

Preliminary Assessment: BBID as an Alternative Water Supply Source to Augment Groundwater Supplies

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December 2, 2015



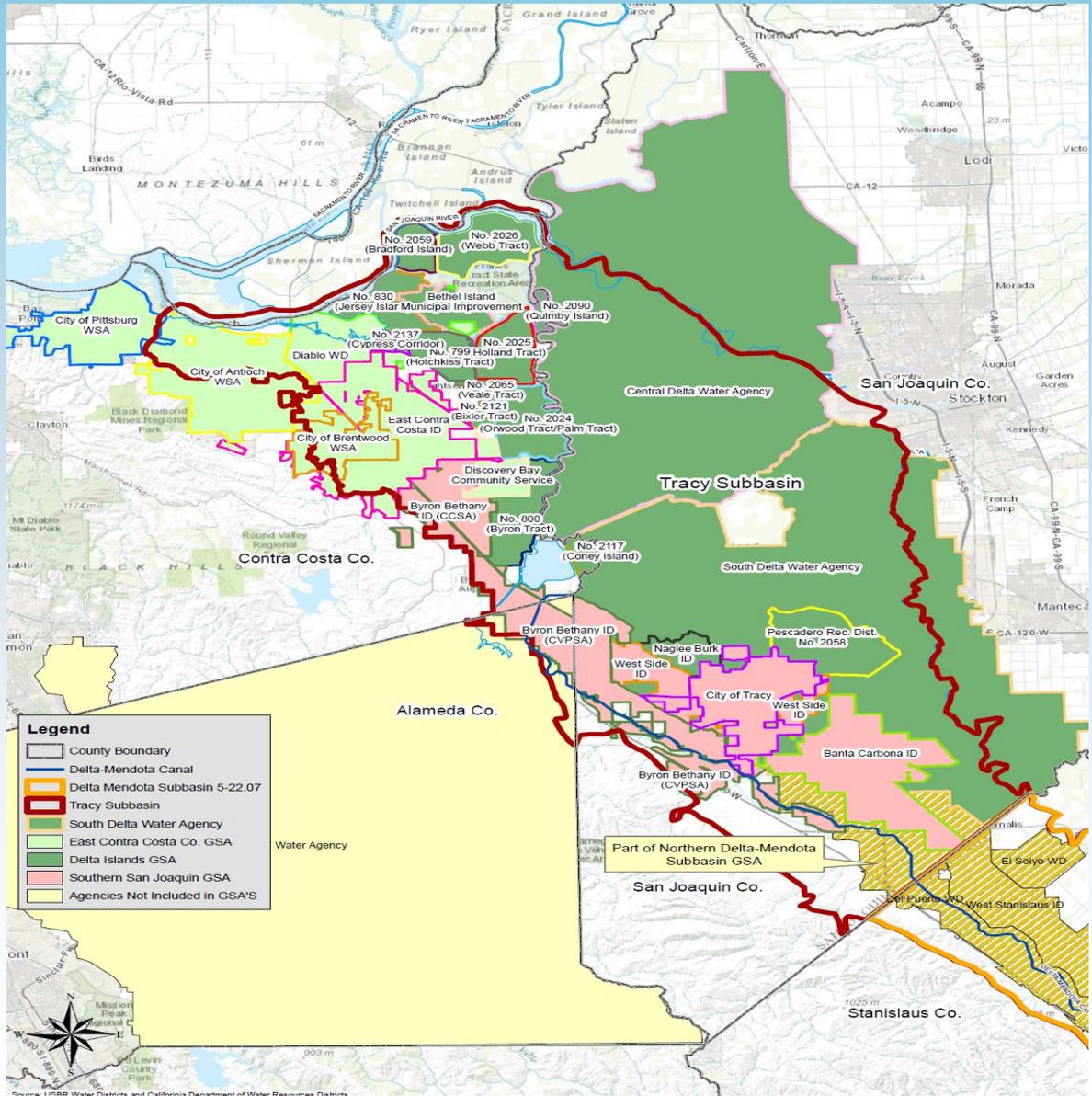
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Need for Preliminary Assessment

On November 19, 2015 the TODB requested a preliminary assessment of the TODB's water supply in light of a previously unknown possibility that Byron-Bethany Irrigation District (BBID) may be able to provide TODB with an alternative water supply source (irrigation water)

