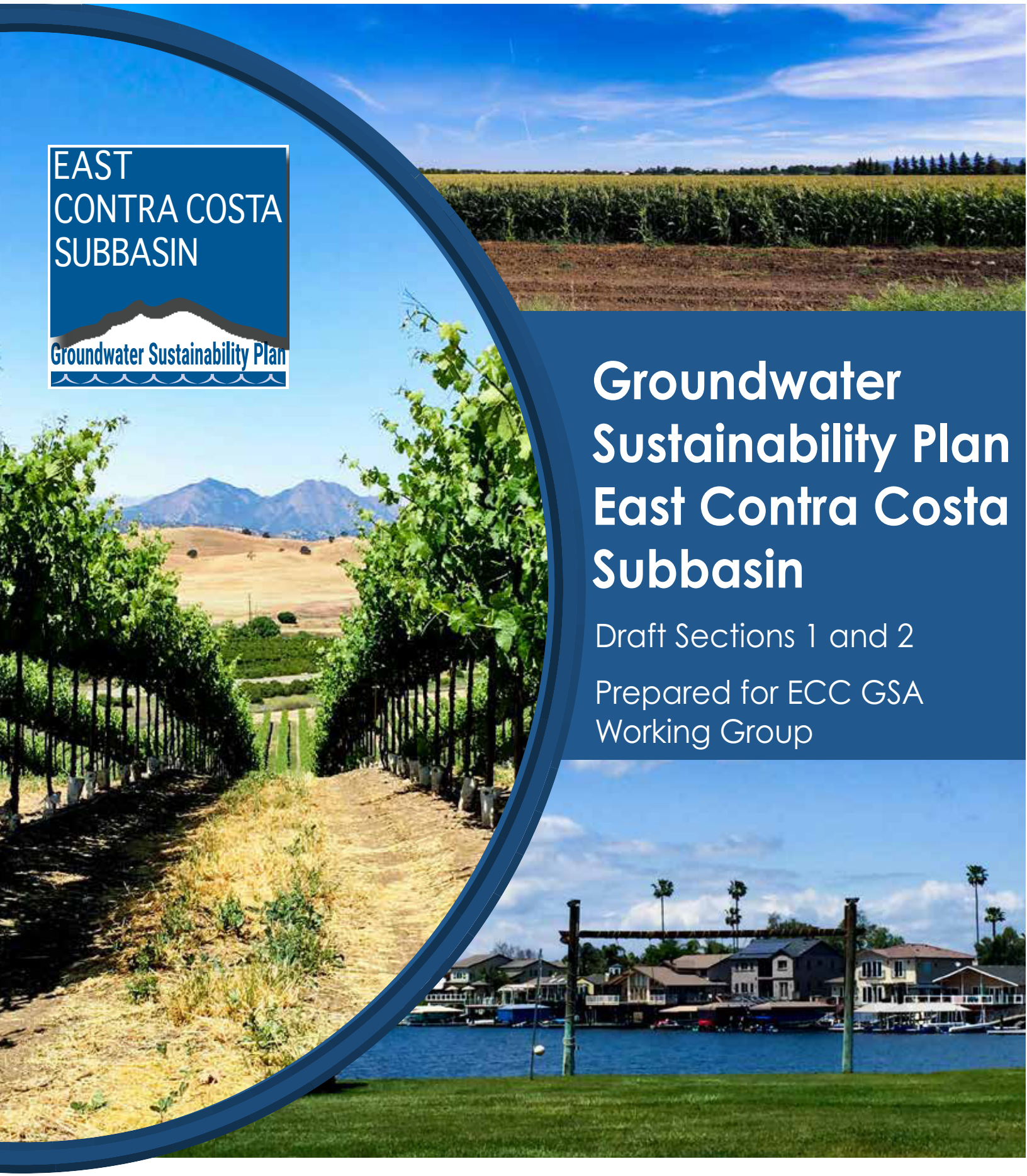
EAST
CONTRA COSTA
SUBBASIN

Groundwater Sustainability Plan



Groundwater Sustainability Plan East Contra Costa Subbasin

Draft Sections 1 and 2

Prepared for ECC GSA Working Group

Luhdorff & Scalmanini
Consulting Engineers

March, 2020

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Groundwater Sustainability Plan
East Contra Costa Subbasin

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Prepared by

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CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

1. INTRODUCTION

1.1. Background

1.1.1. Purpose of the Groundwater Sustainability Plan

The Sustainable Groundwater Management Act (SGMA), effective January 1, 2015, established a framework of priorities and requirements to facilitate sustainable groundwater management throughout California. The intent of the SGMA mandate is for groundwater to be managed by local public agencies (Groundwater Sustainability Agencies [GSAs]) to ensure a groundwater basin is operated within its sustainable yield through the development and implementation of a Groundwater Sustainability Plan (GSP or Plan).

1.1.2. Sustainability Goal

Each GSP must include a sustainability goal for the basin to manage groundwater in a manner that avoids undesirable results within 20 years of the statutory deadline (i.e., by or before January 31, 2042).

"Undesirable result means one or more of the following effects caused by groundwater conditions occurring throughout the basin" (Water Code §10721.x):

1. *Chronic lowering of groundwater levels indicating a significant and unreasonable depletion of supply if continued over the planning and implementation horizon. Overdraft during a period of drought is not sufficient to establish a chronic lowering of groundwater levels if extractions and groundwater recharge are managed as necessary to ensure that reductions in groundwater levels or storage during a period of drought are offset by increases in groundwater levels or storage during other periods.*
2. *Significant and unreasonable reduction of groundwater storage.*
3. *Significant and unreasonable seawater intrusion.*
4. *Significant and unreasonable degraded water quality, including the migration of contaminant plumes that impair water supplies.*
5. *Significant and unreasonable land subsidence that substantially interferes with surface land uses.*
6. *Depletions of interconnected surface water that have significant and unreasonable adverse impacts on beneficial uses of the surface water.*

As required by SGMA regulations, the ECC GSAs developed a sustainability goal for the Subbasin that is described in detail in Section 6.

Definitions for terms used in SGMA from the California Water Code 10721 and the California Code of Regulations Title 23 351 are included in **Appendix 1a**.

1.1.3. Description of the East Contra Costa Subbasin

The original boundary of the Tracy Groundwater Subbasin included the jurisdiction of multiple cities and the counties of Contra Costa and San Joaquin. To streamline the development of the required GSP, the

GSAs in Contra Costa and San Joaquin Counties, on September 6, 2018 applied to the State to divide the Tracy Subbasin along the border of Contra Costa and San Joaquin Counties. Dividing a groundwater basin is known as a Basin Boundary Modification or BBM. This allows the GSAs in each County to develop their own GSP under the Act. On February 11, 2019, the Department of Water Resources approved dividing the Tracy Subbasin into two subbasins (e.g., East Contra Costa Subbasin and the new Tracy Subbasin) thereby creating a separate groundwater basin entirely within Contra Costa County.

The East Contra Costa Subbasin (ECC Subbasin), also referred to as San Joaquin Valley-East Contra Costa (5-022.19), is a medium priority groundwater basin based on the Groundwater Basin Prioritization by the State Department of Water Resources (DWR) (**Figure 1-1**). Under SGMA, medium priority subbasins must submit an adopted GSP by January 31, 2022. The ECC Subbasin's boundaries are generally defined by the San Joaquin River on the north, Old River on the East, the Contra Costa County boundary on the south, and the non-water bearing geologic units on the west. As mentioned above, the ECC Subbasin is contained entirely within Contra Costa County and underlies all or portions of the Cities of Antioch, Oakley, Brentwood, the Town of Discovery Bay and the communities of Bethel Island, Byron and Knightsen.

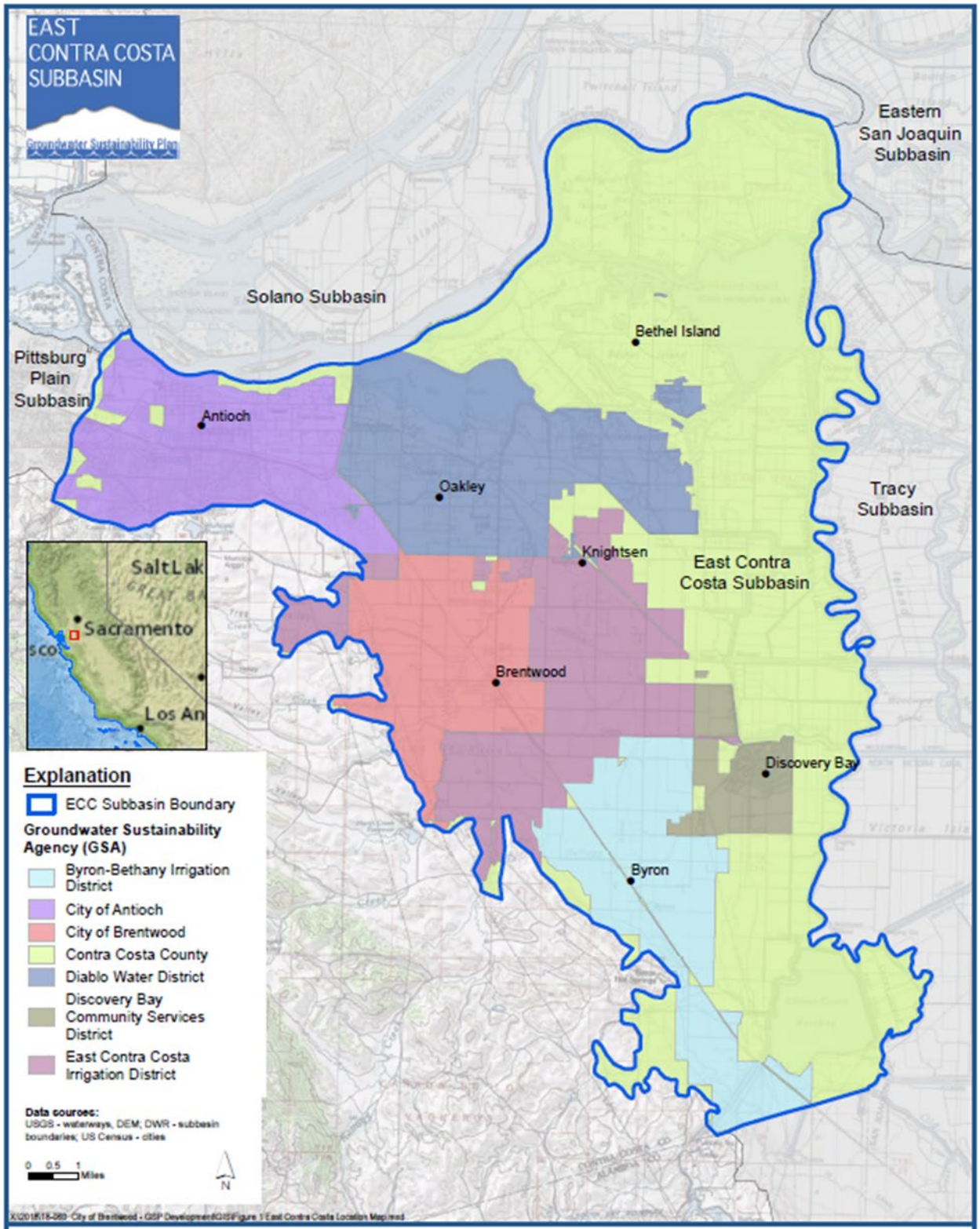
1.2. Agency Information

1.2.1. GSAs in East Contra Costa Subbasin

In the East Contra Costa Subbasin, eight agencies are working together in developing the GSP. The agencies include:

- Byron Bethany Irrigation District (BBID)
- City of Antioch
- City of Brentwood
- Contra Costa County (CCC)
- Contra Costa Water District (CCWD)
- Diablo Water District (DWD)
- Discovery Bay Community Services District (DBCSD or TODB)
- East Contra Costa Irrigation District (ECCID)

SGMA authorizes a "local public agency that has water supply, water management, or land use responsibilities within a groundwater subbasin or basin to elect to become a GSA and to develop, adopt, and implement a GSP (Water Code § 10721(n).)" All agencies listed above became GSAs with the exception of CCWD. CCWD is a water district that provides surface water to entities within their service area. Surface water may play a part in future management of a groundwater basin and so CCWD is an equal partner in the development of the ECC GSP. On May 9, 2017, the eight agencies entered a Memorandum of Understanding (MOU). Under this MOU the agencies share costs and management of the development and implementation of the GSP. In addition, the MOU was updated with the subbasin name change as a result of the BBM in March 2020 when the eight agencies signed an updated MOU to develop a GSP (**Appendix 1b**).



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East Contra Costa Subbasin, GSAs, and Adjacent Subbasins

Figure 1-1

East Contra Costa Subbasin Groundwater Sustainability Plan
Contra Costa County, California

Prior to the basin boundary modification, the Tracy Subbasin was successful in obtaining one million dollars in Proposition 1 Round 2 grant funds for GSP development. After the BBM, the ECC and Tracy Subbasins split the grant funding to prepare a GSP for each of the two subbasins. On October 24, 2019, San Joaquin County and the City of Brentwood signed an agreement for the management of the grant funds. In addition, the ECC Subbasin received Proposition 68 Round 3 funding.

1.2.2. Agency Names and Mailing Addresses

As per California Water Code §10723.8, the following contact information is provided for each GSA.

City of Brentwood GSA (**Plan Manager**)
Attention: Water Operations Manager Public Works Operations
Eric Brennan
2201 Elkins Way
Brentwood CA, 94513-7344
ebrennan@brentwoodca.gov

Byron Bethany Irrigation District
Attention: Assistant General Manager
7995 Bruns Road
Byron, CA 94514-1625

City of Antioch GSA
Attention: Project Manager
200 H Street
Antioch, CA 94509

Contra Costa County GSA
Attention: Manager, Contra Costa County Water Agency
30 Muir Road
Martinez, CA 94553

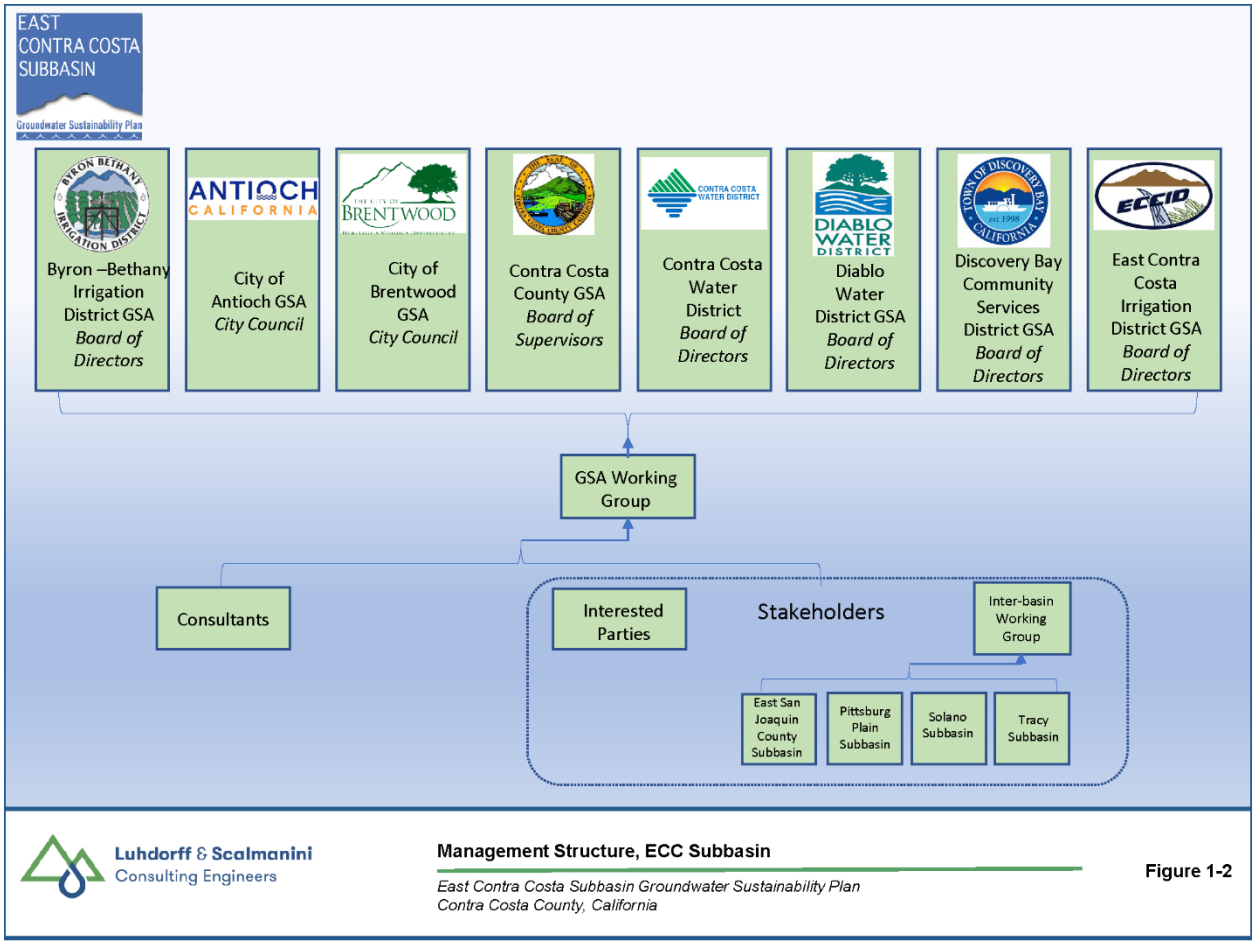
Diablo Water District GSA
Attention: General Manager
P.O. Box 127
87 Carol Lane
Oakley, CA 94561

Discovery Bay Community Services District GSA
Attention: General Manager
1800 Willow Lake Road
Discovery Bay, CA 94505-9376

East Contra Costa Irrigation District GSA
Attention: General Manager
1711 Sellers Avenue
Brentwood, CA 94513

1.2.3. Agencies' Organization, Management Structure, and Legal Authority of the GSAs and CCWD

The seven (7) GSAs that cover the ECC Subbasin and participate in the development and administration of the GSP each have their own organization and management structure and legal authority as described below. Prior to becoming a GSA, each entity submitted notifications to DWR as outlined in Water Code §10723.8. GSA boundaries are shown in **Figure 1-1,** and the ECC Subbasin management structure is shown in **Figure 1-2**. The GSA Working Group is made up of GSA representatives plus a representative from CCWD that meet monthly to coordinate GSP development. The organization and management structure for the seven GSAs and CCWD (an equal partner and financial contributor) are described below.



1.2.3.1 City of Brentwood GSA (Plan Manager)

The City of Brentwood GSA operates within its current city organization and management structure as a General Law City. Government Code section 36501 authorizes general law cities be governed by a city council of five members (Mayor, Vice Mayor, and three Council Members). Bentwood's GSA activities are staffed through the City's Public Works Department and one member attends the monthly GSA Working Group meeting that coordinates GSP activities. The person with management authority for implementation of the Plan is the City Manager or designee.

1.2.3.2 Byron-Bethany Irrigation District GSA

Byron-Bethany Irrigation District GSA operates within its current organization and management structure under its seven-member Board of Directors and its legal authority as a multi-county special district, operating under Division 11 of the California Water Code. It was originally created to deliver raw, agricultural water to area farmers. The District elected to serve as the GSA for the portion of BBID that is situated within the boundaries of the ECC Subbasin. A portion of BBID is also within the adjacent Tracy Subbasin. The General Manager sits on the GSA Working Group that coordinates ECC Subbasin GSP activities. The person with management authority for implementation of the Plan is the District's General Manager.

1.2.3.3 City of Antioch GSA

The City of Antioch GSA operates within its current organization and management structure as a General Law City under its current City Council that consists of five members. Its legal authority is described in the City ordinances and it abides by state codes. The GSA activities are staffed through the City's Capital Improvements Division. The Project Manager of the Capital Improvements Division sits on the GSA Working Group that coordinates ECC Subbasin GSP activities. The person with management authority for implementation of the Plan is the City Manager or designee.

1.2.3.4 Contra Costa County GSA

The Contra Costa County GSA operates within its current organization and management structure by a five-member Board of Supervisors as well as its legal authority set forth in the Sustainable Groundwater Management Act, California Water Code section 10720, et seq. The GSA activities are staffed through the Contra Costa County Water Agency and one member sits on the monthly GSA Working Group meeting that coordinates GSP activities. The person with management authority for implementation of the Plan is the director of the Department of Conservation and Development.

1.2.3.5 Contra Costa Water District

Contra Costa Water District is not a GSA but is an equal partner and financial contributor to the development of the ECC GSP through the District's execution of the ECC MOU.

1.2.3.6 Diablo Water District GSA

The Diablo Water District GSA operates within its current organization and management structure by a five-member Board of Directors as well as its legal authority as a special district. The General Manager and staff operate the District following policies set by the Board. The General Manager and Manager of Water Operations sit on the GSA Working Group that coordinates ECC Subbasin GSP activities. The person with management authority for implementation of the Plan is the General Manager.

1.2.3.7 Discovery Bay Community Services District GSA

The Town of Discovery Bay GSA operates within its current organization and management structure as a California Independent Community Services District and is governed by a five-member Board of

Directors, as well as legal authority as a special district. The District's General Manager is tasked to carry out the policy decisions of the Board and oversee day-to-day operations. The General Manager sits on the GSA Working Group that coordinates ECC Subbasin GSP activities. The person with management authority for implementation of the Plan is the General Manager.

1.2.3.8 East Contra Costa Irrigation District GSA

The East Contra Costa Irrigation District GSA operates within its current organization and management structure under a five-member Board of Directors representing five Divisions within the District as well as legal authority as a special district. The General Manager sits on the GSA Working Group that coordinates ECC Subbasin GSP activities. The person with management authority for implementation of the Plan is the General Manager.

1.2.4. Governance Structure

Figure 1-1 shows the extent of the GSP area (the entire ECC Subbasin) and each of the seven GSA jurisdictional boundaries. The following powers and authorities are granted to GSAs to implement the GSP in accordance with the requirements of California Water Code § 10725 *et seq:*

- Adopt standards for measuring and reporting water use
- Adopt rules, regulations, policies and procedures to govern the adoption and implementation of the GSP, as authorized by SGMA including funding of the GSA, and the collection of fees or charges as may be applicable
- Develop and implement conservation best management practices
- Develop and implement metering, monitoring and reporting related to groundwater pumping
- Hire consultants as determined necessary or appropriate by the GSA
- Prepare a budget

1.2.4.1 Memorandum of Understanding for GSP Development

As mentioned above, the seven GSAs and CCWD entered into a MOU on May 9, 2017. The purpose of the MOU was to collaborate to develop a single GSP for the ECC Subbasin and for each GSA to consider adopting and implementing the GSP within its GSA management area. The term of the MOU is until January 31, 2022 when the GSP is due to DWR. An updated MOU was required as a result of the BBM resulting in the new subbasin name. An updated MOU was signed on March 2020 (**Appendix 1a**).

1.2.5. Description of Initial Notification

The first step in preparing a GSP is notifying DWR of the intent to develop a GSP. In February 2018, the City of Brentwood submitted an Initial Notification to prepare a GSP for the Tracy Subbasin. Although the new ECC Subbasin was formed on February 2019, the ECC GSP development efforts continued from February 12, 2018 (when the Tracy Subbasin Initial Notification was submitted). The initial Notification to DWR is posted on the DWR website: https://sgma.water.ca.gov/portal/gsp/init/all.

1.3. Report Organization and Elements Guide

This Report will be organized into the following sections:

Section 1: Introduction
Section 2: Plan Area
Section 3: Basin Setting
Section 4: Historical, Current, and Projected Water Supplies
Section 5: Water Budget
Section 6: East Contra Costa Subbasin Sustainability Goal and Sustainable Management Criteria
Section 7: Monitoring Data Management and Reporting
Section 8: Sustainable Groundwater Management: Projects and Management Actions
Section 9: Plan Implementation
Section 10: References

DWR has provided the Elements Guide[1] that lists information required to be included in a GSP by the Sustainable Groundwater Management Act and the Groundwater Sustainability Plan Emergency Regulations. It is a cross reference to where this information can be found in the GSP (e.g., page number, figure number, and/or table number). **Appendix 1c** includes the Section 1 portion of the ECC Subbasin GSP.

