump from Antioch to MPP	Brentwood Reliable Supply Analysis	Brentwood Wastewater Treatment Plant	Regional Emergency Aid, Assistance, and Response Preparation
Sponsoring Agency/Organization			City of Antioch/City of Brentwood/Diablo Water District	City of Antioch/Contra Costa Water District	City of Brentwood	City of Brentwood	Contra Costa Water District
		Surface Storage – Regional/Local	-	-	Yes: water supply options may include increased storage.	Yes: Project constructs an additional 3 MG recycled water storage.	-
	Improve Water Quality	Drinking Water Treatment and Distribution	Yes: Supports future groundwater desalination for new potable supplies.	Yes: Improves intertie between local potable water distribution systems.	-	-	-
		Groundwater Remediation/Aquifer Remediation	-	-	-	-	-
		Matching Quality to Use	-	-	-	Yes: Project increases recycled water use for non-potable purposes, such as irrigation.	-
		Pollution Prevention	Yes	-	-	-	-
		Salt and Salinity Management	-	-	-	-	-
		Urban Runoff Management	-	-	-	-	-
	Improve Flood Management	Flood Risk Management	-	-	-	-	-
	Practice Resources Stewardship	Agricultural Lands Stewardship	-	-	-	-	-
		Economic Incentives (Loans, Grants and Water Pricing)	-	-	-	-	-
		Ecosystem Restoration	-	-	-	-	-
		Forest Management	-	-	-	-	-
		Recharge Area Protection	-	-	-	-	-
		Water-Dependent Recreation	-	-	-	-	-
		Watershed Management	-	-	-	-	-
	Other Strategies	Crop Idling for Water Transfers	-	-	-	-	-
		Dewvaporation or Atmospheric Pressure Desalination	-	-	-	-	-
		Fog Collection	-	-	-	-	-
		Irrigated Land Retirement	-	-	-	-	-
		Rainfed Agriculture	-	-	-	-	-
		Waterbag Transport/ Storage Technology	-	-	-	-	-
-	Planning	Project Status	Not Started	Not Applicable	Not Started	Not Applicable	Not Started
		Est. Completion Date	-	-	-	-	-
	Feasibility	Project Status	Not Started	Not Applicable	Not Started	Completed	Not Applicable

Project Name			Coordinated Brine Disposal Pipeline Feasibility Study	Booster Pump from Antioch to MPP	Brentwood Reliable Supply Analysis	Brentwood Wastewater Treatment Plant	Regional Emergency Aid, Assistance, and Response Preparation
Sponsoring Agency/Organization			City of Antioch/City of Brentwood/Diablo Water District	City of Antioch/Contra Costa Water District	City of Brentwood	City of Brentwood	Contra Costa Water District
		Est. Completion Date	-	-	-	10/2013	-
	Environ-mental Assess.	Project Status	Not Applicable	Not Started	Not Applicable	Not Started	Not Applicable
		Est. Completion Date	-	-	-	-	-
	Pre-Project Monitoring	Project Status	Not Applicable	Not Applicable	Not Applicable	Not Started	Not Applicable
		Est. Completion Date	-	-	-	-	-
	Design	Project Status	Not Started	Not Started	Not Applicable	Not Started	Not Applicable
		Est. Completion Date	-	-	-	-	-
	Environ-mental Permits	Project Status	Not Started	Not Started	Not Applicable	Not Started	Not Applicable
		Est. Completion Date	-	-	-	-	-
	Building/ Other Permits	Project Status	Not Applicable	Not Started	Not Applicable	Not Started	Not Applicable
		Est. Completion Date	-	-	-	-	-
	Construction/ Implementation	Project Status	Not Applicable	Not Started	Not Started	Not Started	Not Applicable
		Est. Completion Date	-	-	-	-	-
	Post Project Monitoring	Project Status	Not Applicable	Not Started	Not Applicable	Not Started	Not Applicable
		Est. Completion Date	-	-	-	-	-
	Environment al Permits	Describe any required	-	-	-	-	-
		Status?	-	-	-	-	-
	Other Permits (e.g., Encroac hment.	Describe any required	-	-	-	-	-

Project Name			Coordinated Brine Disposal Pipeline Feasibility Study	Booster Pump from Antioch to MPP	Brentwood Reliable Supply Analysis	Brentwood Wastewater Treatment Plant	Regional Emergency Aid, Assistance, and Response Preparation
Sponsoring Agency/Organization			City of Antioch/City of Brentwood/Diablo Water District	City of Antioch/Contra Costa Water District	City of Brentwood	City of Brentwood	Contra Costa Water District
		Status?	-	-	-	-	-
	Project Schedule Available?		Yes	Yes	Yes	-	-
	Describe any data gaps or uncertainties		-	-	-	-	-
Project Costs - Implementation	Land Purchase/Easement		NA	NA	NA	NA	NA
	Planning		$200,000	NA	$75,000	Unknown	$225,000
	Design		NA	$697,300	NA	Unknown	NA
	Environmental Review		NA	$140,900	NA	Unknown	NA
	Permits		NA	$140,900	NA	Unknown	NA
	Construction/Implementation		NA	$3,800,000	$50,000	$843,629	NA
	Environmental Mitigation/Compliance		NA	Unknown	NA	Unknown	
	Other		NA	NA	NA	$253,089	NA
	Total Project Cost		$200,000	$4,200,000	$125,000	$1,096,717	$225,000
	Cost Estimate Available?		-	-	-	-	-
-	Agency; funds or in kind contributions	Amount	-	-	-	-	-
		Regional Assessments	-	-	-	-	-
		Developmental Fees	-	-	-	-	-
		User Rates	-	-	-	-	-
		User Fees	-	-	-	-	-
		Bonded Debt Financing	-	-	-	-	-
		Property Tax	-	-	-	-	-
		Contributions	-	-	-	-	-
		Other	-	-	-	-	-
	Existing grants	Amount	-	-	-	-	-
		State Grants	-	-	-	-	-
		State funding for flood control/flood prevention projects	-	-	-	-	-
		Local Grants	-	-	-	-	-
		Federal Grants	-	-	-	-	-
	Currently unfunded		-	-	-	-	-
	Economic Feasibility Analysis Available?		-	-	-	-	-
Disadvantaged Communities (DACs)	Does (will) the project help to address critical water supply and water quality needs of DACs within the ECCC region?		-	-	-	-	Project would provide benefits to all residents in the region, including DACs.
	What Community(ies)?		-	-	-	-	-
	How were the DACs included in the planning or development of the project?		-	-	-	-	-
Environmental Justice – Ranking Criteria	Does (will) the project help to address any environmental justice concerns?		-	-	-	-	-
	Does (will) the project create/raise any environmental justice concerns?		-	-	-	-	-

Project Name		Coordinated Brine Disposal Pipeline Feasibility Study	Booster Pump from Antioch to MPP	Brentwood Reliable Supply Analysis	Brentwood Wastewater Treatment Plant	Regional Emergency Aid, Assistance, and Response Preparation
Sponsoring Agency/Organization		City of Antioch/City of Brentwood/Diablo Water District	City of Antioch/Contra Costa Water District	City of Brentwood	City of Brentwood	Contra Costa Water District
Climate Change/Greenhouse Gas Emission Reduction - Ranking Criteria #4	Does (will) the project consider and/or address the effects of climate change on the region?	-	-	-	-	-
	Does (will) the project reduce greenhouse gas emissions?	-	-	-	-	-

Project Name			Emergency Backup Power	Fertilizer Application Rate Assessment	Full SNMP	Pittsburg Plain Groundwater Basin Monitoring Well Expansion
Sponsoring Agency/Organization			Contra Costa Water District	City of Pittsburg	City of Pittsburg	City of Pittsburg
Project ID #			**61**	**62**	**63**	**64**
Project Description	Project Type		Planning – Emergency Preparedness	Water Quality	Planning – Groundwater/Water Quality	Water Quality
	Describe the project		The Regional Capacity Study (RCS) presents a comparison of the supply versus demand impacts as a result of a regional power outage. That comparison indicated the need for increased backup power at the Randall Bold Water Treatment Plant (RBWTP) or Bollman Water Treatment Plant (BWTP) to meet 2010 maximum day demands (MDDs). Because RBWTP has a diversified power supply it is recommended to analyze the need for increased backup power supply at BWTP. In the event of a regional power outage, the region has a treated water supply shortfall of MDD using emergency power for treated water supplies. Fuel supply for the Participating Agencies' (PAs') backup power generators could be the limiting factor in a regional power outage. Most of the PAs have a limited amount of backup power fuel supply on-site. In a regional emergency where regional power loss is experienced, access to generator fuel supplies could ultimately impact the PAs ability to meet water demands. The purpose of this project is to assess the backup fuel supply needs and potential regional supply agreements with vendors. This project would also analyze the need for increased backup power supply at BWTP.	This project would develop a complete Salt and Nutrient Management Plan (SNMP) for the Pittsburg Plain Groundwater Basin.	This proejct would expand the exisitng groundwater monitoring through increasing the frequency of groundwater quality samply/testing in the existing monitoring network, identification of existing wells in data limited areas that could be used to expand the existing network, and installation of monitoring wells as needed (potentially at the City's Ball Park Well site and/or a site along the Bay Front). Where possible, existing wells should be used to manage costs.	This City would review water and fertilizer application rates in areas of recycled water use to ensure maximum efficiency and minimal salt/nutrient loadings.
	Project Partners	Agency/Organization Name	-	-	-	-
-	Funding for Water-Related Planning and Implementation	Increase regional cost efficiencies in treatment and delivery of water, wastewater, and recycled water	-	-	-	-
		Implement projects that have region-wide benefits	SNMPs protect groundwater quality, benefitting all groundwater users.	-	Project would protect groundwater quality in the groundwater basin.	Project would analyzes backup power systems to determine needs that must be met in order to maintain service during power outages.
	Water Supply	Pursue water supplies that are less subject to Delta influences and drought, such as recycled water and desalination	Project improves groundwater quality protection, which may be less subject to Delta influences and drought.	-	-	-
		Increase water conservation and water use efficiency	-	-	Would improve reycled water use efficiency.	-
		Increase water transfers	-	-	-	-
		Pursue regional exchanges for emergencies, ideally using existing infrastructure	-	-	-	-

Project Name			Emergency Backup Power	Fertilizer Application Rate Assessment	Full SNMP	Pittsburg Plain Groundwater Basin Monitoring Well Expansion
Sponsoring Agency/Organization			Contra Costa Water District	City of Pittsburg	City of Pittsburg	City of Pittsburg
		Enhance understanding of how groundwater fits into the water portfolio and investigate groundwater as a regional source (e.g., conjunctive use)	SNMPs improve understanding of groundwater resources and how to protect groundwater quality.	Groundwater quality data could be used to improve understanding of groundwater as a possible supply.	-	-
	Water Quality and Related Regulations	Protect/Improve source water quality	SNMPs provide a plan to protect groundwater quality.	Improved groundwate rmonitoring would provide additional data to use in the protection of groundwater supplies.	Project would protect groundwater quality in the groundwater basin.	-
		Maintain/Improve regional treated drinking water quality	-	-	-	-
		Maintain/Improve regional recycled water quality	-	-	-	-
		Increase understanding of groundwater quality and potential threats to groundwater quality	An SNMP would identify potential threats to groundwater quality and plan for how to address such threats.	Project would increase groundwater monitoring and data collection, thereby increasing the City's understanding of groundwater quality and potential threats to groundwater quality.	Reduces threats to groudnwater quality	-
		Meet current and future water quality requirements for discharges to the Delta	-	-	-	-
		Limit quantity and improve quality of stormwater discharges to the Delta	-	-	-	-
	Restoration and Enhancement of the Delta Ecosystem and Other Environmental Resources	Enhance and restore habitat in the Delta and connected waterways	-	-	-	-
		Minimize Impacts to the Delta ecosystem and other environmental resources	-	-	-	-
		Reduce greenhouse gas emissions	-	-	-	-
		Provide better accessibility to waterways for subsistence fishing and recreation	-	-	-	-
	Stormwater and Flood Managem	Manage local stormwater	-	-	-	-
		Improve regional flood risk management	-	-	-	-
	Water-Related	Collaborate with and involve DACs in the IRWM process	-	-	-	-

Project Name			Emergency Backup Power	Fertilizer Application Rate Assessment	Full SNMP	Pittsburg Plain Groundwater Basin Monitoring Well Expansion
Sponsoring Agency/Organization			Contra Costa Water District	City of Pittsburg	City of Pittsburg	City of Pittsburg
		Increase awareness of water resources management issues and projects with the general public	-	Coordinating the use of existing wells with well owners could help increase awareness of water resource management issues and projects in the general public.	Evaluation of water and fertilzer application rates in areas of recycled water use would increase awarenss of water resources management issues with recycled water customers, which includes members of the general public.	-
	Please elaborate on any benefits that your project may provide outside of the stated objectives		-	-	-	-
Program Preferences – Ranking Criteria #2		Resolves Water-Related Conflicts	An SNMP would help to protect gorundwater quality, reducing potential conflicts related to sources of groundwater contamination and groundwater quality.	Improved groundwater monitoring could reduce water-related conflicts associated with incomplete understanding of groundwater conditions.	Improves recycled water use efficiency and protects groundwater quality, helping to resolve potential conflicts over water use and groundwater.	Yes: would help determine backup power supply options to meet water demands during power outages, thereby avoiding water-rleated conflicts associated with power outages.
	CALFED Objectives	Improve the state's water quality from source to tap	The project would protect groundwater quality helping to preserve the quality for potential customer use.	Project would inform efforts to protect groundwater quality.	Protects groundwater quality, thereby protecting a potential source of water for the region.	-
		Protect water supplies needed for ecosystems, cities, industry and farms by reducing the threat of levee failures that would lead to seawater intrusion.	-	Monitoring wells from this project could be used as an early warning for seawater intrusion.	-	-
		Allow for the increase of water supplies and more efficient and flexible use of water resources	Groundwater protection enables future groundwater use, helping to diversity supply options. Further, SNMPs can help ease the regulatory burden for recycled water, expanding the City's ability to use recycled water.	-	Increased recycled water use efficiency allows for more customers to use recycled water, reducing overall potable demands.	-
		Improve the ecological health of the Bay-Delta watershed	-	-	Reducing nutrient and salinity loading to the watershed.	-
		Effectively Integrate Water Management with Land Use Planning	-	-	-	-
Statewide Priorities – Ranking Criteria #3		Drought Preparedness	-	-	-	-
		Use and Reuse Water More Efficiently	-	-	Improves recycled water use efficiency.	-
		Climate Change Response Actions	-	-	-	-
		Expand Environmental Stewardship	-	-	-	-
		Practice Integrated Flood Management	-	-	-	-
		Protects Surface Water and Groundwater Quality	SNMPs help protect groundwater quality.	Project would increase data available to inform efforts to protect groundwater quality.	Improved recycled water use and fertilizer application will protect surface and groundwater from nutrient and salt loading.	-
		Improve Tribal Water and Natural Resources	-	-	-	-
		Ensure Equitable Distribution of Benefits	-	-	-	-

Project Name			Emergency Backup Power	Fertilizer Application Rate Assessment	Full SNMP	Pittsburg Plain Groundwater Basin Monitoring Well Expansion
Sponsoring Agency/Organization			Contra Costa Water District	City of Pittsburg	City of Pittsburg	City of Pittsburg
-	Reduce Water Demand	Agricultural Water Use Efficiency	-	-	Recycled water use efficiency would benefit all recycled water customers, including agricultural customers.	-
		Urban Water Use Efficiency	-	-	Recycled water use efficiency would benefit all recycled water customers, including urban customers.	-
	Improve Operational Efficiency	Conveyance – Delta	-	-	-	-
		Conveyance – Regional/Local	-	-	-	-
		System Reoperation	-	-	-	-
		Water Transfers	-	-	-	-
	Increase Water Supply	Conjunctive Management & Groundwater Storage	-	-	-	-
		Desalination	-	-	-	-
		Precipitation Enhancement	-	-	-	-
		Recycled Municipal Water	-	-	Project improves efficiency of recycled water use.	-
		Surface Storage – CALFED	-	-	-	-
		Surface Storage – Regional/Local	-	-	-	-
	Improve Water Quality	Drinking Water Treatment and Distribution	-	-	-	-
		Groundwater Remediation/Aquifer Remediation	-	-	-	-
		Matching Quality to Use	-	-	-	-
		Pollution Prevention	An SNMP would help prevent groundwater degredation.	-	Project prevents groundwater degredation from over application of fertilizer in concert with recycled water.	-
		Salt and Salinity Management	SNMPs are designed to manage salt and salinity for groundwater basins.	Monitoring wells from this project could be used as an early warning for seawater intrusion.	Project protects againt salt and nutrient loading in the region through efficient recycled water use and appropriate fertilizer application for recycled water users.	-
		Urban Runoff Management	-	-	-	-
	Improve Flood Management	Flood Risk Management	-	-	-	-
	Practice Resources Stewardship	Agricultural Lands Stewardship	-	-	-	-
		Economic Incentives (Loans, Grants and Water Pricing)	-	-	-	-
		Ecosystem Restoration	-	-	-	-
		Forest Management	-	-	-	-
		Recharge Area Protection	-	-	-	-

Project Name			Emergency Backup Power	Fertilizer Application Rate Assessment	Full SNMP	Pittsburg Plain Groundwater Basin Monitoring Well Expansion
Sponsoring Agency/Organization			Contra Costa Water District	City of Pittsburg	City of Pittsburg	City of Pittsburg
		Water-Dependent Recreation	-	-	-	-
		Watershed Management	-	-	-	-
	Other Strategies	Crop Idling for Water Transfers	-	-	-	-
		Dewvaporation or Atmospheric Pressure Desalination	-	-	-	-
		Fog Collection	-	-	-	-
		Irrigated Land Retirement	-	-	-	-
		Rainfed Agriculture	-	-	-	-
		Waterbag Transport/ Storage Technology	-	-	-	-
-	Planning	Project Status	Completed	Not Started	Not Applicable	Not Applicable
		Est. Completion Date	11/2012	-	-	-
	Feasibility	Project Status	Not Applicable	Not Applicable	Not Applicable	Not Started
		Est. Completion Date	-	-	-	-
	Environ-mental Assess.	Project Status	Not Applicable	Not Applicable	Not Applicable	Not Applicable
		Est. Completion Date	-	-	-	-
	Pre-Project Monitoring	Project Status	Not Applicable	Not Applicable	Not Started	Not Applicable
		Est. Completion Date	-	-	-	-
	Design	Project Status	Not Applicable	Not Applicable	Not Applicable	Not Applicable
		Est. Completion Date	-	-	-	-
	Environ-mental Permits	Project Status	Not Applicable	Not Applicable	Not Applicable	Not Applicable
		Est. Completion Date	-	-	-	-
	Building/ Other Permits	Project Status	Not Applicable	Not Applicable	Not Applicable	Not Applicable
		Est. Completion Date	-	-	-	-