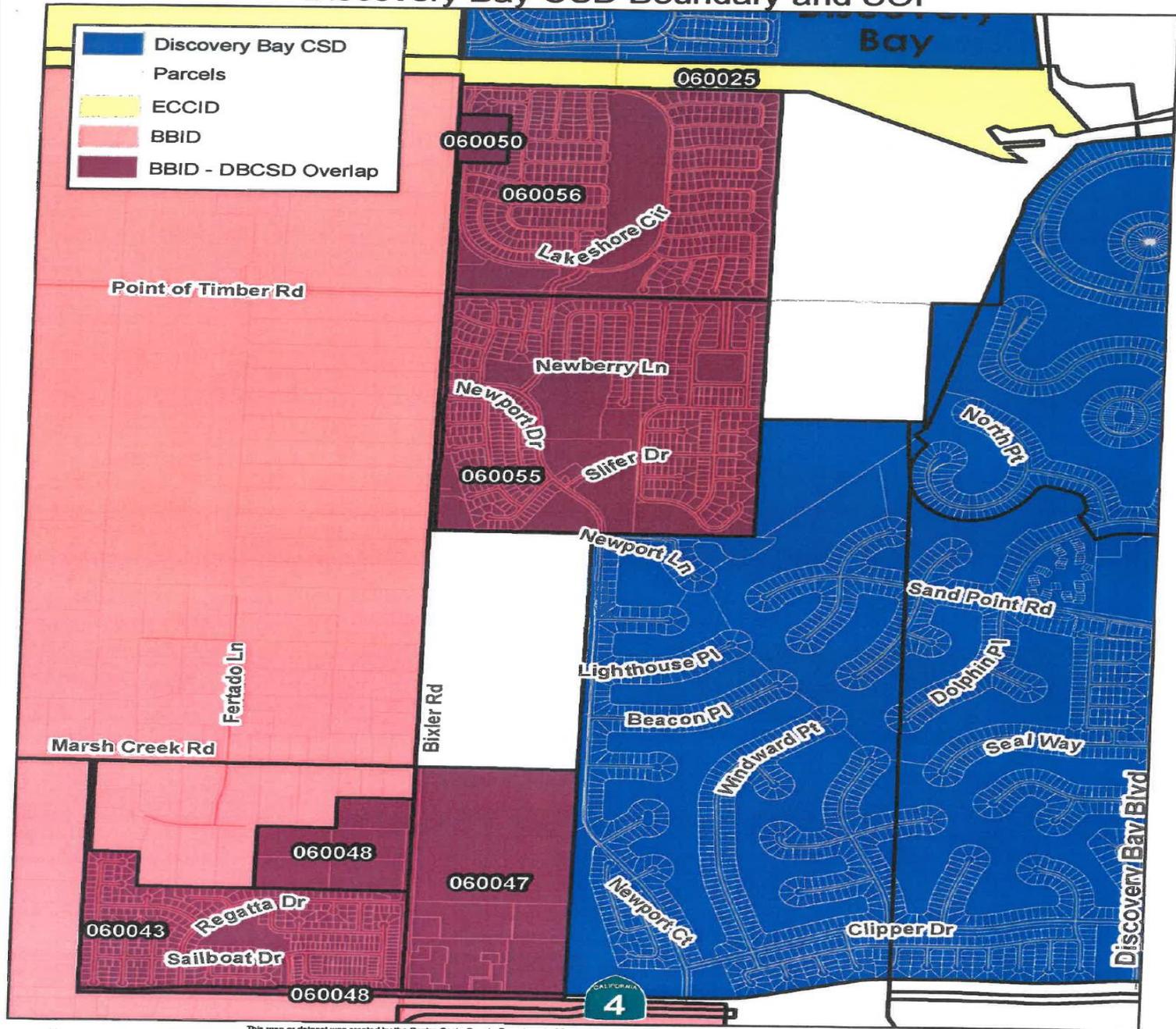
BBID Service

- Byron-Bethany Irrigation District (BBID) is a multi-county special district serving parts of Alameda, Contra Costa, and San Joaquin Counties
- See attached figures of BBID & TODB Service Areas



Source: 1989 Water Districts and California Department of Water Resources Districts

Discovery Bay CSD Boundary and SOI



TODB & BBID Detachment Process & Need for Preliminary Assessment

A formal request is currently before the Contra Costa County Board of Supervisors to pursue with the San Joaquin County LAFCO, detachment of portions of the TODB from BBID because “BBID has not, is not, nor is it likely that Discovery Bay would need a water supply from BBID in the future.”