[1] Source: https://sgma.water.ca.gov/portal/#gsp: Printable Elements Guide Excel Template

2. PLAN AREA

2.1. Description of Plan Area

2.1.1. Summary of Jurisdictional Areas and Other Features (§354.8 a and b)

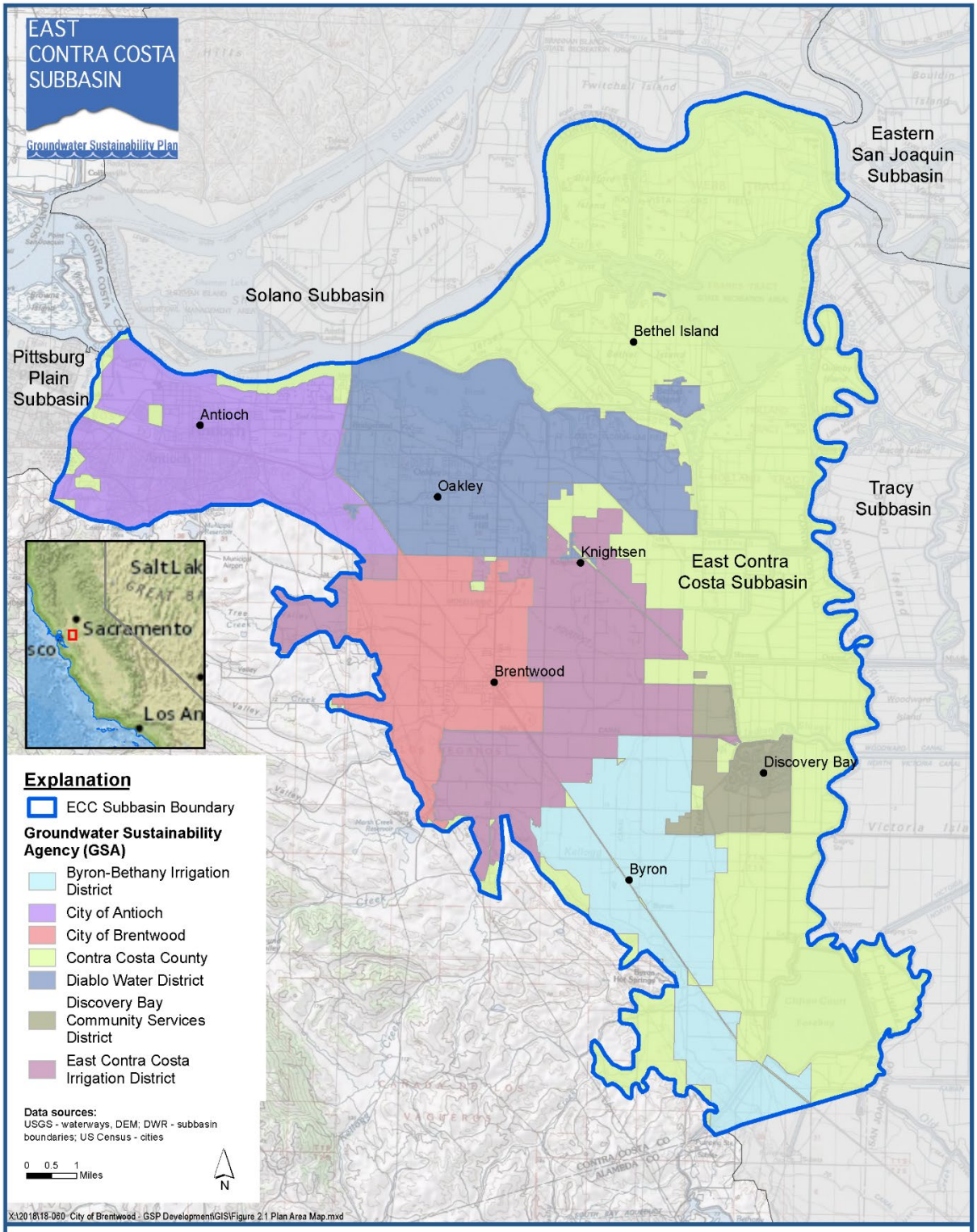
The ECC Subbasin (Subbasin) covers a 168 square mile area (107,596 acres) in the eastern portion of Contra Costa County, spans 18 miles from north to south and ranges from four to 13 miles from east to west, and includes seven communities: Antioch, Bethel Island, Byron, Brentwood, the Town of Discovery Bay (TODB), Knightsen, and Oakley. Three (Antioch, Brentwood and Oakley) are incorporated cities, Discovery Bay is a California Community Services District, Bethel Island is a Special Act District created by the California State legislature (1960) and named the Bethel Island Municipal Improvement District, the remaining two (Byron, and Knightsen) are census designated places. The Subbasin lies within the northwestern portion of the larger San Joaquin Valley Groundwater Basin. The Subbasin is bound by the Coast Range to the west and other groundwater subbasins to the northwest (Pittsburg Plain, DWR Subbasin 2-004), north (Solano Subbasin, DWR Subbasin 5-021.66), northeast (Eastern San Joaquin Basin, DWR Subbasin 5-022.01), and to the south and east (Tracy Subbasin, DWR Subbasin 5-022.15) (**Figure 2-1**). All adjacent subbasins are required to submit a GSP with the exception of Pittsburg Plain Subbasin (due to a "Very Low" basin prioritization that does not require a GSP to be completed).

2.1.1.1 Adjudicated Areas and Areas Covered by an Alternative GSP

This GSP covers the entire ECC Subbasin and is managed by seven exclusive GSAs (**Figure 2-1**). There are no known adjudicated areas within the ECC Subbasin or any areas covered by an Alternative GSP.

2.1.1.2 Cities and County Jurisdictions

Figure 2-2a shows city and county boundaries, and agencies with water management responsibilities. Apart from GSAs in the Subbasin, no other agencies have direct authority over groundwater, though Contra Costa County permits and regulates wells and septic systems throughout the subbasin, including the cities, pursuant to Contra Costa County Ordinance code. Contra Costa Water District (CCWD) is a public water entity in Contra Costa County (County) but with no direct authority over groundwater within the Subbasin. Each City regulates land use within their city and the County regulates land use in the unincorporated areas of the Subbasin.



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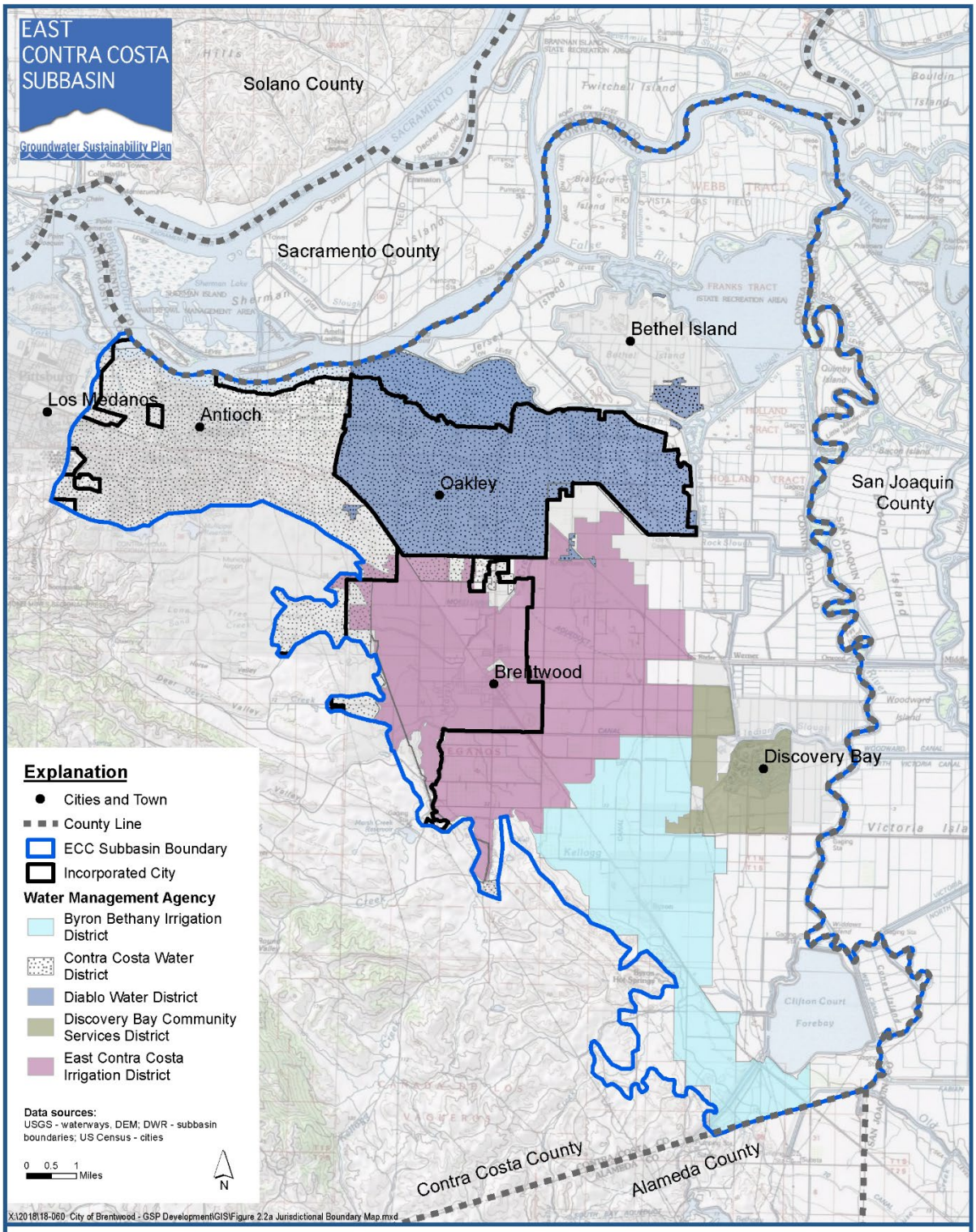
East Contra Costa Subbasin, and Adjacent Subbasins

East Contra Costa Subbasin Groundwater Sustainability Plan
Contra Costa County, California

Figure 2-1



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Jurisidictional Boundaries, Cities, Counties and Agencies with Water Management Responsibilities

East Contra Costa Subbasin Groundwater Sustainability Plan
Contra Costa County, California

Figure 2-2a

2.1.1.3 Water Agency Jurisdictions and the East County Regional Water Management Association

The water agencies in East Contra Costa County are listed below with a description of their authorities and responsibilities. Each of the GSAs in the subbasin belong to the East County Regional Water Management Association, in some capacity. Because of this association there is a long history of collaboration in water management decisions in the region. **Table 2-1** outlines the thirteen agencies joined together to form the Regional Water Management Group and their primary function (IRWMP, 2015). Seven of those members are GSAs, and they are described in more detail below.

Table 2-1: Regional Water Management Group Members and Primary Function[1]

Member Agency	Water Supply/ Quality	Waste-water	Re-cycled	Stormwater/ Flood Management	Watershed/ Habitat
City of Antioch	X	X	X	X	X
City of Brentwood	X	X	X	X	X
Byron-Bethany Irrigation District	X	X[2]			
Contra Costa County Flood Control				X	X
Contra Costa County		X		X	X
Contra Costa Resource Conservation District	X				X
Contra Costa Water District	X				X
Delta Diablo		X	X		
Diablo Water District	X				
Discovery Bay Community Services District	X	X		X	
East Contra Costa County Habitat Conservancy	X				X
East Contra Costa Irrigation District	X				
Ironhouse Sanitary District		X	X		

[1] Source: 2015 IRWM Plan Update

[2] BBID provides management services and operations and maintenance support to the Byron Sanitary District, which provides wastewater and sewer services to Byron residents.

City of Antioch

The City of Antioch is a public water purveyor that provides water to a population of approximately 108,000 (in 2015) within the service area (WYA, 2016); however, the City's total service area extends outside the Subbasin. Surface water is the City's only source of water supply and includes (for 2015,

WYA, 2016): 1. surface water purchased from CCWD (12,000 acre feet per year [AFY]) 2. surface water diverted from the San Joaquin River through the City's intake (1,200 AFY), 3. Recycled water from Delta Diablo (50 AFY). Surface water is stored in a municipal reservoir and treated at the Antioch Water Treatment Plant. Recycled water is used to irrigate four parks and its municipal golf course. The City does not use groundwater for water supply, nor does it expect to use groundwater by the year 2040 (WYA, 2016).

City of Brentwood

The City of Brentwood is a public water purveyor that provides water to a population of over 56,000 within the service area (B&C, 2016). The City's service area within the Subbasin is a subset of its total service area. The City's annual supply includes: 1. surface water purchased from CCWD (4,720 AFY pumped to the Randall Bold Water Treatment Plant (RBWTP) from the Rock Slough intake via the Contra Costa Canal), 2. groundwater from seven active wells with a capacity of 7,000 AFY), 3. surface water from ECCID (entitlement of 14,800 AFY pumped from Rock Slough through the Contra Costa Canal for treatment at the City of Brentwood Water Treatment Plant [COBWTP]) (B&C, 2016). In drought years, the City relies upon groundwater more than in normal years.

Byron-Bethany Irrigation District (BBID)

BBID provides agricultural water to southeastern CCC. It is a public agency governed by an elected board of directors and was established for the purpose of providing water to the lands within Alameda County, Contra Costa and San Joaquin Counties. In 2012, BBID served 5,663 acres within CCC and delivered 18,484 AF of water (IRWIM, 2015). In 2014, CCWD began coordination with BBID to install an intertie between Byron Division Canal 45 and the CCWD Old River pipeline. This will facilitate water transfers with CCWD and/or storage of BBID water in the Los Vaqueros Reservoir for later use in the northern portions of the Byron Division. By July 2015, a portion of the project had been implemented. In 2015, 214 AF of groundwater from growers' wells was used to supplement surface water during the drought. Though some private pumping occurs, landowners predominantly rely on surface water allocation in the Byron and Bethany Divisions (AWMP, 2015).

Contra Costa Water District (CCWD)

The CCWD was formed in 1936 to provide water for irrigation and industry. It is currently one of California's largest urban water districts that provides untreated and treated water to municipal, residential, commercial, industrial, landscape irrigation, and agricultural customers. It draws its water from the Delta primarily under a contract with the federal Central Valley Project (CVP). CCWD manages the Los Vaqueros Reservoir. The Contra Costa Canal is the backbone of CCWD conveyance system that was originally owned by the U.S. Bureau of Reclamation (USBR). CCWD is currently taking ownership of the Canal (expected by 2022) and will continue to operate and maintain the facility. Water is supplied to the canal from Rock Slough as well as from Old and Middle Rivers via pipelines. One of CCWD's two water treatment plants is located in the Subbasin (e.g., RBWTP in Oakley [jointly with DWD]). CCWD supplies water to the Cities of Antioch and Brentwood and Diablo Water District.

Diablo Water District (DWD)

DWD was established in 1953 to provide water to customers in downtown Oakley and now serves the City of Oakley, the Town of Knightsen, and some of Bethel Island. It serves a population of about 42,000 people in a 21 square mile area (e.g., Oakley, Cypress Corridor, Hotchkiss Tract, and Summer Lakes, Bethel Island, and Knightsen). The majority (about 80% per CDM Smith, 2016) of water delivered is surface water supplied by CCWD and treated in RBWTP[2] (owned jointly with CCWD). Two municipal wells supplement DWD's surface water source providing about 2,000 AFY (CDM Smith, 2016).

East Contra Costa Irrigation District (ECCID)

ECCID is an independent special district established in 1926 to provide agricultural irrigation water to properties within ECCID (IRWM, 2019). ECCID boundaries include the City of Brentwood, and portions of the Cities of Oakley and Antioch and the unincorporated community of Knightsen. ECCID has a 1912 appropriative right to divert water from Indian Slough on Old River and also operates nine groundwater wells (IRWM, 2019*).* In 2012, ECC pumped about 330 AF of groundwater.

Town of Discovery Bay Community Services District (TODB)

The TODB was formed in 1998 to provide over 15,000 residents with water, treatment, distribution, and storage. All the water supply is from six groundwater supply wells (IRWM, 2019) pumping about 3,000 AFY.

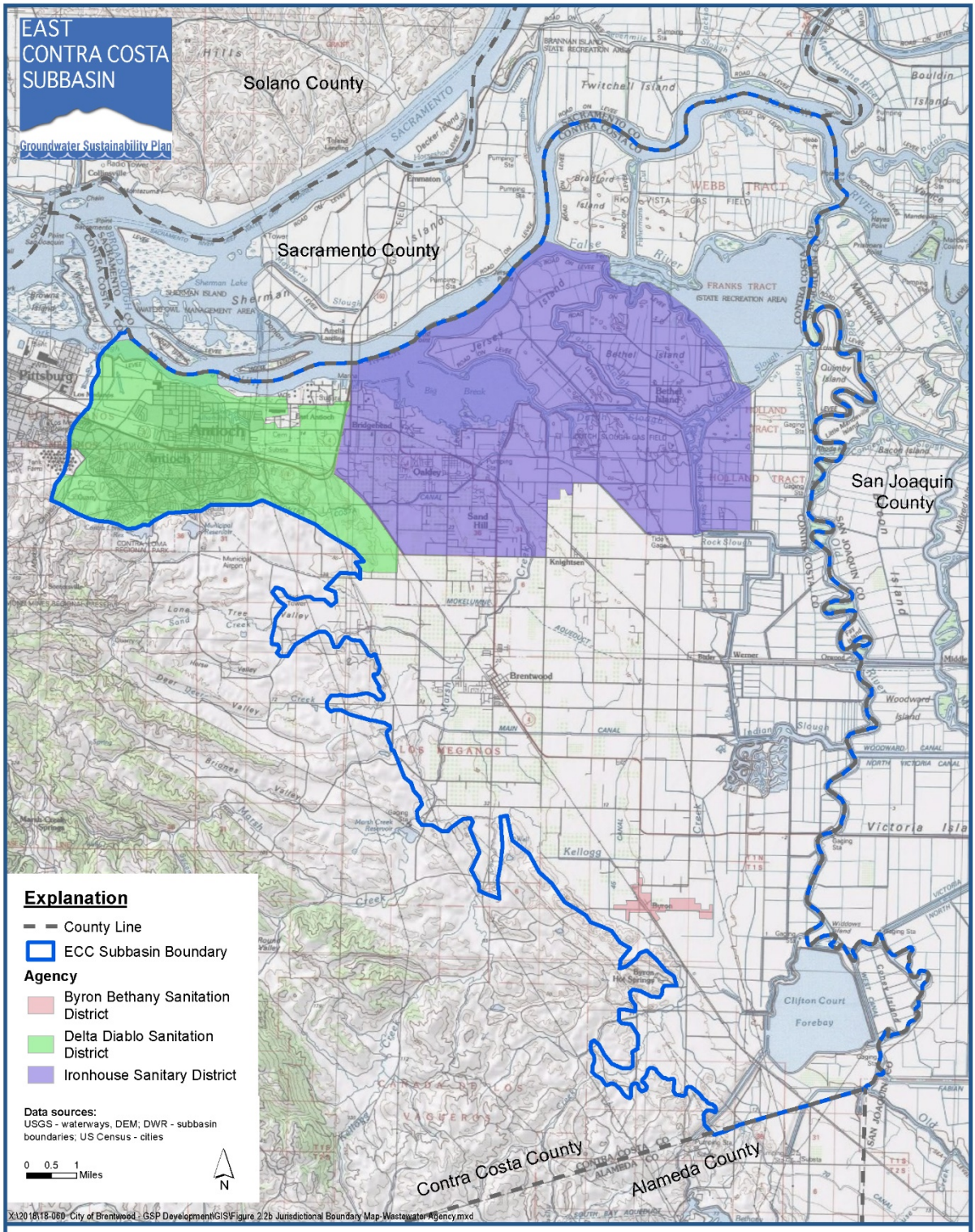
Other Agencies

Ironhouse Sanitary District (ISD) maintains sanitary services for nearly 30,000 customers in the Oakley and Bethel Island area (**Figure 2-2b**). Water is treated at its facility in Oakley California and recycled water is spread on its 3,600-acre Jersey Island fields, which are used for grazing of cattle. In addition, the fields are used for wildlife and habitat for waterfowl. ISD processes 4,800 AFY of recycled water and half is spread on ISD fields near the Oakley facility on Jersey Island to water hay fields and the other half is released into the San Joaquin River (SJR).

Delta Diablo (DD) District provides wastewater treatment and recycled water production for the City of Antioch, Bay Point and Pittsburg, however, only the City of Antioch is in the Subbasin. It treats 15,000 AFY of water (2016) and releases the treated water into New York Slough. It provides about 9,000 AFY of recycled water (treated domestic wastewater used more than once) used for cooling two power generating plants and irrigation of two golf courses and 12 city parks in the DD service area (**Figure 2-2b**).

Bethel Island Municipal Improvement District (BIMID) is responsible for maintaining levees and drainage on Bethel Island but also has the authority to create and maintain parks and playgrounds https://bimid.com/about-bimid/).

[2] Randall Bold Water Treatment Plant



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Jurisdictional Boundaries,Wastewater Agencies

East Contra Costa Subbasin Groundwater Sustainability Plan
Contra Costa County, California

Figure 2-2b

Byron Sanitary District[3] encompasses the unincorporated community of Byron and serves a population of 800. It is an independent special district with a five-member board of directors, and a General Manager. The wastewater treatment and disposal facility is located on 30 acres of land with 8 acres of evaporation ponds and 10 acres irrigated with treated effluent.

Small Water Systems

Small water systems and mutual water companies supply drinking water to communities between 2 and 199 service connections; or serve 25 or more people at least 60 days per year (days/yr). Three areas in the Subbasin (Bethel Island [twelve systems], Oakley [six systems], and Byron [four systems]) have small community water systems (15 to 199 service connections) that rely on groundwater as the only water supply source (IRWM, 2019, pg 2-31). Small community water systems are regulated by Contra Costa Environmental Health[4].

2.1.1.4 Federal, State, Tribal, and Special District Jurisdictions

Other entities have authority and responsibilities within the subbain that need to be considered when developing a GSP. **Figure 2-3** shows Federal-owned and state-owned lands and the agency with jurisdiction over the land. Dutch Slough (managed by DWR) is 1,187 acres of land that is being transformed into tidal marsh to provide habitat for salmon and other native fish and wildlife. In addition, the map includes lands owned and managed by East Bay Regional Park District (a special district) that preserves natural and cultural resources in Alameda and Contra Costa Counties.

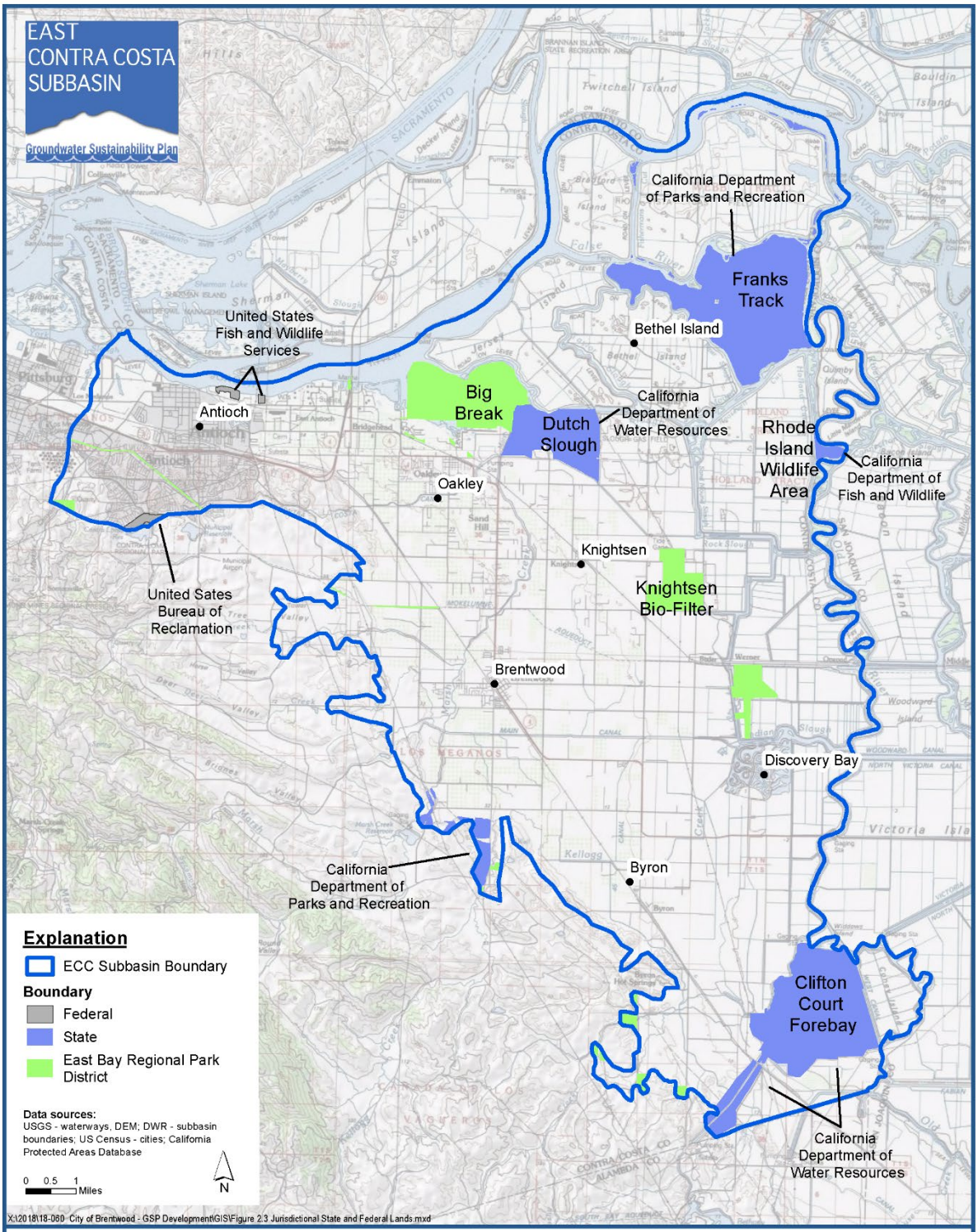
There are no known federally designated tribal lands or tribes in the Subbasin. The Sonoma Northwest Information Center (NWIC) (Sonoma State) searched for sacred lands, and none were found in the area. The Native American Heritage Commission (NAHC) record search returned no information for the Subbasin. NAHC further recommended contacting individual tribal leaders and provided a list of seven people for the GSAs to contact. On April 18, 2019, a separate email was sent to each person recommended by NAHC requesting information on whether there was knowledge of sacred lands in the vicinity of the Subbasin, followed by a phone call. To date, we received no responses identifying federally designated tribal lands in the East Contra Costa Subbasin.