Project Name			Emergency Backup Power	Fertilizer Application Rate Assessment	Full SNMP	Pittsburg Plain Groundwater Basin Monitoring Well Expansion
Sponsoring Agency/Organization			Contra Costa Water District	City of Pittsburg	City of Pittsburg	City of Pittsburg
	Construction/ Implementation	Project Status	Not Started	Not Started	Not Started	Not Applicable
		Est. Completion Date	-	-	-	-
	Post Project Monitoring	Project Status	Not Applicable	Not Applicable	Not Started	Not Applicable
		Est. Completion Date	-	-	-	-
	Environmental Permits	Describe any required	-	-	-	-
		Status?	-	-	-	-
	Other Permits (e.g., Encroachment, Building)	Describe any required	-	-	-	-
		Status?	-	-	-	-
	Project Schedule Available?		-	-	-	-
	Describe any data gaps or uncertainties		-	The extent of the need for new wells, and the potential to use existing wells in the monitoring network is uncertain.	-	-
Project Costs - Implementation	Land Purchase/Easement		NA	-	NA	-
	Planning		$100,000	-	-	-
	Design		NA	NA	NA	-
	Environmental Review		NA	NA	NA	-
	Permits		NA	NA	NA	-
	Construction/Implementation		NA	-	-	-
	Environmental Mitigation/Compliance			NA	NA	-
	Other		NA	NA	NA	-
	Total Project Cost		$100,000	-	-	-
	Cost Estimate Available?		-	-	-	-
-	Agency; funds or in kind contributions	Amount	-	-	-	-
		Regional Assessments	-	-	-	-
		Developmental Fees	-	-	-	-
		User Rates	-	-	-	-
		User Fees	-	-	-	-

Project Name			Emergency Backup Power	Fertilizer Application Rate Assessment	Full SNMP	Pittsburg Plain Groundwater Basin Monitoring Well Expansion
Sponsoring Agency/Organization			Contra Costa Water District	City of Pittsburg	City of Pittsburg	City of Pittsburg
		Bonded Debt Financing	-	-	-	-
		Property Tax	-	-	-	-
		Contributions	-	-	-	-
		Other	-	-	-	-
	Existing grants	Amount	-	-	-	-
		State Grants	-	-	-	-
		State funding for flood control/flood prevention projects	-	-	-	-
		Local Grants	-	-	-	-
		Federal Grants	-	-	-	-
	Currently unfunded		-	-	-	-
	Economic Feasibility Analysis Available?		-	-	-	-
Disadvantaged Communities (DAs)	Does (will) the project help to address critical water supply and water quality needs of DACs within the ECCC region?		-	-	-	-
	What Community(ies)?		-	-	-	-
	How were the DACs included in the planning or development of the project?		-	-	-	-
Environmental Justice – Ranking Criteria #4	Does (will) the project help to address any environmental justice concerns?		-	-	-	-
	Does (will) the project create/raise any environmental justice concerns?		-	-	-	-
Climate Change/Greenhouse Gas Emission Reduction - Ranking Criteria #4	Does (will) the project consider and/or address the effects of climate change on the region?		-	-	-	-
	Does (will) the project reduce greenhouse gas emissions?		-	-	-	-

Project Name			Anitoch-Pittsburg Intertie Analysis	Delta View Golf Course Water and Ferilizer Application Assessment	Safe Yield Calculation using a Water Budget and Expanded Groundwater Monitoring	Marsh Creek Groundwater/Surface Water Interaction
Sponsoring Agency/Organization			City of Pittsburg	Delta Diablo Sanitation District and City of Pittsburg	Diablo Water District	Diablo Water District
Project ID #			**65**	**66**	**67**	**68**
Project Description	Project Type		Infrastructure – Water Supply	Water Quality	Water Supply/Water Quality	Groundwater Quality
	Describe the project		Pittsburg has sufficient emergency supply from its existing MPP interties. However, enhancing the connections (existing and future) with Antioch will also improve the overall reliability of Pittsburg's supply. This project would study the benefits of these interties. In addition, Antioch may achieve more efficient distribution of the water into Antioch's system through a second MPP connection in the western portion of its system. This project is further analysis of the Antioch and Pittsburg emergency interties to improve emergency supply reliability as well as efficient distribution of supplies received through the interties from one another and from the MPP.	Project would assist in estimating the safe yield of the basin, by creating a preliminary water budget and conducting additional monitoring within an dsurrounding the primary groundwater production centers. To optimize the efficiency and efficacy of future data collection related to the estimation of safe yield, a preliminary water budget should be calculated using existing data. Where data gaps exist, a range of possible values should be estimated and incorporated into the water budget. Evaluating the sensitivity of the final safe yield determination to the range of estimated values for each component will provide valuable information on which components have the greatest impact on the final determination. Results from the sensitivity analysis can then be used to focus future data reducing uncertainty in the most influential components of the water budget. A distributed network of groundwater levels and quality monitoring points is necessary to more fully understand the source and movement of groundwater through the aquifer system. Expansion of existing monitoring should be accomplished using a combination of existing and newly constructed facilities. Existing facilities within the study area include private wells which are dispersed throughout the area and some public wells/monitoring wells which are not fully utilized for monitoring purposes.	Delta Diablo Sanitation Districat and the City would coordinate with Delta View Golf Course to ensure efficient water and fertilizer application at the golf course.	Marsh Creek appears to be an important source of groundwater recharge within the study area. As such, changes to water quality in Marsh Creek could impact the reliability of portions of the aquifer system, affecting the overall safe yield of the study area. Limited water quality monitoring is currently performed for Marsh Creek by CCWD near Dutch Slough. Other water quality sampling may also be performed by other entities in the study area. All possible surface water quality data for Marsh Creek should be requested from CCWD and any others who may be monitoring. Additional water quality samples should also be collected upstream of the City of Brentwood's wastewater outfall and at the boundary between the city of Brentwood and DWD service areas. Three samples should be collected in the summer and/or fall when natural flows are at their lowest and the influence of anthropogenic sources (e.g., irrigation runoff/drainage and wastewater discharge) is the greatest. New and historical data should be used to investigate potential changes to water quality in Marsh Creek related to changes in water resource development and use within the study area. Any changes should also be compared to groundwater quality trends to investigate the interaction of these two systems. Following this analysis, the need for/frequency of this surface water monitoring should be revisited.
	Project Partners	Agency/Organization Name	-	-	-	City of Antioch
-	Funding for Water-Related Planning and Implementation	Increase regional cost efficiencies in treatment and delivery of water, wastewater, and recycled water	-	-	-	-
		Implement projects that have region-wide benefits	-	-	-	Project would analysis improvements to interties between two cities within the region. Benefits would be realized by both Pittsburg and Antioch.
	Water Supp	Pursue water supplies that are less subject to Delta	Project would improve safe yield estimates for the Tracy Subbasin of the	-	-	-

Project Name			Anitoch-Pittsburg Intertie Analysis	Delta View Golf Course Water and Ferilizer Application Assessment	Safe Yield Calculation using a Water Budget and Expanded Groundwater Monitoring	Marsh Creek Groundwater/Surface Water Interaction
Sponsoring Agency/Organization			City of Pittsburg	Delta Diablo Sanitation District and City of Pittsburg	Diablo Water District	Diablo Water District
		influences and drought, such as recycled water and desalination	San Joaquin Groundwater Basin, helping to protect the basin from overdraft, and allowing its sustainable use.			
		Increase water conservation and water use efficiency	-	Would improvereyccled water efficiency at the golf course.	-	-
		Increase water transfers	-	-	-	-
		Pursue regional exchanges for emergencies, ideally using existing infrastructure	-	-	-	Project would study improvements to emergency entities for Antioch and Pittsburg.
		Enhance understanding of how groundwater fits into the water portfolio and investigate groundwater as a regional source (e.g., conjunctive use)	Project would improve safe yield estimates for the Tracy Subbasin of the San Joaquin Groundwater Basin, helping to protect the basin from overdraft, and allowing its sustainable use.	-	-	-
	Water Quality and Related Regulations	Protect/Improve source water quality	-	Improved recycled water use efficiency and fertilizer application will reduce TDS and nutrient levels in groundwater.	-	-
		Maintain/Improve regional treated drinking water quality	-	-	-	-
		Maintain/Improve regional recycled water quality	-	-	-	-
		Increase understanding of groundwater quality and potential threats to groundwater quality	Increased groundwater monitoring would increase understanding of groundwater quality and potential threats to quality.	Reducing TDS and nutrient loading to groundwater protects groundwater against potential threats of recycled water and fertlizer application at the golf course.	Marsh Creek is an important groundwater recharge site but poor water quality in the creek could impact groundwater quality. This proejct would increase the understanding of the potential threat to groundwater quality represented by water quality issues in the creek.	-
		Meet current and future water quality requirements for discharges to the Delta	-	-	-	-
		Limit quantity and improve quality of stormwater discharges to the Delta	-	-	-	-
	Restoration and Enhancement of the Delta Ecosystem and Other Environmental Resources	Enhance and restore habitat in the Delta and connected waterways	-	-	-	-
		Minimize Impacts to the Delta ecosystem and other environmental resources	-	-	-	-
		Reduce greenhouse gas emissions	-	-	-	-
		Provide better accessibility to waterways for subsistence fishing and recreation	-	-	-	-
	Stormwater and Flood	Manage local stormwater	-	-	-	-
		Improve regional flood risk management	-	-	-	-
	Water-Related Outr	Collaborate with and involve DACs in the IRWM process	-	-	-	-

Project Name			Anitoch-Pittsburg Intertie Analysis	Delta View Golf Course Water and Ferilizer Application Assessment	Safe Yield Calculation using a Water Budget and Expanded Groundwater Monitoring	Marsh Creek Groundwater/Surface Water Interaction
Sponsoring Agency/Organization			City of Pittsburg	Delta Diablo Sanitation District and City of Pittsburg	Diablo Water District	Diablo Water District
		Increase awareness of water resources management issues and projects with the general public	-	Project would improve water resource management at the golf course.	-	-
	Please elaborate on any benefits that your project may provide outside of the stated objectives		-	-	-	-
Program Preferences – Ranking Criteria #2		Resolves Water-Related Conflicts	Improved groundwater monitoring could reduce water-related conflicts associated with incomplete understanding of groundwater conditions. The project would improve safe yield calculations, also helping to reduce potential conflicts over groundwater use.	Reduces water quality conflicts related to improper recycled water and fertilizer application at the golf course.	-	Yes: Helps to reduce water-related conflicts in the event of an emergency
	CALFED Objectives	Improve the state's water quality from source to tap	-	Protects groundwater quality.	-	-
		Protect water supplies needed for ecosystems, cities, industry and farms by reducing the threat of levee failures that would lead to seawater intrusion.	-	-	-	-
		Allow for the increase of water supplies and more efficient and flexible use of water resources	Accurate safe yield calculations will allow for sustainable groundwater use by Diablo Water District.	Improveds efficint use of recycled water at the golf course.	-	-
		Improve the ecological health of the Bay-Delta watershed	-	-	-	-
		Effectively Integrate Water Management with Land Use Planning	-	-	-	-
Statewide Priorities – Ranking Criteria #3		Drought Preparedness	-	-	-	-
		Use and Reuse Water More Efficiently	-	Improves recycled water use efficiency.	-	-
		Climate Change Response Actions	-	-	-	-
		Expand Environmental Stewardship	-	-	-	-
		Practice Integrated Flood Management	-	-	-	-
		Protects Surface Water and Groundwater Quality	-	Improved recycled water and fertilizer application at the golf course will help to protect groundwater quality.	Improved understanding of the role of water quality in Marsh Creek on water quality in the groundwater basin could improve efforts to protect surface water quality in creek, thereby also protecting groundwater quality.	-
		Improve Tribal Water and Natural Resources	-	-	-	-
		Ensure Equitable Distribution of Benefits	-	-	-	-
-	Reduce Water Demand	Agricultural Water Use Efficiency	-	-	-	-
		Urban Water Use Efficiency	-	Will improve recycled water use efficiency at a golf course.	-	-
	Improve Op	Conveyance – Delta	-	-	-	-

Project Name			Anitoch-Pittsburg Intertie Analysis	Delta View Golf Course Water and Ferilizer Application Assessment	Safe Yield Calculation using a Water Budget and Expanded Groundwater Monitoring	Marsh Creek Groundwater/Surface Water Interaction
Sponsoring Agency/Organization			City of Pittsburg	Delta Diablo Sanitation District and City of Pittsburg	Diablo Water District	Diablo Water District
		Conveyance – Regional/Local	-	-	-	Yes: Project analyzes improvements to local conveyance and interties between local conveyance systems.
		System Reoperation	-	-	-	-
		Water Transfers	-	-	-	-
	Increase Water Supply	Conjunctive Management & Groundwater Storage	-	-	Marsh Creek is an important groundwater recharge site.	-
		Desalination	-	-	-	-
		Precipitation Enhancement	-	-	-	-
		Recycled Municipal Water	-	Project includes recycled water use efficiency.	-	-
		Surface Storage – CALFED	-	-	-	-
		Surface Storage – Regional/Local	-	-	-	-
	Improve Water Quality	Drinking Water Treatment and Distribution	-	-	-	Yes: Improved interties between agencies would improve potable water distributions, especially during emergencies.
		Groundwater Remediation/Aquifer Remediation	-	-	-	-
		Matching Quality to Use	-	-	-	-
		Pollution Prevention	-	Project would reduce groundwater contamination from improper application of recycled water in conjunction with fertilizer use.	Improved understanding of the role of water quality in Marsh Creek on water quality in the groundwater basin could improve efforts to protect surface water quality in creek, thereby also protecting groundwater quality.	-
		Salt and Salinity Management	-	Project would reduce TDS in groundwater that results from improper application of fertilizer when using recycled water.	-	-
		Urban Runoff Management	-	-	-	-
	Improve Flood Management	Flood Risk Management	-	-	-	-
	Practice Resources Stewardship	Agricultural Lands Stewardship	-	-	-	-
		Economic Incentives (Loans, Grants and Water Pricing)	-	-	-	-
		Ecosystem Restoration	-	-	-	-
		Forest Management	-	-	-	-
		Recharge Area Protection	-	-	Improved understanding of the role of water quality in Marsh Creek on water quality in the groundwater basin could improve efforts to protect surface water quality in the creek, which is an important recharge site.	-
		Water-Dependent Recreation	-	-	-	-
		Watershed Management	-	-	-	-

Project Name			Anitoch-Pittsburg Intertie Analysis	Delta View Golf Course Water and Ferilizer Application Assessment	Safe Yield Calculation using a Water Budget and Expanded Groundwater Monitoring	Marsh Creek Groundwater/Surface Water Interaction
Sponsoring Agency/Organization			City of Pittsburg	Delta Diablo Sanitation District and City of Pittsburg	Diablo Water District	Diablo Water District
	Other Strategies	Crop Idling for Water Transfers	-	-	-	-
		Dewvaporation or Atmospheric Pressure Desalination	-	-	-	-
		Fog Collection	-	-	-	-
		Irrigated Land Retirement	-	-	-	-
		Rainfed Agriculture	-	-	-	-
		Waterbag Transport/ Storage Technology	-	-	-	-
-	Planning	Project Status	Completed	Not Applicable	Completed	Not Applicable
		Est. Completion Date	10/2012	-	10/2012	-
	Feasibility	Project Status	Not Applicable	Not Applicable	Not Applicable	Not Started
		Est. Completion Date	-	-	-	-
	Environ-mental Assess.	Project Status	Not Applicable	Not Applicable	Not Applicable	Not Applicable
		Est. Completion Date	-	-	-	-
	Pre-Project Monitoring	Project Status	Not Applicable	Not Applicable	Not Applicable	Not Applicable
		Est. Completion Date	-	-	-	-
	Design	Project Status	Not Applicable	Not Applicable	Not Applicable	Not Applicable
		Est. Completion Date	-	-	-	-
	Environ-mental Permits	Project Status	Not Applicable	Not Applicable	Not Applicable	Not Applicable
		Est. Completion Date	-	-	-	-
	Building/ Other Permits	Project Status	Not Applicable	Not Applicable	Not Applicable	Not Applicable
		Est. Completion Date	-	-	-	-
	Construction/ Implementation	Project Status	Not Started	Not Started	Not Started	Not Applicable

Project Name			Anitoch-Pittsburg Intertie Analysis	Delta View Golf Course Water and Ferilizer Application Assessment	Safe Yield Calculation using a Water Budget and Expanded Groundwater Monitoring	Marsh Creek Groundwater/Surface Water Interaction
Sponsoring Agency/Organization			City of Pittsburg	Delta Diablo Sanitation District and City of Pittsburg	Diablo Water District	Diablo Water District
		Est. Completion Date	-	-	-	-
	Post Project Monitoring	Project Status	Not Applicable	Not Applicable	Not Applicable	Not Applicable
		Est. Completion Date	-	-	-	-
	Environmental Permits	Describe any required	-	-	-	-
		Status?	-	-	-	-
	Other Permits (e.g., Encroachment, Building)	Describe any required	-	-	-	-
		Status?	-	-	-	-
	Project Schedule Available?		-	-	-	-
	Describe any data gaps or uncertainties		-	-	-	-
Project Costs - Implementation	Land Purchase/Easement		NA	-	NA	-
	Planning		66000	-	NA	-
	Design		NA	NA	NA	NA
	Environmental Review		NA	NA	NA	NA
	Permits		NA	NA	NA	NA
	Construction/Implementation		NA	-	-	-
	Environmental Mitigation/Compliance			NA	NA	NA
	Other		NA	NA	NA	NA
	Total Project Cost		66000	-	-	-
	Cost Estimate Available?		-	-	-	-
-	Agency; funds or in kind contributions	Amount	-	-	-	-
		Regional Assessments	-	-	-	-
		Developmental Fees	-	-	-	-
		User Rates	-	-	-	-
		User Fees	-	-	-	-
		Bonded Debt Financing	-	-	-	-
		Property Tax	-	-	-	-
		Contributions	-	-	-	-
		Other	-	-	-	-
	Existi	Amount	-	-	-	-

Project Name			Anitoch-Pittsburg Intertie Analysis	Delta View Golf Course Water and Ferilizer Application Assessment	Safe Yield Calculation using a Water Budget and Expanded Groundwater Monitoring	Marsh Creek Groundwater/Surface Water Interaction
Sponsoring Agency/Organization			City of Pittsburg	Delta Diablo Sanitation District and City of Pittsburg	Diablo Water District	Diablo Water District
		State Grants	-	-	-	-
		State funding for flood control/flood prevention projects	-	-	-	-
		Local Grants	-	-	-	-
		Federal Grants	-	-	-	-
	Currently unfunded		-	-	-	-
	Economic Feasibility Analysis Available?		-	-	-	-
Disadvantaged Communities (DAs)	Does (will) the project help to address critical water supply and water quality needs of DACs within the ECCC region?		Project improves ability to meet water demands even in the face of emergencies, and would benefit all Antioch and Pittsburg residents, including DACs.	-	-	-
	What Community(ies)?		-	-	-	-
	How were the DACs included in the planning or development of the project?		-	-	-	-
Environmental Justice – Ranking	Does (will) the project help to address any environmental justice concerns?		-	-	-	-
	Does (will) the project create/raise any environmental justice concerns?		-	-	-	-
Climate Change/Greenhouse Gas Emission Reduction - Ranking Criteria #4	Does (will) the project consider and/or address the effects of climate change on the region?		-	-	-	-
	Does (will) the project reduce greenhouse gas emissions?		-	-	-	-