Mary Nejedly Piepho, County Supervisor, District III, Nov 20 letter to BBID

TODB & BBID Detachment Process & Need for Preliminary Assessment

- Town of Discovery Bay provides water, yet both BBID and the Town receive payment for water service delivery
- If detached, BBID revenue could be reallocated to other affected taxing agency(ies)
- *On November 19, 2015 TODB requested LSCE to assess TODB's water supply and the likelihood that the Town will ever use BBID water*

TODB Water Supplies

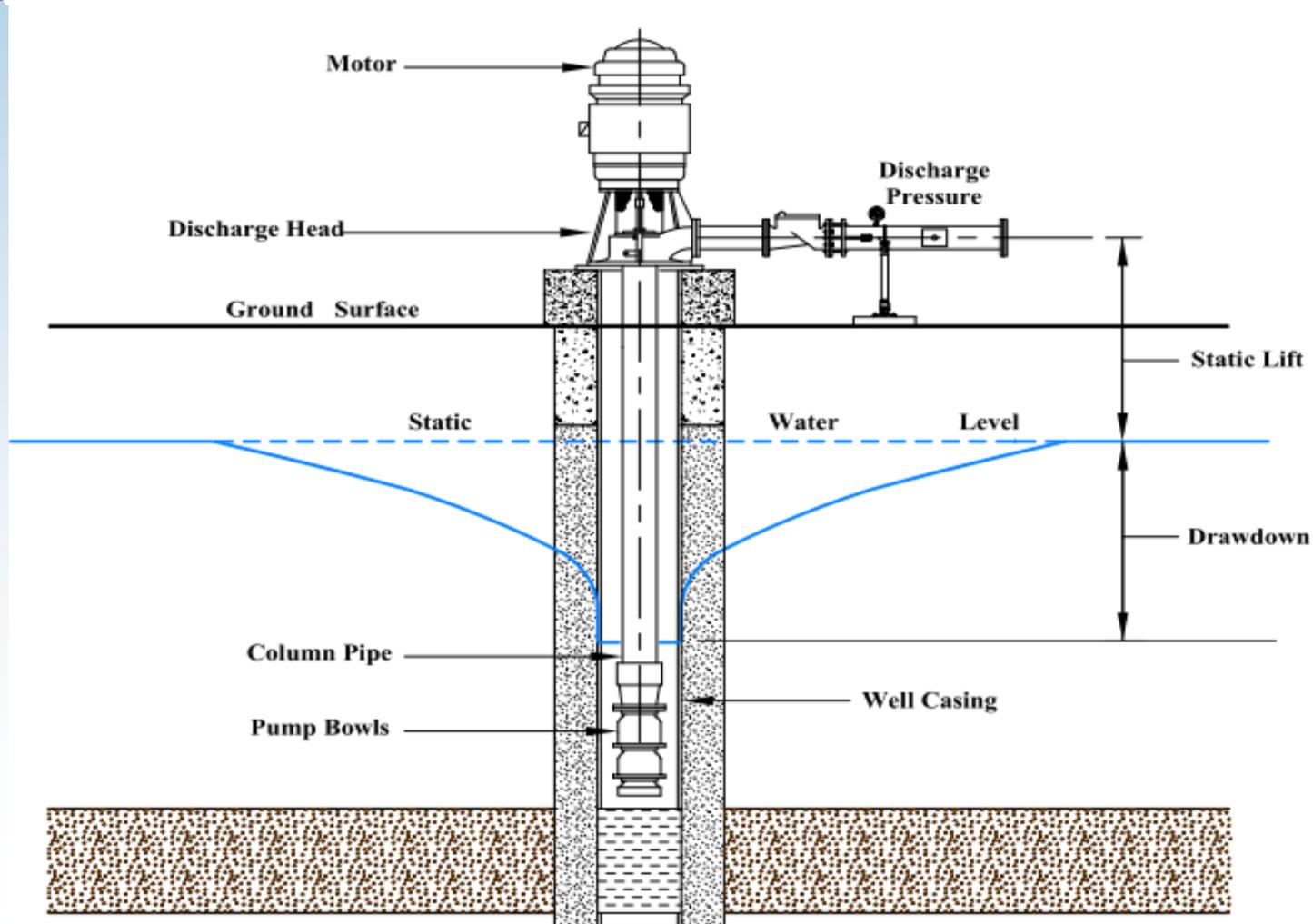
- LSCE's 1999 & 2010 Water Master Plans, and 2010 Urban Water Management Plan evaluated water supply, water quality and opportunities for recycled water
- **These Plans make no reference to a possible BBID water supply source** (LSCE had no information regarding the availability or nature of BBID water supply quality/quality and rates, agreements, etc.)

