

## ATTACHMENT 13. REDUCE DELTA WATER DEPENDENCE

Att13\_IG2\_Delta\_1of1

### Overview

The Eastern San Joaquin Region's highly productive though depleted aquifers sit astride the Sacramento-San Joaquin Delta, the switching yard for the majority of California's water supplies. Approximately one-third of San Joaquin County is within the statutory Delta, though only small portions of the statutory Delta are included within the Eastern San Joaquin IRWM area.

Approximate 1.2 million acre-feet per year is used within the planning area.<sup>24</sup> Less than one percent of the water demand is met from Delta water supplies. Because of inadequate surface water rights, groundwater makes up 60 percent of all water supplied.<sup>25</sup> Demand exceeds supply, and the groundwater has been in a state of overdraft for over 60 years.

The 2007 Eastern San Joaquin IRWM Plan was prepared with input from the Groundwater Banking Authority, a technical committee convened as an advisory panel. The Objective of the Eastern San Joaquin IRWMP is to:

“Ensure the long-term sustainability of water resources in the San Joaquin Region while:

- Equitably distributing benefits and costs;
- Minimizing adverse impacts to agriculture, communities, and the environment;
- Maximizing efficiency and beneficial use of supplies; and,
- Protecting and enhancing water rights and supplies.”<sup>26</sup>

A variety water sources and management methods are considered in the IRWMP; the Delta is just one of these. The primary driver has been to replenish and sustain the groundwater aquifer. A reliable groundwater supply provides drought security, and provides the ability to use less surface water during periods of shortage or emergency in the Delta.

### Resource Management Strategies

All of the Resource Management Strategies identified in the California Water Plan were considered in the IRWMP.<sup>27</sup> The strategies considered are presented in Table 46, below. Other strategies, not in the California Water Plan, that were considered and incorporated into the Plan include Water Supply Reliability, Regional Groundwater Banking Partnerships, Imported Water, and Land Use Planning.

The Plan has a significant emphasis on water demand reduction, through agricultural and urban water use efficiency programs,<sup>28</sup> and recycled municipal water supplies.<sup>29</sup> Multiple sources are required to

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<sup>24</sup> 2007 IRWMP, p.ES-6

<sup>25</sup> 2007 IRWMP, p.1-2

<sup>26</sup> 2007 IRWMP, p.5-13

<sup>27</sup> 2007 IRWMP, p.7-13

<sup>28</sup> 2007 IRWMP, p.7-14

develop alternatives that meet the Plan Objectives;<sup>30</sup> common to each alternative is a commitment to urban conservation and agricultural water efficiency.<sup>31</sup>

Balancing future water demands with available supplies will increase water supply reliability by preventing continued overdraft of the groundwater. With groundwater storage stabilized, there will be groundwater available during surface water supply shortages and delivery interruptions.

**Table 46 - Resource Management Strategies Considered in the 2007 IRWMP**

<b>Resource Management Strategies</b> Identified in the California Water Plan (Bulletin 160-05, December 2005)			
Strategy #	Strategy Considered	Included in IRWMP	Notes
1	Agricultural Lands Stewardship	Considered	Does not address Plan objectives
2	Agricultural Water Use Efficiency	Yes	
3	Conjunctive Management and Groundwater Storage	Yes	Recharging aquifers for conjunctive management of surface and groundwater supplies is key element of Plan
4	Conveyance	Yes	New pipelines, tunnels, canals, and on-farm distribution systems Not practical for region
5	Desalination	Considered	
6	Drinking Water Treatment and Distribution	Yes	
7	Economic Incentives (Loans, Grants, and Water Pricing)	Yes	
8	Ecosystem Restoration	Yes	
9	Floodplain Management	No	
10	Groundwater Remediation/Aquifer Remediation	Yes	Saline intrusion project
11	Matching Water Quality to Water Use	Yes	
12	Pollution Prevention	Yes	
13	Precipitation Enhancement	Considered	Not practical for region
14	Recharge Areas Protection	Yes	
15	Recycled Municipal Water	Yes	
16	Surface Storage—CALFED	Considered	
17	Surface Storage—Regional/Local	Yes	
18	System Reoperation	Yes	
19	Urban Land Use Management	Yes	
20	Urban Runoff Management	No	
21	Urban Water Use Efficiency	Yes	
22	Water Transfers	Yes	
23	Water-Dependent Recreation	Yes	
24	Watershed Management	Yes?	
Other Resource Management Strategies			
25	Crop idling for water transfers	Considered	
26	Dewvaporation	No	Not practical for region
27	Fog collection	No	Not practical for region
28	Irrigated land retirement	Yes	
29	Rainfed agriculture	No	Not practical for region
30	Waterbag transport/storage technology	No	Not practical for region
Other Resource Management Strategies Not Included in California Water Plan			
31	Water Supply Reliability	Yes	
32	Regional Groundwater Banking Partnerships	Yes	
33	Imported water	Yes	
34	Land use planning	Yes	