Project Name			Land Use Map Updates	Fill Station and High Value Farming	Wilbur Corridor and Northern Waterfront Industrial Reuse and Recycled Water for Agricultural Use in ISD Mainland Property Management Plan	Advanced Treatment and Potable Reuse Investigation
Sponsoring Agency/Organization			Diablo Water District	Ironhouse Sanitary District	Ironhouse Sanitary District	Ironhouse Sanitary District
Project ID #			**69**	**70**	**71**	**72**
Project Description	Project Type		Other	Infrastructure - Recycled Water	Infrastructure – Recycled Water	Infrastructure – Water Supply
	Describe the project		Detailed land-use information is needed in the water budget calculation to estimate agricultural demand (to estimate agricultural pumping), groundwater recharge from agricultural irrigation, and ET losses. DWR produced its most recent detailed land-use map in 1995 for the study area. Since this publication, the populations of the cities and towns within the study area have increased, resulting in the conversion of irrigated agricultural lands to urban land-uses. Also, in the 17 years since the last published map, crop types and irrigation practices may have shifted.	ISD proposes to construct a recycled water fill station for internal use by ISD for sewer cleaning, dust control for on-site construction projects, and for irrigation of landscaping around the administration office. In the future ISD hopes the fill station can be used to provide recycled water for off-site dust control for contractors and landscape irrigation for ISD rate payers. This project would involve installation of approximately 2,000 feet of pipeline, a hydrant, an aboveground storage tank, and piping changes at the WRF. It would offset 20 AFY potable water use. It would also implement higher value crop farming.	This project would involve ISD providing 3.5 mgd of recycled water to the Antioch Power Plant site. This project involves four components: (1) approximately 21,200 LF of 14'' PVC recycled water pipeline from the ISD RWF to the Antioch power plant. The general alignment of the pipe is from the ISD RWF along Walnut Meadows Drive to Main Street to Bridgehead Road to Wilbur Avenue at the power plant site. Major crossings along this alignment include two railroads (BNSF twice) and one across Main Street. (2) a new 150-hp pump station, which is assumed to be located at ISD's WRF, (3) a blowdown system consisting of 27,100 LF of 10'' PVC pipe from the power plant to DD WWTP and aligned parallel to the recycled water pipeline, as well as a new 40-hp booster station, which is assumed to be located at the power plant site, and (4) a backup water supply: the Canal water will be conveyed from CCWD Lateral 7.3 to the power plant via gravity through 4,000 LF of 12'' PVC pipeline along Vineyard Drive. No pump station is needed but one major railroad crossing (BNSF) is necessary.	This project would determine the feasiblity of full advanced treatment (FAT) for ISD's tertiary effluent to provide supplemental water supply to the canal. Facilites required for this proejct include equipment for a FAT system including some combination of reverse osmosis (RO), granular activated carbon (GAC), hydrogen peroxide injectsion, and ultraviolet (UV) disinfection, as well as conveyance pipeline and discharge outfall to the canal.
	Project Partners	Agency/Organization Name	-	-	-	-
-	Funding for Water-Related Planning and Implementation	Increase regional cost efficiencies in treatment and delivery of water, wastewater, and recycled water	-	-	-	-
		Implement projects that have region-wide benefits	-	-	-	-
	Water Supply	Pursue water supplies that are less subject to Delta influences and drought, such as recycled water and desalination	Project would increase recycled water use.	Project would expand recycled water use in the District.	Potable reuse is a drought-proof supply that is not subject to Delta influences.	-
		Increase water conservation and water use efficiency	Recycled water would offset potable water demands.	Recycled water would offset potable water.	The project would increase water conservation by increasing the amount of water that can be recycled and the potential uses for water reuse.	-
		Increase water transfers	-	-	-	-
		Pursue regional exchanges for emergencies, ideally	-	-	-	-

Project Name			Land Use Map Updates	Fill Station and High Value Farming	Wilbur Corridor and Northern Waterfront Industrial Reuse and Recycled Water for Agricultural Use in ISD Mainland Property Management Plan	Advanced Treatment and Potable Reuse Investigation
Sponsoring Agency/Organization			Diablo Water District	Ironhouse Sanitary District	Ironhouse Sanitary District	Ironhouse Sanitary District
		using existing infrastructure				
		Enhance understanding of how groundwater fits into the water portfolio and investigate groundwater as a regional source (e.g., conjunctive use)	-	-	-	-
	Water Quality and Related Regulations	Protect/Improve source water quality	-	-	-	-
		Maintain/Improve regional treated drinking water quality	-	-	Advanced treated water would allow for potable reuse, and would meet all applicable drinking water quality standards.	-
		Maintain/Improve regional recycled water quality	-	-	-	-
		Increase understanding of groundwater quality and potential threats to groundwater quality	-	-	-	-
		Meet current and future water quality requirements for discharges to the Delta	-	-	-	-
		Limit quantity and improve quality of stormwater discharges to the Delta	-	-	The project would decrease wastewater effluent discharges to the creek, which ultimately discharges to the Delta.	-
	Restoration and Enhancement of the Delta Ecosystem and Other Environmental Resources	Enhance and restore habitat in the Delta and connected waterways	-	-	-	-
		Minimize Impacts to the Delta ecosystem and other environmental resources	-	-	The project would decrease wastewater effluent discharges to the creek, which ultimately discharges to the Delta.	-
		Reduce greenhouse gas emissions	-	-	-	-
		Provide better accessibility to waterways for subsistence fishing and recreation	-	-	-	-
	Stormwater and Flood	Manage local stormwater	-	-	-	-
		Improve regional flood risk management	-	-	-	-
	Water-Related Outreach	Collaborate with and involve DACs in the IRWM process	-	-	-	-
		Increase awareness of water resources management issues and projects with the general public	-	-	-	-

Project Name			Land Use Map Updates	Fill Station and High Value Farming	Wilbur Corridor and Northern Waterfront Industrial Reuse and Recycled Water for Agricultural Use in ISD Mainland Property Management Plan	Advanced Treatment and Potable Reuse Investigation
Sponsoring Agency/Organization			Diablo Water District	Ironhouse Sanitary District	Ironhouse Sanitary District	Ironhouse Sanitary District
	Please elaborate on any benefits that your project may provide outside of the stated objectives		Project would assist in completing the water budget calculation for agricultural depamdn, as well as groundwater recharge from agricultural irrigation and evapo-transpiration losses.	Project would increase the value of the water used for farming by converting to high value farming. This represents an economically efficient use of the water.	-	-
Program Preferences – Ranking Criteria #2		Resolves Water-Related Conflicts	Increased recycled water use reduces conflicts related to potable water demands by reducing potable demands.	Increased recycled water use reduces conflicts related to potable water demands by reducing potable demands.	The project would create a new potable water supply through potable reuse, helping to reduce conflicts related to water diversions, pumping, or imported water supplies.	Would help improve water budget calculations, thereby helping to reduce water-related conflicts that may arise from an inaccurate water budget.
	CALFED Objectives	Improve the state's water quality from source to tap	-	-	-	-
		Protect water supplies needed for ecosystems, cities, industry and farms by reducing the threat of levee failures that would lead to seawater intrusion.	-	-	-	-
		Allow for the increase of water supplies and more efficient and flexible use of water resources	Increased recycled water use helps to diversify the water supply portfolio.	Increased recycled water use helps to diversify the water supply portfolio.	Project would create a new potable water supply and diversify the water portfolio in the region.	-
		Improve the ecological health of the Bay-Delta watershed	Project would reduce discharges from the wastewater treatment plant by increasing the volume of recycled water delivered to customers.	Project would reduce discharges from the wastewater treatment plant by increasing the volume of recycled water delivered to customers.	-	-
		Effectively Integrate Water Management with Land Use Planning	Changing agricultural land uses to high value farming represents an economically efficient use of water supplies, and integrated land use with water management.	-	-	Proejct would allow for improved water budget calculations, and better integrate water managemnet with land uses.
Statewide Priorities – Ranking Criteria #3		Drought Preparedness	Recycled water offsets potable supplies, which can be stored for droughts. A diverse water portfolio helps to buffer the impacts of drought.	Recycled water offsets potable supplies and diversifies the water portfolio, which helps to buffer the impacts of drought.	Potable reuse is a drought-proof supply that can help meet potable and health demands during times of drought.	-
		Use and Reuse Water More Efficiently	Converting to high value crops is a more economically efficient use of water.	-	Project would implement potable reuse.	-
		Climate Change Response Actions	-	-	-	-
		Expand Environmental Stewardship	-	-	-	-
		Practice Integrated Flood Management	-	-	-	-
		Protects Surface Water and Groundwater Quality	-	-	-	-
		Improve Tribal Water and Natural Resources	-	-	-	-
		Ensure Equitable Distribution of Benefits	-	-	-	-
-	Reduce Water Demand	Agricultural Water Use Efficiency	Converting to high value crops is a more economically efficient use of water.	-	-	-
		Urban Water Use Efficiency	-	-	-	-
	Improve O	Conveyance – Delta	-	-	-	-

Project Name			Land Use Map Updates	Fill Station and High Value Farming	Wilbur Corridor and Northern Waterfront Industrial Reuse and Recycled Water for Agricultural Use in ISD Mainland Property Management Plan	Advanced Treatment and Potable Reuse Investigation
Sponsoring Agency/Organization			Diablo Water District	Ironhouse Sanitary District	Ironhouse Sanitary District	Ironhouse Sanitary District
		Conveyance – Regional/Local	The recycled water fill station helps to make recycled water more accessible to appropriate users.	Project would construct recycled water conveyance system to serve the Wilbur Corridor and Northern Waterfron areas.	Project would install cenvyance piping.	-
		System Reoperation	-	-	-	-
		Water Transfers	-	-	-	-
	Increase Water Supply	Conjunctive Management & Groundwater Storage	-	-	-	-
		Desalination	-	-	-	-
		Precipitation Enhancement	-	-	-	-
		Recycled Municipal Water	The fill station would increase recycled water use within the district.	The project would deliver recycled water to customers.	Potable reuse is a form of recycled water.	-
		Surface Storage – CALFED	-	-	-	-
		Surface Storage – Regional/Local	Project would increase surface storage for recycled water.	-	-	-
	Improve Water Quality	Drinking Water Treatment and Distribution	-	-	Project would produce drinking water in the form of potable reuse.	-
		Groundwater Remediation/Aquifer Remediation	-	-	-	-
		Matching Quality to Use	Recycled water would be more available for non-potable uses through the fill station, helping to match quality to use.	The project would allow for recycled water to be delivered for non-potable uses.	-	-
		Pollution Prevention	-	-	-	-
		Salt and Salinity Management	-	-	-	-
		Urban Runoff Management	-	-	-	-
	Improve Flood Management	Flood Risk Management	-	-	-	-
	Practice Resources Stewardship	Agricultural Lands Stewardship	-	-	-	Project would update land use mapping, with an emphasis on agricultural lands.
		Economic Incentives (Loans, Grants and Water Pricing)	High value farming is an economically efficient use of water, and could present economic incentives for farmers.	-	-	-
		Ecosystem Restoration	-	-	-	-
		Forest Management	-	-	-	-
		Recharge Area Protection	-	-	-	-
		Water-Dependent Recreation	-	-	-	-
		Watershed Management	-	-	-	Project improves water budget calculations, helping to better inform watershed management decisions.
	Other Strategies	Crop Idling for Water Transfers	-	-	-	-
		Dewvaporation or Atmospheric Pressure Desalination	-	-	-	-
		Fog Collection	-	-	-	-

Project Name			Land Use Map Updates	Fill Station and High Value Farming	Wilbur Corridor and Northern Waterfront Industrial Reuse and Recycled Water for Agricultural Use in ISD Mainland Property Management Plan	Advanced Treatment and Potable Reuse Investigation
Sponsoring Agency/Organization			Diablo Water District	Ironhouse Sanitary District	Ironhouse Sanitary District	Ironhouse Sanitary District
		Irrigated Land Retirement	-	-	-	-
		Rainfed Agriculture	-	-	-	-
		Waterbag Transport/ Storage Technology	-	-	-	-
	Planning	Project Status	Completed	Completed	Completed	Not Applicable
		Est. Completion Date	1/2015	1/2015	1/2015	-
	Feasibility	Project Status	Not Applicable	Not Applicable	Not Started	Not Applicable
		Est. Completion Date	-	-	-	-
	Environ-mental Assess.	Project Status	Not Started	Not Started	Not Started	Not Applicable
		Est. Completion Date	-	-	-	-
	Pre-Project Monitoring	Project Status	Not Applicable	Not Applicable	Not Applicable	Not Applicable
		Est. Completion Date	-	-	-	-
	Design	Project Status	Not Started	Not Started	Not Started	Not Applicable
-		Est. Completion Date	-	-	-	-
	Environ-mental Permits	Project Status	Not Started	Not Started	Not Started	Not Applicable
		Est. Completion Date	-	-	-	-
	Building/ Other Permits	Project Status	Not Started	Not Started	Not Started	Not Applicable
		Est. Completion Date	-	-	-	-
	Construction/ Implementation	Project Status	Not Started	Not Started	Not Started	Not Started
		Est. Completion Date	July, 2015	-	-	-
	Post Project Monitoring	Project Status	-	Not Started	Not Started	Not Applicable

Project Name			Land Use Map Updates	Fill Station and High Value Farming	Wilbur Corridor and Northern Waterfront Industrial Reuse and Recycled Water for Agricultural Use in ISD Mainland Property Management Plan	Advanced Treatment and Potable Reuse Investigation
Sponsoring Agency/Organization			Diablo Water District	Ironhouse Sanitary District	Ironhouse Sanitary District	Ironhouse Sanitary District
		Est. Completion Date	-	-	-	-
	Environmental Permits	Describe any required	Notice of Exemption (CEQA).	Environmental Impact Report (CEQA)	Environmental Impact Report (CEQA)	-
		Status?	-			-
	Other Permits (e.g., Encroachment, Building)	Describe any required	Recycled Water Agreement with Diablo Water District; Water recycling permit (RWQCB)	Recycled Water Agreement with DD; (Recycled Water Permit; Construction permits	Recycled Water Agreement with CCWD or other potable water supply agencies; Permits consistent with as-yet known potable reuse regulations	-
		Status?	-	-	-	-
	Project Schedule Available?		-	-	-	-
	Describe any data gaps or uncertainties		There is uncertainty whether DWD would be able to use the water from the fill station.	-	Permitting for potable reuse are uncertain because regulations have not yet been finalized.	-
Project Costs - Implementation	Land Purchase/Easement		NA	-	-	-
	Planning		NA	-	-	-
	Design		NA	-	-	-
	Environmental Review		NA	-	-	-
	Permits		NA	-	-	-
	Construction/Implementation		-	-	-	-
	Environmental Mitigation/Compliance		NA	-	-	-
	Other		NA	-	-	-
	Total Project Cost		-	$814,000	$29,310,000	-
	Cost Estimate Available?		-	-	-	-
-	Agency: funds or in kind contributions	Amount	-	-	-	-
		Regional Assessments	-	-	-	-
		Developmental Fees	-	-	-	-
		User Rates	-	-	-	-
		User Fees	-	-	-	-
		Bonded Debt Financing	-	-	-	-
		Property Tax	-	-	-	-
		Contributions	-	-	-	-
		Other	-	-	-	-
	Existing grants	Amount	-	-	-	-
		State Grants	-	-	-	-
		State funding for flood control/flood prevention projects	-	-	-	-
		Local Grants	-	-	-	-

Project Name		Land Use Map Updates	Fill Station and High Value Farming	Wilbur Corridor and Northern Waterfront Industrial Reuse and Recycled Water for Agricultural Use in ISD Mainland Property Management Plan	Advanced Treatment and Potable Reuse Investigation
Sponsoring Agency/Organization		Diablo Water District	Ironhouse Sanitary District	Ironhouse Sanitary District	Ironhouse Sanitary District
	Federal Grants	-	-	-	-
	Currently unfunded	-	-	-	-
	Economic Feasibility Analysis Available?	-	-	-	-
Disadvantaged Communities (DAs)	Does (will) the project help to address critical water supply and water quality needs of DACs within the ECCC region?	-	-	-	-
	What Community(ies)?	-	-	-	-
	How were the DACs included in the planning or development of the project?	-	-	-	-
Environmental Justice – Ranking Criteria	Does (will) the project help to address any environmental justice concerns?	-	-	-	-
	Does (will) the project create/raise any environmental justice concerns?	-	-	-	-
Climate Change/Greenhouse Gas Emission Reduction - Ranking Criteria #4	Does (will) the project consider and/or address the effects of climate change on the region?	-	-	-	-
	Does (will) the project reduce greenhouse gas emissions?	-	-	-	-

Project Name			Self-Regenerating Water Softener Source Control	Intertie from EBMUD to Martinez	Regional Joint Inventory and Purchasing Coordination	Intertie Testing program and Documentation
Sponsoring Agency/Organization			Ironhouse Sanitary District	Martinez	Regional	Regional
Project ID #			**73**	**74**	**75**	**76**
Project Description	Project Type		Water Quality – Wastewater	Infrastructure – Water Supply	Other	Infrastructure – Water Supply
	Describe the project		The project would reduce the use of self-regenerating water softeners (SRWS), which are a source of salts discharged to the sewer system.	The purpose of this project is to improve the reliability of the Martinez water system during an emergency by adding an intertie with the adjacent EBMUD system.	The purpose of this project is to leverage the benefit of economy of scale through a regional approach to procuring and purchasing specific and rare equipment. This project is for the regional coordination for centralized inventory tracking for critical items, regional sludge handling contracting coordination, and identifying spare parts for purchasing. The dewatering and transport of sludge from the Water Treatment Plants (WTPs) is a costly operational expense that could potentially be reduced if coordinated in a regional manner. This project would summarize the solids handling features of each WTP and define the current sludge handling approach by each Participating Agency (PA). Cost-saving opportunities would then be identified. This project would also include identifying common equipment, e.g., 12-inch butterfly valves, to obtain better pricing for larger orders. Costly and spare equipment will also be identified, such as PLCs that can be shared between PAs in an emergency. The recommendations would use an approach similar to the one used for bulk chemical purchasing currently implemented as a region by the PAs.	The purpose of this project is to develop standard operating procedures to document intertie valve information including location, layout, activation approach, and capacity. The activation approach includes documenting who is responsible for operating the intertie, as well as who should be contact in the event the intertie is required to be activated. As a result of the initial testing any required improvements or repairs will be documented. The testing will also confirm the assumed capacities and available head determined from the hydraulic modeling. This project will arrange a time for initial testing of the interties and develop a routine testing plan schedule for the interties so that they will operate reliably when necessary.
	Project Partners	Agency/Organization Name	-	City of Antioch, City of Brentwood, Martinez, City of Pittsburg, Contra Costa Water District, Diablo Water District	City of Antioch, City of Brentwood, Martinez, City of Pittsburg, Contra Costa Water District, Diablo Water District	-
-	Funding for Water-Related Planning and Implementation	Increase regional cost efficiencies in treatment and delivery of water, wastewater, and recycled water	-	Project would find cost-savings for operation and maintenance of WTPs and water/wastewater infrastructure through a regional approach to procuring and sharing equipment.		-
		Implement projects that have region-wide benefits	-	This is a regional project, and benefits would be realized by all participating agencies.	Improved documentation of region-wide interties, responsibilities, and testing, will provide region-wide benefits	-
	Water Supply	Pursue water supplies that are less subject to Delta influences and drought, such as recycled water and desalination	-	-	-	-
		Increase water conservation and water use efficiency	-	-	-	-
		Increase water transfers	-	-	-	-
		Pursue regional exchanges for emergencies, ideally using existing infrastructure	Project would add an intertie between Martinez's system and East Bay Municipal Water District's system to provide supplies during emergencies.	-	-	-
		Enhance understanding of how groundwater fits into the water portfolio and investigate groundwater as	-	-	-	-