TODB Water Supply vs Water Demand

- TODB relies on pumping groundwater to meet 100% of the it's customers water demand
- TODB's 2015 EDU Update covers the planning horizon period through 2023 (from the current system size of 7,161 Equivalent Dwelling Units (EDUs) to a build out size of 8,356 EDUs, which included TODB infill growth, plus planned developments that include Pantages, Discovery Bay West, Sandy Cove, Evans, Newport Point

**How Sustainable is the
TODB's Groundwater
Supply ?**

Typical TODB Well Pump Schematic (TODB Wells 1B, 2, 4A, 5A, 6 & 7)



LOCATION MAP



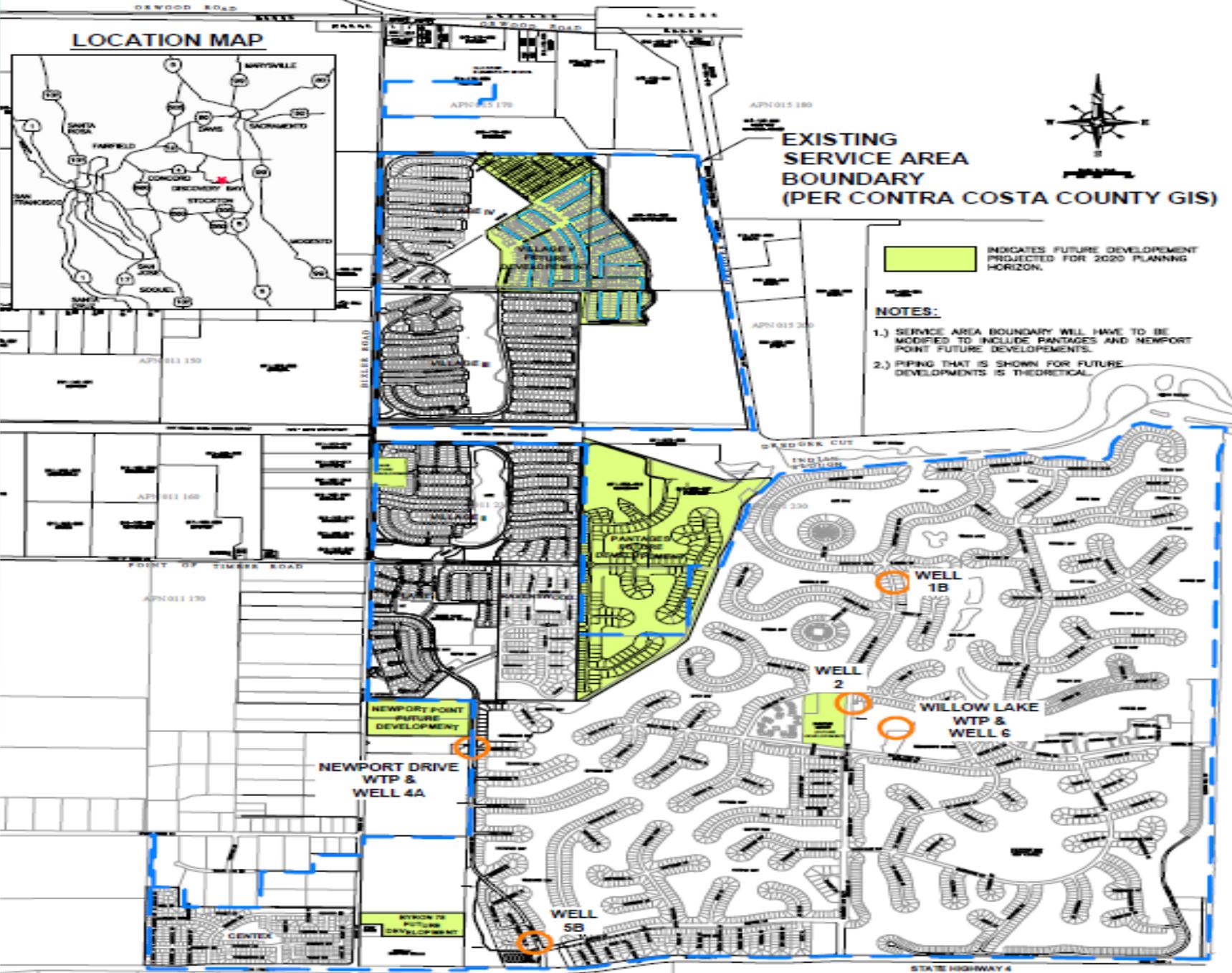
EXISTING SERVICE AREA BOUNDARY (PER CONTRA COSTA COUNTY GIS)