2.1.1.5 Major Water Related Infrastructure

Major water-related infrastructure in the Subbasin **Figure 2-4** is relied upon by multiple cities, water agencies and private water users. These facilities deliver supplies to GSA members and to the State Water Project (SWP) including the California Aqueduct and the Delta Mendota Canal.

[3] Source: https://contracostasda.specialdistrict.org/byron-sanitary-district-3715f00

[4] In addition to small community water systems listed above there are also Local Small Water Systems (2-4 connections), State Small Water Systems (5-14 connections), as well as non-community public water systems all regulated by Contra Costa Environment Health.



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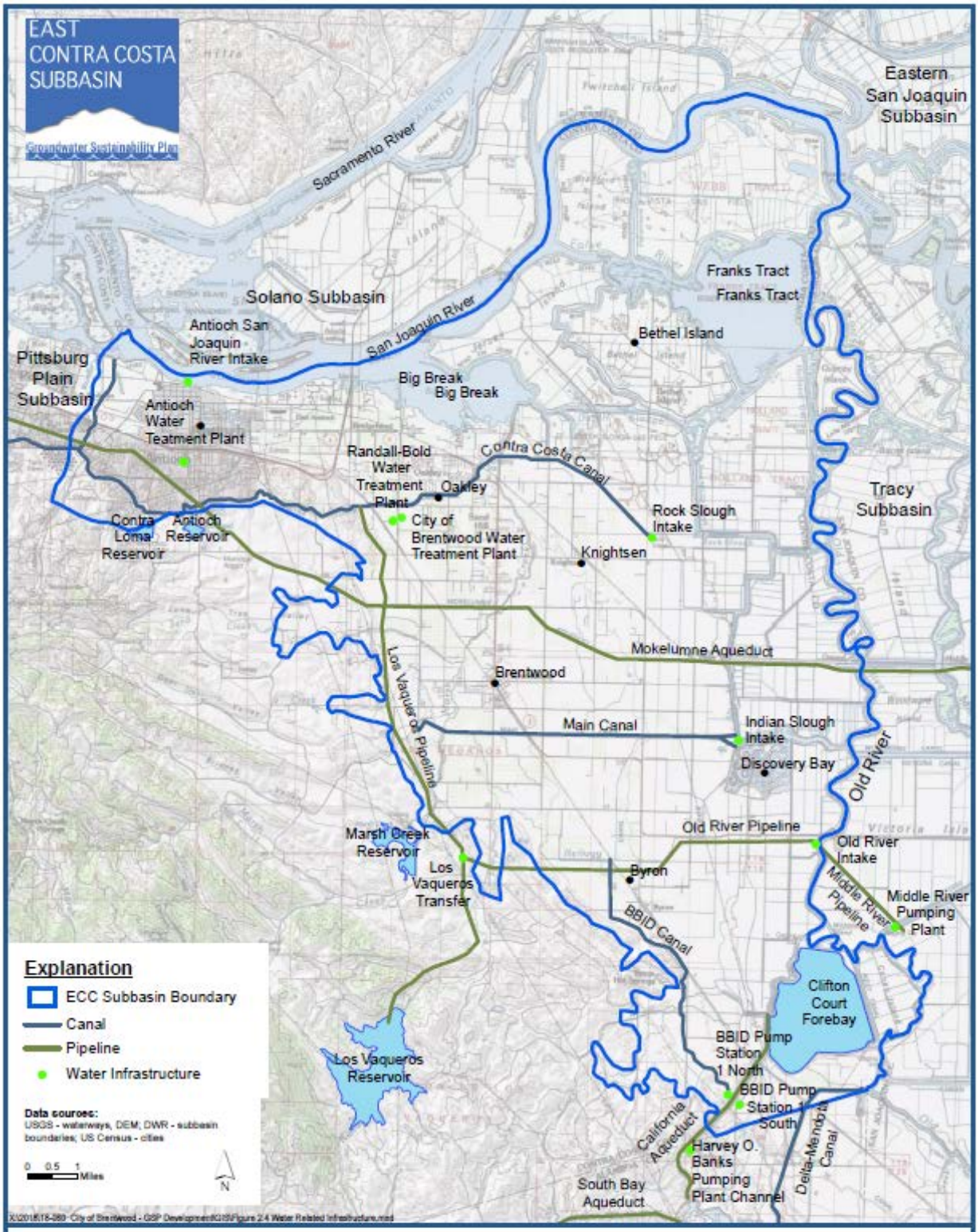
Jurisdictional Boundaries, State, Federal Lands, and Special Districts

East Contra Costa Subbasin Groundwater Sustainability Plan
Contra Costa County, California

Figure 2-3



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Water Related Infrastructure

East Contra Costa Subbasin Groundwater Sustainability Plan
Contra Costa County, California

Figure 2-4

Contra Costa Water District Facilities

The Contra Costa Water District facilities in the ECC Subbasin are shown on **Figure 2-4.** CCWD jointly owns RBWTP with DWD which has been operated by CCWD since the plant came online in 1992. Raw water is conveyed to the RBWTP from the Rock Slough intake via the Contra Costa Canal (operated by CCWD) as well as from the Old River and Middle River intakes via pipelines. Water can be stored in the Los Vaqueros Reservoir from the Old River and Middle River intakes during periods of low salinity (winter and spring) in the Delta. It is then later used (late summer and early fall) to blend with raw water from the Rock Slough intake when high salinity conditions are experienced in the Delta. Surface water supplies for the City of Brentwood originate from Rock Slough. The supply is transported through the Contra Costa Canal for treatment at the City of Brentwood Water Treatment Plant (COBWTP). CCWD supplies water to the City of Antioch from diversions at the Middle River (Victoria Canal), Rock Slough, and Old River. The Los Vaqueros Reservoir Phase 2 Expansion project would increase capacity from 160,000 to 275,000 acre feet and is scheduled for completion by 2027. This expansion will improve water supply reliability while protecting Delta fisheries.

Byron-Bethany Irrigation District Facilities

BBID service area is both within the ECC Subbasin (Byron Division) and in the Tracy Subbasin (Bethany Division, raw water service area (RWSA) 1 and 2, and CVP Service Area). The water supply distribution system for the Byron, Bethany Divisions and RWSA1 includes pump stations on the intake channel at the Harvey O. Banks Pumping Plant (**Figure 2-4**). BBID Pump 1 diverts the District's pre-1914 water supply north to the Byron Division and south to the Bethany Division and RWSA 1.

State Water Project (SWP)

Clifton Court Forebay is part of the SWP and serves as the starting point of the California Aqueduct, which delivers water to Southern California. In addition, it provides water via the Delta-Mendota Canal to the San Joaquin Valley. The Harvey O. Banks Pumping Plant at Clifton Court Forebay lifts the water from the Delta into the California Aqueduct (**Figure 2-4**). Eleven pumps at the Banks Pumping Plant (2.5 miles southwest of Clifton Court Forebay) pull water from Old River. This water has been diverted from the Sacramento River near Walnut Grove (via Delta Cross Channel and Snodgrass Slough) to the Mokelumne River into the SJR and then south up Old River.

2.1.1.6 Sacramento-San Joaquin River Delta (the Delta)

The Sacramento-San Joaquin Delta is the center of California's water supply, providing fresh water to the majority of the state's population and to millings of acres of farmland. It is the largest estuary on the West Coast and provides critical habitat to fish and wildlife species. The East Contra Costa Groundwater Subbasin is located on the southwestern part of the Delta. The Delta is a 1,300 square mile area where the Sacramento, San Joaquin, and Mokelumne Rivers come together that was once a tule marsh. In the mid to late 1800s and early 1900s, settlers installed a levee system that formed many of the islands. When the islands were dewatered for agricultural development, land subsidence resulted from oxidation of organic soils, some Delta Islands in the Subbasin have lowered more than 15 feet in response to peat oxidation (not related to groundwater extraction). Problems facing the delta are

compounding because subsiding delta islands and rising sea levels would increase pressure on the levees and rising sea level would and push salt water further into the delta.

The Delta is composed of three zones. The Primary Zone is the center of the Delta (**Figure 2-5a, b**), the largest zone (490,050 acres) and is primarily rural farmland but includes a few small towns[5]. The Secondary Zone includes 247,320 acres of farmland and cities and suburbs. The third area (Suisun Marsh is northwest of the Primary Zone and not discussed in this section. Two state agencies have land use jurisdiction in the Delta: Delta Stewardship Council described in the Delta Plan, 2013, and the Delta Protection Commission (DPC). The Council and the DPC have concurrent jurisdiction in the Delta's Primary Zone to ensure that local land use planning is consistent with their own laws and plans.

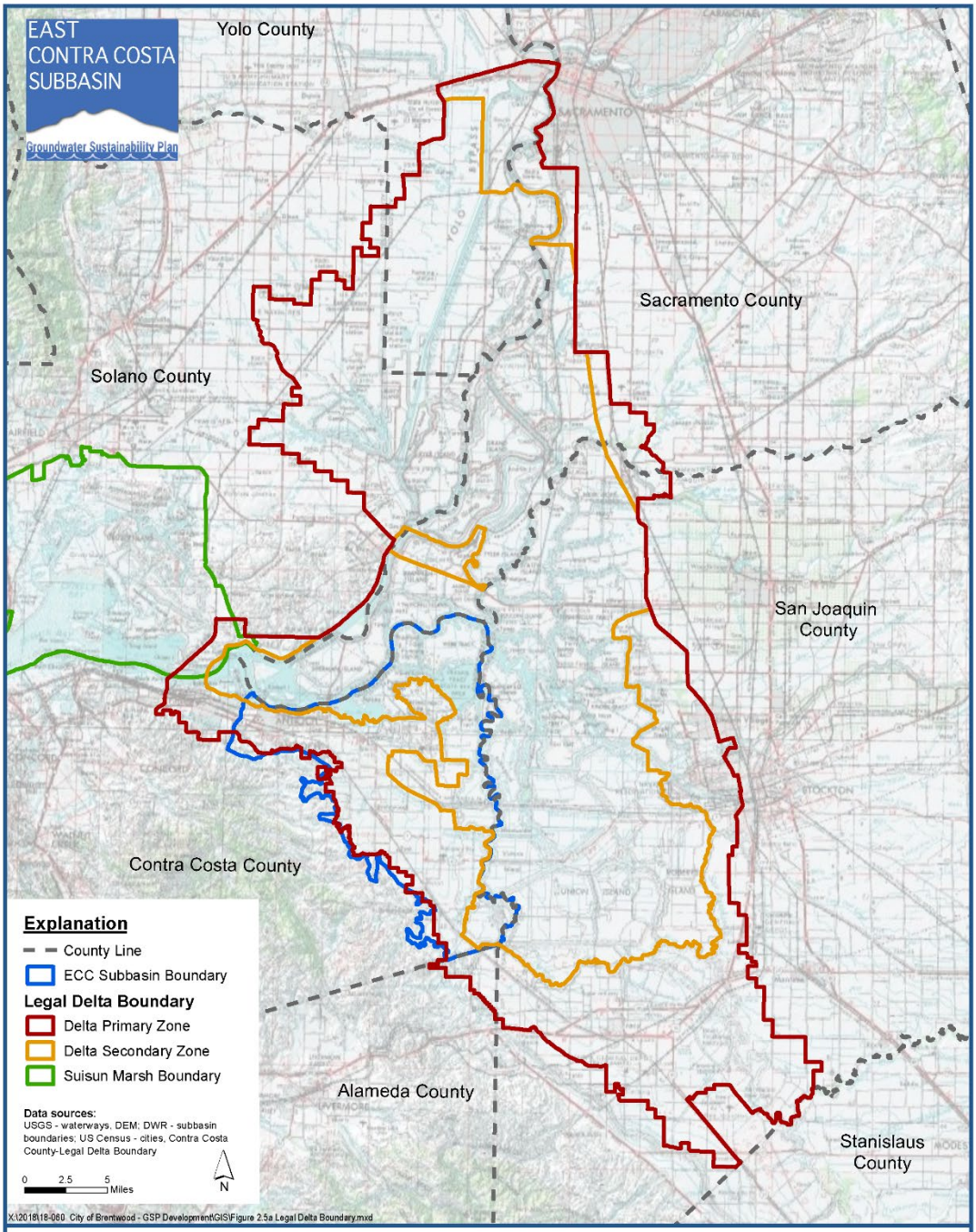
About two-thirds of the islands and tracts in the Sacramento-San Joaquin Delta are below sea level and are surrounded by levees that protect the land from floods and high tides. There are more than 1,100 miles of levees in the delta contracted to protect farmland. The predominant land use of the islands in the ECC Subbasin is agriculture with a small population of farm workers. Agencies with responsibilities for levee maintenance and drainage systems in the Subbasin include: BIMID, 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 2121 (Bixler Tract), RD 2137 (Dutch Slough Restoration Project site), RD 799 (Hotchkiss Tract, planned residential development and ecological restoration project), RD 800 (Byron Tract and Discovery Bay), RD 830 (Jersey Island owned by ISD and recycled water used to grow hay).

2.1.2. Density of Wells

The density of different well types provides a general distribution of agricultural, industrial and domestic well users and identify communities dependent on groundwater; another tool to understand groundwater use in the subbasin. Well data and well construction information were obtained from DWR's well completion report database, ECC pumping records, and from DWR's Well Completion Report Map Application (DWR, 2019). DWR Well Completions Report Map Application is an interactive mapping tool that displays submitted well completions reports. DWR categorizes wells in the mapping application as either domestic, production and public supply, and this database was used to create **Figures 2-6a**, **b**, and **c**. **Figure 2-6a** illustrates the well density of domestic wells by each Public Land Survey System (PLSS) township-range section (typically a 1-mile by 1-mile square grid). This map indicates that the highest density of domestic wells occurs along an east-west swath between Knightsen and Brentwood, as well as near Byron. The domestic wells are considered de minimis extractors, pumping less than two AF annually and would collectively pump less than 2,000 AFY. **Figure 2-6b** illustrates the well density of production wells per square mile and shows the highest density of these types of wells to be located in the vicinity of Oakley, Knightsen, and Brentwood, with others located in the Town of Discovery Bay and Byron. DWR defines "production wells" as "…those wells that are designated as irrigation, municipal, public, or industrial on Well Completion Reports". **Figure 2-6c**

[5] The Delta Plan, Ensuring a reliable water supply for California, a healthy Delta ecosystem, and a place of enduring value.

illustrates the well density of public supply wells, with the highest density of public supply wells occurring in the Town of Discovery Bay. The DWR database allows the wells to be filtered for planned use and wells with the designation of Irrigation-Agriculture are illustrated on **Figure 2-6d** with the highest density of these wells in the Knightsen/Oakley area.



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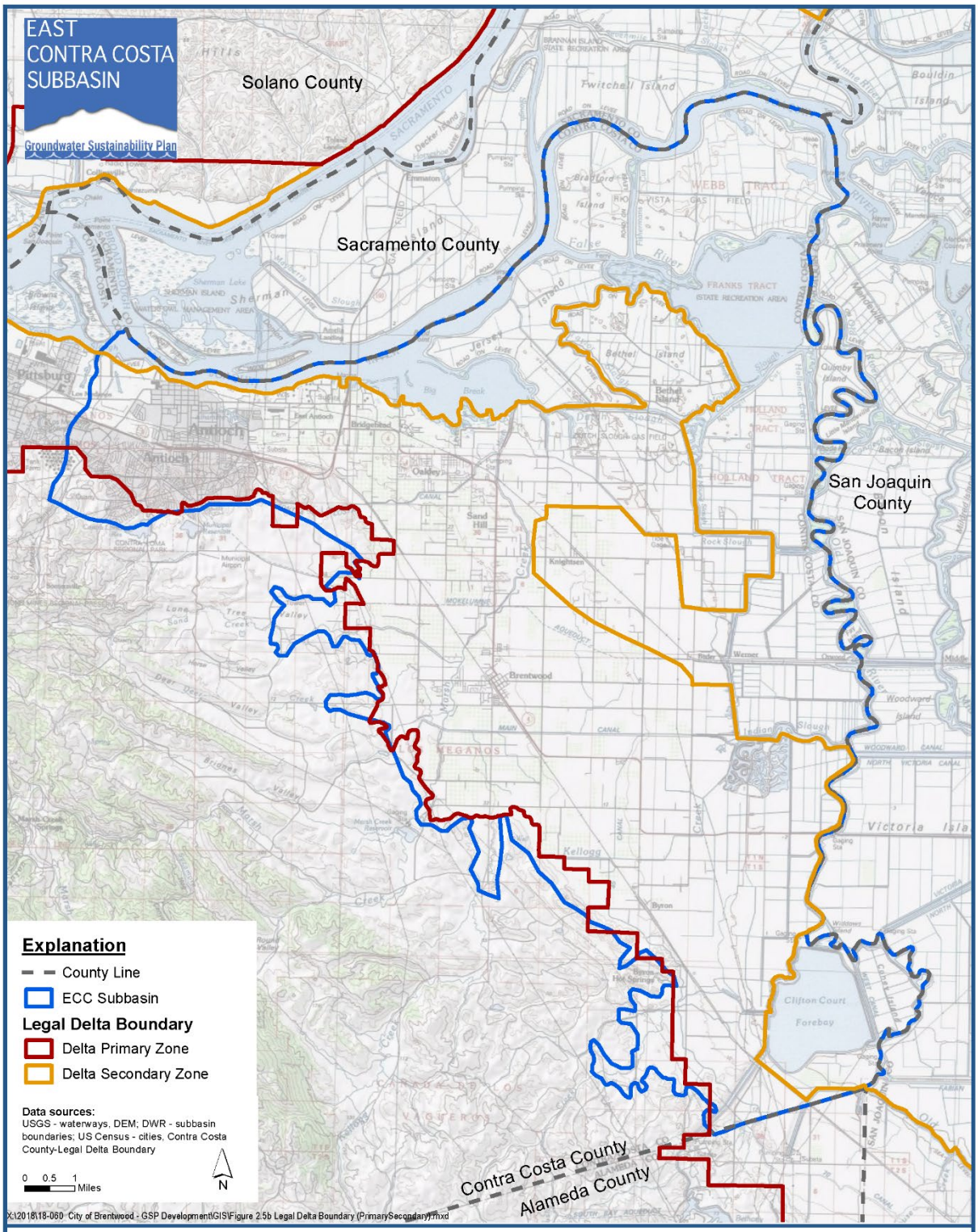
Legal Delta Boundary

East Contra Costa Subbasin Groundwater Sustainability Plan
Contra Costa County, California

Figure 2-5a



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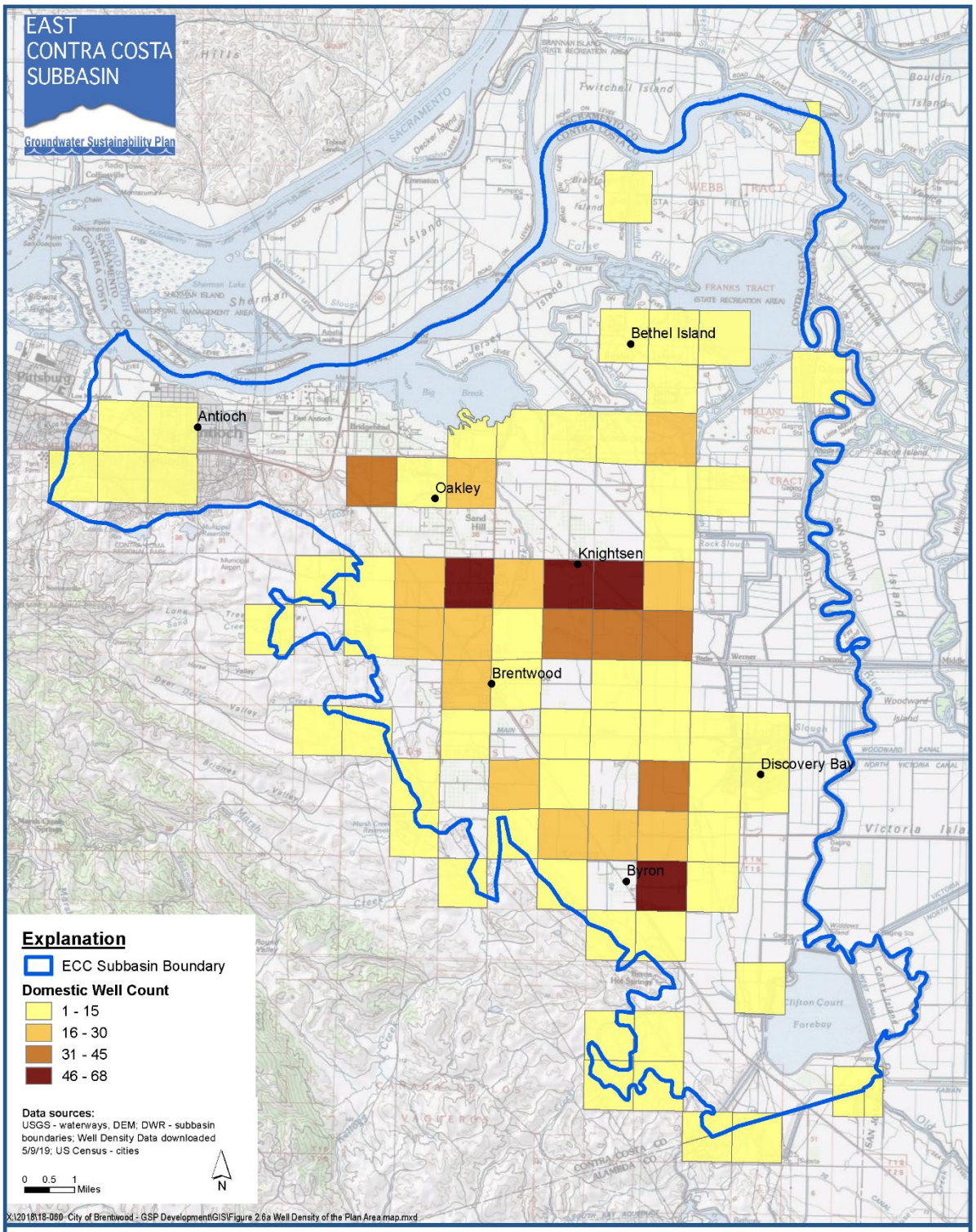
Legal Delta Boundary- Primary and Secondary Zones

East Contra Costa Subbasin Groundwater Sustainability Plan
Contra Costa County, California

Figure 2-5b



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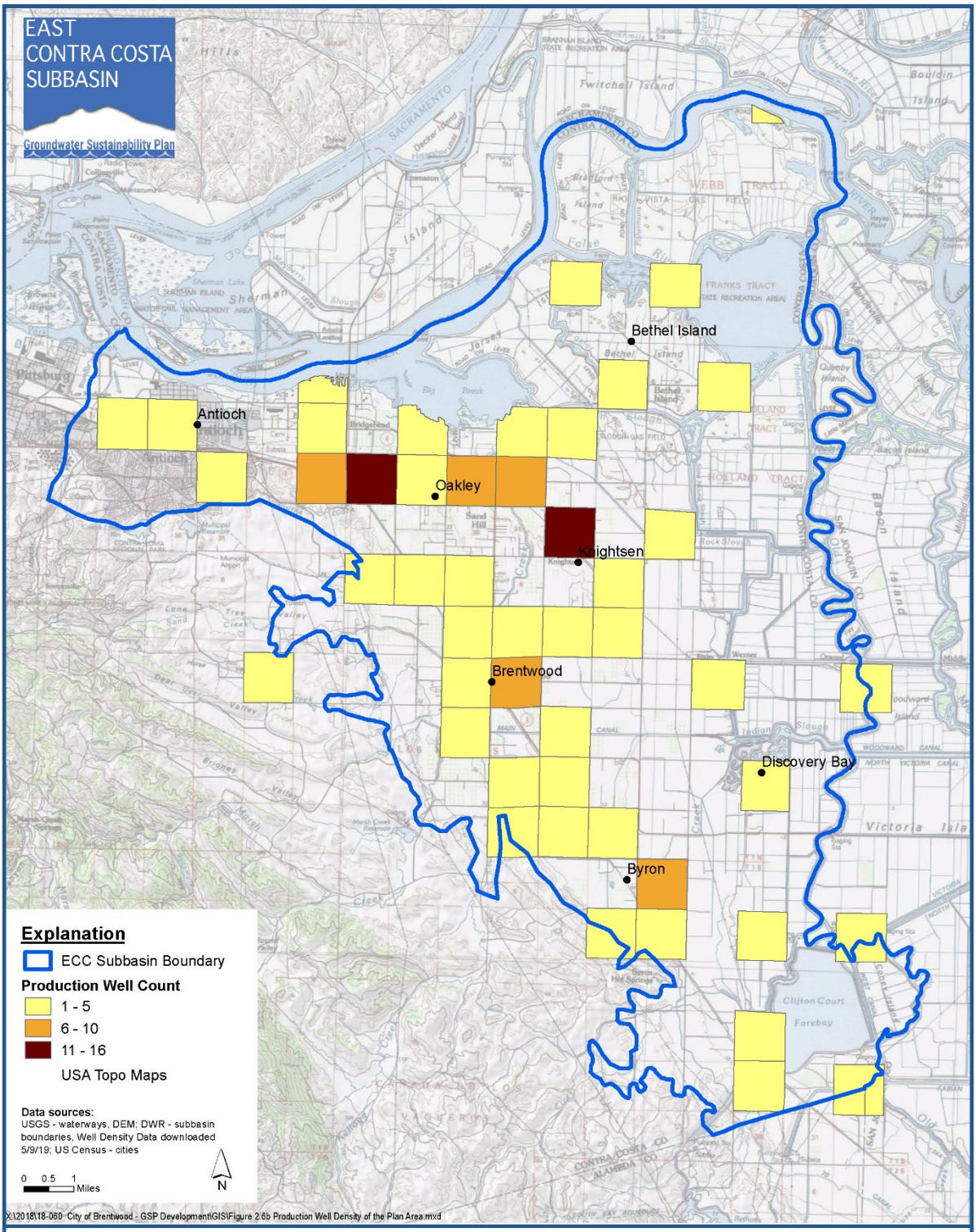
Domestic Well Density per Square Mile