Project Name			Self-Regenerating Water Softener Source Control	Intertie from EBMUD to Martinez	Regional Joint Inventory and Purchasing Coordination	Intertie Testing program and Documentation
Sponsoring Agency/Organization			Ironhouse Sanitary District	Martinez	Regional	Regional
		a regional source (e.g., conjunctive use)				
	Water Quality and Related Regulations	Protect/Improve source water quality	-	-	-	-
		Maintain/Improve regional treated drinking water quality	-	-	-	-
		Maintain/Improve regional recycled water quality	-	-	-	-
		Increase understanding of groundwater quality and potential threats to groundwater quality	-	-	-	-
		Meet current and future water quality requirements for discharges to the Delta	-	-	-	Reducing sources of salinty discharges to the sewer system reduces the level of salts in wastewater effluent. This reduces the amount of salts that must be removed, helping to avoid discharges of excessively salty brine to the Delta.
		Limit quantity and improve quality of stormwater discharges to the Delta	-	-	-	-
	Restoration and Enhancement of the Delta Ecosystem and Other Environmental Resources	Enhance and restore habitat in the Delta and connected waterways	-	-	-	Reducing salinity sources in wastewater helps to reduce the amount of salts added to the Delta and connected waterways through WWTP effluent, helping to protect Delta habitat.
		Minimize Impacts to the Delta ecosystem and other environmental resources	-	-	-	Reducing salinity sources in wastewater helps to reduce the amount of salts added to the Delta and connected waterways through WWTP effluent, minimizing impacts to the Delta ecosystem.
		Reduce greenhouse gas emissions	-	-	-	Removal of SRWS would reduce the number of vehcle trips to dispose of SRWS, reducing GHG emissions.
		Provide better accessibility to waterways for subsistence fishing and recreation	-	-	-	-
	Stormwater and Flood	Manage local stormwater	-	-	-	-
		Improve regional flood risk management	-	-	-	-
	Water-Related Outreach	Collaborate with and involve DACs in the IRWM process	-	-	-	-
		Increase awareness of water resources management issues and projects with the general public	-	-	-	-
	Please elaborate on any benefits that your project may provide outside of the stated objectives		-	Reduces need for capital improvements; reduces operational costs; avoids stranded assets; leverages assets	-	Reduces the need for capital improvements, reduces operational costs, leverages assets.
Program Preferences –		Resolves Water-Related Conflicts	Yes: Helps to reduce potential water-related conflicts during emergencies by improving ability to meet demands during emergencies.	Provides for coordinated use and purchase of equipment to maintain and operate water and wastewater systems in the region, reducing potential	Project prepares for emergencies, reducing potential water-related conflicts during emergencies and outages.	-

Project Name			Self-Regenerating Water Softener Source Control	Intertie from EBMUD to Martinez	Regional Joint Inventory and Purchasing Coordination	Intertie Testing program and Documentation
Sponsoring Agency/Organization			Ironhouse Sanitary District	Martinez	Regional	Regional
				conflicts regarding costs and imrpoving maintenance to reduce potential system failures and associated water rela		
	CALFED Objectives	Improve the state's water quality from source to tap	-	-	-	-
		Protect water supplies needed for ecosystems, cities, industry and farms by reducing the threat of levee failures that would lead to seawater intrusion.	-	-	-	-
		Allow for the increase of water supplies and more efficient and flexible use of water resources	Interties allow for greater flexibility in water distribution systems.	Regional equipment purchases and a coordinated approach to use allows for flexible use of water-relate equipment, and more efficient use of budgets allocated for water agencies.	Improved management of interties will help maintain connections between agencies, allowing for more efficient and flexible use of water resources during emergencies.	-
		Improve the ecological health of the Bay-Delta watershed	-	-	-	Reduced salinity discharges to the Delta helps to protect the ecological health of the watershed.
		Effectively Integrate Water Management with Land Use Planning	-	-	-	-
Statewide Priorities – Ranking Criteria #3		Drought Preparedness	Interties could be used to deliver water during drought when Martinez supplies may be insufficient.	-	Interties allow for exchanges between agencies in emergencies, including drought.	-
		Use and Reuse Water More Efficiently	-	-	-	-
		Climate Change Response Actions	-	-	-	-
		Expand Environmental Stewardship	-	-	-	-
		Practice Integrated Flood Management	-	-	-	-
		Protects Surface Water and Groundwater Quality	-	-	-	Reduce discharge of salts to the sewer system will reduce the salinity of treated WWTP effluent, protecting water quality in receiving waters.
		Improve Tribal Water and Natural Resources	-	-	-	-
		Ensure Equitable Distribution of Benefits	-	-	-	-
-	Reduce Water Demand	Agricultural Water Use Efficiency	-	-	-	-
		Urban Water Use Efficiency	-	-	-	-
	Improve Operational Efficiency	Conveyance – Delta	-	-	-	-
		Conveyance – Regional/Local	The intertie would improve local and regional conveyance systems.	-	Improves regional emergency conveyance system.	-
		System Reoperation	-	-	-	-
		Water Transfers	Intertie would allow for water transfers from EBMUD.	-	Interties allow for water transfers between agencies.	-
	Increase Water Supply	Conjunctive Management & Groundwater Storage	-	-	-	-
		Desalination	-	-	-	-
		Precipitation Enhancement	-	-	-	-
		Recycled Municipal Water	-	-	-	-
		Surface Storage – CALFED	-	-	-	-

Project Name			Self-Regenerating Water Softener Source Control	Intertie from EBMUD to Martinez	Regional Joint Inventory and Purchasing Coordination	Intertie Testing program and Documentation
Sponsoring Agency/Organization			Ironhouse Sanitary District	Martinez	Regional	Regional
		Surface Storage – Regional/Local	-	-	-	-
	Improve Water Quality	Drinking Water Treatment and Distribution	Intertie would allow for water deliveries from EBMUD.	-	Interties will allow for potable water distribution across and between agencies, especially during emergencies.	-
		Groundwater Remediation/Aquifer Remediation	-	-	-	-
		Matching Quality to Use	-	-	-	-
		Pollution Prevention	-	-	-	Salinity source control prevents high levels of salts.
		Salt and Salinity Management	-	-	-	Salinity source control prevents high levels of salts.
		Urban Runoff Management	-	-	-	-
	Improve Flood Management	Flood Risk Management	-	-	-	-
	Practice Resources Stewardship	Agricultural Lands Stewardship	-	-	-	-
		Economic Incentives (Loans, Grants and Water Pricing)	-	Coordinated purchases and joint inventories provide cost efficiencies for participating agencies.	Project will improve operation and maintenance efficiencies for the interties, providing cost savings to participating agencies.	-
		Ecosystem Restoration	-	-	-	-
		Forest Management	-	-	-	-
		Recharge Area Protection	-	-	-	-
		Water-Dependent Recreation	-	-	-	-
		Watershed Management	-	-	-	-
	Other Strategies	Crop Idling for Water Transfers	-	-	-	-
		Dewvaporation or Atmospheric Pressure Desalination	-	-	-	-
		Fog Collection	-	-	-	-
		Irrigated Land Retirement	-	-	-	-
		Rainfed Agriculture	-	-	-	-
		Waterbag Transport/ Storage Technology	-	-	-	-
	Planning	Project Status	Not Applicable	Not Applicable	Not Applicable	Completed
		Est. Completion Date	-	-	-	9/2014
	Feasibility	Project Status	Not Applicable	Not Started	Not Started	Not Applicable
		Est. Completion Date	-	-	-	-
	Envir on- ment al Asses	Project Status	Not Started	Not Applicable	Not Applicable	Not Applicable

Project Name			Self-Regenerating Water Softener Source Control	Intertie from EBMUD to Martinez	Regional Joint Inventory and Purchasing Coordination	Intertie Testing program and Documentation
Sponsoring Agency/Organization			Ironhouse Sanitary District	Martinez	Regional	Regional
		Est. Completion Date	-	-	-	-
	Pre-Project Monitoring	Project Status	Not Started	Not Applicable	Not Applicable	Not Applicable
		Est. Completion Date	-	-	-	-
	Design	Project Status	Not Started	Not Applicable	Not Applicable	Not Applicable
		Est. Completion Date	-	-	-	-
	Environ-mental Permits	Project Status	Not Started	Not Applicable	Not Applicable	Not Applicable
		Est. Completion Date	-	-	-	-
	Building/ Other Permits	Project Status	Not Started	Not Applicable	Not Applicable	Not Applicable
		Est. Completion Date	-	-	-	-
	Construction/ Implementation	Project Status	Not Started	Not Applicable	Not Started	Not Started
		Est. Completion Date	-	-	-	-
	Post Project Monitoring	Project Status	Not Started	Not Applicable	Not Applicable	Not Applicable
		Est. Completion Date	-	-	-	-
	Environmental Permits	Describe any required	Categorical Exemption (CEQA), categorical exclusion (NEPA), Storm Water Pollution Prevention Plan.	-	-	-
		Status?	-	-	-	-
	Other Permits (e.g., Encroachment, Building)	Describe any required	-	-	-	-
		Status?	-	-	-	-

Project Name			Self-Regenerating Water Softener Source Control	Intertie from EBMUD to Martinez	Regional Joint Inventory and Purchasing Coordination	Intertie Testing program and Documentation
Sponsoring Agency/Organization			Ironhouse Sanitary District	Martinez	Regional	Regional
	Project Schedule Available?		-	-	-	-
	Describe any data gaps or uncertainties		-	-	-	-
Project Costs - Implementation	Land Purchase/Easement		NA	NA	NA	-
	Planning		-	NA	$110,000	$48,000
	Design		-	$75,000	NA	NA
	Environmental Review		-	$15,000	NA	NA
	Permits		-	$15,000	NA	NA
	Construction/Implementation		Variable	$595,000	NA	$16,000
	Environmental Mitigation/Compliance		-	-	NA	NA
	Other		-	-	NA	$6,000
	Total Project Cost		Variable	$700,000	$110,000	$70,000
	Cost Estimate Available?		-	-	-	-
-	Agency; funds or in kind contributions	Amount	-	-	-	-
		Regional Assessments	-	-	-	-
		Developmental Fees	-	-	-	-
		User Rates	-	-	-	-
		User Fees	-	-	-	-
		Bonded Debt Financing	-	-	-	-
		Property Tax	-	-	-	-
		Contributions	-	-	-	-
		Other	-	-	-	-
	Existing grants	Amount	-	-	-	-
		State Grants	-	-	-	-
		State funding for flood control/flood prevention projects	-	-	-	-
		Local Grants	-	-	-	-
		Federal Grants	-	-	-	-
	Currently unfunded		-	-	-	-
	Economic Feasibility Analysis Available?		-	-	-	-
Disadvantaged Communities (DAs)	Does (will) the project help to address critical water supply and water quality needs of DACs within the ECCC region?		-	-	-	Project benefits DACs in the region through its regional benefits.
	What Community(ies)?		-	-	-	-
	How were the DACs included in the planning or development of the project?		-	-	-	-
Environmental Justice – Ranking	Does (will) the project help to address any environmental justice concerns?		-	-	-	-
	Does (will) the project create/raise any environmental justice concerns?		-	-	-	-
Climate Change/Greenhouse Gas	Does (will) the project consider and/or address the effects of climate change on the region?		-	-	-	-

Project Name		Self-Regenerating Water Softener Source Control	Intertie from EBMUD to Martinez	Regional Joint Inventory and Purchasing Coordination	Intertie Testing program and Documentation
Sponsoring Agency/Organization		Ironhouse Sanitary District	Martinez	Regional	Regional
	Does (will) the project reduce greenhouse gas emissions?	Project could reduce GHG emissions by reducing vehicle trips for disposal of SRWS.	-	-	-

Project Name		Excess Regional Capacity Optimization Plan	Evaluate Groundwater Supply	Additional Analysis of Levee Failure Impacts on the Region	Evaluate Potential Water Quality Risks
Sponsoring Agency/Organization		Regional	Regional	Regional	Regional
Project ID #		**77**	**78**	**79**	**80**
Project Description	Project Type	Planning – Infrastructure Optimization	Planning – Water Supply	Planning – Emergency Preparedness	Water Quality
	Describe the project	Several of the treatment plants in the region have excess capacity compared with the MDDs. This excess capacity can be viewed as a stranded asset and may present an opportunity to find additional uses for the plants. Three potential end users that could benefit from using the Participating Agencies' (PAs') excess treatment plant capacity are: • EBMUD/Sacramento River Pre-treatment. EBMUD has a new emergency supply from the • Sacramento River that will likely require pretreatment prior to treatment in EMBUD's Walnut Creek or Orinda direct filtration plants. A combination of the PAs' treatment plants may be able to provide side-stream treatment of EBMUD's emergency drought supply to reduce the turbidity to a point that allows effective use of direct filtration. • Bay Area Regional Desalination (BARD) Project Pretreatment. The BARD Project will require removing turbidity and other constituents prior to the desalination process, which can be accomplished with a conventional treatment plant. The BARD project may also present the possibility of co-locating the desalination facility at one of the existing PA's treatment plants, which has the following potential benefits: o Reduced capital costs by sharing infrastructure, e.g., electrical facilities, chemical facilities, roads, etc. o Reduced labor costs by sharing operations staff. o Proximity to existing transmission piping infrastructure. • Antioch San Joaquin River intake. Another potential for the project may be to augment the BARD project from the proposed Mallard Slough intake with Antioch San Joaquin River intake. Antioch's rights allow them to take as much water as Antioch can use within its limits. Antioch's ability to use the water is often limited not by quantity but by quality. Antioch could use more water if the water could be treated to remove TDS during part of the year. This treatment would be less frequent	This purpose of this project is to continue the ongoing work by the current users to confirm the availability of groundwater and to expand the understanding of the groundwater supply. Groundwater in the region may require additional treatment to reduce dissolved salts to meet drinking water standards and to maximum recycled water opportunities. The project includes an analysis of the ability of supplemental treatment of groundwater to provide an emergency resource for the region. If emergency groundwater treatment is determined feasible as a backup supply, an assessment of the regional groundwater capacity and quality will be performed. The project will also determine how the groundwater capacity would be conveyed back into the system if needed to be relied upon in an emergency and will determine the type of treatment required, if needed, for it to be used.	The purpose of this project is for the PAs is to track and understand the regional impacts regarding the Delta modeling results that are being presented by other agencies such as DWR as part of the BDCP. Increased analysis of Delta levee failure impacts in recent years as a result of the BDCP has resulted in the availability of modeling data projecting water quality impacts of potential Delta levee failure scenarios. The water quality data used for the RCS analysis is based on a three-month modeling duration. The analysis for the RCS assumed a six-month service interruption based on interpolating the extension of the chloride water quality of the three-month modeled period. It is assumed for the RCS analysis that chloride levels would return to normal after six months. Due to the currently limited chloride modeling data available, it is recommended that this analysis be updated when additional Delta levee failure modeling results are available with a modeled duration beyond the original three-month modeling scenarios duration or as other modeling assumptions are made and modeling analysis updated.	Supply impacts due to changes in water quality may occur more frequently in the future due to factors such as increased demand and climate change. These potential water quality risks should be identified as well as the resulting impact on supply and the Participating Agencies' (PAs') ability to treat the supply. One example of an issue is high TOC levels that may occur during a Delta levee failure. An increase in TOC can become a treatment problem in a short amount of time. If TOC elevates above 10 mg/L for a period of time in the untreated water supply, treatment capacity may be limited. If TOC levels elevate, the untreated water TOC may become more of a decision-making driver than other water quality concerns. Elevated TOC levels may require future use of Los Vaqueros storage or activation of emergency interties with EBMUD. Supplies diverted from Rock Slough are likely to be most susceptible to TOC concerns. This project would evaluate the potential water quality impacts, including TOC, to water treatment plant treatment capabilities to determine which treatment plants are better equipped to treat changed water quality constituent levels, what those constituent, including TOC, level limitations would be, and what WTP improvements are needed to meet minimum demand requirements during an emergency.

Project Name			Excess Regional Capacity Optimization Plan	Evaluate Groundwater Supply	Additional Analysis of Levee Failure Impacts on the Region	Evaluate Potential Water Quality Risks
Sponsoring Agency/Organization			Regional	Regional	Regional	Regional
			and less extensive than the anticipated BARD treatment on Mallard Slough. The projects to use the PAs' excess treatment plant capacity described above appear to have a great potential for collaborative improvements that would enhance the reliability of the PAs' supplies in emergency conditions as well as improve efficiencies by making more use of existing infrastructure. Treatment, pumping, and transmission system improvements would be needed to implement these projects. The purpose of this plan is to identify costs and benefits and potential features of an excess treatment plant capacity optimization project. There are projects that should be implemented by the PAs in order to ultimately enable the PAs to optimize the use of existing infrastructure such as excess treatment plant capacity to provide water to others outside the PAs' service areas. This plan will identify costs and benefits and potential features of excess treatment capacity optimization projects. This plan would also include an analysis of the treatment improvements required for reliability as well as pumping and transmission system improvements to allow water to be delivered to the potential end user outside the region			
	Project Partners	Agency/Organization Name	City of Antioch, City of Brentwood, Martinez, City of Pittsburg, Contra Costa Water District, Diablo Water District	City of Antioch, City of Brentwood, Martinez, City of Pittsburg, Contra Costa Water District, Diablo Water District	City of Antioch, City of Brentwood, Martinez, City of Pittsburg, Contra Costa Water District, Diablo Water District	City of Antioch, City of Brentwood, Martinez, City of Pittsburg, Contra Costa Water District, Diablo Water District
	Funding for Water-Related Planning and Implementation	Increase regional cost efficiencies in treatment and delivery of water, wastewater, and recycled water	-	-	-	
		Implement projects that have region-wide benefits	Project will evaluatae the potential for groundwater as an emergency supply for the region, as well as expand understanding of groundwater in the region.	Imrpvoes understanding of Delta levee failure modeling, allowing for regional planning.	Water quality issues that would be identified by this proejct affect the entire region, so benefits of the project will be realized by the entire region.	Benefits would be realized by participating agencies and beyond the region.
	Water Supply	Pursue water supplies that are less subject to Delta influences and drought, such as recycled water and desalination	Groundwater is less subject to Delta influences and could be less subject to drought.	-	-	Allow excess capacity to be utilized for more efficient water supply and treatment purposes, potentially utilizing sources less subject to Delta influences and drought more efficiently.
		Increase water conservation and water use efficiency	-	-	-	Reduces stranded assets, allowing for improved water use efficiency.
		Increase water transfers	-	-	-	Could create additional water transfers to agencies whose capacities are insufficient to meet demands.
		Pursue regional exchanges for emergencies, ideally using existing infrastructure	-	-	-	Excess capacity could be used to help meet demands during emergencies experienced by other regions and agencies.

Project Name			Excess Regional Capacity Optimization Plan	Evaluate Groundwater Supply	Additional Analysis of Levee Failure Impacts on the Region	Evaluate Potential Water Quality Risks
Sponsoring Agency/Organization			Regional	Regional	Regional	Regional
		Enhance understanding of how groundwater fits into the water portfolio and investigate groundwater as a regional source (e.g., conjunctive use)	Project increases understanding of groundwater and its possible use as a water resource for the region.	-	-	-
	Water Quality and Related Regulations	Protect/Improve source water quality	-	-	Project would evaluate potentail threats to water quality, including water quality impairment of source water that could prevent its treatment and use.	-
		Maintain/Improve regional treated drinking water quality	-	-	Project will help protect against water quality impacts to drinking water.	-
		Maintain/Improve regional recycled water quality	-	-	-	-
		Increase understanding of groundwater quality and potential threats to groundwater quality	Project analyzes groundwater and groundwater quality.	-	-	-
		Meet current and future water quality requirements for discharges to the Delta	-	-	-	-
		Limit quantity and improve quality of stormwater discharges to the Delta	-	-	-	-
	Restoration and Enhancement of the Delta Ecosystem and Other Environmental Resources	Enhance and restore habitat in the Delta and connected waterways	-	-	-	-
		Minimize Impacts to the Delta ecosystem and other environmental resources	-	-	-	-
		Reduce greenhouse gas emissions	Project reduces the need for pumping outside sources across long distance, reducing GHG emissions associated with long-distance conveyance.	-	-	-
		Provide better accessibility to waterways for subsistence fishing and recreation	-	-	-	-
	Stormwater and Flood	Manage local stormwater	-	-	-	-
		Improve regional flood risk management	-		-	-
	Water-Related Outreach	Collaborate with and involve DACs in the IRWM process	-	-	-	-
		Increase awareness of water resources management issues and projects with the general public	-	-	-	-
	Please elaborate on any benefits that your project may provide outside of the stated objectives		Utilizes stranded assets; leverages assets	Leverages assets; benefits DACs by lowering costs and improving reliability.	-	-
Program Preferences –		Resolves Water-Related Conflicts	Project increases local supplies and reducing potentail water-related conflicts over imported or surface water.	-	Project would plan forpotential water quality risks that could result in water-related conflicts.	Improved water supply reliability and efficient use of water supplies and capacities helps to reduce water-related conflicts.