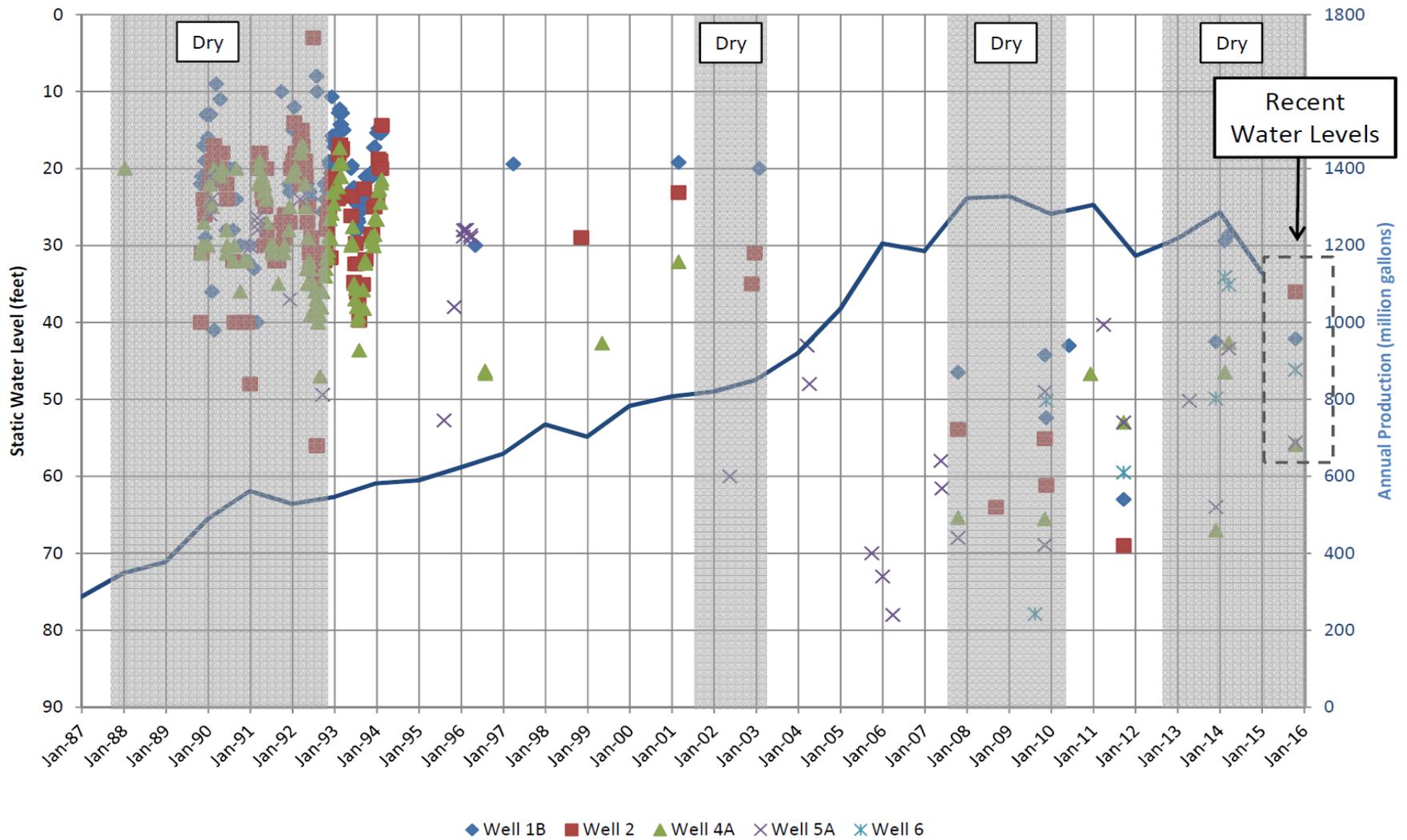
 INDICATES FUTURE DEVELOPMENT PROJECTED FOR 2020 PLANNING HORIZON.