East Contra Costa Subbasin Groundwater Sustainability Plan
Contra Costa County, California

Figure 2-6a



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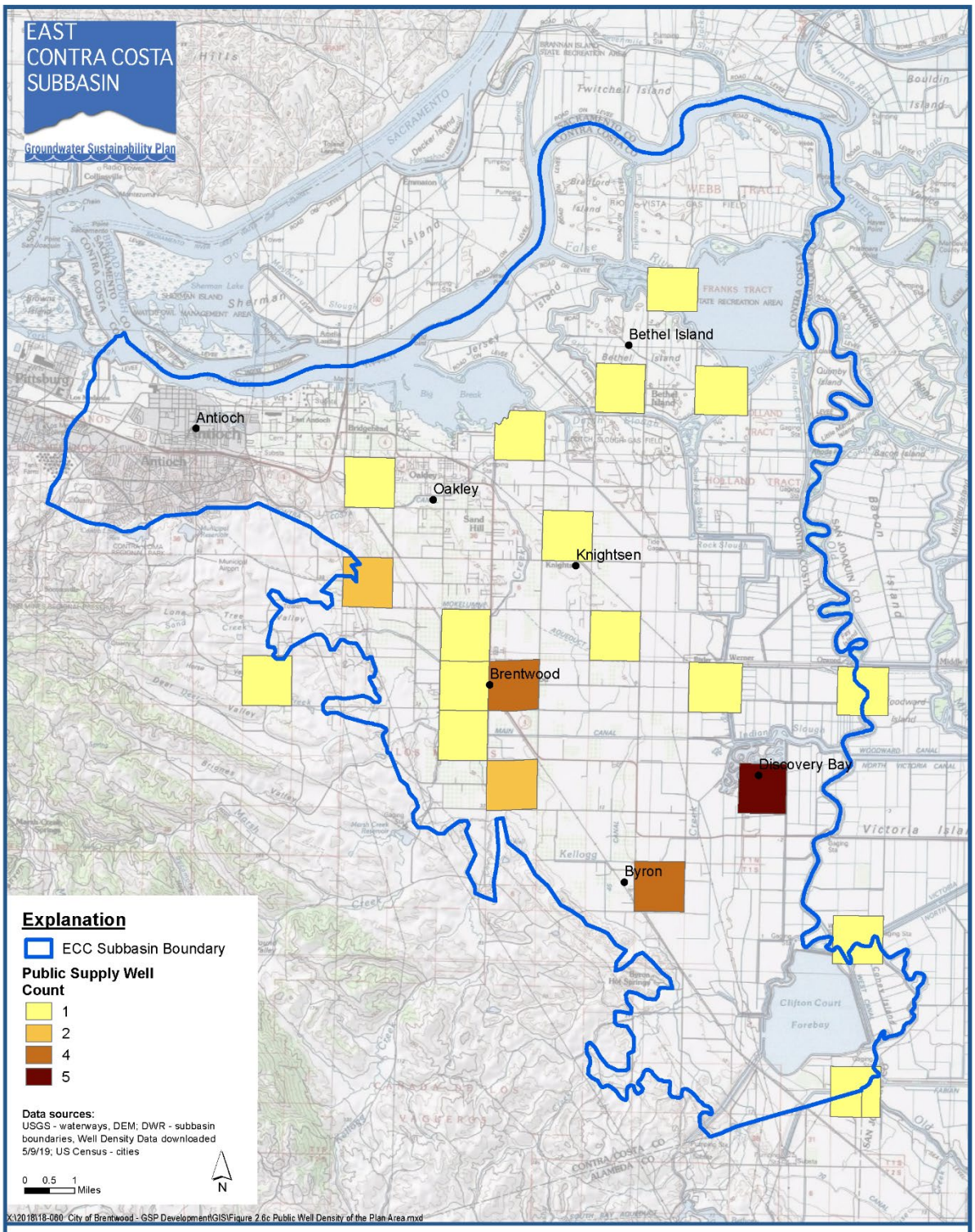
Production Well Density per Square Mile

East Contra Costa Subbasin Groundwater Sustainability Plan
Contra Costa County, California

Figure 2-6b



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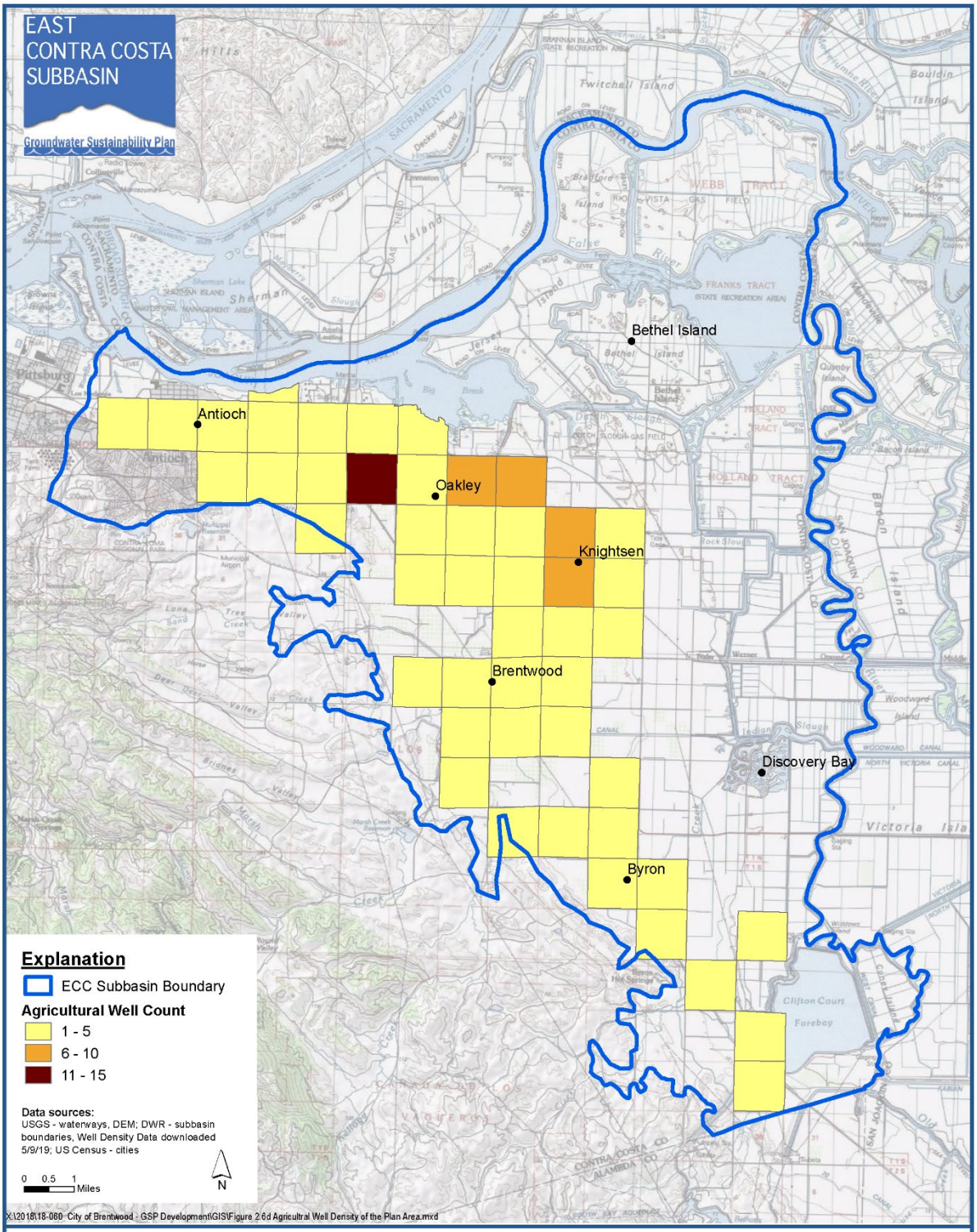
Public Supply Well Density per Square Mile

East Contra Costa Subbasin Groundwater Sustainability Plan
Contra Costa County, California

Figure 2-6c



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Agricultural Well Density per Square Mile

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Contra Costa County, California

Figure 2-6d

The DWR well completion database contains over 5,000 wells historically drilled in the Subbasin. The DWR mapping application estimates the number of wells in ECC at approximately 1,180 wells. The difference between the two sources is thought to be due to wells that are inactive or destroyed. **Table 2-2** summarizes well types by use for the wells in the DWR Well Completion Report Map Application. Based on DWR's map application, the estimated well density ranges from approximately 1 to 68 wells per square mile, but as stated above, there are uncertainties associated with the DWR well coverage that may double count wells and/or include missing and incorrect values.

Table 2-2: Types of Wells[1]

Type of Well	Total Wells
Domestic	975
Production	156
Public Supply	51
Agricultural	136
TOTAL	**1,182**

[1]DWR SGMA Data Viewer – Well Reports Statistics in ECC Subbasin; downloaded on May 9, 2019

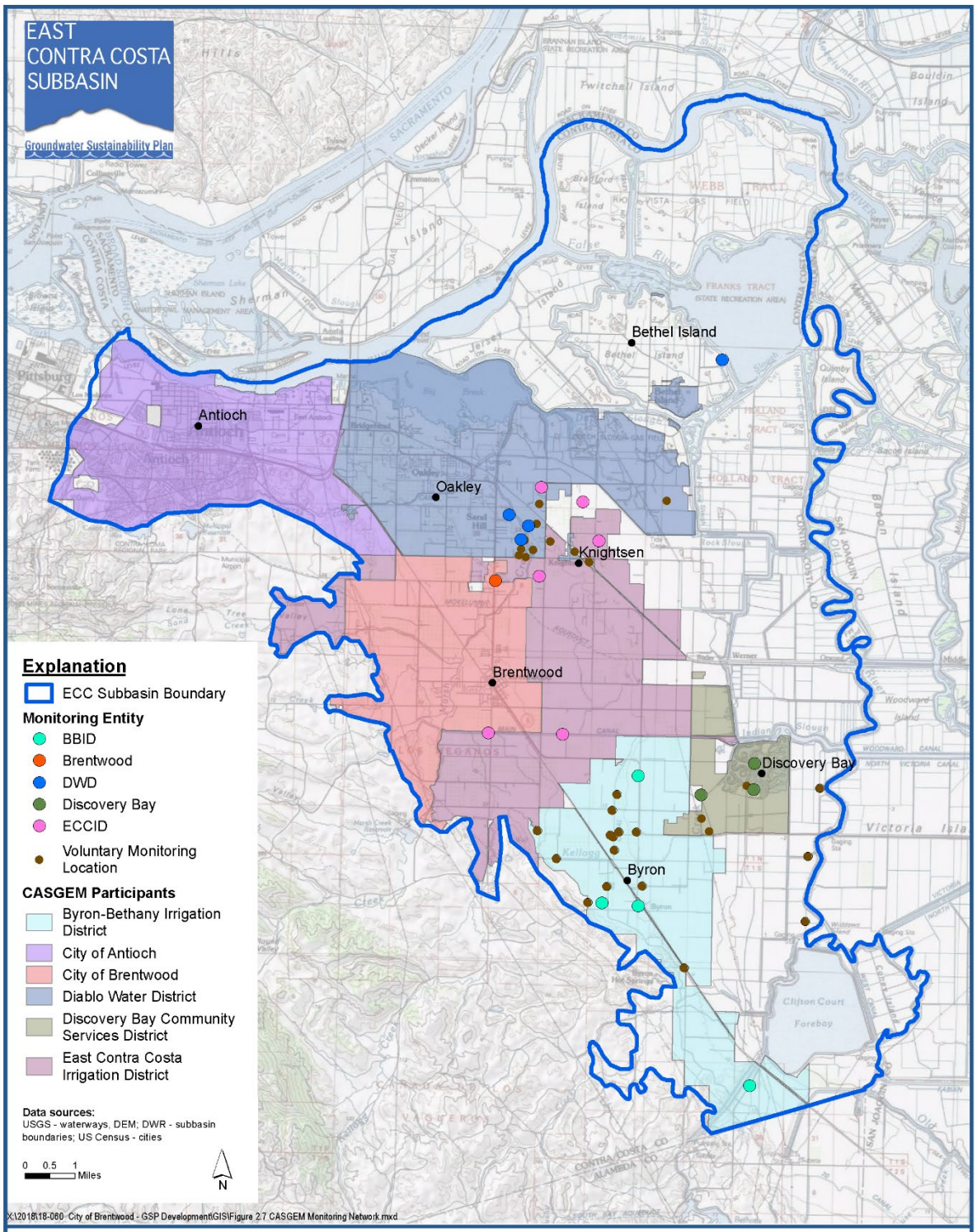
2.2. Water Resources Monitoring and Management Programs[6] (10727G) (§354.8c, d, and e)

2.2.1. CASGEM and Historical Groundwater Level Monitoring

The East Contra Costa County California Statewide Groundwater Elevation Monitoring (CASGEM) Network tracks seasonal and long-term groundwater level trends. The ECC CASGEM Network began in 2011 and is managed by DWD; it was updated in 2014 and updated again in 2018. **Figure 2-7** displays the CASGEM network of 27 wells by monitoring entity. In addition, BBID, DWD, ECCID, and TODB voluntarily share groundwater depth data for over an additional 20 wells. Once the GSP is implemented it will replace the CASGEM Monitoring Plan. The GSP monitoring well groundwater levels will be entered into the SGMA Monitoring Network Module (MNM) instead of CASGEM. However, voluntary or non-SGMA wells data will still upload the CASGEM Operating System.

Historically, groundwater levels have been monitored by various agencies since the 1950s. Numerous reports were prepared to evaluate these data and groundwater conditions in the basin and include: An Initial investigation of Ground Water Resources (LSCE, 1999) that serves as a baseline for future groundwater conditions reports, DWD Groundwater Management Plan (GMP) (LSCE, 2007), and Groundwater Quality Monitoring Plan (GQMP) (LSCE, 2018).

[6] It is not clear at this time how these programs will change with the development and implementation of the GSPs.



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ECC CASGEM Monitoring Network

East Contra Costa Subbasin Groundwater Sustainability Plan
Contra Costa County, California

Figure 2-7

2.2.2. Department of Water Resources (DWR) and EWM

DWR takes annual measurements (spring and fall) in three wells in the ECC Subbasin that are included in the Subbasin CASGEM well network. In addition, DWR manages the EWM (it used to be called the Water Data Library and then CASGEM). The EWM includes historical groundwater level measurements since the early 1900s and periodic water quality data.

2.2.3. Groundwater Ambient Monitoring and Assessment Program (GAMA)

As part of the GAMA program, the State Water Resources Control Board (SWRCB) collects data from water agencies and private well owners and makes it available to the public. The data aide interpretation of groundwater quality and monitoring efforts.

2.2.4. GeoTracker

The SWRCB provides data for sites that have impacted water quality including groundwater. These records contain not only general mineral and contaminated constituent concentrations but also groundwater levels.

2.2.5. California Division of Drinking Water (DDW)

Formerly the Department of Health Services, DDW is a division of the SWRCB that regulates public drinking water systems. They asses the quality of the drinking water and identify specific water quality problems. Public water system (PWS) wells are to meet Title 22 water quality requirements and DDW provides these PWS data to the public.

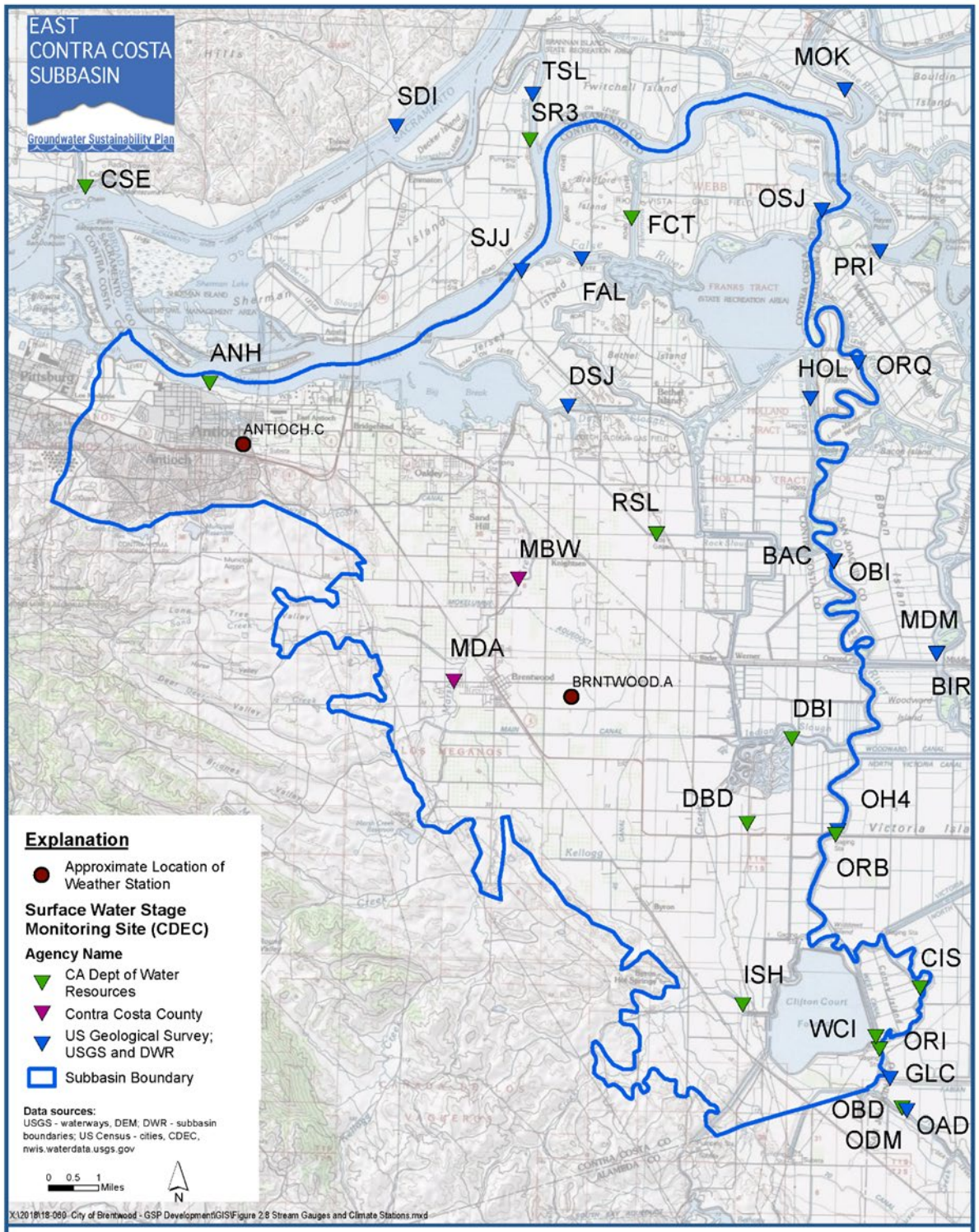
2.2.6. U.S. Geological Survey (USGS)

USGS monitors wells for water levels and water quality generally for special projects (i.e., not on a regular monitoring schedule). The USGS makes the data available for public on the National Water Information System (NWIS) website. The USGS maintains a series of stream gauges in the vicinity of the Subbasin. Fifteen of the USGS stream gauges have historical data and are currently active in the Subbasin (**Figure 2-8**).

2.2.7. Subsidence Monitoring

Subsidence monitoring in the Subbasin consists of a Continuous Global Positioning System (CGPS) station managed by the Plate Boundary Observatory/UNAVCO. These stations were generally constructed to monitor motions caused by plate tectonics, but they are also used for other applications (e.g., assessing subsidence). UNAVCO GPS (P256) is located in the ECC Subbasin with measurements starting in 2005.

Additional subsidence monitoring in adjacent subbasins includes DWR Surveying/spirit leveling (Solano and Yolo Subbasin), USGS Interferometric Synthetic-Aperture Radar (InSAR) (Delta-Mendota Subbasin), and an extensometer in the Yolo Subbasin.



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Stream Gauges and Climate Stations

East Contra Costa Subbasin Groundwater Sustainability Plan
Contra Costa County, California

Figure 2-8

2.2.8. Climate Monitoring

The locations for two climate stations (Antioch and Brentwood) are shown on **Figure 2-8.** Climate is discussed in more detail in Chapter 5 of the GSP.

2.2.9. Incorporating Existing Monitoring Programs into the GSP

The existing monitoring programs listed above will provide the basis for the GSP monitoring program. Specifically, the CASGEM Network will provide the foundation of groundwater level data, as described in more detail in Chapter 3.3 of this document that describes the GSP Monitoring Program. In addition, the GSP monitoring program will incorporate production well water quality data as well as monitoring data from existing stream gauges.

2.2.10. Limits to Operational Flexibility

The existing monitoring programs are not anticipated to limit the operational flexibility of this GSP. The current groundwater monitoring programs will form the basis of the future GSP monitoring program. This includes some CASGEM wells for water levels, proposed dedicated groundwater monitoring wells (water level and quality), DDW monitoring for water quality and existing subsidence monitoring stations as appropriate. No existing groundwater management or monitoring programs are expected to limit the operational flexibility of the groundwater subbasin.

2.2.11. Conjunctive Use

The majority of water used in the ECC Subbasin is surface water (e.g., the City of Antioch purchases surface water only from CCWD and has a water right to river diversion water). Conjunctive use programs (coordinated use of surface water and groundwater) in the ECC Subbasin are currently implemented and planned by individual agencies.

CCWD receives its water from the Sacramento-San Joaquin Delta and in recent years it has used Los Vaqueros Reservoir to help improve water quality and as an emergency supply resource (LSCE, 2007).

The City of Brentwood primarily receive surface water deliveries and pump groundwater on an as-needed basis.

TODB operates solely on groundwater and has multiple pumping wells in the town's boundary.

DWD uses 80% surface water (CVP provides water and DWD also purchases surface water) and has the capacity to pump groundwater to meet up to 20% of the demand in its service area.

Both ECCID and BBID are able to operate fully on surface water in nearly all water years. ECCID has groundwater wells in its area to help meet water demands as needed. In 2000, the two agencies entered an agreement with CCWD that allows them to sell water to CCWD during drought years and allows CCWD to purchase a smaller amount in non-drought years (LSCE, 2007).

2.3. Land Use Elements or Topic Categories of Relevant General Plans (§354.8a and f)

Land use is a key factor in determining water demand. Changing land use conditions and irrigation practices are also factors that affect water demand from year to year.

2.3.1. Current and Historical Land Use

General land use conditions based on DWR survey data for CCC are illustrated in **Figures 2-9** through **2-11** and summarized in **Table 2-3** and **Figure 2-12**. The 2015 land use in the Subbasin is mainly agricultural (41%), followed by urban (about 23%), then by water and native vegetation (both about 14%) (source: DWR Crop Mapping Delta 2015 geospatial dataset[7]). The crop types with the highest land use coverage in the Subbasin are pasture (14%) and field crops (12%). Outside of the Subbasin, the existing land use is mainly field crops, truck crops and pasture **(Figure 2-9**) in the delta area.