Project Name			Excess Regional Capacity Optimization Plan	Evaluate Groundwater Supply	Additional Analysis of Levee Failure Impacts on the Region	Evaluate Potential Water Quality Risks
Sponsoring Agency/Organization			Regional	Regional	Regional	Regional
	CALFED Objectives	Improve the state's water quality from source to tap	-	-	Project evaluates water quality risks at the source that could affect agencies' ability to treat water.	-
		Protect water supplies needed for ecosystems, cities, industry and farms by reducing the threat of levee failures that would lead to seawater intrusion.	-	Improves understanding of Delta levee failure modeling, improving understanding of levee failure impacts and improving emergency planning to address such impacts.	Water quality is threatened by potential levee failure. This project would evaluate these risks to identify which treatment facilities are most appropriate to protect water quality in the event of an emergency, including levee failure.	-
		Allow for the increase of water supplies and more efficient and flexible use of water resources	Project evaluates the potential for groundwater use, increasing water supplies and diversifying the supply portfolio.	-	-	Project allows for utilization of excess capacity and provides for more efficient and flexible use of water resources for connected agencies.
		Improve the ecological health of the Bay-Delta watershed	-	-	-	-
		Effectively Integrate Water Management with Land Use Planning	-	-	-	-
Statewide Priorities – Ranking Criteria #3		Drought Preparedness	Water supply diversification helps protect against the impacts of drought.	-	Project plans for treatment needs during emergencies, including drought, which may impair source water quality.	Improved water supply reliablity and use of assets helps protect against the effects of drought on an agency's ability to meet demands.
		Use and Reuse Water More Efficiently	-	-	-	Provides for more efficient use of water infrastructure.
		Climate Change Response Actions	-	-	Project plans for treatment needs during emergencies, including climate change, which may affect source water quality.	-
		Expand Environmental Stewardship	-	-	-	-
		Practice Integrated Flood Management	-	-	-	-
		Protects Surface Water and Groundwater Quality	-	-	-	-
		Improve Tribal Water and Natural Resources	-	-	-	-
		Ensure Equitable Distribution of Benefits	-	-	-	-
-	Reduce Water Demand	Agricultural Water Use Efficiency	-	-	-	-
		Urban Water Use Efficiency	-	-	-	-
	Improve Operational Efficiency	Conveyance – Delta	-	-	-	-
		Conveyance – Regional/Local	-	-	-	Would allow for improved conveyance systems in a regional context.
		System Reoperation	-	-	-	-
		Water Transfers	-	-	-	Would allow for water transfers to support Bay Area needs.
	Increase Water Supply	Conjunctive Management & Groundwater Storage	-	-	-	-
		Desalination	-	-	-	-
		Precipitation Enhancement	-	-	-	-
		Recycled Municipal Water	-	-	-	-
		Surface Storage – CALFED	-	-	-	-
		Surface Storage – Regional/Local	-	-	-	-
	Improve W	Drinking Water Treatment and Distribution	-	-	Project would plan for appropriate treatment options for water quality	Would allow for export of drinking water to support Bay Area needs.

Project Name			Excess Regional Capacity Optimization Plan	Evaluate Groundwater Supply	Additional Analysis of Levee Failure Impacts on the Region	Evaluate Potential Water Quality Risks
Sponsoring Agency/Organization			Regional	Regional	Regional	Regional
					degredation in the event of emergencies or in the face of altered conditions.	
		Groundwater Remediation/Aquifer Remediation	-	-	-	-
		Matching Quality to Use	-	-	-	-
		Pollution Prevention	-	-	-	-
		Salt and Salinity Management	-	-	-	-
		Urban Runoff Management	-	-	-	-
	Improve Flood Management	Flood Risk Management	-	-	-	-
	Practice Resources Stewardship	Agricultural Lands Stewardship	-	-	-	-
		Economic Incentives (Loans, Grants and Water Pricing)	-	-	-	-
		Ecosystem Restoration	-	-	-	-
		Forest Management	-	-	-	-
		Recharge Area Protection	-	-	-	-
		Water-Dependent Recreation	-	-	-	-
		Watershed Management	-	-	-	-
	Other Strategies	Crop Idling for Water Transfers	-	-	-	-
		Dewvaporation or Atmospheric Pressure Desalination	-	-	-	-
		Fog Collection	-	-	-	-
		Irrigated Land Retirement	-	-	-	-
		Rainfed Agriculture	-	-	-	-
		Waterbag Transport/ Storage Technology	-	-	-	-
	Planning	Project Status	Not Applicable	Not Started	Not Started	Not Applicable
		Est. Completion Date	-	-	-	-
	Feasibility	Project Status	Not Started	Not Applicable	Not Started	Not Started
-		Est. Completion Date	-	-	-	-
	Environ-mental Assess.	Project Status	Not Applicable	Not Applicable	Not Applicable	Not Applicable
		Est. Completion Date	-	-	-	-

Project Name			Excess Regional Capacity Optimization Plan	Evaluate Groundwater Supply	Additional Analysis of Levee Failure Impacts on the Region	Evaluate Potential Water Quality Risks
Sponsoring Agency/Organization			Regional	Regional	Regional	Regional
	Pre-Project Monitoring	Project Status	Not Applicable	Not Applicable	Not Applicable	Not Applicable
		Est. Completion Date	-	-	-	-
	Design	Project Status	Not Applicable	Not Applicable	Not Applicable	Not Applicable
		Est. Completion Date	-	-	-	-
	Environ-mental Permits	Project Status	Not Applicable	Not Applicable	Not Applicable	Not Applicable
		Est. Completion Date	-	-	-	-
	Building/ Other Permits	Project Status	Not Applicable	Not Applicable	Not Applicable	Not Applicable
		Est. Completion Date	-	-	-	-
	Construction/ Implementation	Project Status	Not Started	Not Applicable	Not Applicable	Not Applicable
		Est. Completion Date	-	-	-	-
	Post Project Monitoring	Project Status	Not Applicable	Not Applicable	Not Applicable	Not Applicable
		Est. Completion Date	-	-	-	-
	Environmental Permits	Describe any required	-	-	-	-
		Status?	-	-	-	-
	Other Permits (e.g., Encroachment, Building)	Describe any required	-	-	-	-
		Status?	-	-	-	-
	Project Schedule Available?		-	-	-	-

Project Name			Excess Regional Capacity Optimization Plan	Evaluate Groundwater Supply	Additional Analysis of Levee Failure Impacts on the Region	Evaluate Potential Water Quality Risks
Sponsoring Agency/Organization			Regional	Regional	Regional	Regional
	Describe any data gaps or uncertainties		-	-	-	-
Project Costs - Implementation	Land Purchase/Easement		NA	NA	NA	NA
	Planning		$149,500	$110,000	$50,000	$53,400
	Design		-	NA	NA	NA
	Environmental Review		-	NA	NA	NA
	Permits		-	NA	NA	NA
	Construction/Implementation		-	$150,000	NA	NA
	Environmental Mitigation/Compliance		-	NA	NA	NA
	Other		-	$30,000	NA	NA
	Total Project Cost		$149,500	$300,000	$50,000	$53,400
	Cost Estimate Available?		-	-	-	-
-	Agency; funds or in kind contributions	Amount	-	-	-	-
		Regional Assessments	-	-	-	-
		Developmental Fees	-	-	-	-
		User Rates	-	-	-	-
		User Fees	-	-	-	-
		Bonded Debt Financing	-	-	-	-
		Property Tax	-	-	-	-
		Contributions	-	-	-	-
		Other	-	-	-	-
	Existing grants	Amount	-	-	-	-
		State Grants	-	-	-	-
		State funding for flood control/flood prevention projects	-	-	-	-
		Local Grants	-	-	-	-
		Federal Grants	-	-	-	-
	Currently unfunded		-	-	-	-
	Economic Feasibility Analysis Available?		-	-	-	-
Disadvantaged Communities (DAs)	Does (will) the project help to address critical water supply and water quality needs of DACs within the ECCC region?		-	Project would benefit DACs in the region by increasing supply options; local groundwater supplies are cheaper than pumping water from long distances, providing cost savings to residents, including DACs	-	-
	What Community(ies)?		-	-	-	-
	How were the DACs included in the planning or development of the project?		-	-	-	-
Environmental Justice – Ranking	Does (will) the project help to address any environmental justice concerns?		-	-	-	-
	Does (will) the project create/raise any environmental justice concerns?		-	-	-	-
Climate Change/Greenhouse Gas Emission Reduction - Ranking Criteria #4	Does (will) the project consider and/or address the effects of climate change on the region?		-	-	-	-
	Does (will) the project reduce greenhouse gas emissions?		-	-	-	-

Project Name			Landscape Water Conservation	Contra Costa Livestock Pond and Rangeland Watershed Stewardship Program	Recycled Water Supply Expansion and Residential Fill Station Project	Non-Potable Water Distribution System – Phase III
Sponsoring Agency/Organization			Contra Costa Water District	Contra Costa Resource Conservation District	Delta Diablo	City of Brentwood
Project ID #			**81**	**82**	**83**	**84**
Project Description	Project Type		Other	Infrastructure – Stormwater/Flood Management Environmental Monitoring	Infrastructure – Wastewater/Recycled Water	Infrastructure – Wastewater/Recycled Water
	Describe the project		Provide rebates for landscape water conservation incentives.	This project will enable rangeland restoration and watershed health improvements in Contra Costa County. Federal matching funds have created a rare opportunity to restore up to 67 degraded livestock ponds on public and private lands in Alameda and Contra Costa Counties and evaluate benefits of rural upland ponds for species recovery and stormwater management. The project is scalable; requested funds could restore 12 ponds, monitor species response, and evaluate range and watershed hydrology impacts. This program offers incentives to ranchers to restore livestock ponds and manage surrounding rangelands in a manner that benefits wildlife. Incentives include streamlined permitting assistance, project planning and design, cost share assistance, and engineering/biological assistance during project implementation. Project components include pond de-sedimentation, spillway repair, invasive species control and implementation of rangeland best management practices. Enhancements such as plant establishment, riparian fencing, and erosion control are implemented when necessary. Where riparian areas or springs show excessive livestock impacts, or livestock diminish the hydro-period of a pond, we work with willing ranchers to develop off-stream water troughs and/or riparian fencing. We design and implement all projects in accordance with NRCS standards and specifications for wildlife habitat improvement and stream restoration. Alameda County RCD (ACRCD) and the USDA Natural Resources Conservation Service (NRCS) pioneered the technical and permitting innovations necessary to complete these projects, and have implemented more than 20 pond restoration projects since 2006. ACRCD and Contra Costa RCD (CCRCD) have partnered over the past two years to extend the program from Alameda to Contra Costa County. We anticipate adding projects each year through 2019.	This project involves the planning, design, and construction of an emergency back-up generator for Delta Diablo's Recycled Water Facility and installation of recycled water fill stations for residential irrigation uses. Delta Diablo's existing Recycled Water Facility consists of several treatment processes and a 2 million gallon storage tank. The treatment facility does not have backup power, so when main utility power is interrupted, the treatment facility is unable to produce recycled water. To ensure recycled water is available for its customers, Delta Diablo keeps its storage tank full at all times in order to temporarily gravity-feed water stored in its tank until main power is restored. By providing backup power, the treatment facility will remain operational during power outages to reliably meet customer water demands. In addition, the recycled water that was stored in the tank is no longer needed during power outages and can now be used to serve additional customers. While the tank volume is 2 million gallons, the District conservatively estimates 1.5 million gallons per day of recycled water will be available for industrial and irrigation demands. This project will implement a new service, adding fill stations at Delta Diablo's treatment facility for trucked residential irrigation uses.	This project will extend the existing non-potable water line on Grant Street from O'Hara Avenue west to Fairview Avenue. Extension of the non-potable water line will allow the City to convert existing park and landscape irrigation from potable to non-potable water.
	Project Partners	Agency/Organization Name	-	Contra Costa RCD; Alameda County RCD; USDA Natural Resources Conservation Services (NRCS); Contra Costa County Flood Control District	-	-
ECCC IRWM Plan Objectiv	Funding for Water-Related Plannin	Increase regional cost efficiencies in treatment and delivery of water, wastewater, and recycled water	Additional: Increasing water conservation improves delivery efficiency and conserves water.	-	Additional: Optimization of flows and new supplies created	-

Project Name			Landscape Water Conservation	Contra Costa Livestock Pond and Rangeland Watershed Stewardship Program	Recycled Water Supply Expansion and Residential Fill Station Project	Non-Potable Water Distribution System – Phase III
Sponsoring Agency/Organization			Contra Costa Water District	Contra Costa Resource Conservation District	Delta Diablo	City of Brentwood
		Implement projects that have region-wide benefits	Additional: Using less water will help other agencies in the region with more available supply.	-	-	-
	Water Supply	Pursue water supplies that are less subject to Delta influences and drought, such as recycled water and desalination	-	-	Primary: This project makes additional recycled water available, which is the most drought-tolerant supply available for the region.	Primary: This project will allow the City to use non-potable water for landscape irrigation
		Increase water conservation and water use efficiency	Primary: Reducing water consumption improves delivery efficiency and conserves water.	Additional: The proposed project will restore deteriorating stock ponds, providing supplemental water to improve livestock distribution. This enables ranchers to optimize for utilization and manage grassland resources for multiple goals, including habitat, soil health, and water retention.	Additional: Expanded use of recycled water increases efficiency (appropriate water quality for the use) and reduces reliance on Delta and groundwater supplies	Additional: This project will reduce the amount of potable water that is used by the City of Brentwood
		Increase water transfers	-	-	-	-
		Pursue regional exchanges for emergencies, ideally using existing infrastructure	-	-	-	-
		Enhance understanding of how groundwater fits into the water portfolio and investigate groundwater as a regional source (e.g., conjunctive use)	-	-	-	-
	Water Quality and Related Regulations	Protect/Improve source water quality	-	-	-	-
		Maintain/Improve regional treated drinking water quality	-	-	-	-
		Maintain/Improve regional recycled water quality	-	-	-	-
		Increase understanding of groundwater quality and potential threats to groundwater quality	-	-	-	-
		Meet current and future water quality requirements for discharges to the Delta	-	-	-	-
		Limit quantity and improve quality of stormwater discharges to the Delta	-	Additional: Stockponds provide stormwater management benefits by decreasing peak runoff and increasing infiltration. Numerous distributed stockponds can have a significant cumulative benefit. Rangeland management practices such as prescribed grazing and cranial vegetation establishment can substantially increase the stormwater retention capacity of rangeland soils and the hydroperiod of local waterways.	-	-
	Restoration and Enhancement of the	Enhance and restore habitat in the Delta and connected waterways	-	Primary: This project meets an urgent need for species recovery for CA tiger salamander (CTS) and CA red-legged frog (CRLF). CTS is state-listed and CRLF is federally-listed as threatened in Alameda and Contra Costa. Much of their habitat	-	-

Project Name			Landscape Water Conservation	Contra Costa Livestock Pond and Rangeland Watershed Stewardship Program	Recycled Water Supply Expansion and Residential Fill Station Project	Non-Potable Water Distribution System – Phase III
Sponsoring Agency/Organization			Contra Costa Water District	Contra Costa Resource Conservation District	Delta Diablo	City of Brentwood
				has been altered or lost to development and cropland. Private ranches and grazed public lands hold the majority of remaining habitat for these species in the East Bay region. Their survival and recovery increasingly depends on existing livestock ponds and the efforts of local cattle ranchers.		
		Minimize Impacts to the Delta ecosystem and other environmental resources	-	Additional: Ponds that are failing due to spillway and/or dam erosion may contribute to increased levels of sedimentation within the watershed. Restoring these ponds through de-sedimentation improves the storage capacity for sediment capture. Associated practices such as fencing and installation of off stream water troughs enables ranchers to control livestock access to sensitive pond and riparian areas and manage for multiple benefits.	-	-
		Reduce greenhouse gas emissions	Additional: Excessive water use wastes power needed to pump water. Less power utilized by CCWD will reduce greenhouse gasses.	-	-	-
		Provide better accessibility to waterways for subsistence fishing and recreation	-	-	-	-
	Stormwater and Flood Management	Manage local stormwater	-	-	-	-
		Improve regional flood risk management	-	-	-	-
	Water-Related Outreach	Collaborate with and involve DACs in the IRWM process	-	-	-	-
		Increase awareness of water resources management issues and projects with the general public	-	-	-	-
	Please elaborate on any benefits that your project may provide outside of the stated objectives		-	-	-	This project is part of a larger project that will expand the City's non-potable water system to the north eastern part of the City which has plans for future development. This improvement will not only allow future landscaping to be irrigated with non-potable water, it will also allow the developer to use non-potable water for construction.
Program Preferences – Ranking Criteria #2		Resolves Water-Related Conflicts	-	-	-	-
	CALFED Objectives	Improve the state's water quality from source to tap	-	-	Yes: Increase recycled water supplies can result in less reliance on Delta water and potentially more water left in upstream storage.	-
		Protect water supplies needed for ecosystems, cities,	-	Yes: The proposed project will restore deteriorating stock ponds, providing supplemental water to improve livestock	-	-

Project Name			Landscape Water Conservation	Contra Costa Livestock Pond and Rangeland Watershed Stewardship Program	Recycled Water Supply Expansion and Residential Fill Station Project	Non-Potable Water Distribution System – Phase III
Sponsoring Agency/Organization			Contra Costa Water District	Contra Costa Resource Conservation District	Delta Diablo	City of Brentwood
		industry and farms by reducing the threat of levee failures that would lead to seawater intrusion.		distribution. This enables ranchers to optimize for utilization and manage grassland resources for multiple goals, including habitat, soil health, and water retention.		
		Allow for the increase of water supplies and more efficient and flexible use of water resources	Yes: Reducing water consumption will reduce the quantity of water that CCWD will need to use from the Delta which benefits the region and the State.	-	Yes: This project will make available about 1.5 MGD of recycled water for use in the system.	Yes: This project will help reduce the amount of potable water that is being used for landscaping which will increase the supply of potable water that is available to serve other needs.
		Improve the ecological health of the Bay-Delta watershed	Yes: More water left in the Delta improves the ecological health of the Bay-Delta watershed.	Yes: Although well-managed rural watersheds and uplands may be taken for granted, they remain essential to the health of our creeks. The benefits of managed grazing on private and public lands within Bay Area watersheds can be multiplied by expansion of practices that demonstrably improve watershed functions: reduce peak flows, increase surface and ground water supply, and extend the hydroperiod of seasonal creeks.	-	Yes: This project will help reduce the amount of potable water that is being used for landscaping which will reduce the amount of water that needs to be supplied from the Bay-Delta watershed.
		Effectively Integrate Water Management with Land Use Planning	-	-	-	Yes: This project is part of a larger project that will expand the City's non-potable water system to the north eastern part of the City which has plans for future development. This improvement will not only allow future landscaping to be irrigated with non-potable water, it will also allow the developer to use non-potable water for construction.
Statewide Priorities – Ranking Criteria #3		Drought Preparedness	Yes	Yes	Yes	Yes
		Use and Reuse Water More Efficiently	Yes	-	Yes	Yes
		Climate Change Response Actions	Yes	-	-	-
		Expand Environmental Stewardship	Yes	Yes	-	-
		Practice Integrated Flood Management	-	-	-	-
		Protects Surface Water and Groundwater Quality	-	Yes	-	-
		Improve Tribal Water and Natural Resources	-	-	-	-
		Ensure Equitable Distribution of Benefits	-	-	-	-
-	Reduce Water Demand	Agricultural Water Use Efficiency	-	-	-	-
		Urban Water Use Efficiency	Yes	-	Yes	Yes
	Improve Operational Efficiency	Conveyance – Delta	-	-	-	-
		Conveyance – Regional/Local	-	-	Yes	Yes
		System Reoperation	-	-	-	-
		Water Transfers	-	-	-	-