NOTES:

- 1.) SERVICE AREA BOUNDARY WILL HAVE TO BE MODIFIED TO INCLUDE PANTAGES AND NEWPORT POINT FUTURE DEVELOPMENTS.
- 2.) PIPING THAT IS SHOWN FOR FUTURE DEVELOPMENTS IS THEORETICAL.



STATE HIGHWAY 4



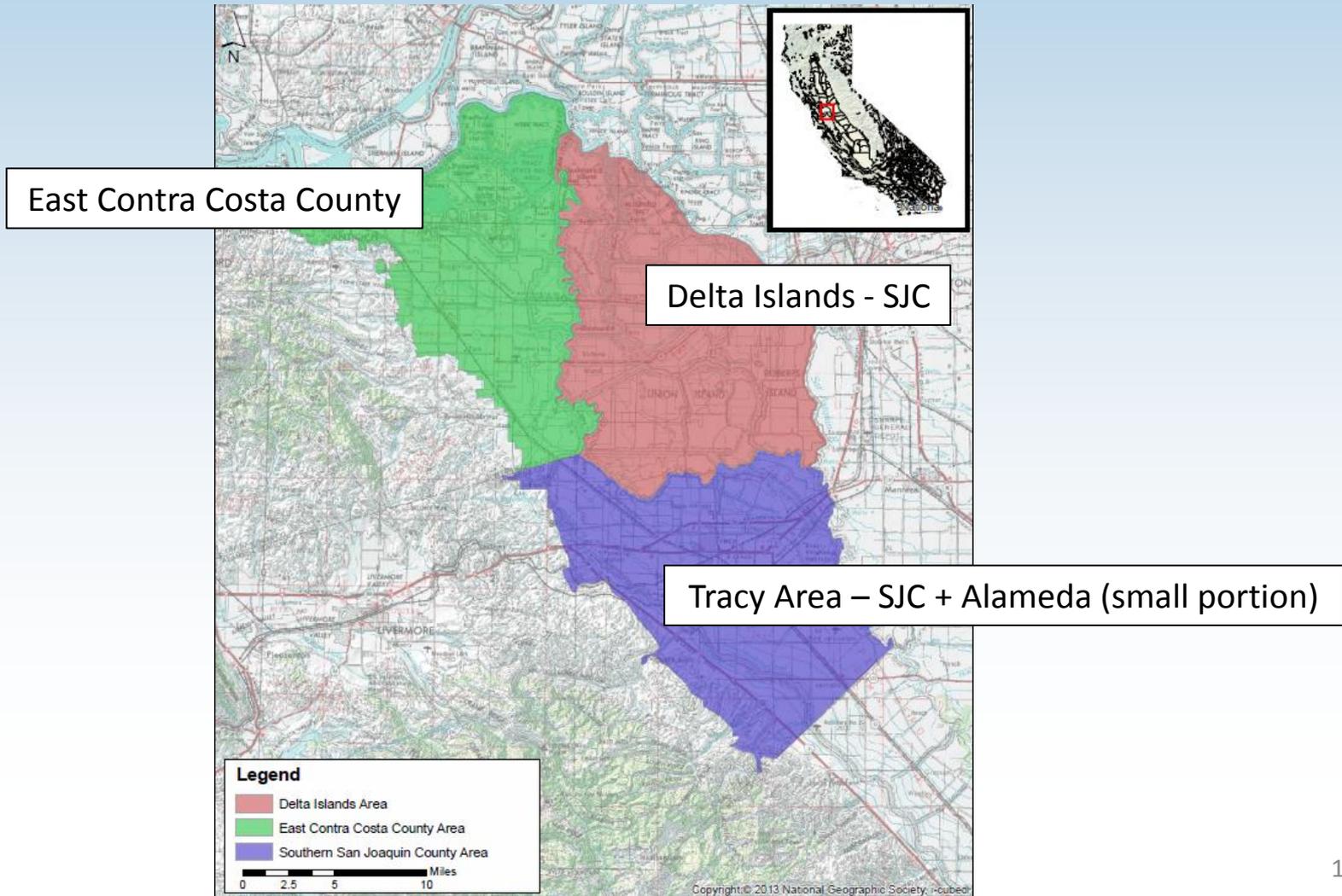
TODB Wells & Title 22

- TODB maintains well facilities to meet maximum day demand with the largest well source offline in accordance DDW Title 22 California Standards
- State standards require water demand be met with the largest supply well out-of-service is intended to ensure the water supply is reliable
- Current groundwater supply meets current and projected needs