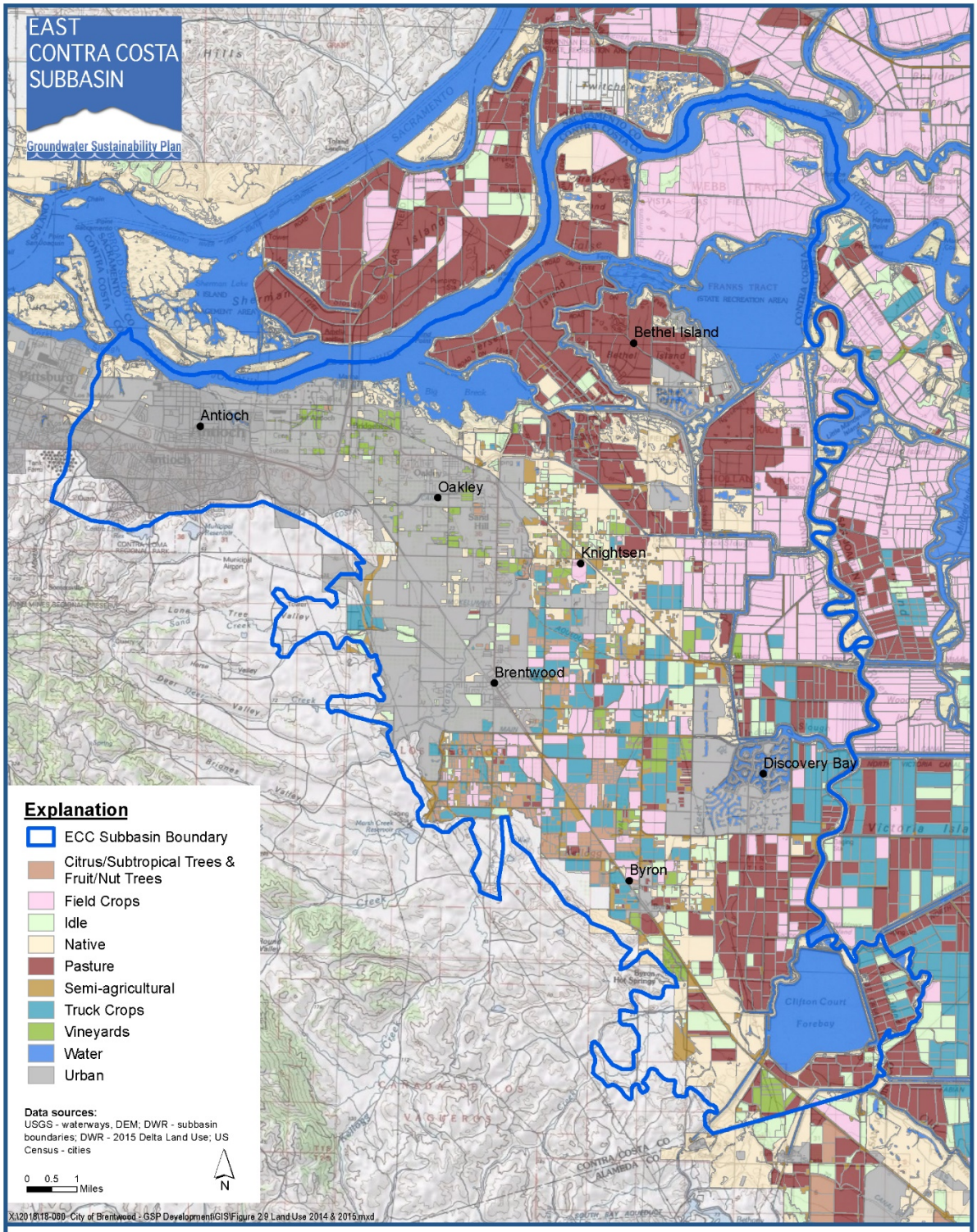
Table 2-3: Land Use Summary

Land Use Designation	1976		1995		2015	
	acres	%	acres	%	acres	%
Field Crops Total[1]	23,153	22%	18,195	17%	13,467	13%
Idle	916	1%	5,754	5%	3,527	3%
Native[2]	25,040	23%	23,400	22%	15,581	15%
Fruit/Nut Trees & Citrus/Subtropical Trees	12,057	11%	6,398	6%	1,947	2%
Pasture	12,979	12%	11,087	10%	14,809	15%
Semi-agricultural[3]	797	1%	868	1%	6,276	6%
Truck Crops	7,747	7%	6,800	6%	5,428	5%
Urban[4]	9,726	9%	19,231	18%	23,523	23%
Vineyards	848	1%	876	1%	1,980	2%
Water	14,368	13%	14,868	14%	14,926	15%
Total[5]	107,632	100%	107,477	100%	101,462	100%

Source and Abbreviations:
California Open Data Portal, https://data.ca.gov/dataset/crop-mapping-delta-2015, accessed June 2019. Also used 2014 data for areas not covered by 2015 mapping.
California Department of Water Resources, https://water.ca.gov/Programs/Water-Use-And-Efficiency/Land-And-Water-Use/Land-Use-Surveys, accessed June 2019

1- Includes land designated as Grain and Hay in 1976.
2- Includes land designated as Native, Native Riparian, Native Vegetation.
3-Includes incidental to agricultural, farmsteads, feed lots, dairies, lawns, cemeteries.
4- Includes land designated as Recreation in 1976.
5-Total area differs due to different survey areas monitored. Total about 107,000 acres (168 square miles).
6-1995 and 2015 Surveys have land that was not surveyed and was given "Not Designated" description.

[7] California Open Data Portal, https://data.ca.gov/dataset/crop-mapping-delta-2015, accessed June, 2019.



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Land Use- 2014 & 2015

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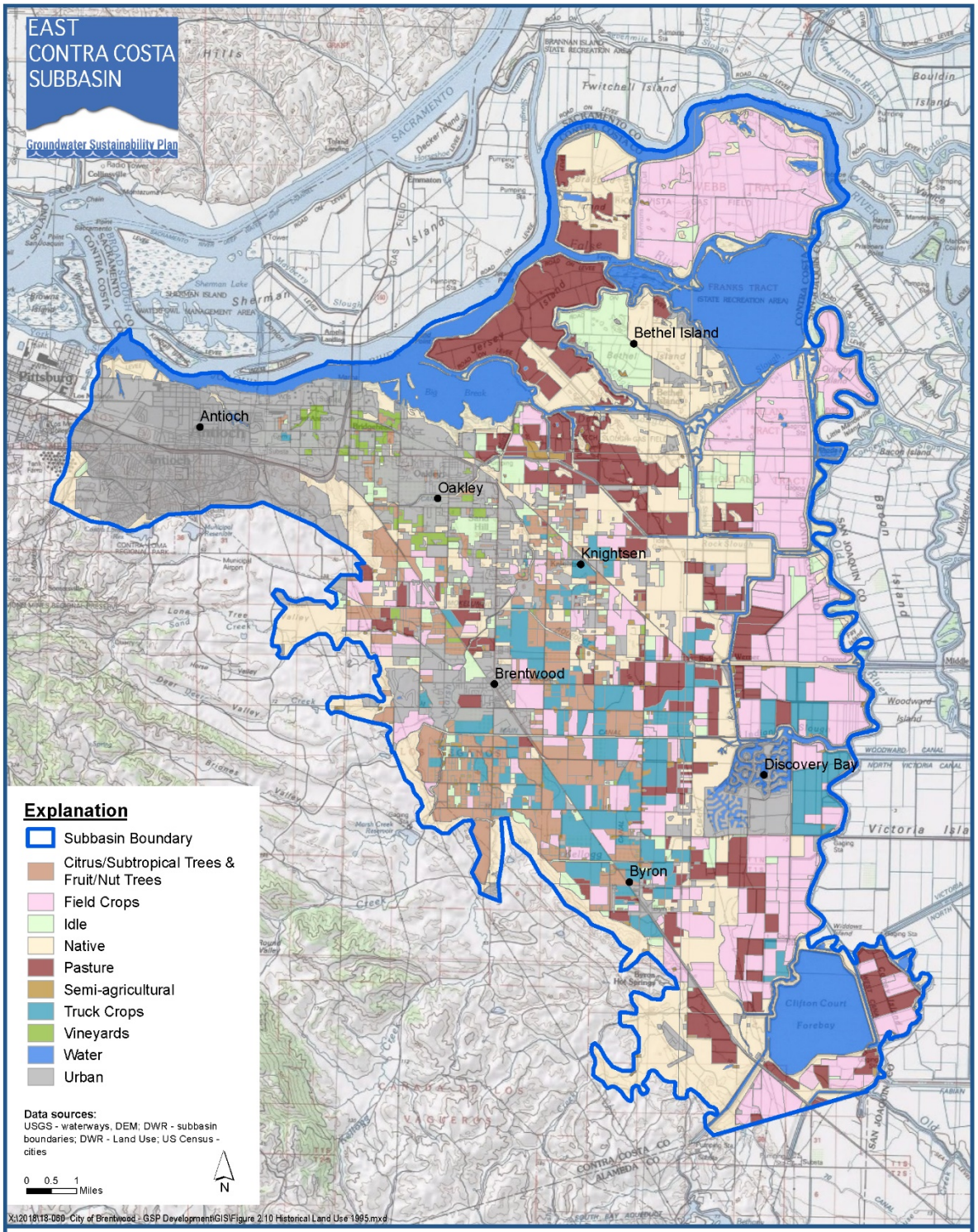
Contra Costa County, California

Figure 2-9



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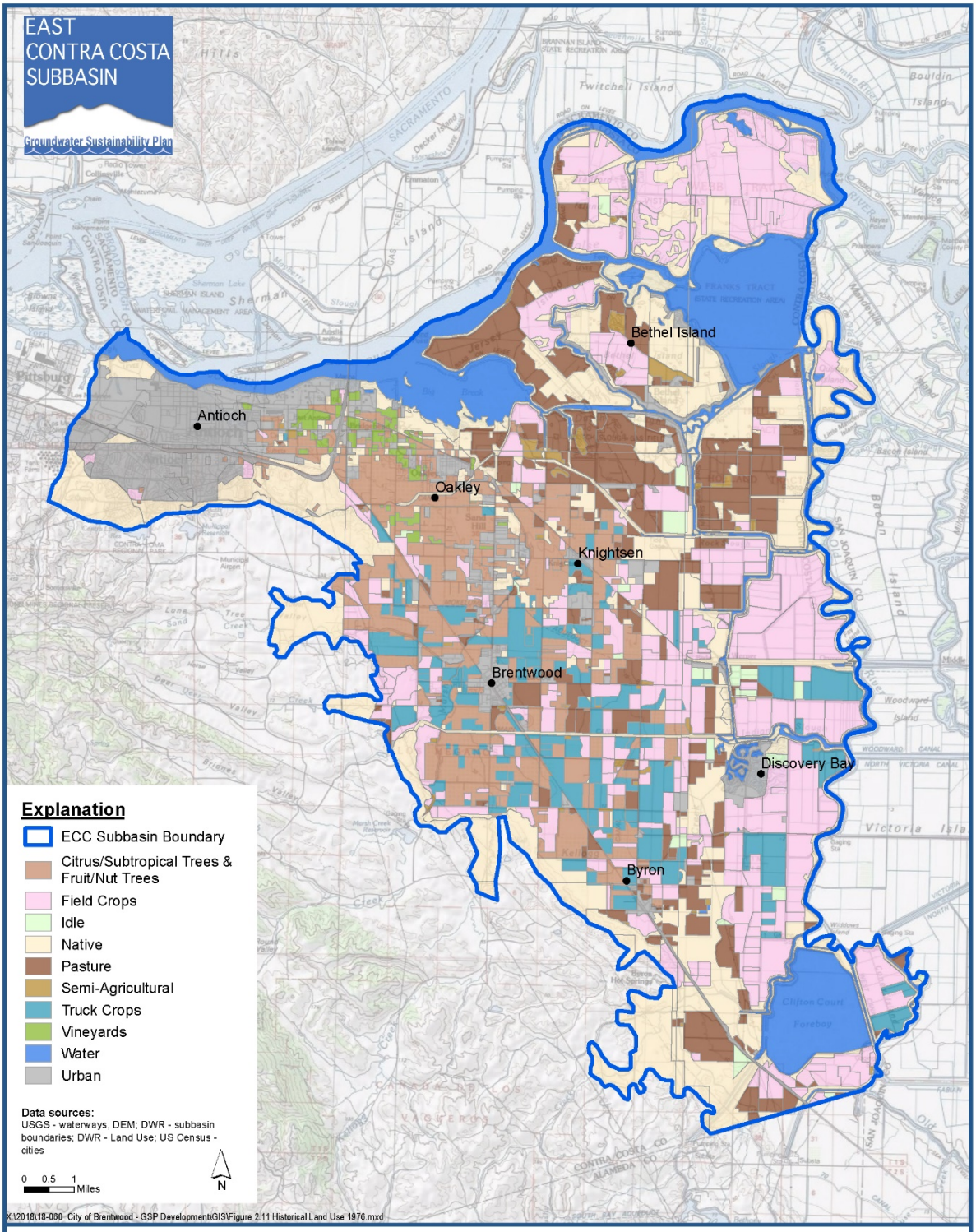
Historical Land Use-1995

East Contra Costa Subbasin Groundwater Sustainability Plan
Contra Costa County, California

Figure 2-10



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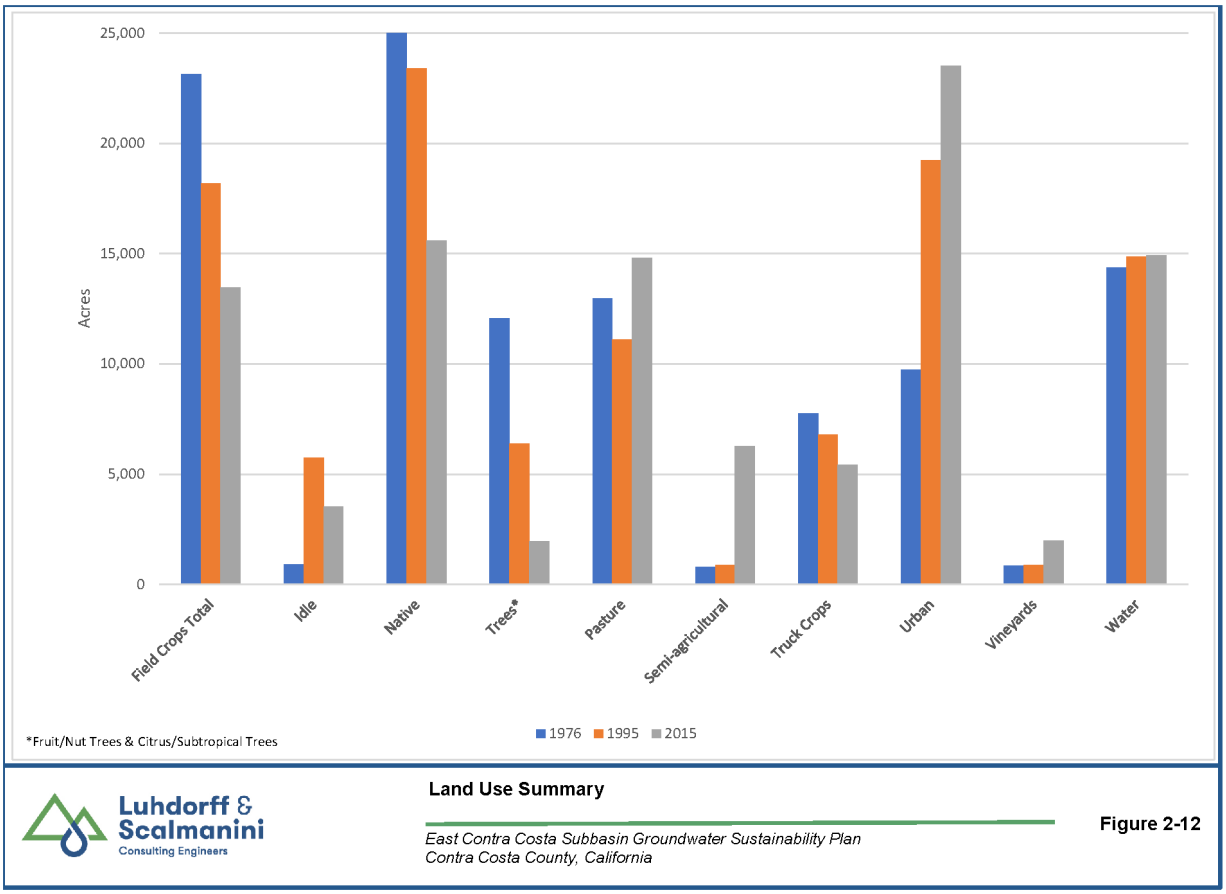
Historical Land Use-1976

East Contra Costa Subbasin Groundwater Sustainability Plan
Contra Costa County, California

Figure 2-11



Figures 2-10 and **2-11** illustrate historical land use for the years 1995 and 1976, respectively. **Table 2-3** and **Figure 2-12** summarize land use trends over a 40-year span (1976 to 2015) that shows increasing urban lands and decreasing agricultural (field crops and fruit trees) and native lands. Chapter 4.1 provides additional detail on current and historical land uses.

2.3.2. Disadvantaged Area: DAC, SDAC and EDA

Nearly 35% of the ECC Subbasin is considered a Disadvantaged Area and (**Table 2-4** and **Figure 2-13a**), which accounts for almost 20% of the population of the Subbasin (**Table 2-5** and **Figure 2-13a)**. The term "Disadvantaged Area" includes the severely disadvantaged communities (SDAC), disadvantaged communities (DAC), and economically distressed areas (EDA), (collectively referred to as Disadvantaged Area [DA]).

There are 15,253 people in 5,610 acres of land in the ECC Subbasin that are categorized as a DAC, an additional 17,689 people in 5,095 acres are designated as SDACs, making approximately 18% of the 178,618 population and 10% of the 107,600 acres of the ECC Subbasin covered by DACs and SDACs. DACs are areas identified as having a median household income (MHI) of less than 80% of the California statewide annual MHI, and SDACs have an MHI of less than 60% of the statewide MHI. The DAC/SDAC acreage is based on the Median Household Income ($63,783) for 2012-2016 US Census American

Community Survey (ACS) and in accordance with data from DWR's DAC Mapping Tools. The areas within the Subbasin identified as DACs and SDACs are displayed on **Figure 2-13**. A summary of DAC area by Census geography type (e.g., Census Block Groups, Census Place, and Census Tracts) is included in **Table 2-4**.

There are 2,645 people in 26,389 acres of land in the ECC Subbasin that are categorized as an EDA. The areas within the Subbasin identified as EDAs are displayed on **Figure 2-13a**, and **2-13b**. A summary of EDA areas by Census geography type (i.e., by Tracts and Blocks) is included in **Table 2-4** and **Table 2-5**. The EDAs by Tract and Block fulfill three criterion: EDA Criterion 1 and 2 municipality with MHI of less than 85% of the Statewide MHI and a population of less than 20,000; and EDA Criterion 3 has a low population density (less than or equal to 100 persons/square mile). The total percentage of people in the Subbasin comprising EDAs is about 2% and 24.5% percent of land are considered EDAs.

Table 2-4: Area Summary of Disadvantaged Areas

Area Description	Acres[1]	Percent of Subbasin	Cumulative Acres[1]	Cumulative Percent of Subbasin
East Contra Costa Subbasin	**107,596**	**100%**	**107,596**	**100%**
Disadvantaged Communities[2]				
Census Block Groups				
SDAC	1,512	1.41%	1,512	1.41%
DAC	3,218	2.99%	4,730	4.40%
Census Place				
SDAC	3,583	3.33%	8,313	7.73%
Census Tracts				
DAC	2,392	2.22%	10,705	9.95%
Total Census Block Group and Tract DACs & SDACs			10,705	9.95%
Economically Distressed Areas[3]				
Census Tract and Block				
Total EDA	26,389	24.53%	26,389	24.53%
Total DACs, SDACs, and EDAs for All Census Geographies			**37,095**	**34.5%**

[1] Areas calculated using geographic projection NAD 1983 California Teale Albers.
[2] DAC = Disadvantaged Community: $38,270 < median household income [MHI] < $51,026.
SDAC = Severely Disadvantaged Community: MHI < $38,270 (60% of statewide MHI).

Area Description	Acres[1]	Percent of Subbasin	Cumulative Acres[1]	Cumulative Percent of Subbasin

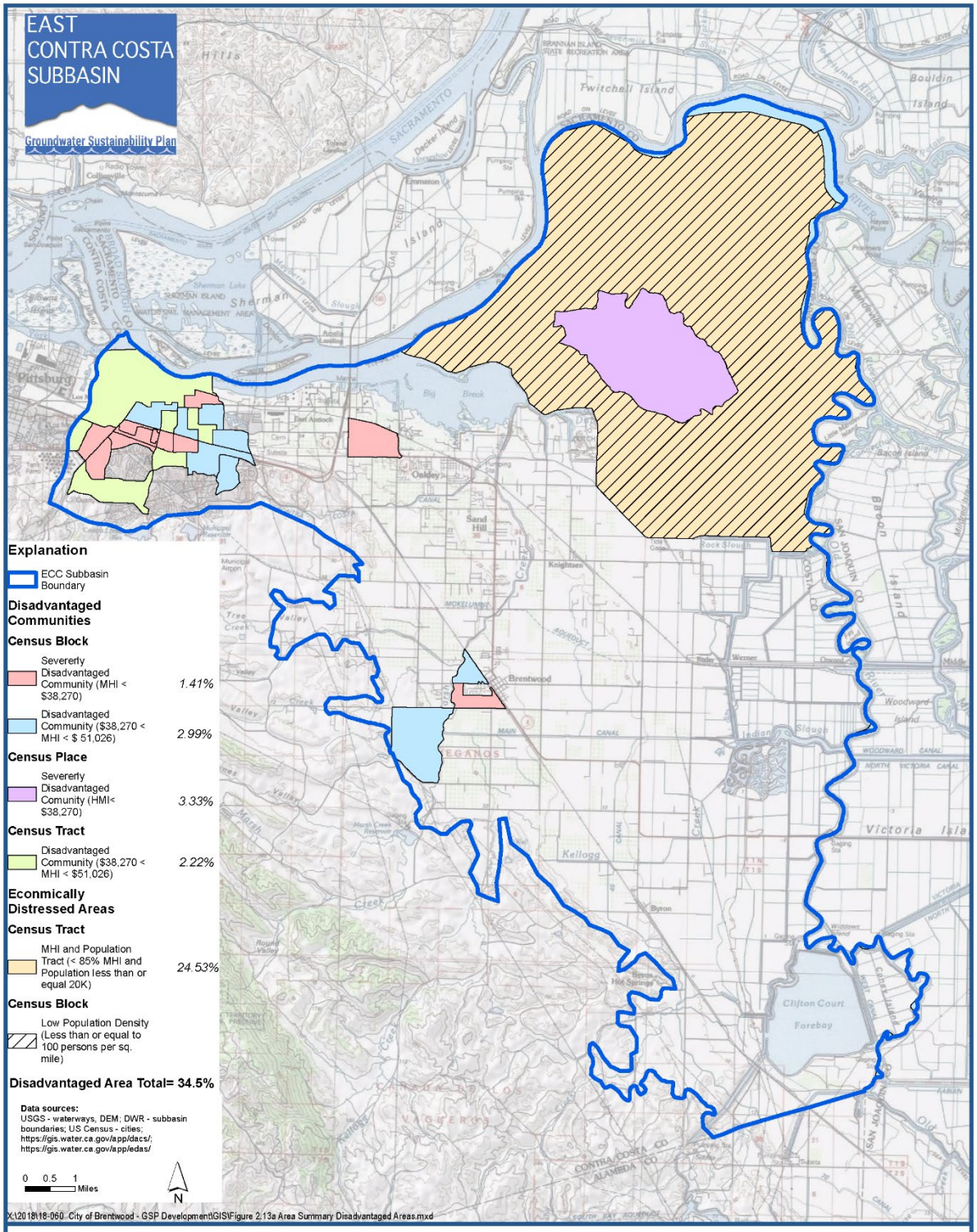
[3] EDA=Economically Distressed Area: a municipality with a population of 20,000 persons or less, a rural county, or a reasonably isolated and divisible segment of a larger municipality where the segment of the population is 20,000 persons or less, with an annual median household income that is less than 85% of the Statewide median household income, and with one or more of the following conditions as determined by the department: (1) financial hardship, (2) unemployment rate at least 2% higher than the Statewide average, or (3) low population density. (Water Code §79702(k)).

Table 2-5: Population Summary of Disadvantaged Areas

Area Description	Population[1]	Percent of Subbasin	Cumulative Population[1]	Cumulative Percent of Subbasin
East Contra Costa Subbasin	**178,618**	**100%**	**178,618**	**100%**
Disadvantaged Communities[2]				
Census Block Groups				
SDAC	15,490	8.67%	15,490	8.67%
DAC	13,684	7.66%	29,174	16.33%
Census Place				
SDAC	2,199	1.23%	41,373	17.56%
Census Tracts				
DAC	1,569	0.88%	32,942	18.44%
Total Census Block Group and Tract DACs & SDACs			32,942	18.44%
Economically Distressed Areas[3]				
Census Tract and Block				
Total EDA	2,645	1.48%	2,645	1.48%
Total DACs, SDACs, and EDAs for All Census Geographies			**35,587**	**19.9%**

[1] Population calculated using Census Tract data.
[2] DAC = Disadvantaged Community: $38,270 < median household income [MHI] < $51,026.
SDAC = Severely Disadvantaged Community: MHI < $38,270 (60% of statewide MHI).

[3] EDA=Economically Distressed Area: a municipality with a population of 20,000 persons or less, a rural county, or a reasonably isolated and divisible segment of a larger municipality where the segment of the population is 20,000 persons or less, with an annual median household income that is less than 85% of the Statewide median household income, and with one or more of the following conditions as determined by the department: (1) financial hardship, (2) unemployment rate at least 2% higher than the Statewide average, or (3) low population density. (Water Code §79702(k)).