Project Name			Landscape Water Conservation	Contra Costa Livestock Pond and Rangeland Watershed Stewardship Program	Recycled Water Supply Expansion and Residential Fill Station Project	Non-Potable Water Distribution System – Phase III
Sponsoring Agency/Organization			Contra Costa Water District	Contra Costa Resource Conservation District	Delta Diablo	City of Brentwood
	Increase Water Supply	Conjunctive Management & Groundwater Storage	Yes	-	-	-
		Desalination	-	-	-	-
		Precipitation Enhancement	-	-	-	-
		Recycled Municipal Water	-	-	Yes	Yes
		Surface Storage – CALFED	-	-	-	-
		Surface Storage – Regional/Local	-	-	-	-
	Improve Water Quality	Drinking Water Treatment and Distribution	-	-	-	-
		Groundwater Remediation/Aquifer Remediation	-	-	-	-
		Matching Quality to Use	-	-	-	-
		Pollution Prevention	-	-	-	-
		Salt and Salinity Management	-	-	-	-
		Urban Runoff Management	-	-	-	-
	Improve Flood Management	Flood Risk Management	-	-	-	-
	Practice Resources Stewardship	Agricultural Lands Stewardship	-	Yes	-	-
		Economic Incentives (Loans, Grants and Water Pricing)	-	-	-	-
		Ecosystem Restoration	-	Yes	-	-
		Forest Management	-	-	-	-
		Recharge Area Protection	-	-	-	-
		Water-Dependent Recreation	-	-	-	-
		Watershed Management	-	Yes	-	-
	Other Strategies	Crop Idling for Water Transfers	-	-	-	-
		Dewvaporation or Atmospheric Pressure Desalination	-	-	-	-
		Fog Collection	-	-	-	-
		Irrigated Land Retirement	-	-	-	-
		Rainfed Agriculture	-	-	-	-
		Waterbag Transport/ Storage Technology	-	-	-	-
-	Planning	Project Status	Not Started		Not Started	Complete

Project Name			Landscape Water Conservation	Contra Costa Livestock Pond and Rangeland Watershed Stewardship Program	Recycled Water Supply Expansion and Residential Fill Station Project	Non-Potable Water Distribution System – Phase III
Sponsoring Agency/Organization			Contra Costa Water District	Contra Costa Resource Conservation District	Delta Diablo	City of Brentwood
		Est. Completion Date	9/1/2013		2015	-
	Feasibility	Project Status	Not Started		Not Applicable	Complete
		Est. Completion Date	9/1/2013		-	-
	Environ-mental Assess.	Project Status	Not Applicable	Complete	Not Started	Complete
		Est. Completion Date	-	3/31/2015	2016	-
	Pre-Project Monitoring	Project Status	Not Started		Not Applicable	Complete
		Est. Completion Date	9/1/2013		-	-
	Design	Project Status	Not Started		Not Started	Complete
		Est. Completion Date	12/1/2013		2016	-
	Environ-mental Permits	Project Status	Not Applicable	Underway	Not Started	Not Applicable
		Est. Completion Date	-	8/90/2020	2016	-
	Building/Other Permits	Project Status	Not Applicable	Underway	Not Started	Pending Funding
		Est. Completion Date	-	8/30/2020	2016	2/26/2016
	Construction/ Implementation	Project Status	Not Started	Not Started	Not Started	Pending Funding
		Est. Completion Date	12/31/2017	12/31/2020	2016	6/24/2016
	Post Project Monitoring	Project Status	Not Started	Not Started	Not Applicable	Not Applicable
		Est. Completion Date	12/31/2018	6/30/2021	-	-
	Environmental Permits	Describe any required	Project is exempt.	CEQA/NEPA, and Programmatic CESA and FESA take permits. RWQCB and 1600 permits are required for each pond restoration.	TBD as project may be exempt or ND.	Fish and Wildlife fees have already been paid to Contra Costa County. HCP fees have already been paid to Contra Costa County

Project Name			Landscape Water Conservation	Contra Costa Livestock Pond and Rangeland Watershed Stewardship Program	Recycled Water Supply Expansion and Residential Fill Station Project	Non-Potable Water Distribution System – Phase III
Sponsoring Agency/Organization			Contra Costa Water District	Contra Costa Resource Conservation District	Delta Diablo	City of Brentwood
		Status?	-	CEQA/NEPA and Programmatic CESA take permits are complete. FESA take permits are in review by USFWS. RWQCB and 1600 permits are applications are submitted for each individual pond restoration project.	Not started, but permitting is anticipated to be minimal and therefore move quickly.	All payments have been made.
	Other Permits (e.g., Encroachment, Building)	Describe any required	Homeowners may need to secure individual building permits.	-	TBD, though none anticipated	The City executed an agreement with Union Pacific Railroad to construct the non-potable water line through their right-of-way. The City will obtain a construction permit before construction begins. City will need to obtain a permit from EBMUD. EBMUD has approved the project plans.
		Status?	-	-	Not started, but permitting is anticipated to be minimal and therefore move quickly.	The City will obtain a permit from UPRR and EBMUD before construction begins.
	Project Schedule Available?		-	-	-	-
	Describe any data gaps or uncertainties		-	-	None.	None.
Project Costs - Implementation	Land Purchase/Easement		NA	NA	NA	NA
	Planning		NA	NA	$65,000	NA
	Design		$20,000	$224,900	$135,000	$150,000
	Environmental Review		Unknown	NA	$10,000	NA
	Permits		Unknown	NA	$15,000	$30,000
	Construction/Implementation		$140,000	$607,000	$1,090,000	$1,320,000
	Environmental Mitigation/Compliance		NA	$67,200	NA	NA
	Other		NA	$71,900	$235,000	NA
	Total Project Cost		$140,000	$971,000	$1,550,000	$1,500,000
	Cost Estimate Available?		-	-	-	Yes
Project Funding - Implementation	Agency; funds or in kind contributions	Amount	$40,000	$60,000	-	$375,000
		Regional Assessments	-	-	-	-
		Developmental Fees	-	-	-	Yes
		User Rates	Yes	-	-	-
		User Fees	-	-	Yes	Yes
		Bonded Debt Financing	-	-	-	-
		Property Tax	-	-	-	-
		Contributions	-	Yes	-	-
		Other	-	-	-	-
	Existing grants	Amount	-	$445,000	-	-
		State Grants	-	-	-	-
		State funding for flood control/flood prevention projects	-	-	-	-
		Local Grants	-	Yes	-	-
		Federal Grants	-	Yes	-	-
	Currently unfunded		$100,000	$466,000	TBD	$1,125,000

Project Name		Landscape Water Conservation	Contra Costa Livestock Pond and Rangeland Watershed Stewardship Program	Recycled Water Supply Expansion and Residential Fill Station Project	Non-Potable Water Distribution System – Phase III
Sponsoring Agency/Organization		Contra Costa Water District	Contra Costa Resource Conservation District	Delta Diablo	City of Brentwood
	Economic Feasibility Analysis Available?	-	-	-	-
Disadvantaged Communities (DAs)	Does (will) the project help to address critical water supply and water quality needs of DACs within the ECCC region?	-	No	Yes: Use of recycled water for residential landscaping and park irrigation can have benefits to DACs in the area by replacing/offsetting potable supplies.	-
	What Community(ies)?	-	-	Pittsburg and Antioch	-
	How were the DACs included in the planning or development of the project?	-	-	-	-
Environmental Justice – Ranking Criteria #4	Does (will) the project help to address any environmental justice concerns?	-	No	Yes: Making this recycled water available for residential and park landscaping will increase water supply and improve access to Parks, as the City will not have to use freshwater supplies for irrigation, or discontinue irrigation during drought and impact use of park turf areas.	-
	Does (will) the project create/raise any environmental justice concerns?	-	No	No	-
Climate Change/Greenhouse Gas Emission Reduction - Ranking Criteria #4	Does (will) the project consider and/or address the effects of climate change on the region?	-	Yes: Restored stockponds will capture peak stormwater runoff from extreme events and augment livestock water supplies during drought. We will monitor and assess water resource benefits from site evaluations and post-project monitoring.	Yes: Increasing the recycled water supply improves the ability of the communities to plan for climate change, which in this region is marked by increasing and extended drought.	-
	Does (will) the project reduce greenhouse gas emissions?	Yes: Lower pumping due to water conservation will reduce power consumption which reduces greenhouse gasses.	-	Not known at this time	-

Project Name		Pittsburg Recycled Water Distribution System Expansion			
Sponsoring Agency/Organization		Delta Diablo			
Project ID #		**85**			
Project Description	Project Type	Infrastructure – Water/Water Quality			
	Describe the project	The Pittsburg Recycled Water System Expansion Project will meet water demands and reduce dependence on the Delta by expanding service to new users in the City of Pittsburg, CA. The project consists of installing approximately 5,000 LF of 6-inch to 8-inch PVC pipe and adding recycled water service connections to five new user sites. The user sites to be added include Buckley Square, Law Enforcement Training Center, Bay Harbor HOA, median at 3rd Street & Railroad Avenue, and landscape along Railroad Avenue at Highway 4.			

Project Name			Pittsburg Recycled Water Distribution System Expansion			
Sponsoring Agency/Organization			Delta Diablo			
	Project Partners	Agency/Organization Name	City of Pittsburg			
ECCC IRWM Plan Objective(s) – Ranking Criteria #1	Funding for Water-Related Planning and Implementation	Increase regional cost efficiencies in treatment and delivery of water, wastewater, and recycled water	-			
		Implement projects that have region-wide benefits	Additional: This project expands recycled water use in Pittsburg, helping to meet the region's water supply needs.			
	Water Supply	Pursue water supplies that are less subject to Delta influences and drought, such as recycled water and desalination	Primary: Delta water is a major supply source for Pittsburg. This project will expand recycled water service to irrigation users in Pittsburg, providing drought-tolerant supply that is less subject to Delta influence.			
		Increase water conservation and water use efficiency	Additional: Switching irrigation use from potable to recycled water can offset urban water use and help water suppliers to meet 20% by 20020 potable water conservation targets.			
		Increase water transfers	-			
		Pursue regional exchanges for emergencies, ideally using existing infrastructure	-			
		Enhance understanding of how groundwater fits into the water portfolio and investigate groundwater as a regional source (e.g., conjunctive use)	-			
	Water Quality and Related Regulations	Protect/Improve source water quality	Additional: Expanded recycled water use can replace Delta supplies, which can offset demands and reduce diversions; this may help reduce salinity/saltwater intrusion and protect source water quality.			
		Maintain/Improve regional treated drinking water quality	-			
		Maintain/Improve regional recycled water quality	Additional: This project expands recycled water distribution in the region for irrigation use, and maintains recycled water quality.			
		Increase understanding of groundwater quality and potential threats to groundwater quality	-			

Project Name			Pittsburg Recycled Water Distribution System Expansion			
Sponsoring Agency/Organization			Delta Diablo			
		Meet current and future water quality requirements for discharges to the Delta	Additional: While DDSD expects to remain in compliance with water quality and discharge regulations, increasing recycled water production and use reduces wastewater discharges and mass loading to the Sacramento-San Joaquin Delta.			
		Limit quantity and improve quality of stormwater discharges to the Delta	-			
	Restoration and Enhancement of the Delta Ecosystem and Other Environmental Resources	Enhance and restore habitat in the Delta and connected waterways	-			
		Minimize Impacts to the Delta ecosystem and other environmental resources	Additional: Expanded recycled water use can offset Delta supplies, which may offset demands and reduce diversions; this may allow greater in-stream flows and improve Delta ecosystem health.			
		Reduce greenhouse gas emissions	Additional: Greater use of local, recycled water can be less energy intensive than conveying and treating imported water. This project will increase operating efficiency resulting in lower energy use and the associated GHG emissions from fossil fuel sources.			
		Provide better accessibility to waterways for subsistence fishing and recreation	-			
	Stormwater and Flood Management	Manage local stormwater	-			
		Improve regional flood risk management	-			
	Water-Related Outreach	Collaborate with and involve DACs in the IRWM process	Additional: There are DACs within Delta Diablo's service area, and recycled water project planning will include involvement of these DACs in Pittsburg.			
		Increase awareness of water resources management issues and projects with the general public	Additional: Delta Diablo's website and project flyers will include information on the benefits of recycled water and its role in water management.			
	Please elaborate on any benefits that your project may provide outside of the stated objectives		-			
Program Preferences – Ranking		Resolves Water-Related Conflicts	Yes: Regional recycled water planning can improve water supply reliability through more effective use of resources, and cooperative planning to address future water supply related conflicts related to			

Project Name			Pittsburg Recycled Water Distribution System Expansion			
Sponsoring Agency/Organization			Delta Diablo			
			climate change and increasing Delta constraints.			
	CALFED Objectives	Improve the state's water quality from source to tap	-			
		Protect water supplies needed for ecosystems, cities, industry and farms by reducing the threat of levee failures that would lead to seawater intrusion.	-			
		Allow for the increase of water supplies and more efficient and flexible use of water resources	Yes: Expanded recycled water use increases the region's water supplies, allowing more efficient and flexible use of water resources.			
		Improve the ecological health of the Bay-Delta watershed	Yes: Increased use of recycled water can positively impact Bay-Delta water supply and water quality, by potentially reducing Delta diversions, and decreasing wastewater discharges. These contribute to Bay-Delta ecological health.			
		Effectively Integrate Water Management with Land Use Planning	Yes: Recycled water distribution expansion planning will identify water resource availability and quality, fostering communication with county and city land use planners and informing their land use plans.			
Statewide Priorities – Ranking Criteria #3		Drought Preparedness	Yes			
		Use and Reuse Water More Efficiently	Yes			
		Climate Change Response Actions	Yes			
		Expand Environmental Stewardship	Yes			
		Practice Integrated Flood Management	Yes			
		Protects Surface Water and Groundwater Quality	Yes			
		Improve Tribal Water and Natural Resources	-			
		Ensure Equitable Distribution of Benefits	Yes			
-	Reduce Water Demand	Agricultural Water Use Efficiency	-			
		Urban Water Use Efficiency	Yes			
	Improve Operational Efficiency	Conveyance – Delta	-			
		Conveyance – Regional/Local	Yes			
		System Reoperation	-			

Project Name			Pittsburg Recycled Water Distribution System Expansion			
Sponsoring Agency/Organization			Delta Diablo			
		Water Transfers	-			
	Increase Water Supply	Conjunctive Management & Groundwater Storage	-			
		Desalination	-			
		Precipitation Enhancement	-			
		Recycled Municipal Water	Yes			
		Surface Storage – CALFED	-			
		Surface Storage – Regional/Local	-			
	Improve Water Quality	Drinking Water Treatment and Distribution	-			
		Groundwater Remediation/Aquifer Remediation	-			
		Matching Quality to Use	Yes			
		Pollution Prevention	-			
		Salt and Salinity Management	-			
		Urban Runoff Management	-			
	Improve Flood Management	Flood Risk Management	-			
	Practice Resources Stewardship	Agricultural Lands Stewardship	-			
		Economic Incentives (Loans, Grants and Water Pricing)	Yes			
		Ecosystem Restoration	-			
		Forest Management	-			
		Recharge Area Protection	-			
		Water-Dependent Recreation	-			
		Watershed Management	-			
	Other Strategies	Crop Idling for Water Transfers	-			
		Dewvaporation or Atmospheric Pressure Desalination	-			
		Fog Collection	-			
		Irrigated Land Retirement	-			
		Rainfed Agriculture	-			
		Waterbag Transport/ Storage Technology	-			
-	Planning	Project Status	In Progress			

Project Name			Pittsburg Recycled Water Distribution System Expansion			
Sponsoring Agency/Organization			Delta Diablo			
		Est. Completion Date	December 2015			
	Feasibility	Project Status	Not Applicable			
		Est. Completion Date	-			
	Environ-mental Assess.	Project Status	In Progress			
		Est. Completion Date	December 2015			
	Pre-Project Monitoring	Project Status	Not Applicable			
		Est. Completion Date	-			
	Design	Project Status	Not Started			
		Est. Completion Date	March 2016			
	Environ-mental Permits	Project Status	Not Applicable			
		Est. Completion Date	-			
	Building/Other Permits	Project Status	Not Applicable			
		Est. Completion Date	-			
	Construction/ Implementation	Project Status	Not Started			
		Est. Completion Date	June 2016			
	Post Project Monitoring	Project Status	Not Applicable			
		Est. Completion Date	-			
	Environmental	Describe any required	-			
		Status?	-			

Project Name			Pittsburg Recycled Water Distribution System Expansion			
Sponsoring Agency/Organization			Delta Diablo			
	Other Permits (e.g., Encroachment, Building)	Describe any required	-			
		Status?	-			
	Project Schedule Available?		-			
	Describe any data gaps or uncertainties		The list of potential water users and water demands was developed after the District's Recycled Water Master Plan. There are no expected impacts related to technical feasibility; the only uncertainties are related to the timing of recycled water connection for some users. Therefore, it is expected that users will be added in phases based on readiness, water demand and environmental documentation.			
Project Costs - Implementation	Land Purchase/Easement		-			
	Planning		-			
	Design		-			
	Environmental Review		-			
	Permits		-			
	Construction/Implementation		-			
	Environmental Mitigation/Compliance		-			
	Other		$1,500,000			
	Total Project Cost		$1,500,000			
	Cost Estimate Available?		-			
Project Funding - Implementation	Agency; funds or in kind contributions	Amount	-			
		Regional Assessments	-			
		Developmental Fees	-			
		User Rates	-			
		User Fees	-			
		Bonded Debt Financing	-			
		Property Tax	-			
		Contributions	-			
		Other	-			
	Existing grants	Amount	-			
		State Grants	-			
		State funding for flood control/flood prevention projects	-			
		Local Grants	-			
		Federal Grants	-			
	Currently unfunded		$1,500,000			
	Economic Feasibility Analysis Available?		-			
Disadvantaged Communities	Does (will) the project help to address critical water supply and water quality needs of DACs within the ECCC region?		Yes: The water supply benefits to DACs in this project include improved water reliability through recycled water expansion. This project will reduce dependence on			

Project Name		Pittsburg Recycled Water Distribution System Expansion			
Sponsoring Agency/Organization		Delta Diablo			
		Delta supplies, is drought tolerant, and has the potential to improve economic development.			
	What Community(ies)?	Census tract area in Pittsburg.			
	How were the DACs included in the planning or development of the project?	Outreach and involvement are underway, as this project is in the early planning stages.			
Environmental Justice – Ranking Criteria #4	Does (will) the project help to address any environmental justice concerns?	Yes: Delta Diablo's recycled water is a reliable, affordable resource, resulting in water and fertilizer cost savings compared to current irrigation. This can be a benefit to Pittsburg when used on parks which provide recreation access to the community.			
	Does (will) the project create/raise any environmental justice concerns?	-			
Climate Change/Greenhouse Gas Emission Reduction - Ranking Criteria #4	Does (will) the project consider and/or address the effects of climate change on the region?	Yes: Climate change is expected to result in drought and decreased water supplies. Recycled water is the most drought-tolerant supply available. Expansion of recycled water use will help the region address this aspect of climate change.			
	Does (will) the project reduce greenhouse gas emissions?	Yes: This expansion project evaluates system operation, identifying efficiencies and optimization to reduce power use. Reduction of power use will decrease the associated greenhouse gas emissions generated from conventional power production.			