<sup>29</sup> 2007 IRWMP, p.7-17

<sup>30</sup> 2007 IRWMP, p.7-69

<sup>31</sup> 2007 IRWMP, p.7-68



## City of Stockton Delta Water Supply Project

The major user of Delta water is the City of Stockton, through its Delta Water Supply Project,<sup>32</sup> which became operational in May 2012. The first increment of Stockton's Delta water supply will be under its water right under California Water Code Section 1485, which permits rediversion of an amount equal to the City's treated water discharges to the San Joaquin River. The City currently discharges 35,000 acre-feet per year to the San Joaquin River, and this amount is expected to rise to 50,000 acre-feet per year by 2030. Currently, and until diversions exceed the discharge to the San Joaquin River, the City is a net supplier to the Delta. Stockton's Section 1485 water right makes the Delta Water Supply Project essentially a one-for-one recycling project, as all of the diverted water is available for full municipal and industrial use, not just for non-consumptive uses.

The place of use for the DWSP supplies is coincident with the adopted 1990 City of Stockton General Plan boundary. The City filed the water right application under two legal authorities: California Water Code Section 1485, the recapturing of treated wastewater discharge in the Delta, and California Water Code Sections 11460 and 12200 et seq., area of origin provisions and the Delta Protection Act, respectively. The City currently discharges approximately 35,000 acre-feet per year of treated wastewater into the San Joaquin River. This value is expected to increase to 50,000 acre-feet per year by 2030.

Currently, the DWSP consists of a new intake facility and pump station located at the southwestern tip of Empire Tract on the San Joaquin River, a raw water conveyance pipeline, a new water treatment plant along Lower Sacramento Road in North Stockton, treated water pipelines, and groundwater injection and extraction wells. The facilities were constructed in such a way as to provide the necessary security required for such a facility but also to provide public access for the surrounding community to educate water users on the importance of water management issues. In addition, sustainable design alternatives were explored as a LEED (Leadership in Energy and Environmental Design) Certification, which was awarded for the water treatment plant in 2012.

The DWSP will not only replace declining and unreliable surface water supplies in the region, but will also protect and restore groundwater resources by pumping less from the region's groundwater basin. The DWSP also includes an aquifer storage and recovery (ASR) program to better meet long-term needs of the City of Stockton. The Stockton DWSP is a conjunctive use program that integrates surface water and groundwater management. In wet years, when surface water is available, surface water use would be maximized and the groundwater would be allowed to recharge. Conversely, in drier years, when surface water is not available, use of groundwater would increase. In addition to allowing the basin to recharge naturally during wet years by minimizing pumping, artificial recharge techniques are available. Injecting surface water into the basin involves utilizing existing retrofitted wells or constructing injection/extraction wells for this purpose.

Injection wells will be located east of the area in the City where there is poor groundwater quality, primarily adjacent to the Delta, to avoid degradation of the high quality surface water to be injected.