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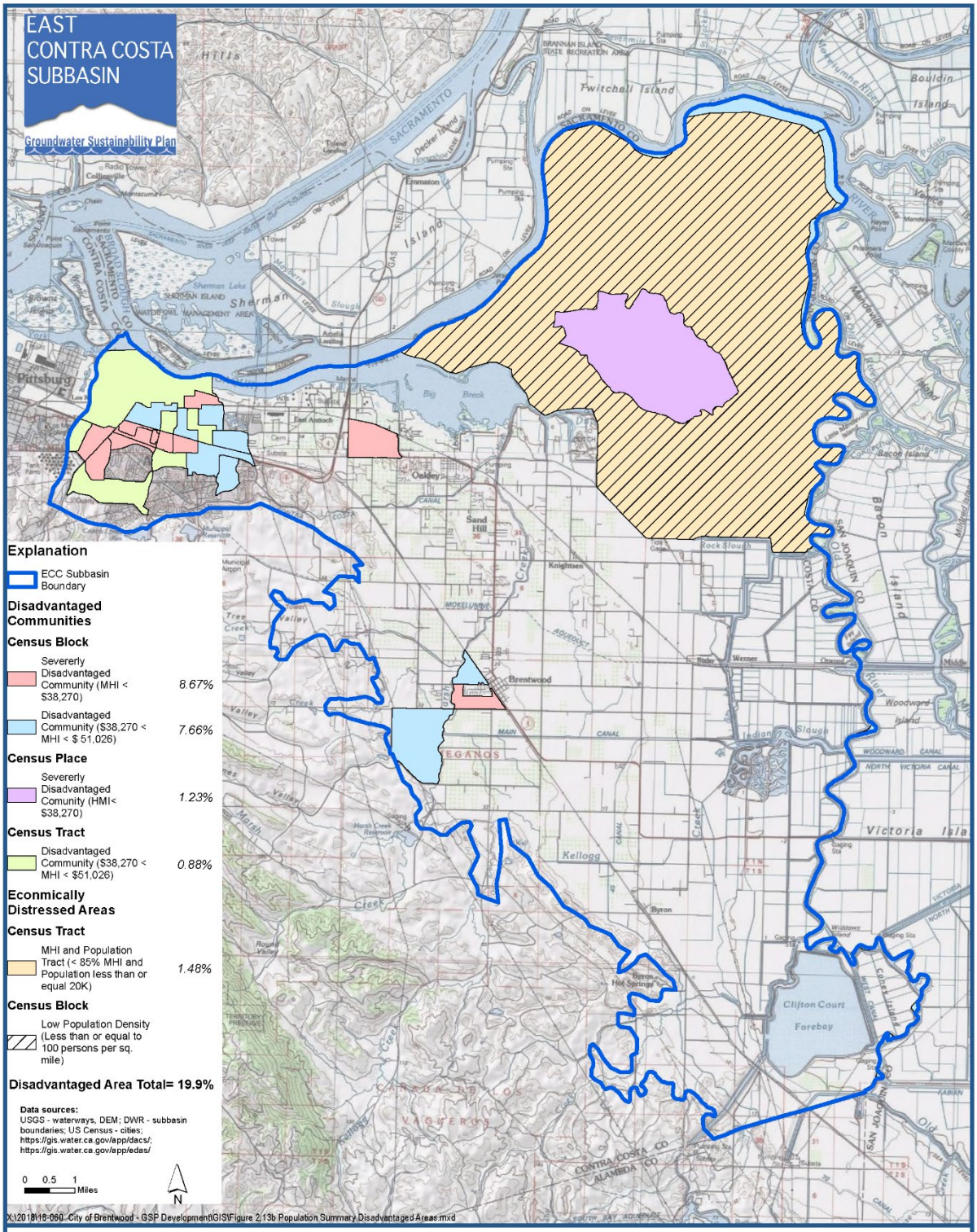
Area Summary of Disadvantaged Areas

East Contra Costa Subbasin Groundwater Sustainability Plan
Contra Costa County, California

Figure 2-13a



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Area Summary of Disadvantaged Areas

East Contra Costa Subbasin Groundwater Sustainability Plan
Contra Costa County, California

Figure 2-13b

2.3.3. Water Use Sector and Water Source Type

SGMA regulations define "water use sector" as "categories of water demand based on the general land uses to which the water is applied, including urban, industrial, agricultural, managed wetlands, managed recharge, and native vegetation[8]." **Figure 2-14** shows the distribution of the water use sectors in the Subbasin. Agriculture is the predominant water use sector followed by urban (Cities of Antioch, Oakley, Brentwood, and Discovery Bay) and native vegetation.

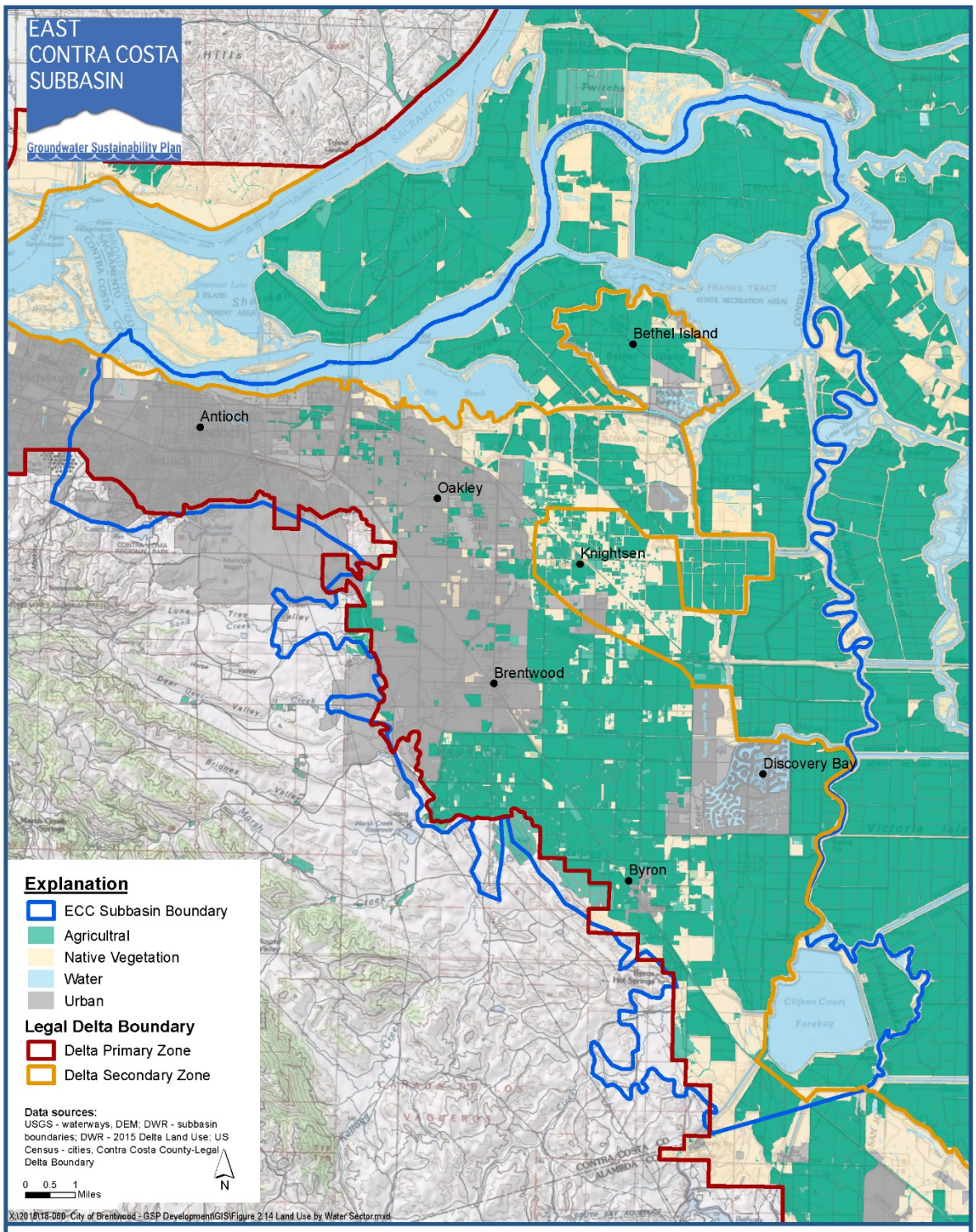
The Subbasin has three water source types: surface water (primary source about 80,000 AFY); groundwater (secondary source about 8,000 AFY); and recycled water (about 2,700 AFY) (IRWMP, 2019, based on 2010 Urban Water Management Plans). Land use by water source in the ECC Subbasin is shown in **Figure 2-15.** Conjunctive use of surface water and groundwater is practiced throughout much of the Subbasin. Urban centers water sources vary The City of Antioch uses surface water exclusively, while the Cities of Brentwood and Oakley (water provided by DWD) use a combination of surface water and groundwater, and the Town of Discovery Bay uses only groundwater. ECCID and BBID hold water rights to divert surface water from Old River and meet remaining demand with groundwater. The unincorporated portions of the Subbasin generally have surface water as the water source however, these amounts are not quantified. The exceptions to this are domestic users and small community water systems which rely on groundwater. The Ironhouse Sanitary District uses recycled water to irrigate crops for animal feed on Jersey Island (2,700 AF in 2010).

2.3.4. General Plans

Four entities in the ECC Subbasin have land use authority[9] (**Figure 2-16**), which is an important factor in water management. Below is a description of the plans and how they may affect implementing the GSP. The Town of Discovery Bay does not have land use authority; however, the Town can advise the County on decisions affecting land use. The following section describes policies in the Plans related to water resources management in the ECC Subbasin. General Plans in the ECC Subbasin include:

- Contra Costa County General Plan (CCCDCD,2005)
- City of Antioch General Plan (LSA, 2003)
- City of Brentwood General Plan (DNPG, 2014)
- City of Oakley General Plan (CoO, 2016)

[8] California Code of Regulations, Title 23. Waters, Division 2. Department of Water Resources, Chapter 1.5. Groundwater Management, Subchapter 2. Groundwater Sustainability Plans, Article 2. Definitions
[9] CC County -Title 8, Zoning
https://library.municode.com/ca/contra_costa_county/codes/ordinance_code?nodeId=TIT8ZO
City of Brentwood – Title 17, Zoning
http://qcode.us/codes//brentwood/?view=desktop&topic=17-viii-17_467-17_467_002
City of Antioch – Title 9, Planning and Zoning
https://codelibrary.amlegal.com/codes/antioch/latest/overview
City of Oakley – Title 9 Land Use Regulation
https://www.codepublishing.com/CA/Oakley/



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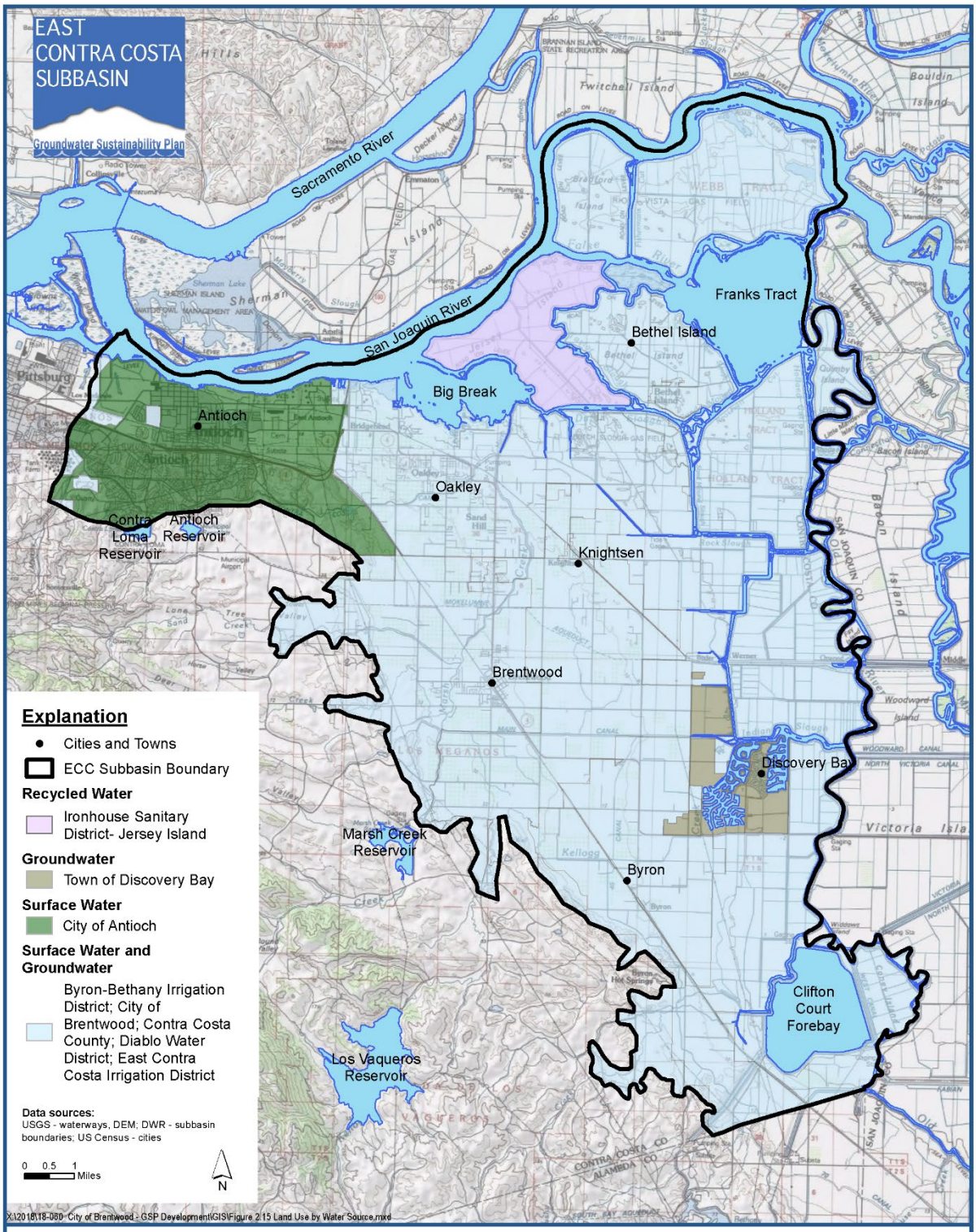
Land Use by Water Sector

East Contra Costa Subbasin Groundwater Sustainability Plan
Contra Costa County, California

Figure 2-14



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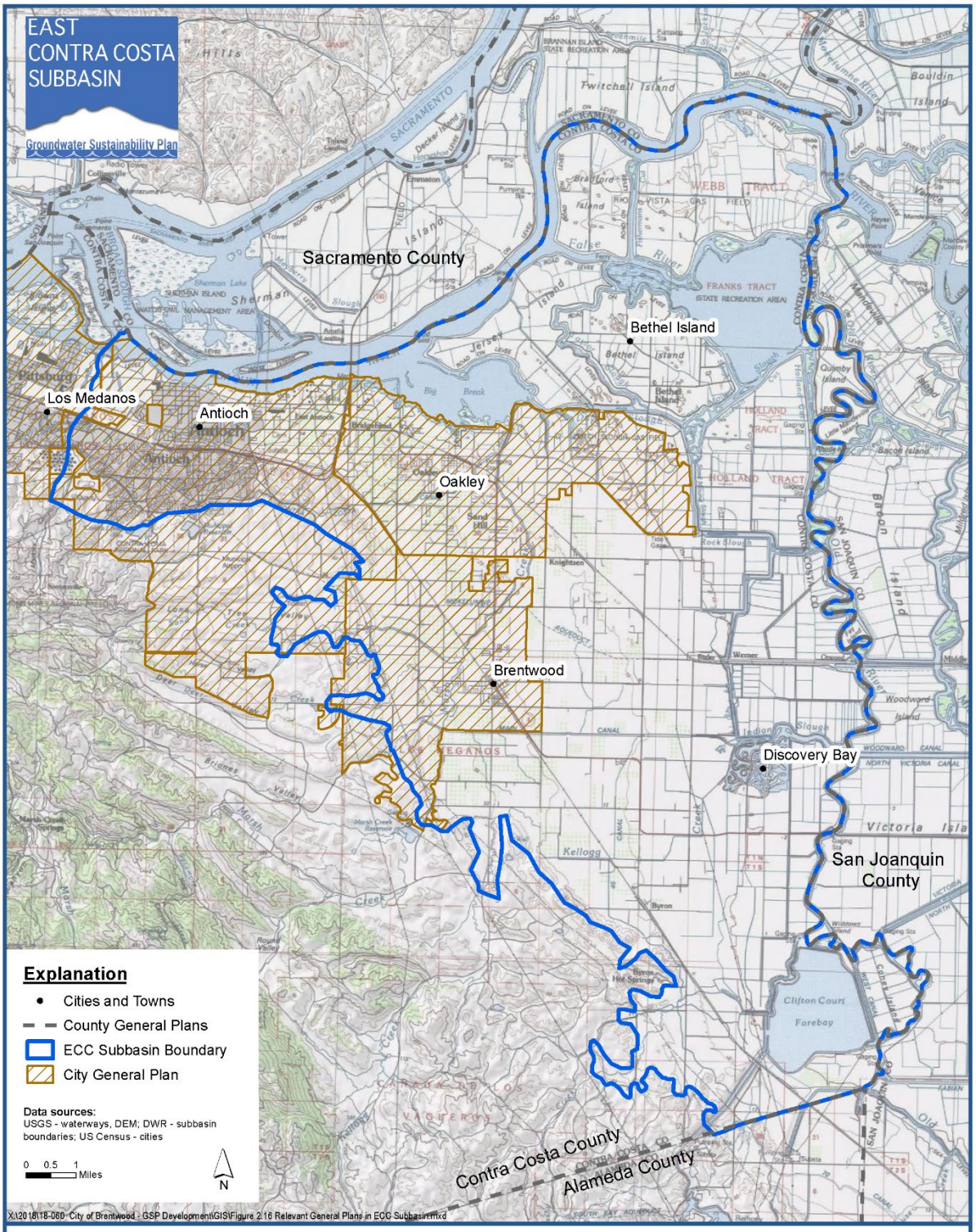
Land Use by Water Source (2010)

East Contra Costa Subbasin Groundwater Sustainability Plan
Contra Costa County, California

Figure 2-15



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Relevant General Plans in ECC Subbasin

East Contra Costa Subbasin Groundwater Sustainability Plan
Contra Costa County, California

Figure 2-16

2.3.4.1 Contra Costa General Plan

The planned land use for the Subbasin is outlined in the Contra Costa County General Plan (CCCGP). The CCCGP was developed for 2005 to 2020 (CCC, 2005). Currently the county is working on a comprehensive update to the General Plan; a draft is anticipated to be ready for review in 2021. The county is mandated by California Government Code (§65350-65362) to prepare a General Plan to help and guide future development in the county as related to land use, development, and conservation. It describes that much of the county's future growth (2000 to 2010) was planned along the Pittsburg-Antioch corridor.

In regard to conservation the CCCGP developed five overall policies:

- 8-1. Resource utilization and development shall be planned within a framework of maintaining a healthy and attractive environment.
- 8-2. Areas that are highly suited to prime agricultural production shall be protected and preserved for agriculture and standards for protecting the viability of agricultural land shall be established.
- 8-3. Watersheds, natural waterways, and areas important for the maintenance of natural vegetation and wildlife populations shall be preserved and enhanced.
- 8-4. Areas designated for open space/agricultural uses shall not be considered as a reserve for urban uses and the 65 percent standard for non-urban uses must not be violated.
- 8-5. In order to reduce adverse impacts on agricultural and environmental values, and to reduce urban costs to taxpayers, scattered urban development in outlying areas shall be precluded outside the urban limit line.

2.3.4.2 City of Antioch General Plan

The City of Antioch prefers that development not outpace infrastructure. The City foresees that a lot of development will occur in the area and requires developers to pay for infrastructure improvements so current infrastructure will not be overly stressed. The City also wants the infrastructure to be outlined prior to completing development to avoid want temporary work arounds. The City anticipates more growth, and its goal is to continue water conservation efforts. The City presents several options to meet water demands besides conservation. These include (LSA, 2003):

- Confirm new developments can be supported with a reliable water source
- New development landscaping must be drought tolerant
- Work to make recycled water a viable option
- Protect potential groundwater recharge areas
- Fight policies that would reduce river rights (i.e., increase salinity).

2.3.4.3 City of Brentwood General Plan

The City of Brentwood General Plan was updated in 2014 (DNPG) and provides the framework to guide growth and conserve open space. The City's goal with regard to water requirements is to provide safe

and reliable water to its citizens. The General Plan outlines three ways it plans to achieve this goal. The City plans to continually assess water saving strategies and water demands. The City also plans to discuss the possibility of receiving additional water from East Bay Municipal Utility District (EBMUD), CCWD, and ECCID. In 2006, voters approved an Urban Limit Line (ULL); the line would limit the development of urban infrastructure. Current land use maps show small areas are planned for future development (DNPG, 2014).

2.3.4.4 City of Oakley General Plan

The City of Oakley also has a ULL and a desire to "preserve quality of life for residents". The City's goal to meet current and future water requirements is to require new development to detail how water supplies will be met, request that water agencies meet quality standards, and protect water sources from pollution by working with regulatory agencies. The City also will urge water agencies to have written plans in case of drought (CoO, 2016).

2.3.4.5 Land Use Plans and the GSP Water Supply Assumptions

In general, land use and water supply assumptions included in the General Plans in the ECC Subbasin are consistent with current and future land use and water demand projections used in the GSP. The county and cities' policies include water conservation and sustainable management of groundwater resources. GSP implementation is expected to be consistent with future water use and land use as projected in the General Plans, urban water management plans, and agricultural water management plans. These documents were used to project future land use and resulting water demand for the future water budgets used in the GSP.

2.3.5. Water Management Plans

Many water management plans cover the Subbasin. These are described below.:

2.3.5.1 Urban Water Management Plan

Urban Water Management Plans (UWMP) are required by the Urban Water Management Plan Act for any water supplier distributing more than 3,000 AFY or that has more than 3,000 connections. A UWMP must be prepared and submitted to DWR every 5 years. Each UWMP should asses the reliability of water for the next 20 years, how demands are met including shortages, conservation efforts with the goal being a 20% reduction in water use per person, and finally a goal for recycled water use in the agency's sphere of influence. The following UWMPs have been developed in the Subbasin:

- City of Antioch Urban Water Management Plan (WYA, 2015)
- City of Brentwood Urban Water Management Plan (B&C, 2016)
- Diablo Water District 2015 Urban Water Management Plan (CDM, 2015)
- Town of Discovery Bay Community Services District 2015 Urban Water Management Plan (LSCE, 2017)
- Contra Costa Water District Urban Water Management Plan (CCWD, 2015)

2.3.5.2 Agricultural Water Management Plan

Agricultural Water Management Plans (AWMP) are required by the Water Conservation Act of 2009 (SB X7-7) for any water supplier distributing more than 25,000 AFY (excluding recycled water deliveries) to prepare a plan and submit it to DWR. The Act requires that each agency/region develop a water budget for a water year identifying inflow and outflow components, ways to improve water efficiency, quantify water use, and outline a plan for droughts. In addition, the AWMP must include the status of Efficient Water Management Practices (EWMP). EWMP must be followed for delivery point measurements and volumetric pricing; the remaining EWMPs are to be implemented if they are technically feasible or funding is available. The following AWMP was developed in the Subbasin:

- Byron Bethany Irrigation District Agricultural Water Management Plan (CH2M, 2017)

2.3.5.3 Integrated Regional Water Management Plan

In an effort to address California's water supply and management practices, DWR created policies that encourage Integrated Regional Water Management Plans (IRWMP) and grant funding to implement the program. The goal of the IRWMP is to evaluate all aspects of water management. In 2015, CCC updated their IRWMP (ECCWMA, 2015). Their plan has 25 objectives that are used by the ECCWMA members to address their water management issues:

- 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
- Manage local stormwater
- Improve regional flood risk management
- Enhance understanding of how groundwater fits into the water portfolio and investigate groundwater as a regional source (e.g., conjunctive use)
- Protect, restore and enhance habitat in the Delta and connected waterways
- Protect, restore and enhance the watersheds that feed and 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
- Increase shoreline access for subsistence fishing and recreation
- 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
- Use financial resources strategically to maximize return on investment on grant applications for project development/implementation

- Develop a funding pool to self-fund regional efforts such as grant applications, outreach, website development, and other planning activities
- 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
- Identify and engage DACs
- Collaborate with and involve DACs in the IRWM process
- Promote equitable distribution of proposed projects across the region
- Increase awareness of water resource management issues and projects with the general public

2.3.5.4 Additional Water Plans in Subbasin

The City of Brentwood developed and updated a Water Master Plan in 2003 and 2017 (Ennis, 2017). The plan has two main goals: 1) identify limitations of the current water system and whether current infrastructure could be modified to resolve any deficiencies, and 2) identify what infrastructure will need to be modified to serve new development.

In 2012, the TODB developed a Water Master Plan (LSCE, 2012). The plan has two main objectives 1) evaluate system efficiency, and 2) outline any capital improvement projects that would enable TODB to meet the current and future water demands of the service area.

CCWD prepares a Water Management Plan to be submitted to the USBR as part of their contract for CVP water. CCWD prepares a Water Management Plan (Plan) every five years (the last one was submitted in 2017) and also periodically prepares a Future Water Supply Study. The intent of the Plan is for CCWD to demonstrate federal water "is put to reusable and beneficial use." CCWD demonstrates this to USBR by outlining water conservation efforts, providing information on water-related infrastructure, and description of the district which includes district demographics, topography, climate, natural and cultural resources, district rules and regulations, and billing and pricing.

As a result of Assembly Bill (AB) 3030, the California Water Code (CWC), Section 10750, DWD board of directors agreed to prepare a groundwater management plan. DWD's goal was "to provide a management framework for maintaining a high quality, reliable, and sustainable supply of groundwater within the District's sphere of influence." In 2007, DWD implemented the Diablo Water District Groundwater Management Plan for AB 3030 (LSCE, 2007).

2.4. County Well Construction, Destruction and Permitting

2.4.1. Wellhead Protection and Well Permitting

Wellhead protection is governed by county, state and federal regulations within the Subbasin.

Well permitting in the Subbasin is overseen by the CCC Health Services, Environmental Health Division. The Environmental Health Division requires a Well Permit Application to be completed prior to any

ground surface breaking that includes well construction, reconstruction, or destruction, including water wells, dewatering wells, monitoring wells, cathodic protection wells, geothermal wells, piezometers, inclinometers, soil vapor probes, Cone Penetrating Testing (CPTs), soil borings, and geotechnical borings . Environmental Health Division reviews the well permit and either approves, denies, or requests modification. CCC also has well regulations to meet water supply demands for new housing construction (CCC, 1981).