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Appendix F - ECCC Water Management Issues

The East County Water Management Association (ECWMA) explored water management issues and regional needs during deliberations in February 2012. Concerns were organized into six broad topics.

- Topic: Water Quality and Related Regulations
- Topic: Water Supply
- Topic: Restoration and Enhancement of the Delta Ecosystem and Other Environmental Resources
- Topic: Funding for Water-Related Planning and Implementation
- Topic: Stormwater and Flood Management
- Topic: Access to Resources

Following is a recap of the broad issues and needs.

Table F-1. Topic: Water Quality and Related Regulations

Water Management Issues	Regional Need
• Delta water quality impairment, especially due to future Delta-wide actions, such as Delta Plan/BDCP • Treated water quality impairment • Groundwater quality impairment • Stormwater runoff entering receiving water • Uncertainty in future regulations	• Protection of Delta water quality (to the greatest extent possible), and options for managing raw water quality through storage/blending • Protection of public health • Protection of groundwater supply • Control of water quality of discharges entering the Delta • Anticipation of future regulations, with measures in place before enforcement of new regulations

Table F-2. Topic: Water Supply

Water Management Issues	Regional Need
• Unreliable surface water supply, especially in dry years and when considering future growth • Regional dependence on Delta water supplies, which are subject to future Delta-wide influences, such as the BDCP/Delta Plan, climate change, and/or potential levee failure	• Reliable water supply in the future, even in dry years by expanding water portfolio • Regional self-sufficiency in water supply and reduced dependence on the Delta

Table F-3. Topic: Restoration and Enhancement of the Delta Ecosystem and Other Environmental Resources

Water Management Issues	Regional Need
• Fragile Delta ecosystem • Environmental impacts • Historical decline of wetland habitats • Lack of access to waterways for subsistence fishing and recreation	• Balanced water management that enhances and restores Delta ecosystem habitat, minimizes negative impacts to the ecosystem, and mitigates unavoidable impacts • Reduced environmental impacts and a planning process that minimizes environmental impacts • Restoration of wetland habitats • Accessible waterways for subsistence fishing

Table F-4. Topic: Funding for Water-Related Planning and Implementation

Water Management Issues	Regional Need
• Lack of funding for planning and implementation because of slower development and reduced water usage (insufficient or variable revenue stream) • Competitive nature, limited available funds, and potential schedule delays associated with grant funding	• Money for direct funding and grant match funding. • Grant funding, when appropriate, to support planning and project implementation.

Table F-5. Topic: Stormwater and Flood Management

Water Management Issues	Regional Need
• Localized flooding • Regional/catastrophic flooding due to levee failure	• Limit occurrences of and damages from localized flooding • Delta levee integrity and an understanding of other factors that could induce regional flooding, such as climate change

Table F-6. Topic: Access to Resources

Water Management Issues	Regional Need
• Inequitable distribution of resources in the region	• Equitable distribution of resources in the region

Appendix G - ECCC Resource Management Strategies

IRWM Plan Standards describe what must be in an IRWM Plan and can be used as criteria in Implementation Grant applications. One of the requirements is that the plan must document the range of Resource Management Strategies (RMS) considered to meet the IRWM objectives and identify which RMS were incorporated into the IRWM Plan.

The RMS to be considered must include the RMS found in Volume 2 of the State of California's Water Plan (CWP) Update 2009. At the time of issuance of the 2012 Guidelines, DWR was in the process of developing CWP Update 2013. Update 2013 will include additional or different RMS. Consideration of such alternate RMS is encouraged, but not mandated.

A key objective of the State's CWP Update is to present a comprehensive and diverse set of RMSs that can help meet the water-related resource management needs of each region and statewide. The RMS narratives are developed by subject matter experts from the CWP State Agency Steering Committee members with considerable input from other experts and stakeholders.

The list of RMSs was shared with the ECWMA and stakeholders to consider when developing projects. Of the 33 individual tools described in the CWP 2009 RMS section, the ECWMA identified 24 with potential for use in meeting the IRWM Plan objectives, plus the three new CWP 2013 RMS. Following is the list of resource management strategies, the assessment of applicability to the region, and the analysis of why or why not the tools could be applied. Also included is an assessment of how each RMS addresses region-specific climate change adaptation strategies and GHG reduction and mitigation efforts.

Table G-1. Resource Management Strategies and Applicability to ECCC Region

Topic	RMS	Applicability to Region	Reason for Applicability	How RMS Minimizes Vulnerabilities to Climate Change Impacts
Reduce Water Demand	Agricultural Water Use Efficiency	Applicable	Agriculture is prominent in the ECCC region. The region is evaluating agricultural water use and current practices to determine whether or not agricultural water use efficiency measures are appropriate.	Improving water efficiency through agricultural operations and increasing urban water conservation efforts reduces GHG emissions through reduction of energy use with pumping, operating equipment, and water treatment. Permanent changes that reduce water demand similarly reduce impacts and use of infrastructure, thereby prolonging the useful life of infrastructure and stretching financial investments.
	Urban Water Use Efficiency	Applicable	Water conservation is an important component of the ECCC region's approach to water management. The current conservation programs being implemented are in accordance with Best Management Practices established by the California Urban Water Conservation Council. The agencies are committed to ongoing demand management as a cornerstone to meeting future supply needs and to implement conservation measures to account for a decrease of 20% in per capita water use of 20% of demand by 2020.	
Improve Operational Efficiency and Transfers	Conveyance – Delta	Applicable	How and whether Delta conveyance moves forward is crucial to water management for the ECCC region. Delta conveyance could impact the ECCC region's water supply availability, timing, and quality. Although the member agencies would not implement a project for Delta conveyance, it remains an important activity for the region to track.	Optimal use and operation of the region's conveyance infrastructure and transfer capabilities helps increase regional resiliency to climate change impacts. With adequate planning and smart operational decisions, the region is able to respond to a variety of water scenarios to will provide water supply during drought, emergency, or limited use conditions. Improving operational flexibility provides resources and solutions to regional agencies, and will help prevent climate-change impacts to public health and safety.
	Conveyance – Regional/Local	Applicable	Conveyance of water resources is essential to diversify the region's water portfolio, use storage options for water quality and timing of deliveries, and promote the use of recycled water. The region wishes to maximize use of existing conveyance infrastructure and construct new conveyance infrastructure where needed.	
	System Reoperation	Applicable	System operational efficiency is a high priority for the region's water agencies. CCWD and its retail customers are undertaking an optimization study to determine how best to operate their water treatment, storage, and conveyance facilities.	
	Water Transfers	Applicable	The ECCC region's water supply is subject to hydrology, constraints on Delta resources, and complex statewide water operations. Water transfers are part of the portfolio of supplies that will be needed to meet CCWD's water supply reliability goal to meet 100% of demands in normal years and a minimum of 85% of demands during extended droughts. Within the ECCC region, water transfers are strategic for water agencies to cope with emergency situations. The region is undertaking an inventory and evaluation of agency interties.	

Topic	RMS	Applicability to Region	Reason for Applicability	How RMS Minimizes Vulnerabilities to Climate Change Impacts
Increase Water Supply	Conjunctive Management & Groundwater Storage	Applicable	The member agencies recognize conjunctive use as a potential future water supply alternative. As the local groundwater basins become more fully described and safe yields are established, conjunctive use may become an increasingly viable water supply alternative.	Regional supply evaluations that are planned or ongoing will yield information that will be critical to identifying sustainable, viable options to diversify the region's supply portfolio. The region's commitment to evaluating supply alternatives and implementing projects to increase supply volumes will increase the region's resiliency to climate change impacts. Opportunities like recycled water and use of surface storage facilities for blending water can result in reduced operating costs and energy use, thereby reducing greenhouse gas emissions. Improving access to surface water storage and water transfer abilities also provide resiliency in the event that sea level rise impacts coastal infrastructure.
	Desalination	Applicable	Desalination is regarded as a potential water supply alternative for the participating agencies. Feasibility-level projects are underway to evaluate the feasibility of brackish water desalination as a viable water supply alternative within the region and to provide interregional benefits with the Bay Area region.	
	Precipitation Enhancement	Not Applicable	The majority of the ECCC region's water comes from the Delta, which is subject to statewide hydrology. Precipitation enhancement within the region would not have a significant influence over Delta conditions, and therefore would not have a significant impact on the region's water supplies.	
	Recycled Municipal Water	Applicable	ECCC is a leader in recycled water production. Continued commitment to water reuse is a major component of the future water supply programs of these agencies. Many projects and programs within the study area focus on water reuse.	
	Surface Storage – CALFED	Applicable	Los Vaqueros Reservoir Expansion was named as one of the CALFED storage projects. CCWD currently owns and operates Los Vaqueros Reservoir, and the expansion study is ongoing. An expansion could benefit the region by providing more local storage to improve water supply reliability and, potentially, water quality.	
	Surface Storage – Regional/Local	Applicable	Some of the participating agencies currently own and operate surface water storage facilities. Region-wide optimization of these storage facilities is planned for evaluation.	

Topic	RMS	Applicability to Region	Reason for Applicability	How RMS Minimizes Vulnerabilities to Climate Change Impacts
Improve Water Quality	Drinking Water Treatment and Distribution	Applicable	Water treatment and distribution are important elements of protecting public health. Ongoing projects and programs within ECCC aim to improve and optimize water treatment and distribution to enhance public health protection.	The region's actions to protect water quality testing and treatment facilities and protect conveyance and storage infrastructure from pollution are critical steps in improving the region's resiliency to climate change impacts. Key vulnerabilities for the region are related to introduction of new and increased levels of existing contaminants from outside sources, and weather-related changes that can impact organic content and algae activity in source waters. Each of these water quality improvement RMSs target a key source of pollution that would otherwise cause public health issues for the region if not pre-emptively managed.
	Groundwater Remediation/ Aquifer Remediation	Not Applicable	Groundwater contamination requiring remediation is not a known problem in the ECCC region.	
	Matching Quality to Use	Applicable	Source water quality varies within the region. Water agencies are working together to determine the most suitable and efficient end use of different source waters. One example is an investigation to determine whether groundwater can be better managed through understanding its current application to agriculture.	
	Pollution Prevention	Applicable	Non-point source pollution control is a key element of the County's stormwater management plan, which identifies a variety of strategies including public education and industrial outreach, new development, and construction controls, and watershed management activities, including wetland restoration. Contra Costa County, 19 of its incorporated cities and the Contra Costa Flood Control & Water Conservation District have joined together to form the CCCWP. The CCCWP strives to eliminate stormwater pollution and has partnered with the ECWMA to help implement these strategies in the ECCC region.	
	Salt and Salinity Management	Applicable	Salt and salinity management is important for water management agencies across the ECCC region. Ongoing salinity management efforts within the region include source water salinity management (Delta salinity varies with season, location, and statewide water operations), salt and nutrient management plan for Pittsburg Plain Groundwater Basin, and salinity management for treated wastewater disposal.	
	Urban Runoff Management	Applicable	The Contra Costa County Stormwater Management Plan contains detailed county-wide objectives for management of stormwater. A variety of projects and programs being conducted within the study area include stormwater capture and management elements.	

Topic	RMS	Applicability to Region	Reason for Applicability	How RMS Minimizes Vulnerabilities to Climate Change Impacts
Improve Flood Management	Flood Risk Management	Applicable	The Contra Costa County Flood Control and Water Conservation District has a mandate to protect infrastructure, property, and public safety from flooding. In an effort to improve habitat, water quality, and stormwater management, the district has worked with a number of participating agencies to identify strategies and projects that improve or maintain flood protection while advancing other regional objectives.	Flood management efforts directly improve resiliency to sea level rise for coastal areas and infrastructure, and temper impacts to facilities and health and safety from future extreme weather events.
Practice Resources Stewardship	Agricultural Lands Stewardship	Applicable	With projected regional growth, land-use planning is critical for protecting water quality, sensitive habitats, and open space as well as maintaining water supply reliability. The County General Plan and urban limit line establish guidelines for land-use planning.	Implementation of these RMSs to protect the environment and habitat resources throughout the region and in the Delta will help protect the region's water supply, water quality, natural management and sequestration of greenhouse gases, and improve resiliency against impacts like sea level rise. With warmer temperatures resulting from climate change, competition with non-native and invasive species may become prevalent, reducing the ability of natural environments to protect sensitive species and manage runoff. Watershed management, ecosystem restoration, and utilization of economic incentives will be particularly important manage these climate change impacts.
	Economic Incentives (Loans, Grants, and Water Pricing)	Applicable	Economic incentives that influence water management are critical to the ECCC region. With the economic slowdown and the disparity between revenue projections and actual revenue, the region has relied heavily on State-funded economic incentives to accomplish certain water management activities. In turn, water agencies have established economic incentives for their customers to address critical water supply needs of disadvantaged communities and promote water conservation.	
	Ecosystem Restoration	Applicable	Participating agencies have identified and advanced a variety of ecosystem restoration and habitat protection alternatives. These projects will help protect a variety of threatened and endangered species identified in the HCP. The ECCCHC implements integrated habitat recovery above and beyond mitigation requirements in a manner that protects water quality and ecosystem function.	
	Forest Management	Not Applicable	Forested watersheds are not prevalent in the ECCC region.	
	Land Use Planning	Applicable	Water managers work closely with their land use counterparts on floodplain issues and evaluating lands for use in meeting ecosystem goals.	
	Recharge Area Protection	Applicable	Groundwater in the ECCC region is overlaid by urban development, rural lands, and open space. Groundwater is fed by natural recharge. Recent regional groundwater activities, such as a basin management plan and a salt/nutrient management program, have aided in the region's understanding of groundwater quality and quantity, identification of potential threats, and plans for managing groundwater and protecting recharge areas.	

Topic	RMS	Applicability to Region	Reason for Applicability	How RMS Minimizes Vulnerabilities to Climate Change Impacts
	Water-Dependent Recreation	Applicable	Integrating recreation and public access into project and facilities management allows the public to access and enjoy open space lands on the Delta shoreline and throughout the Diablo range. It also provides agencies with an effective vehicle for educating the public about the region's water supply and ecosystem. Multiple projects and programs for the ECCC region explicitly include recreation and public access elements.	
	Watershed Management	Applicable	The IRWM planning process promotes integrated watershed management that crosses jurisdictional and political boundaries. Collaborative, regional water management remains a top priority for the ECCC region.	
Other Strategies	Crop Idling for Water Transfers	Not Applicable	The region does not currently recognize a need for crop idling for water supply.	If implemented within the region, irrigated land retirement may support the goals of similar RMSs such as improving agricultural water use efficiency practices by reducing water use and potentially reducing greenhouse gas emission production, depending on the existing practices of the irrigation operation.
	Dew-vaporation or Atmospheric Pressure Desalination	Not Applicable	The technologies are still under development and are not yet cost effective. Under the current portfolio of regional projects and programs, desalination is considered a more feasible technology to implement at the current time.	
	Fog Collection	Not Applicable	The technologies are high cost and low production, and most relevant to areas where little or no other water sources are available.	
	Irrigated Land Retirement	Applicable	Irrigated land retirement occurs naturally when economic growth drives the market for development. It does not occur in times of economic downturn. Forced retirement of irrigated land for water management purposes is not being considered by water agencies at this time because irrigated land leads to agricultural productivity and local revenue.	
	Rain-fed Agriculture	Not Applicable	Crops that get their full water supply from rainfall are generally impractical in the ECCC region due to the lack of significant rainfall in the summer and fall months.	
	Waterbag Transport/Storage Technology	Not Applicable	This strategy is not currently used in California, and would require new coastal infrastructure to divert and offload the water. Freshwater supplies statewide are largely allocated; unallocated freshwater supplies would be far away, reducing the cost effectiveness of transporting water.	

Topic	RMS	Applicability to Region	Reason for Applicability	How RMS Minimizes Vulnerabilities to Climate Change Impacts
CA Water Plan 2013	Sediment Management	Applicable	Sediment management is a particular concern for stormwater and flood management, and a potential concern for regional surface storage. The Contra Costa Clean Water program a collaboration of many agencies and led by Contra Costa County has issued a stormwater guide that specifically offers direction on sediment.	Sediment management practices will reduce the region's vulnerabilities related to surface water storage and ecosystem restoration, and will protect against impacts to these operations from climate change. Climate change has the potential to affect culturally-sensitive areas. Awareness of these areas and identifying methods to protect them from sea level rise, temperature impacts, flooding, and water quality concerns will reduce the region's vulnerability in these areas. Outreach and education are priority methods for regional water managers to provide critical information and gain feedback from customers, residents, and business owners on topics that relate to almost all the RMSs listed here. With this RMS, there is an opportunity to increase the implementation of resiliency actions throughout the region by increasing participation in management activities.
	Water and Culture	Applicable	The ECWMA is aware of cultural practices related to fishing, Delta as place, and potentially some water-related historic infrastructure (in some cases pre-dating statehood) that should be considered in planning. Additionally, while it is not a current use or historically recorded use, some restored habitat locations maybe suitable for cultural practices, such as gathering materials for basket weaving. Current day examples include one in Antioch that is on the National Register of Historic Places, and was a building occupied by the Bureau of Reclamation during the design and construction of the Central Valley Project.	
	Outreach and Education	Applicable	The ECWMA has identified outreach and education as a major concern of the region.	

Key:
CALFED = California Bay-Delta Program
CCCWP = Contra Costa Clean Water Program
CCWD = Contra Costa Water District
CWP = California Water Plan
Delta = Sacramento-San Joaquin Delta
ECCC = East Contra Costa County
ECCCHC = East Contra Costa County Habitat Conservancy
ECWMA = East County Water Management Association
HCP = East Contra Costa County Habitat Conservation Plan
IRWM = integrated regional water management
RMS = Resource Management Strategies

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Appendix H - IRWM Plan Purpose and Conforming Changes

Contract Number 97-829
Approved/Authorized 2/19/97
Executed 5/28/97

East County Water Management Association Agreement

This Agreement is entered into this 26th day of June, 1997, by and between the Cities of Brentwood, Antioch, and Pittsburg; Contra Costa County Water Agency, Byron-Bethany Irrigation District, Delta Diablo Sanitation District, Contra Costa County Sanitation District 19, Diablo Water District, East Contra Costa Irrigation District, Ironhouse Sanitary District, and Contra Costa Water District. These eleven agencies are collectively referred to as the "member agencies."

PURPOSE:

The purpose of this Agreement is to establish an East County Water Management Association (ECWMA) to facilitate continued communication, cooperation and education between member agencies regarding matters affecting the existing and potential water supplies of eastern Contra Costa County, and to consider and guide the implementation of the recommendations of the ECWMA's Phase II Study Report in order to provide long-term water supplies and treatment facilities in a cost effective, reliable, implementable, and cooperative manner while maintaining institutional independence and customer satisfaction.