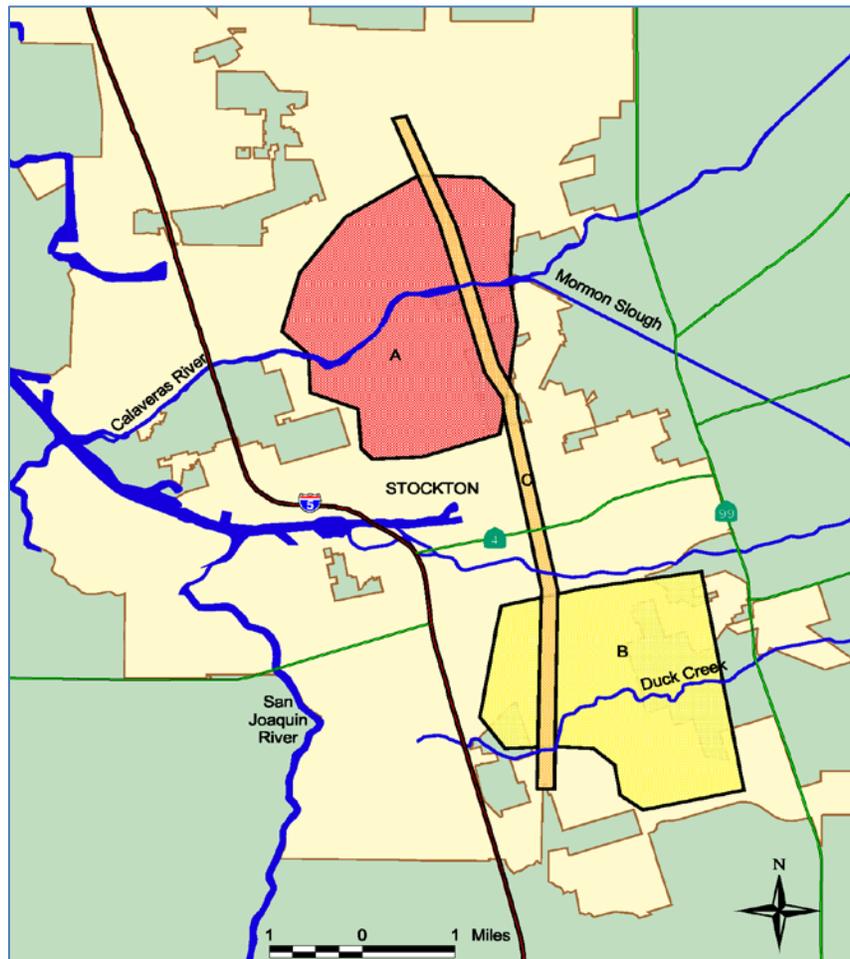
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<sup>32</sup> 2007 IRWMP, p.7-39

Aquifer storage of treated surface water must comply with permit requirements of the RWQCB and must be in compliance with the Board’s anti-degradation policy (Resolution 68-16), which prohibits activities with the potential to degrade the quality of state surface or groundwater. In addition, SWRCB guidance will be needed for groundwater banking programs to insure no injury to local, legal groundwater users<sup>33</sup>.

In the Feasibility Study, three potential banking sites were identified: Site A, north of Alpine Road and west of Highway 99, site B, south of Alpine Road and west of Highway 99, and site C, located along the Southern Pacific Railroad, and illustrated in Figure 22.

Figure 22 - Potential DWSP Banking Sites



<sup>33</sup> Environmental Science Associates, January 2003, “City of Stockton Delta Water Supply Project Feasibility Study, Final Report”

## 2014 IRWMP Update

Conjunctive management of surface water and groundwater with an extensive groundwater storage project will allow the Eastern San Joaquin Region to reliably meet future water demands without further damaging the Basin. The Region is part of the Bay-Delta solution area and will address the mismatch between supply and demand. The SEWD project will utilize previously unused supply generated from the diversion of wet year water and floodwater for groundwater storage. In addition to enhancing water supply reliability by banking groundwater for use in dry years, the project will provide water supply for seasonal waterfowl habitat. Also, by countering the saline front migration, conjunctive management will preserve the Basin's water quality and eliminate the need for ever greater quantities of additional surface water from Bay-Delta tributaries should salinity render portions of the basin unusable.

The Groundwater Banking Authority will continue to examine a wide array of water supply strategies to meet its water needs, and to work to lessen its dependence on the Delta. The Delta meets less than one percent of the Region's water supply needs, but this is expected to grow as the City of Stockton grows and uses the Delta Water Supply Project to a larger degree. The City is developing strategies to meet its water supply needs, including banking of Delta water supplies in groundwater aquifers, and increased use of surface supplies from the Calaveras and Stanislaus Rivers. The DWSP is also subject to Term 91 restrictions on Delta diversions during periods of low Delta outflow. By relying on multiple sources and storing a reserve underground, the City will be able significantly reduce or stop Delta diversions during severe droughts or emergencies.

The GBA has hired a consultant for the IRWMP update, and developed a scope that is fully inclusive of current IRWM standards, including consideration of flood management and banking of flood flows, consideration of climate change vulnerabilities, and re-examination of the full range of resource management strategies.