2.4.1.1 Well Installations

A county official reviews permits for new well construction, and the application will be approved, dismissed, or more information will be requested. The well must be installed by a licensed C-57 Driller that maintains current registration with the county. Well installation requirements follow the standards outlined in the California Well Standards, Bulletin 74-81 and 74-90. The bulletin discusses the proper well locations (i.e. distance from property line, septic tanks, streams, livestock) for water supply wells, proper approaches for sealing the annulus (materials, methods, conditions and placement), casing material, and the material/construction of the completion monument (flush or stick up, with respect to the ground surface). A county official is required to inspect the grout mixture prior to well completion, and it is the responsibility of the driller to schedule the inspection. A pump test might be required if the county determines the need for one in the area.

2.4.1.2 Well Abandonment

As per Section 21 of Bulletin 74-81:

A well is considered 'abandoned' or permanently inactive if it has not been used for one year, unless the owner demonstrates intention to use the well again. In accordance with Section 24400 of the California Health and Safety Code, the well owner shall properly maintain an inactive well as evidence of intention for future use in such a way that the following requirements are met:

(1) The well shall not allow impairment of the quality of water within the well and groundwater encountered by the well.

(2) The top of the well or well casing shall be provided with a cover that is secured by a lock or by other means to prevent its removal without the use of equipment or tools, prevent unauthorized access, prevent a safety hazard to humans and animals, and prevent illegal disposal of wastes in the well. The cover shall be watertight where the top of the well casing or other surface openings to the well are below ground level, such as in a vault or below known levels of flooding. The cover shall be watertight if the well is inactive for more than five consecutive years. A pump motor, angle drive, or other surface feature of a well, when in compliance with the above provisions, shall suffice as a cover.

(3) The well shall be marked so as to be easily visible and located and labeled so as to be easily identified as a well.

(4) The area surrounding the well shall be kept clear of brush, debris, and waste materials."

2.4.1.3 Well Destruction

A permit must be submitted to the agency for approval of well destruction. The county states its requirements are as follows:

(1) Remove any obstructions from the well.

(2) Perforate or remove the well casing to the bottom of the well.

(3) Excavate around the casing to a depth of 6 ft.

(4) Place approved sealing material in the well extending from the bottom to the surface. Environmental Health staff will inspect this stage of the work. The well contractor is responsible for contacting Contra Costa Environmental Health to schedule inspection appointments. The greater the advance notice, the more likely a mutually convenient inspection appointment can be arranged.

2.5. Additional Plan Elements (WCS 10727.4)

Table 2-6 lists the additional Plan Elements listed in Water Code Section 10727.4 that should be included in a GSP, where appropriate, and the location in the GSP where these are addressed.

Table 2-6: Additional Plan Elements

Section Number	Code Description	Location of more detail provided for GSP
10727.4 (a)	Control of saline water intrusion.	Ch 3
10727.4 (b)	Wellhead protection areas and recharge areas.	2.4.1 and 3
10727.4 (c)	Migration of contaminated groundwater.	Ch 3
10727.4 (d)	A well abandonment and well destruction program.	Ch 2.4
10727.4 (e)	Replenishment of groundwater extractions.	Ch 3
10727.4 (f)	Activities implementing, opportunities for, and removing impediments to, conjunctive use or underground storage.	Ch 2.2
10727.4 (g)	Well construction policies.	Ch 2.4
10727.4 (h)	Measures addressing groundwater contamination cleanup, groundwater recharge, in-lieu use, diversions to storage, conservation, water recycling, conveyance, and extraction projects.	Ch 3
10727.4 (i)	Efficient water management practices, as defined in Section 10902, for the delivery of water and water conservation methods to improve the efficiency of water use.	Ch 4
10727.4 (j)	Efforts to develop relationships with state and federal regulatory agencies.	Ch 8
10727.4 (k)	Processes to review land use plans and efforts to coordinate with land use planning agencies to assess activities that potentially create risks to groundwater quality or quantity.	Ch 8
10727.4 (l)	Impacts on groundwater dependent ecosystems.	Ch 3

2.6. References

Brown and Caldwell (B&C). 2016. Final 2015 2015 Urban Water Management Plan. Prepared for City of Brentwood. June 2016.

Bradford Island Reclamation District 2059. https://bradfordisland.com/. Accessed January 2020

California Department of Water Resources (DWR). 1981. Water Well Standards: State of California. Bulletin 74-81.

California Department of Water Resources (DWR). 1991. California Well Standards, Bulletin 74-90.

California Department of Water Resources (DWR) Well Completion Report Map Application. 2019. https://www.arcgis.com/apps/webappviewer/index.html?id=181078580a214c0986e2da28f8623b37. Accessed May 2019.

California Department of Water Resources (DWR). 2019 https://gis.water.ca.gov/app/edas/. Accessed May 2019.

California Department of Water Resources (DWR). 2019. https://gis.water.ca.gov/app/dacs/. Accessed May 2019.

California Department of Water Resources (DWR). December 2016. Guidance Document for the Sustainable Management of Groundwater: Groundwater Sustainability Plan (GSP) Annotated Outline. https://water.ca.gov/LegacyFiles/groundwater/sgm/pdfs/GD_GSP_Outline_Final_2016-12-23.pdf. Accessed on March 26, 2020.

Appendix 1a

Definitions and Key Terms

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TERMS AND DEFINITIONS

Cited from: Section 10733.2, Water Code

"Agency" refers to a groundwater sustainability agency as defined in the Act.

"Agricultural water management plan" refers to a plan adopted pursuant to the Agricultural Water Management Planning Act as described in Part 2.8 of Division 6 of the Water Code, commencing with Section 10800 et seq.

"Alternative" refers to an alternative to a Plan described in Water Code Section 10733.6.

"Annual report" refers to the report required by Water Code Section 10728.

"Baseline" or "baseline conditions" refer to historic information used to project future conditions for hydrology, water demand, and availability of surface water and to evaluate potential sustainable management practices of a basin.

"Basin" means a groundwater basin or subbasin identified and defined in Bulletin 118 or as modified pursuant to Water Code 10722 et seq.

"Basin setting" refers to the information about the physical setting, characteristics, and current conditions of the basin as described by the Agency in the hydrogeologic conceptual model, the groundwater conditions, and the water budget, pursuant to Subarticle 2 of Article 5.

"Best available science" refers to the use of sufficient and credible information and data, specific to the decision being made and the time frame available for making that decision, that is consistent with scientific and engineering professional standards of practice.

"Best management practice" refers to a practice, or combination of practices, that are designed to achieve sustainable groundwater management and have been determined to be technologically and economically effective, practicable, and based on best available science.

"Board" refers to the State Water Resources Control Board.

"CASGEM" refers to the California Statewide Groundwater Elevation Monitoring Program developed by the Department pursuant to Water Code Section 10920 et seq., or as amended.

"Data gap" refers to a lack of information that significantly affects the understanding of the basin setting or evaluation of the efficacy of Plan implementation, and could limit the ability to assess whether a basin is being sustainably managed.

"Groundwater dependent ecosystem" refers to ecological communities or species that depend on groundwater emerging from aquifers or on groundwater occurring near the ground surface.

"Groundwater flow" refers to the volume and direction of groundwater movement into, out of, or throughout a basin.

"Interconnected surface water" refers to surface water that is hydraulically connected at any point by a continuous saturated zone to the underlying aquifer and the overlying surface water is not completely depleted.

"Interested parties" refers to persons and entities on the list of interested persons established by the Agency pursuant to Water Code Section 10723.4.

"Interim milestone" refers to a target value representing measurable groundwater conditions, in increments of five years, set by an Agency as part of a Plan.

"Management area" refers to an area within a basin for which the Plan may identify different minimum thresholds, measurable objectives, monitoring, or projects and management actions based on differences in water use sector, water source type, geology, aquifer characteristics, or other factors.

"Measurable objectives" refer to specific, quantifiable goals for the maintenance or improvement of specified groundwater conditions that have been included in an adopted Plan to achieve the sustainability goal for the basin.

"Minimum threshold" refers to a numeric value for each sustainability indicator used to define undesirable results.

"NAD83" refers to the North American Datum of 1983 computed by the National Geodetic Survey, or as modified.

"NAVD88" refers to the North American Vertical Datum of 1988 computed by the National Geodetic Survey, or as modified.

"Plain language" means language that the intended audience can readily understand and use because that language is concise, well-organized, uses simple vocabulary, avoids excessive acronyms and technical language, and follows other best practices of plain language writing.

"Plan" refers to a groundwater sustainability plan as defined in the Act.

"Plan implementation" refers to an Agency's exercise of the powers and authorities described in the Act, which commences after an Agency adopts and submits a Plan or Alternative to the Department and begins exercising such powers and authorities.

"Plan manager" is an employee or authorized representative of an Agency, or Agencies, appointed through a coordination agreement or other agreement, who has been delegated management authority for submitting the Plan and serving as the point of contact between the Agency and the Department.

"Principal aquifers" refer to aquifers or aquifer systems that store, transmit, and yield significant or economic quantities of groundwater to wells, springs, or surface water systems.

"Reference point" refers to a permanent, stationary and readily identifiable mark or point on a well, such as the top of casing, from which groundwater level measurements are taken, or other monitoring site.

"Representative monitoring" refers to a monitoring site within a broader network of sites that typifies one or more conditions within the basin or an area of the basin.

"Seasonal high" refers to the highest annual static groundwater elevation that is typically measured in the Spring and associated with stable aquifer conditions following a period of lowest annual groundwater demand.

"Seasonal low" refers to the lowest annual static groundwater elevation that is typically measured in the Summer or Fall, and associated with a period of stable aquifer conditions following a period of highest annual groundwater demand.

"Seawater intrusion" refers to the advancement of seawater into a groundwater supply that results in degradation of water quality in the basin, and includes seawater from any source.

"Statutory deadline" refers to the date by which an Agency must be managing a basin pursuant to an adopted Plan, as described in Water Code Sections 10720.7 or 10722.4.

"Sustainability indicator" refers to any of the effects caused by groundwater conditions occurring throughout the basin that, when significant and unreasonable, cause undesirable results, as described in Water Code Section 10721(x).

"Uncertainty" refers to a lack of understanding of the basin setting that significantly affects an Agency's ability to develop sustainable management criteria and appropriate projects and management actions in a Plan, or to evaluate the efficacy of Plan implementation, and therefore may limit the ability to assess whether a basin is being sustainably managed.

"Urban water management plan" refers to a plan adopted pursuant to the Urban Water Management Planning Act as described in Part 2.6 of Division 6 of the Water Code, commencing with Section 10610 et seq.

"Water source type" represents the source from which water is derived to meet the applied beneficial uses, including groundwater, recycled water, reused water, and surface water sources identified as Central Valley Project, the State Water Project, the Colorado River Project, local supplies, and local imported supplies.

"Water use sector" refers to categories of water demand based on the general land uses to which the water is applied, including urban, industrial, agricultural, managed wetlands, managed recharge, and native vegetation.

"Water year" refers to the period from October 1 through the following September 30, inclusive, as defined in the Act.

"Water year type" refers to the classification provided by the Department to assess the amount of annual precipitation in a basin.

Cited from: PART 2.74. Sustainable Groundwater Management [10720 - 10737.8] - CHAPTER 2. Definitions [10721- 10721.]

"Adjudication action" means an action filed in the superior or federal district court to determine the rights to extract groundwater from a basin or store water within a basin, including, but not limited to, actions to quiet title respecting rights to extract or store groundwater or an action brought to impose a physical solution on a basin.

"Basin" means a groundwater basin or subbasin identified and defined in Bulletin 118 or as modified pursuant to Chapter 3 (commencing with Section 10722).

"Bulletin 118" means the department's report entitled "California's Groundwater: Bulletin 118" updated in 2003, as it may be subsequently updated or revised in accordance with Section 12924.

"Coordination agreement" means a legal agreement adopted between two or more groundwater sustainability agencies that provides the basis for coordinating multiple agencies or groundwater sustainability plans within a basin pursuant to this part.

"De minimis extractor" means a person who extracts, for domestic purposes, two acre-feet or less per year.

"Governing body" means the legislative body of a groundwater sustainability agency.

"Groundwater" means water beneath the surface of the earth within the zone below the water table in which the soil is completely saturated with water, but does not include water that flows in known and definite channels unless included pursuant to Section 10722.5.

"Groundwater extraction facility" means a device or method for extracting groundwater from within a basin.

"Groundwater recharge" or "recharge" means the augmentation of groundwater, by natural or artificial means.

"Groundwater sustainability agency" means one or more local agencies that implement the provisions of this part. For purposes of imposing fees pursuant to Chapter 8 (commencing with Section 10730) or

taking action to enforce a groundwater sustainability plan, "groundwater sustainability agency" also means each local agency comprising the groundwater sustainability agency if the plan authorizes separate agency action.

"Groundwater sustainability plan" or "plan" means a plan of a groundwater sustainability agency proposed or adopted pursuant to this part.

"Groundwater sustainability program" means a coordinated and ongoing activity undertaken to benefit a basin, pursuant to a groundwater sustainability plan.

"In-lieu use" means the use of surface water by persons that could otherwise extract groundwater in order to leave groundwater in the basin.

"Local agency" means a local public agency that has water supply, water management, or land use responsibilities within a groundwater basin.

"Operator" means a person operating a groundwater extraction facility. The owner of a groundwater extraction facility shall be conclusively presumed to be the operator unless a satisfactory showing is made to the governing Home Bill Information California Law Publications Other Resources My Subscriptions My Favorites body of the groundwater sustainability agency that the groundwater extraction facility actually is operated by some other person.

"Owner" means a person owning a groundwater extraction facility or an interest in a groundwater extraction facility other than a lien to secure the payment of a debt or other obligation.

"Personal information" has the same meaning as defined in Section 1798.3 of the Civil Code.

"Planning and implementation horizon" means a 50-year time period over which a groundwater sustainability agency determines that plans and measures will be implemented in a basin to ensure that the basin is operated within its sustainable yield.

"Public water system" has the same meaning as defined in Section 116275 of the Health and Safety Code.

"Recharge area" means the area that supplies water to an aquifer in a groundwater basin.

"Sustainability goal" means the existence and implementation of one or more groundwater sustainability plans that achieve sustainable groundwater management by identifying and causing the implementation of measures targeted to ensure that the applicable basin is operated within its sustainable yield.

"Sustainable groundwater management" means the management and use of groundwater in a manner that can be maintained during the planning and implementation horizon without causing undesirable results.

"Sustainable yield" means the maximum quantity of water, calculated over a base period representative of long-term conditions in the basin and including any temporary surplus, that can be withdrawn annually from a groundwater supply without causing an undesirable result.

"Undesirable result" means one or more of the following effects caused by groundwater conditions occurring throughout the basin:

(1) Chronic lowering of groundwater levels indicating a significant and unreasonable depletion of supply if continued over the planning and implementation horizon. Overdraft during a period of drought is not sufficient to establish a chronic lowering of groundwater levels if extractions and groundwater recharge are managed as necessary to ensure that reductions in groundwater levels or storage during a period of drought are offset by increases in groundwater levels or storage during other periods.
(2) Significant and unreasonable reduction of groundwater storage.
(3) Significant and unreasonable seawater intrusion.
(4) Significant and unreasonable degraded water quality, including the migration of contaminant plumes that impair water supplies.
(5) Significant and unreasonable land subsidence that substantially interferes with surface land uses.
(6) Depletions of interconnected surface water that have significant and unreasonable adverse impacts on beneficial uses of the surface water.

"Water budget" means an accounting of the total groundwater and surface water entering and leaving a basin including the changes in the amount of water stored.

"Watermaster" means a watermaster appointed by a court or pursuant to other law.

"Water year" means the period from October 1 through the following September 30, inclusive.

"Wellhead protection area" means the surface and subsurface area surrounding a water well or well field that supplies a public water system through which contaminants are reasonably likely to migrate toward the water well or well field.

Appendix 1b

Amended and Restated Memorandum of Understanding, Development of a Groundwater Sustainability Plan for the East Contra Costa Subbasin

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AMENDED AND RESTATED
MEMORANDUM OF UNDERSTANDING

Development of a Groundwater Sustainability Plan

for the East Contra Costa Subbasin, (DWR Basin 5-22.19, San Joaquin Valley)

This Amended and Restated Memorandum of Understanding for the Development of a Groundwater Sustainability Plan for the East Contra Costa Subbasin, (DWR Basin 5-22.19, San Joaquin Valley) ("**MOU**") is entered into and effective this _____ day of _____, 2020 ("**Effective Date**") by and among the City of Antioch ("**Antioch**"), City of Brentwood ("**Brentwood**"), Byron-Bethany Irrigation District ("**BBID**"), Contra Costa Water District ("**CCWD**"), Contra Costa County ("**County**"), Diablo Water District ("**DWD**"), East Contra Costa Irrigation District ("**ECCID**"), and Discovery Bay Community Services District ("**Discovery Bay**"). Each of the foregoing parties to this MOU is sometimes referred to herein as a "**Party**" and are collectively sometimes referred to as the "**Parties**."

Recitals

A. In September 2014, the California Legislature enacted the Sustainable Groundwater Management Act of 2014 ("**SGMA**"), which established a statewide framework for the sustainable management of groundwater resources. That framework focuses on granting new authorities and responsibility to local agencies while holding those agencies accountable. The framework also provides for state intervention where a local agency fails to develop a groundwater sustainability plan in a timely manner.

23 B. The East Contra Costa Subbasin ("**Basin**") is referred to as DWR Basin 5-22.19,
24 San Joaquin Valley, and is shown on the map attached hereto as Exhibit A and incorporated herein
25 by reference as if set forth in full. The Basin is located in eastern Contra Costa County. The
26 Parties collectively overlie all of the Basin.

27 C. Under SGMA, one or more local agencies may form a groundwater sustainability
28 agency ("**GSA**"), by memorandum of agreement, joint exercise of powers agreement, or other
29 agreement. (Wat. Code, §§ 10723(a), 10723.6.) The Parties desire for each Party to be the GSA
30 within all or a portion of that Party's boundary. The Parties further desire to develop a governance
31 structure for the Basin to be considered during development of the groundwater sustainability plan
32 (a "**GSP**") for the Basin (the "**Basin GSP**"). The Parties further desire to resolve areas of
33 jurisdictional overlap so that no two Parties serve as GSAs over the same area. The purpose of
34 this MOU is to coordinate the Parties' activities related to each Party becoming a GSA,
35 development of the Basin GSP, and each Party's future consideration of whether to adopt the Basin
36 GSP.

37 D. The Parties wish to collaborate in an effort to ensure sustainable groundwater
38 management for the Basin, manage the groundwater basin as efficiently as practicable balancing
39 the financial resources of the agencies with the principles of effective and safe groundwater
40 management, while retaining groundwater management authority within their respective
41 jurisdictions. The Parties desire to share responsibility for Basin management under SGMA. The
42 Parties recognize that the key to success in this effort will be the coordination of activities under
43 SGMA, and the collaborative development of the Basin GSP, which each Party may consider
44 adopting and implementing within its GSA management area.

E. The Basin has been designated by the California Department of Water Resources ("**DWR**") as a medium-priority groundwater basin, which, under the terms of SGMA, means that the Parties must submit a Basin GSP to DWR by January 31, 2022.

F. This MOU amends and restates the original Memorandum of Understanding, dated May 9, 2017, and as amended on November 16, 2017. This MOU also recognizes changes that reflect DWR's determination that, for purposes of SGMA, the Basin is separate and distinct from other portions of the Tracy Subbasin located in San Joaquin and Alameda Counties. The Basin is located entirely within Contra Costa County. The Parties wish to memorialize and restate their commitments by means of this MOU.

Understandings

1. *Term.* The term of this MOU begins on the Effective Date, which shall occur upon execution of this MOU by all eight of the parties, and this MOU shall remain in full force and effect until the earliest of the following events: (i) January 31, 2022, (ii) the date upon which the Parties submit a Basin GSP to DWR, or (iii) the date upon which the Parties then party to the MOU execute a document jointly terminating the provisions of this MOU. An individual Party's obligations under this MOU terminate when the Party withdraws from the MOU in accordance with Section 4.

2. *Development of the GSP*

   a. *Parties to Become GSAs.* Each Party, except Contra Costa Water District, agrees to take the necessary actions to become the GSA for all or a portion of that area of the East CC Basin that it overlies, as shown on Exhibit A, attached hereto, no later than April 1, 2017, or shortly thereafter. The Parties shall jointly submit the Parties'

individual elections to become GSAs and this MOU to DWR prior to April 1, 2017, or shortly thereafter. The Parties further agree to develop a governance structure for the Basin to be considered during development of the Basin GSP

b. *Single GSP*. The Parties will collaborate to develop a single Basin GSP that, at a minimum, satisfies the GSP requirements in the SGMA and the regulations promulgated under the SGMA. The Basin GSP must include an analysis of implementation costs and revenue sources, and must include an analysis of governance structure options. The Basin GSP shall be drafted in a manner that preserves, and does not purport to supersede, the land use authority of each city or county, or the statutory authority of each special district, that is a party to this MOU. The Basin GSP must include provisions for consultation between a GSA and any public agency that the GSA overlaps before the GSA takes any action that may relate to that public agency's exercise of its statutory authority. Unless the Parties later agree otherwise, it is intended that the Basin GSP will be implemented by each Party within its respective GSA management area, and that the Parties will coordinate their implementation of the Basin GSP.

c. *Overlap Areas.* Solely for the purpose of complying with the SGMA requirement that GSA management areas not overlap, the Parties agree that there are no overlapping GSA management areas, as shown on Exhibit A. This MOU does not purport to limit any Party's legal authority to utilize and deliver groundwater or surface water throughout its jurisdictional boundary (as may be amended from time-to-time), which may include area outside of a Party's management area shown on Exhibit A.

d. *Cooperation of Efforts*. The Parties will designate staff who will endeavor to meet monthly or more frequently if necessary to develop the terms of the Basin GSP in an expeditious manner.

e. *Contracting with Consultant & Cost Share Among the Parties*.

(1) Contracting with Consultant.

A. Contract for the Preparation of the GSP. Brentwood, acting on behalf of the other Parties, shall promptly enter into an agreement with Luhdorff and Scalmanini ("**Consultant**") for the preparation of the Basin GSP.

B. Annual Budgets and Scopes of Work. Not later than each February 15, Brentwood shall obtain a proposed budget and scope from Consultant for services during the upcoming fiscal year. Brentwood shall promptly provide the proposed budget and scope to the other Parties and shall give the other Parties until each March 15 to review the proposed budget and scope, and provide written comments to Brentwood. Such comments shall include each Party's determination as to whether it is willing to pay its share of the cost of such work, as identified in Paragraph 2(e)(2). If, after each March 15, no Party has indicated in writing that it is unwilling to pay its share of the cost of such work, the Consultant's budget and scope for the upcoming fiscal year shall be deemed approved and Brentwood shall take such actions as may be necessary to cause Consultant to perform the services included in that budget and scope of work. In the event that one or more Parties object to the proposed budget and scope of work, the Parties shall promptly meet and confer to determine an appropriate course of action.

C. Payments by Parties to Brentwood. Brentwood shall, upon receipt of Consultant's monthly invoices, pay Consultant for services rendered during the previous

113 month. Brentwood will promptly provide invoices to the other Parties identifying their shares of
114 the cost of the previous month's work and such other Parties shall pay said invoices within 45
115 days of receipt.

116 *(2) Cost-Share for Basin GSP*. The costs associated with developing the
117 Basin GSP ("**GSP Costs**"), including but not limited to, any local cost-shares required by state or
118 federal grants, will be shared equally among the Parties.

119

120 A. In-Kind Services Provided by County. The County, at its sole
121 discretion, may satisfy its share of GSP Costs by providing in-kind services, which may include
122 but may not be limited to mapping, graphics, and database management services. The County
123 will provide written notice to the other Parties by the March 15 immediately preceding the fiscal
124 year stating either that the County will pay its share of GSP Costs in the fiscal year, or that the
125 County will provide in-kind services in lieu of paying its share of GSP Costs in the fiscal year.
126 In the case of payments to Consultant or other vendors where the County wishes to substitute in-
127 kind services for direct payments, Brentwood shall allocate such invoices equally among the
128 Parties other than the County. Notwithstanding anything to the contrary contained herein, no
129 Party shall be obligated to pay the County for the value of any in-kind services provided by the
130 County, and the value of any in-kind services provided by the County shall only act as a credit
131 towards the County's share of GSP Costs, as more particularly described in 2(e)(2)(B).

132 B. Annual Accounting. Brentwood shall prepare an annual
133 accounting by October 1 that shows all GSP Costs for the previous fiscal year and that identifies
134 in-kind services provided by the County and the County's calculation of the value of those in-
135 kind services. By July 30th following the end of a fiscal year, the County will provide

136 Brentwood an accounting of the County's in-kind services during the prior fiscal year, and any
137 carry-over value of in-kind services provided during any fiscal years preceding the prior fiscal
138 year. The value of the County's in-kind services will be calculated based on (1) the then-current
139 fully-burdened hourly rates for County staff time, benefits, and overhead, and (2) the County's
140 actual costs for any materials or supplies required to provide the in-kind services.