RECITALS:

1. The Contra Costa Water District, at the request of the Board of Supervisors, completed Phase I of the East County Water Supply Management Study, which provided a preliminary analysis of future water demands and potential water supplies for East Contra Costa County.

2. On March 13, 1995, the member agencies signed an agreement forming the ECWMA. Said Agreement terminated on November 21, 1996, and the remaining monies were subsequently refunded to the member agencies in accordance with that Agreement.

3. On November 21, 1996, prior to termination of the Agreement, the Governing Board Representatives of the ECWMA accepted the Phase II Report consisting of a detailed analysis of selected water service alternatives, including new infrastructure requirements, cost estimates, implementation requirements, and institutional issues.

4. The member agencies wish to cooperate in the implementation of the recommendations contained in the Phase II Report.

5. This Agreement provides a process for funding and reestablishment of the ECWMA.

AGREEMENT:

NOW, THEREFORE, the member agencies which are parties hereto set forth the following terms and provisions of their agreement.

1. Recitals. The recitals contained herein are an integral part of this Agreement.

2. ECWMA Formed. Subject to and in accordance with the terms of the Agreement, the member agencies hereby form the ECWMA.

3. Governing Board Representatives (GBR). The ECWMA shall be governed and operated by the GBR which shall be comprised of one elected official representative from each member agency. The governing body of each member agency shall designate, and may replace, one of its members as its representative, on the GBR. No individual shall serve as the representative of more than two member agencies. Each member agency shall have one vote on the GBR. All actions of the GBR shall require the affirmative vote of a majority of its members.

The GBR shall provide policy guidance in the implementation of the purposes of the ECWMA and authorize disbursement of funds in accordance with this Agreement.

The GBR shall choose a regular meeting date and shall meet at least semi-annually.

The GBR shall appoint one of its members as the Chair and one as Vice-Chair. The Chair or any three members of the GBR may call a special meeting. A Secretary shall also be appointed by the GBR. The term of office for the Chair, Vice-chair and Secretary shall be for two years.

The meetings of the GBR shall be open to the public, noticed, and conducted in accordance with the Brown Act, Government Code Section 54950 et seq.

4. **Joint Managers Committee (JMC).** The managers of each of the member agencies shall be members of the JMC of the ECWMA which shall have primary administrative responsibility for the implementation of the purposes of this Agreement. The term "Manager" means City Manager, County Administrator, or General Manager of each of the member agencies and their respective alternates designated by the member agency, or their designees. The JMC shall appoint one of its members as the Chair and one as Vice-chair. The term of office for the Chair and Vice-chair shall be two years. The JMC may act directly or through a subcommittee established by a majority of its members. Each member agency shall have one vote on the Committee. Meetings of the JMC shall be as determined by the JMC.

5. **Administrative Procedures.** The GBR shall adopt bylaws, rules for conduct of the meetings, and administrative procedures. The administrative procedures of a member agency may be adopted for the ECWMA by the GBR.

6. **ECWMA Financing.** Unless otherwise changed by a majority vote of the GBR, each member agency shall deposit annually (March 1) $500 with the Director of Financial Services for the City of Antioch who shall serve as Treasurer for the ECWMA.

The Treasurer shall be the depository of and have custody of all funds of the ECWMA from whatever source. The Treasurer shall also perform all duties required to be performed by an auditor. The Treasurer shall:

a. Receive and receipt all money of the ECWMA and place it in the treasury of the City to the credit of the ECWMA;

b. Be responsible for the safekeeping and disbursement of all ECWMA money;

c. Pay, when due, from ECWMA funds and upon the signature of the Chair or Vice-chair of the JMC, all sums payable by the ECWMA; and

d. Report in writing to the JMC quarterly and semi-annually to the GBR the amount of receipts since the last report and the amount paid out since the last report.

e. Invest ECWMA funds according to the policies and procedures of the Treasurer's agency. Interest derived from deposited funds shall remain in the ECWMA's account.

7. **Special Assessments.** Any additional assessments to cover the appropriate costs of the ECWMA above the amounts specified in Section 6 shall be as approved by the GBR and shall be paid within 45 days of such action. If a member agency's Governing Board Representative votes against undertaking a specific project, except for execution of responsibilities set forth in Section 6, other member agencies desiring to proceed with such project may do so collectively as long as the dissenting member agency is not responsible for costs of such project. Publishing and distribution of resulting documents, opinions, findings, and recommendations (collectively "reports") shall, unless all member agencies consent, be only on behalf of the consenting member agencies. Any reports issued by the association shall state that the reports do not necessarily represent the views of the governing bodies of the individual member agencies.

8. **Liability.** Each member agency agrees to indemnify and hold every other member agency to this Agreement, and their officers, agents and employees, free and harmless from any cost or liability imposed upon any other member agency, officers, agents, or employees arising out of any acts or omissions of its own officers, agents, or employees.

9. **Cooperation.** All the member agencies agree that their respective monetary contributions are an expression of an intent to cooperate towards the purpose of the ECWMA.

10. **Dissolution.** Upon dissolution of the ECWMA by a majority vote of the GBR, any remaining association funds shall be refunded to the member agencies in proportion to the amount contributed by each over the life of the Joint Association.

11. **Termination.** If a member agency, through its governing board, votes to terminate its participation in the ECWMA, that agency will no longer participate on the GBR or JMC. Deposits made theretofore will remain with the ECWMA.

12. **Amendment.** This Agreement may be amended only by a written agreement approved by a unanimous vote of the member agencies.

13. **Effective Date.** This Agreement shall become effective upon approval by eight member agencies.

14. **Notices.** Notices authorized or required to be given pursuant to this Agreement shall be in writing and shall be deemed to have been given (1) when mailed, postage prepaid or faxed, or (2) delivered during working hours to the addresses and fax numbers set forth below for

each member agency. Each member agency that changes its address shall promptly provide notice of the changed address to the Chair of the JMC, which will be the current address of the member agency.

16. **Execution.** This Agreement may be executed in several counterparts, each of which shall constitute one and the same instrument and shall become binding upon the parties when at least one copy hereof shall have been signed by all parties hereto. In approving this Agreement, it shall not be necessary to produce or account for more than one such counterpart.

IN WITNESS WHEREOF, the parties hereto, pursuant approval of their respective City Councils, Boards of Supervisors, Boards of Directors or governing boards, have caused their names to be affixed by the party and respective officers as of the day and year first above written.

City of Antioch

By Mary Helen Rocha
Mary H. Rocha
Title Mayor *Date* April 23, 1997

City of Brentwood

By_____

*Title*_____ *Date*_____

Byron-Bethany Irrigation District

By_____

*Title*_____ *Date*_____

Contra Costa County Water Agency

By_____

*Title*_____ *Date*_____

each member agency. Each member agency that changes its address shall promptly provide notice of the changed address to the Chair of the JMC, which will be the current address of the member agency.

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IN WITNESS WHEREOF, the parties hereto, pursuant approval of their respective City Councils, Boards of Supervisors, Boards of Directors or governing boards, have caused their names to be affixed by the party and respective officers as of the day and year first above written.

City of Antioch

By _____

*Title*_____ *Date*_____

City of Brentwood

By Jay M Corey

Title City Manager *Date* 4.25.97

Byron-Bethany Irrigation District

By_____

*Title*_____ *Date*_____

Contra Costa County Water Agency

By_____

*Title*_____ *Date*_____

each member agency. Each member agency that changes its address shall promptly provide notice of the changed address to the Chair of the JMC, which will be the current address of the member agency.

16. **Execution.** This Agreement may be executed in several counterparts, each of which shall constitute one and the same instrument and shall become binding upon the parties when at least one copy hereof shall have been signed by all parties hereto. In approving this Agreement, it shall not be necessary to produce or account for more than one such counterpart.

IN WITNESS WHEREOF, the parties hereto, pursuant approval of their respective City Councils, Boards of Supervisors, Boards of Directors or governing boards, have caused their names to be affixed by the party and respective officers as of the day and year first above written.

City of Antioch

By _____

*Title*_____ *Date*_____

City of Brentwood

By_____

*Title*_____ *Date*_____

Byron-Bethany Irrigation District

By Jack Colmore

Title General Manager *Date* 4/8/97

Contra Costa County Water Agency

By_____

*Title*_____ *Date*_____

each member agency. Each member agency that changes its address shall promptly provide notice of the changed address to the Chair of the JMC, which will be the current address of the member agency.

16. **Execution.** This Agreement may be executed in several counterparts, each of which shall constitute one and the same instrument and shall become binding upon the parties when at least one copy hereof shall have been signed by all parties hereto. In approving this Agreement, it shall not be necessary to produce or account for more than one such counterpart.

IN WITNESS WHEREOF, the parties hereto, pursuant approval of their respective City Councils, Boards of Supervisors, Boards of Directors or governing boards, have caused their names to be affixed by the party and respective officers as of the day and year first above written.

City of Antioch

By _____

*Title*_____ *Date*_____

City of Brentwood

By_____

*Title*_____ *Date*_____

Byron-Bethany Irrigation District

By_____

*Title*_____ *Date*_____

Contra Costa County Water Agency

By _____

Title Chair, Board of Supervisors *Date* 5/20/97

Contra Costa County Sanitation District 19

By_____

*Title*_____ *Date*_____

Contra Costa Water District

By_____

Title for GENERAL MANAGER *Date* 7/29/97

Delta Diablo Sanitation District

By_____

*Title*_____ *Date*_____

Diablo Water District

By_____

*Title*_____ *Date*_____

East Contra Costa Irrigation District

By_____

*Title*_____ *Date*_____

Ironhouse Sanitary District

By_____

*Title*_____ *Date*_____

City of Pittsburg

By_____

*Title*_____ *Date*_____

DMc-rlr - 8

DEPARTMENT HEAD 16 July 97 DATE

ASSISTANT GENERAL MANAGER 7/18/97 DATE

RISK MANAGEMENT OFFICER 7/17/97 DATE

DIRECTOR OF FINANCE 7/16/97 DATE

March 20, 1997

Page 6

Contra Costa County Sanitation District 19

By_____
Paul H. Causey
Title General Manager/District Engineer *Date* 9/2/97

Contra Costa Water District

By_____

*Title*_____ *Date*_____

Delta Diablo Sanitation District

By Paul H Causey
Paul H. Causey
Title General Manager/District Engineer *Date* 9/2/97

Diablo Water District

By_____

*Title*_____ *Date*_____

East Contra Costa Irrigation District

By_____

*Title*_____ *Date*_____

Ironhouse Sanitary District

By_____

*Title*_____ *Date*_____

City of Pittsburg

By_____

*Title*_____ *Date*_____

DMc-rlr - 8

Contra Costa County Sanitation District 19

By_____

*Title*_____ *Date*_____

Contra Costa Water District

By_____

*Title*_____ *Date*_____

Delta Diablo Sanitation District

By_____

*Title*_____ *Date*_____

Diablo Water District

By V. Wallace Allen

*Title*_____ *Date* 4-5-97

East Contra Costa Irrigation District

By_____

*Title*_____ *Date*_____

Ironhouse Sanitary District

By_____

*Title*_____ *Date*_____

City of Pittsburg

By_____

*Title*_____ *Date*_____

DMc-rlr - 8

Contra Costa County Sanitation District 19

By_____

*Title*_____ *Date*_____

Contra Costa Water District

By_____

*Title*_____ *Date*_____

Delta Diablo Sanitation District

By_____

*Title*_____ *Date*_____

Diablo Water District

By_____

*Title*_____ *Date*_____

East Contra Costa Irrigation District

By_____

Title MANAGER *Date* 3-11-97

Ironhouse Sanitary District

By_____

*Title*_____ *Date*_____

City of Pittsburg

By_____

*Title*_____ *Date*_____

DMc-rlr - 6

January 7, 1997 Page 6

Contra Costa County Sanitation District 19

By_____

*Title*_____ *Date*_____

Contra Costa Water District

By_____

*Title*_____ *Date*_____

Delta Diablo Sanitation District

By_____

*Title*_____ *Date*_____

Diablo Water District

By_____

*Title*_____ *Date*_____

East Contra Costa Irrigation District

By_____

*Title*_____ *Date*_____

Ironhouse Sanitary District

By_____
Lenny Byer

Title President *Date* March 28, 1997

City of Pittsburg

By_____

*Title*_____ *Date*_____

DMc-rlr - 8

Contra Costa County Sanitation District 19

By_____

*Title*_____ *Date*_____

Contra Costa Water District

By_____

*Title*_____ *Date*_____

Delta Diablo Sanitation District

By_____

*Title*_____ *Date*_____

Diablo Water District

By_____

*Title*_____ *Date*_____

East Contra Costa Irrigation District

By_____

*Title*_____ *Date*_____

Ironhouse Sanitary District

By_____

*Title*_____ *Date*_____

City of Pittsburg

By_____

Title City Manager *Date* 6/26/97

DMc-rlr - 8

March 20, 1997 Page 6

AMENDMENT NO. 1 TO THE EAST COUNTY WATER MANAGEMENT ASSOCIATION AGREEMENT

This is Amendment No. 1 to the East County Water Management Association Agreement ("ECWMA Agreement") dated March 20, 1997, by and among the Cities of Brentwood, Antioch, and Pittsburg; Contra Costa County, Byron-Bethany Irrigation District, Delta Diablo Sanitation District, Diablo Water District, East Contra Costa Irrigation District, Ironhouse Sanitation District, Town of Discovery Bay Community Services District and Contra Costa Water District. All of the parties to the ECWMA Agreement are also parties to this Amendment No. 1, and the East Contra Costa County Habitat Conservancy is also a party to this Amendment No. 1.

RECITALS

A. The purpose of this Amendment No. 1 is: 1) to add the East Contra Costa County Habitat Conservancy as a party to the ECWMA Agreement; 2) to change the name of existing party Contra Costa County Water Agency to Contra Costa County; 3) to change the name of existing party Contra Costa County Sanitation District 19 to Town of Discovery Bay Community Services District; 4) to expand the purpose of the ECWMA Agreement to include guidance of the East Contra Costa County Functionally Equivalent Integrated Regional Water Management (IRWM) Plan update; 5) and to authorize the Managers of the member agencies to approve the addition of projects in the Functionally Equivalent IRWM Plan.

AGREEMENT

1. Effective Date. The Effective Date of this Amendment No. 1 is October 28, 2010.

2. Parties as of Effective Date. As of the Effective Date of this Amendment No. 1, the parties to the ECWMA Agreement are the Cities of Brentwood, Antioch, and Pittsburg; Contra Costa County, Byron-Bethany Irrigation District, Delta Diablo Sanitation District, Town of Discovery Bay Community Services District, Diablo Water District, East Contra Costa Irrigation District, Ironhouse Sanitation District, East Contra Costa County Habitat Conservancy District and Contra Costa Water District. These agencies are collectively referred to as the "member agencies."

3. The Paragraph identified in the ECWMA Agreement as PURPOSE is deleted in its entirety and replaced with the following:

PURPOSE. The purpose of this Agreement is to establish an East County Water Management Association (ECWMA) to facilitate continued communication, cooperation and education between member agencies regarding matters affecting the existing and potential water supplies of eastern Contra Costa County, and to consider and guide the implementation of the recommendations of the ECWMA's, Phase II Study Report in order to provide long-term water supplies and treatment facilities in a cost effective, reliable, implementable, and cooperative

manner while maintaining institutional independence and customer satisfaction. The ECWMA will also guide the preparation of the update to the East Contra Costa County Functionally Equivalent Integrated Regional Water Management (IRWM) Plan.

4. The following additional RECITALS are added to the RECITALS Section of the ECWMA Agreement:

6. In 2005, a Functionally Equivalent IRWM Plan was developed for the ECWMA, in accordance with the Proposition 50, *Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002* grant application process.

7. In 2009, the East Contra Costa County was accepted as an IRWM Region through the California Department of Water Resources' Region Acceptance Process, allowing the region to be eligible for future IRWM funding opportunities.

8. In 2010, the California Department of Water Resources released grant program guidelines for funding through Proposition 84, *The Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coast Protection Bond Act of 2006*, which included new plan standards which will require update to the Functionally Equivalent IRWM Plan.

5. Section 4 of the ECWMA Agreement, "Joint Managers Committee (JMC)" is deleted in its entirety and replaced with the following

4. **Joint Managers Committee (JMC).** The managers of each of the member agencies shall be members of the JMC of the ECWMA which shall have primary administrative responsibility for the implementation of the purposes of this Agreement. The term "Manager" means City Manager, County Administrator, or General Manager of each of the member agencies and their respective alternates designated by the member agency, or their designees. The JMC shall appoint one of its members as the Chair and one as Vice-chair. The term of office for the Chair and Vice-chair shall be two years. The JMC may act directly or through a subcommittee established by a majority of its members. Each member agency shall have one vote on the Committee. Meetings of JMC shall be as determined by the JMC. The JMC shall have authority to approve the addition of projects into the Functionally Equivalent IRWM Plan in accordance with the plan goals and objectives.

6. Entire Agreement. In the event of a conflict with the ECWMA Agreement, the terms of this Amendment No. 1 shall prevail over anything to the contrary in the ECWMA Agreement. In all other respects the ECWMA Agreement, and this Amendment No. 1 will be the entire agreement among the parties construed together as one and the same agreement.

7. Effect. Except for the amendments agreed to herein, the above referenced ECWMA Agreement remains in full force and effect.

8. Counterparts: This Amendment may be executed in multiple counterparts, each of which shall be deemed an original and all of which together shall constitute one and the same instrument.

9. Signatures: The following signatures attest each member agency's agreement hereto.

CITY OF ANTIOCH

By: _____

Name: JAMES JAKEL

Title: CITY MANAGER Date: 11/22/10

CITY OF BRENTWOOD

By: Donna Landeros

Name: Donna Landeros

Title: City Manager Date: 4/15/2011

APPROVED AS TO FORM:

By: _____
Damien B. Brower, City Attorney

BYRON-BETHANY IRRIGATION DISTRICT

By: _____

Name: RICK GILMORE

Title: GENERAL MANAGER Date: 11/9/10

CONTRA COSTA COUNTY

By: _____

Name: Roberta Gulart

Title: Executive Officer, CCCWA Date: 1-3-11

CONTRA COSTA WATER DISTRICT

By: _____

Name: Jerry Brown

Title: General Manager

Date: 12/16/10

DELTA DIABLO SANITATION DISTRICT

By: _____

Name: Gary W. Darling

Title: General Manager

Date: December 9, 2010

DIABLO WATER DISTRICT

By: Richard R Head

Name: Richard R. Head

Title: Vice President

Date: 11-16-10

EAST CONTRA COSTA COUNTY HABITAT CONSERVANCY

By: _____

Name: John Kopchik

Title: Executive Director Date: 1-24-11

EAST CONTRA COSTA IRRIGATION DISTRICT

By: Patricia A Corey

Name: PATRICIA A COREY

Title: GENERAL MANAGER Date: NOV. 15, 2010

IRONHOUSE SANITARY DISTRICT

By: _____

Name: Don Lew

Title: Director

Date: 11/18/2010

CITY OF PITTSBURG

By: Nancy L. Parent

Name: Nancy L. Parent

Title: Council Member

Date: December 28, 2010

TOWN OF DISCOVERY BAY COMMUNITY SERVICES DISTRICT

By: _____

Name: Richard J. Howard

Title: General Manager Date: 11-15-10

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Appendix I - Regional Capacity Study

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Appendix J - Data Gap Analysis of the Tracy Sub-basin

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Appendix K – Contra Costa Watersheds Stormwater Resource Plan