2014 Sustainable Groundwater Management Act (SGMA)

- Requires certain basins to operate under a Groundwater Sustainability Plan by 2022
- TODB is within the Tracy Subbasin, Tracy Subbasin ranked “Medium Priority” and is required to prepare a GSP according to the Act

Subareas in Tracy Subbasin



Requirements for SGMA Plans

- a) Groundwater elevation data.
- b) Groundwater extraction data.
- c) Surface water supply.
- d) Total water use.
- e) Change in groundwater storage.
- f) Water budget.
- g) Sustainable yield.

Sustainability of TODB Groundwater Supply

- Master plan concludes yield of the groundwater appears stable for the current and planned pumping horizon
- Reliability in water supply is obtained by continued groundwater monitoring and having sufficient backup supply wells in operation
- TODB's Groundwater basin is not adjudicated and DWR has not identified or projected the basin to be in overdraft.
- TODB is actively participating in the Department of Water Resources (DWR), 2014 Sustainable Groundwater Management Act (SGMA). The current SGMA work is currently being conducted in coordination with neighboring water users (including BBID) to improve the regional understanding of groundwater conditions, and sustainability for planned groundwater use in the basin

TODB Water Quality

Water quality in the TODB's groundwater wells includes elevated levels of iron and manganese (requiring treatment), and high in total dissolved solids, TDS (though below the upper MCL of 1,000 mg/L). The TDS from groundwater use contributes to the TDS loading at the wastewater treatment plant, which is related with discharge permit compliance.

Merits of Having Multiple Sources of Water Supply

Good engineering practice for the TODB to consider the merits and cost associated with having multiple sources of water supply available, especially if:

- a) there is potential for population growth and increase water demand, and
- b) increase use of groundwater in the area
- c) climate change results in less water being available for groundwater recharge and available for pumping

Water Quality Benefits From Using Surface Water

- When more than one alternative source of water is available for public drinking water supply, water should be taken from the highest-quality source, wherever practical and cost effective
- Water quality in the TODB's groundwater wells include high total dissolved solids and hardness that can, directly or indirectly (TODB residents use softeners and add salt) present challenges meeting wastewater treatment plant discharge permit requirements
- TODB should evaluate and compare TODB groundwater quality to BBID irrigation water and assess the water quality improvements that can be attained

BBID Tie-In Assessment

Major Items Requiring Evaluation Include:

- BBID Water Quantity and Reliability
- BBID Water Quality
- TODB Surface Water Treatment Requirements
- TODB Water Distribution System Improvements

BBID Water Quantity and Reliability

- How much water is available from BBID?
- Would BBID provide an emergency water supply only, or is sufficient water available to provide water at all times?
- What factors impact the availability of receiving BBID water now or in the future?
- What are the current and projected costs for water?

BBID Water Quality

- BBID irrigation water quality
- What factors affect water quality, and how may the water quality vary seasonally

Water Treatment

- Since the BBID is non-potable, District would have to treat to the domestic surface water treatment standards
- Surface water treatment plant will be required
- If BBID water is available for emergency only, the WTP would have to be in standby mode making the use of the BBID source impractical (if BBID water is available for emergency supply only)

BBID Tie-In & TODB Water Distribution System

- LSCE understands that BBID has an 18-inch water transmission pipeline that would presumably be the tie-in or connection point to the west side of the existing TODB water system
- Pursuing a tie-in requires the design and construction of a surface water treatment and probably re-design of the current water distribution system that currently consists of two central groundwater treatment systems

Preliminary Assessment of BBID in Meeting TODB Water Supply Needs

- TODB's current and projected water demand is planned to be met by groundwater pumping
- Furthermore the TODB's groundwater supply wells are completed in a groundwater basin that has not been identified by the DWR as being in, or projected to be in overdraft
- DWD basin assessment is consistent with LSCE's analyses of water supply based upon hydrograph data versus water demand
- **Having a BBID irrigation water supply source is not needed for meeting the TODB water demand thru the Full Build-out horizon (Year 2023)**

Questions