141 i. Upon written notice to the other Parties no later than 15
142 days after receiving Brentwood's annual accounting, any Party other than the County may
143 dispute the County's calculation of the value of the in-kind services that the County provided
144 during the fiscal year for which the accounting is prepared, but no Party may challenge the value
145 of in-kind services that were carried over from any fiscal year preceding the fiscal year for which
146 the accounting is prepared. In the event that one or more Parties provide notice of a dispute
147 under this subparagraph, the Parties shall promptly meet and confer in an effort to resolve the
148 dispute to the satisfaction of all Parties. The County's obligation to make any payments to other
149 Parties under Paragraph 2(e)(2)(B)(ii) shall be tolled until the County receives, from each
150 disputing Party, written notice that the dispute has been resolved to the disputing Party's
151 satisfaction.

152 ii. Except as expressly provided in Paragraph 2(e)(2)(B)(i), in
153 the event that Brentwood's annual accounting shows that the value of the in-kind services
154 provided by the County during the fiscal year for which the accounting is prepared, plus any
155 carry-over value for in-kind services provided in any preceding fiscal years, is less than the
156 individual contributions of the other Parties during the fiscal year for which the annual
157 accounting is prepared, the County shall provide, by the November 30 following receipt of the
158 annual accounting, payments to each of the other Parties sufficient to equalize the values of the

159 Parties' contributions during the fiscal year for which the accounting is prepared. In the event
160 that Brentwood's annual accounting shows that the value of the in-kind services provided by the
161 County during the fiscal year for which the accounting is prepared, plus any carry-over value for
162 in-kind services provided in any preceding fiscal years, is greater than the individual
163 contributions of the other Parties, Brentwood shall credit the County with the difference and
164 carry over that excess contribution to be credited towards the value of the County's in-kind
165 services provided in the subsequent fiscal year.

166 f. *Approval of the GSP.* The Parties agree that the Basin GSP will become effective
167 for each Party when all of the Parties adopt the Basin GSP.

168 3. *Savings Provisions.* This MOU shall not operate to validate or invalidate, modify or affect
169 any Party's water rights or any Party's obligations under any agreement, contract or
170 memorandum of understanding/agreement entered into prior to the effective date of this
171 MOU. Nothing in this MOU shall operate to convey any new right to groundwater to any
172 Party. Each Party to this MOU reserves any and all claims and causes of action respecting
173 its water rights and/or any agreement, contract or memorandum of
174 understanding/agreement; any and all defenses against any water rights claims or claims
175 under any agreement, contract or memorandum of understanding/agreement.

176 4. *Withdrawal*. Any Party shall have the ability to withdraw from this MOU by providing
177 sixty (60) days written notice of its intention to withdraw. Said notice shall be given to
178 each of the other Parties.

179 a. A Party shall not be fiscally liable for expenditures following its withdrawal from
180 this MOU, provided that the Party provides written notice at least sixty (60) days
181 prior to the effective date of the withdrawal. A withdrawal shall not terminate, or

relieve the withdrawing Party from, any express contractual obligation to another Party to this MOU or to any third party incurred or encumbered prior to the withdrawal.

b. In the event of a Party's withdrawal, this MOU shall continue in full force and effect among the remaining Parties. Further, a Party's withdrawal from this MOU does not, without further action by that Party, have any effect on the withdrawing Party's decision to be a GSA. A withdrawing Party shall coordinate the development of its groundwater sustainability plan with the other Parties to this MOU.

5. *CEQA*. Nothing in this MOU commits any Party to undertake any future discretionary actions referenced in this MOU, including but not limited to electing to become a GSA and adopting the Basin GSP. Each Party, as a lead agency under the California Environmental Quality Act ("**CEQA**"), shall be responsible for complying with all obligations under CEQA that may apply to the Party's future discretionary actions pursuant to this MOU, including electing to become a GSA and adopting the Basin GSP.

6. *Books and Records.* Each Party shall have access to and the right to examine any of the other Party's pertinent books, documents, papers or other records (including, without limitation, records contained on electronic media) relating to the performance of that Party's obligations pursuant to this Agreement, *providing that* nothing in this paragraph shall be construed to operate as a waiver of any applicable privilege and *provided further* that nothing in this paragraph shall be construed to give either Party rights to inspect the other Party's records in excess of the rights contained in the California Public Records Act.

7. *General Provisions*

a. *Authority*. Each signatory of this MOU represents that s/he is authorized to execute this MOU on behalf of the Party for which s/he signs. Each Party represents that it has legal authority to enter into this MOU and to perform all obligations under this MOU.

b. *Amendment*. This MOU may be amended or modified only by a written instrument executed by each of the Parties to this MOU.

c. *Jurisdiction and Venue*. This MOU shall be governed by and construed in accordance with the laws of the State of California, except for its conflicts of law rules. Any suit, action, or proceeding brought under the scope of this MOU shall be brought and maintained to the extent allowed by law in the County of Contra Costa, California.

d. *Headings*. The paragraph headings used in this MOU are intended for convenience only and shall not be used in interpreting this MOU or in determining any of the rights or obligations of the Parties to this MOU.

e. *Construction and Interpretation*. This MOU has been arrived at through negotiations and each Party has had a full and fair opportunity to revise the terms of this MOU. As a result, the normal rule of construction that any ambiguities are to be resolved against the drafting Party shall not apply in the construction or interpretation of this MOU.

f. *Entire Agreement*. This MOU constitutes the entire agreement of the Parties with respect to the subject matter of this MOU and supersedes any prior oral or written

225 agreement, understanding, or representation relating to the subject matter of this
226 MOU.

227 g. *Partial Invalidity*. If, after the date of execution of this MOU, any provision of this
228 MOU is held to be illegal, invalid, or unenforceable under present or future laws
229 effective during the term of this MOU, such provision shall be fully severable.
230 However, in lieu thereof, there shall be added a provision as similar in terms to such
231 illegal, invalid or unenforceable provision as may be possible and be legal, valid
232 and enforceable.

233 h. *Waivers*. Waiver of any breach or default hereunder shall not constitute a
234 continuing waiver or a waiver of any subsequent breach either of the same or of
235 another provision of this MOU and forbearance to enforce one or more of the
236 remedies provided in this MOU shall not be deemed to be a waiver of that remedy.

237 i. *Necessary Actions*. Each Party agrees to execute and deliver additional documents
238 and instruments and to take any additional actions as may be reasonably required
239 to carry out the purposes of this MOU.

240 j. *Compliance with Law*. In performing their respective obligations under this MOU,
241 the Parties shall comply with and conform to all applicable laws, rules, regulations,
242 and ordinances.

243 k. *Liability*. Each Party agrees to indemnify and hold every other Party to the
244 Agreement, and their officers, agents and employees, free and harmless from any
245 costs or liability imposed upon any other Party, officers, agents, or employees
246 arising out of any acts or omissions of its own officers, agents or employees.

l. *Third Party Beneficiaries*. This MOU shall not create any right or interest in any non-Party or in any member of the public as a third party beneficiary.

m. *Counterparts*. This MOU may be executed in one or more counterparts, each of which shall be deemed to be an original, but all of which together shall constitute but one and the same instrument.

n. *Notices*. All notices, requests, demands or other communications required or permitted under this MOU shall be in writing unless provided otherwise in this MOU and shall be deemed to have been duly given and received on: (i) the date of service if served personally or served by electronic mail or facsimile transmission on the Party to whom notice is to be given at the address(es) provided below, (ii) on the first day after mailing, if mailed by Federal Express, U.S. Express Mail, or other similar overnight courier service, postage prepaid, and addressed as provided below, or (iii) on the third day after mailing if mailed to the Party to whom notice is to be given by first class mail, registered or certified, postage prepaid, addressed as follows:

City of Antioch
City Manager
P.O. Box 5007
Antioch, CA 94531-5007
Telephone: (925) 779-7011
Facsimile: (925) 779-7003

City of Brentwood

City Manager

150 City Park Way

Brentwood, CA 94513

Phone: (925) 516-5400

Fax: (925) 516-5441

Byron Bethany Irrigation District

General Manager

7995 Bruns Road

Byron, CA 94514-1625

Telephone: (209) 835-0375

Facsimile: (209) 835-2869

Contra Costa Water District

General Manager

Contra Costa Water District

P. O. Box H20

Concord, CA 94524

Phone (925) 688-8032

Fax (925) 688-8197

Contra Costa County

Director, Department of Conservation and Development

30 Muir Road

Martinez, CA 94553

Phone (925) 674-7866

Diablo Water District

Attn: General Manager

P.O. Box 127

87 Carol Lane

Oakley, CA 94561

Phone: (925) 625-3798

Fax: (925) 625-0814

East Contra Costa Irrigation District

General Manager

1711 Sellers Avenue

Brentwood, CA 94513

Phone: (925) 634-3544

Fax: (925) 634-0897

Discovery Bay Community Services District

C/O: General Manager

1800 Willow Lake Road

Discovery Bay, CA 94505-9376

Telephone: (925) 634-1131

Facsimile: (925) 513-2705

8. Signatures. The Following signatures attest each Party's agreement hereto.

[Remainder of page left blank. Signatures on next pages.]

CITY OF ANTIOCH

By: _____ Date: 2/21/2020

Rowland E. Bernal Jr., City Manager

APPROVED AS TO FORM:

By: _____ Date: 2/21/2020

Thomas Lloyd Smith, City Attorney

CITY OF BRENTWOOD

By: _____ Date: _____

Tim Y. Ogden, City Manager

APPROVED AS TO FORM:

By: _____ Date: _____

Damien Brower, City Attorney

BYRON BETHANY IRRIGATION DISTRICT

By: _____ Date: _____

Rick Gilmore, General Manager

CONTRA COSTA WATER DISTRICT

By: _____ Date: _____

Stephen J. Welch, General Manager

CITY OF ANTIOCH

By: _____ Date: _____

Rowland E. Bernal Jr., City Manager

APPROVED AS TO FORM:

By: _____ Date: _____

Thomas Lloyd Smith, City Attorney

CITY OF BRENTWOOD

By: _____ Date: 3/10/20

Tim Y. Ogden, City Manager

APPROVED AS TO FORM:

By: _____ Date: 3-7-20

Damien Brower, City Attorney

BYRON BETHANY IRRIGATION DISTRICT

By: _____ Date: _____

Rick Gilmore, General Manager

CONTRA COSTA WATER DISTRICT

By: _____ Date: _____

Stephen J. Welch, General Manager

CITY OF ANTIOCH

By: _____ Date: _____

Rowland E. Bernal Jr., City Manager

APPROVED AS TO FORM:

By: _____ Date: _____

Thomas Lloyd Smith, City Attorney

CITY OF BRENTWOOD

By: _____ Date: _____

Tim Y. Ogden, City Manager

APPROVED AS TO FORM:

By: _____ Date: _____

Damien Brower, City Attorney

BYRON BETHANY IRRIGATION DISTRICT

By: _____ Date:04/6/2020_____

Rick Gilmore, General Manager

CONTRA COSTA WATER DISTRICT

By: _____ Date: _____

Stephen J. Welch, General Manager

CITY OF ANTIOCH

By: _____ Date: _____

Rowland E. Bernal Jr., City Manager

APPROVED AS TO FORM:

By: _____ Date: _____

Thomas Lloyd Smith, City Attorney

CITY OF BRENTWOOD

By: _____ Date: _____

, City Manager

APPROVED AS TO FORM:

By: _____ Date: _____

Damien Brower, City Attorney

BYRON BETHANY IRRIGATION DISTRICT

By: _____ Date: _____

Rick Gilmore, General Manager

CONTRA COSTA WATER DISTRICT

By: _____ Date: April 13, 2020

Stephen J. Welch, General Manager

APPROVED AS TO FORM:

By: _____ Date: April 9, 2020

District Legal Counsel

CONTRA COSTA COUNTY

By: _____ Date: _____

John Kopchik, Director of

Conservation and Development

APPROVED AS TO FORM:

Sharon L. Anderson, County Counsel

By: _____ Date: _____

Deputy County Counsel

DIABLO WATER DISTRICT

By: _____ Date: _____

Dan Muelrath, General Manager

EAST CONTRA COSTA IRRIGATION DISTRICT

By: _____ Date: _____

Aaron Trott, General Manager

DISCOVERY BAY COMMUNITY SERVICES DISTRICT

By: _____ Date: _____

Michael R. Davies, General Manager

APPROVED AS TO FORM:

By: _____ Date: _____

District Legal Counsel

CONTRA COSTA COUNTY

By: _____ Date: 4-13-2020

John Kopchik, Director of

Conservation and Development

APPROVED AS TO FORM:

Sharon L. Anderson, County Counsel

By: _____ Date: 4/7/2020

Deputy County Counsel

DIABLO WATER DISTRICT

By: _____ Date: _____

Dan Muelrath, General Manager

EAST CONTRA COSTA IRRIGATION DISTRICT

By: _____ Date: _____

Aaron Trott, General Manager

APPROVED AS TO FORM:

By: _____ Date: _____

District Legal Counsel

APPROVED AS TO FORM:

By: _____ Date: _____

District Legal Counsel

CONTRA COSTA COUNTY

By: _____ Date: _____

John Kopchik, Director of

Conservation and Development

APPROVED AS TO FORM:

Sharon L. Anderson, County Counsel

By: _____ Date: _____

Deputy County Counsel

DIABLO WATER DISTRICT

By: Dan Muelrath Date: April 6, 2020

Dan Muelrath, General Manager

EAST CONTRA COSTA IRRIGATION DISTRICT

By: _____ Date: _____

Aaron Trott, General Manager

APPROVED AS TO FORM:

By: _____ Date: _____

District Legal Counsel

APPROVED AS TO FORM:

By: _____ Date: _____

District Legal Counsel

CONTRA COSTA COUNTY

By: _____ Date: _____

John Kopchik, Director of

Conservation and Development

APPROVED AS TO FORM:

Sharon L. Anderson, County Counsel

By: _____ Date: _____

Deputy County Counsel

DIABLO WATER DISTRICT

By: _____ Date: _____

Dan Muelrath, General Manager

EAST CONTRA COSTA IRRIGATION DISTRICT

By: _____ Date: 4/7/2020

Aaron Trott, General Manager

APPROVED AS TO FORM:

By: _____ Date: April 4, 2020

District Legal Counsel

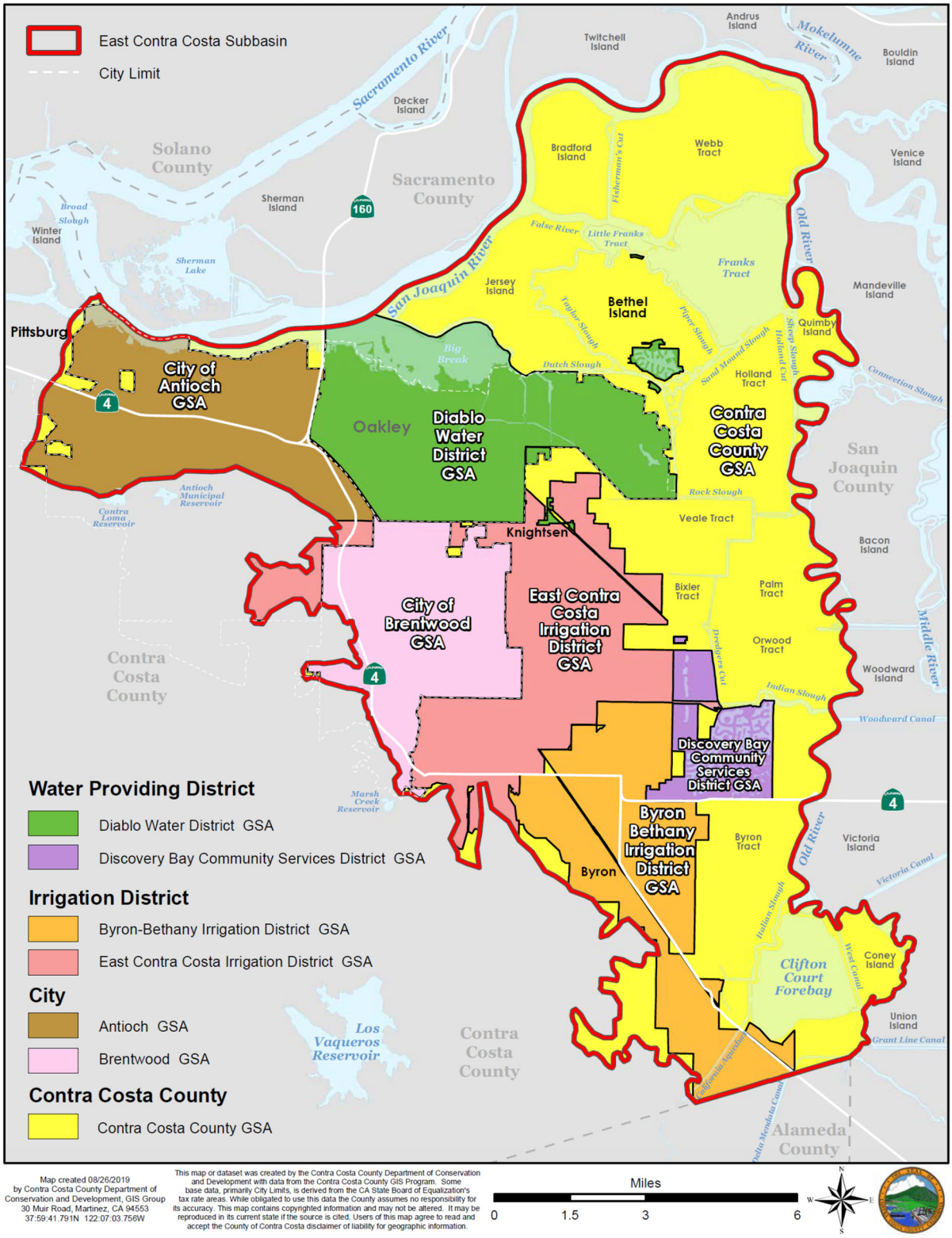
DISCOVERY BAY COMMUNITY SERVICES DISTRICT

By: _____ Date: 2/19/2020

Michael R. Davies, General Manager

EXHIBIT A

Groundwater Sustainability Agencies in the East Contra Costa Subbasin (5-022.19)



Map created 08/26/2019
by Contra Costa County Department of Conservation and Development, GIS Group
30 Muir Road, Martinez, CA 94553
37:59:41.791N 122:07:03.756W

This map or dataset was created by the Contra Costa County Department of Conservation and Development with data from the Contra Costa County GIS Program. Some base data, primarily City Limits, is derived from the CA State Board of Equalization's tax rate areas. While obligated to use this data the County assumes no responsibility for its accuracy. This map contains copyrighted information and may not be altered. It may be reproduced in its current state if the source is cited. Users of this map agree to read and accept the County of Contra Costa disclaimer of liability for geographic information.

Appendix 1c

Elements Guide-Sections 1 and 2

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Elements Guide Template

Enter the Bulletin 118 Basin or Subbasin name here: **San Joaquin Valley-East Contra Costa (5-022.19)**

This Groundwater Sustainability Plan Elements Guide is developed directly from the Sustainable Groundwater Management Act (Act) and the Groundwater Sustainability Plan Emergency Regulations (GSP regulations).

It is provided to support local agencies, Groundwater Sustainability Agencies (GSA), or other entities during preparation and submission of their GSP to the Department of Water Resources (DWR). The guide is organized according to the California Code of Regulation Sections of the GSP Emergency Regulations. In particular, the "Elements of the Plan" tab contains all of the elements of Article 5 of the DWR's GSP Emergency Regulations. In the event that information or recommendations in this guide are inconsistent with, conflicts with, or omits the requirements of the Act, applicable laws, or the GSP Emergency Regulations, the Act, other laws, or the GSP Emergency Regulations shall prevail. More information about the GSP Emergency Regulations can be found at this web link.

Rows that are highlighted in grey do not require page numbers of the GSP to be identified by the GSA(s).

DATA ENTRY INSTRUCTION/GUIDE		
Page Numbers of Plan		Provide the PDF page number(s). Page ranges should be separated by a ':'. Additional pages should be separated by a ','. Note that the page number(s) are those tracked by the PDF document, and may not correspond to the page numbers in the printed document. If multiple PDF files are uploaded for the GSP, an explanation needs to be provided in the Notes field that associates the page numbers of plan with the appropriate PDF file. 'N/A' can be entered but if used an explanation needs to be provided in the Notes field. Example: If the information is found on pages 24 through 29 and also on page 36 and pages 40 through 45, the user would enter '24:29, 36, 40:45'. Page Number is a required field.
Or Section Numbers		Provide the section numbers. Section ranges should be separated by a ':'. Additional sections should be separated by a ','. Example: If the information is found in sections 3-5 through 3-7 and also in section 4-1, the user would enter '3-5:3-7, 4-1'. Section Numbers is not a required field.
Or Figure Numbers		Provide the figure numbers. Figure number ranges should be separated by a ':'. Additional figures should be separated by a ','. Example: If the information is found in figures 2-6 through 2-10 and also in figure 5-3, the user would enter '2-6:2-10, 5-3'. Figure numbers is not a required field.
Or Table Numbers		Provide the table numbers. Table number ranges should be separated by a ':'. Additional tables should be separated by a ','. Example: If the information is found in tables 2-6 through 2-10 and also in tables 5-3, the user would enter '2-6:2-10, 5-3'. Table numbers is not a required field.
Notes		Enter notes related to the element here. Notes can be entered as any free text. Example: "A map of seawater intrusion is not included because the basin is not located near a seawater body." Notes is not a required field, unless "N/A" is entered for the page number, or if multiple PDF files are uploaded for the GSP, then an explanation needs to be provided.

Last Modified Auguest 14, 2019
Version 201909011

Article 5.			Plan Contents for San Joaquin Valley-East Contra Costa (5-022.19) Basin	GSP Document References				
				Page Numbers of Plan	Or Section Numbers	Or Figure Numbers	Or Table Numbers	Notes
§ 354.6.			**Agency Information**					
			When submitting an adopted Plan to the Department, the Agency shall include a copy of the information provided pursuant to Water Code Section 10723.8, with any updates, if necessary, along with the following information:					
(a)			The name and mailing address of the Agency.		1.2			
(b)			The organization and management structure of the Agency, identifying persons with management authority for implementation of the Plan.		1.2	1-2		
(c)			The name and contact information, including the phone number, mailing address and electronic mail address, of the plan manager.		1.2			
(d)			The legal authority of the Agency, with specific reference to citations setting forth the duties, powers, and responsibilities of the Agency, demonstrating that the Agency has the legal authority to implement the Plan.		1.2			
(e)			An estimate of the cost of implementing the Plan and a general description of how the Agency plans to meet those costs.					
			Note: Authority cited: Section 10733.2, Water Code.					
			Reference: Sections 10723.8, 10727.2, and 10733.2, Water Code.					
§ 354.8.			**Description of Plan Area**					
			Each Plan shall include a description of the geographic areas covered, including the following information:					
(a)			One or more maps of the basin that depict the following, as applicable:					
	(1)		The area covered by the Plan, delineating areas managed by the Agency as an exclusive Agency and any areas for which the Agency is not an exclusive Agency, and the name and location of any adjacent basins.			2-1		
	(2)		Adjudicated areas, other Agencies within the basin, and areas covered by an Alternative.	2-1	2.1.1.1	2-1		
	(3)		Jurisdictional boundaries of federal or state land (including the identity of the agency with jurisdiction over that land), tribal land, cities, counties, agencies with water management responsibilities, and areas covered by relevant general plans.		2.1.1.2, 2.1.1.3, 2.1.1.4	2-2, 2-3, 2-16		
	(4)		Existing land use designations and the identification of water use sector and water source type.		2.3.3	2-14, 2-15		
	(5)		The density of wells per square mile, by dasymetric or similar mapping techniques, showing the general distribution of agricultural, industrial, and domestic water supply wells in the basin, including de minimis extractors, and the location and extent of communities dependent upon groundwater, utilizing data provided by the Department, as specified in Section 353.2, or the best available information.		2.1.2	2-6 a, b, and c		
(b)			A written description of the Plan area, including a summary of the jurisdictional areas and other features depicted on the map.		2.1			
(c)			Identification of existing water resource monitoring and management programs, and description of any such programs the Agency plans to incorporate in its monitoring network or in development of its Plan. The Agency may coordinate with existing water resource monitoring and management programs to incorporate and adopt that program as part of the Plan.		2.2	2-7, 2-8		
(d)			A description of how existing water resource monitoring or management programs may limit operational flexibility in the basin, and how the Plan has been developed to adapt to those limits.		2.2.10			

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(e)			A description of conjunctive use programs in the basin.		2.2.11			
(f)			A plain language description of the land use elements or topic categories of applicable general plans that includes the following:					
	(1)		A summary of general plans and other land use plans governing the basin.		2.3.4	2-16		
	(2)		A general description of how implementation of existing land use plans may change water demands within the basin or affect the ability of the Agency to achieve sustainable groundwater management over the planning and implementation horizon, and how the Plan addresses those potential effects		2.3.4.5			
	(3)		A general description of how implementation of the Plan may affect the water supply assumptions of relevant land use plans over the planning and implementation horizon.		2.3.4.5			
	(4)		A summary of the process for permitting new or replacement wells in the basin, including adopted standards in local well ordinances, zoning codes, and policies contained in adopted land use plans.		2.4			
	(5)		To the extent known, the Agency may include information regarding the implementation of land use plans outside the basin that could affect the ability of the Agency to achieve sustainable groundwater management.					
(g)			A description of any of the additional Plan elements included in Water Code Section 10727.4 that the Agency determines to be appropriate.		2.5			
			Note: Authority cited: Section 10733.2, Water Code.					
			Reference: Sections 10720.3, 10727.2, 10727.4, 10733, and 10733.2, Water Code.					