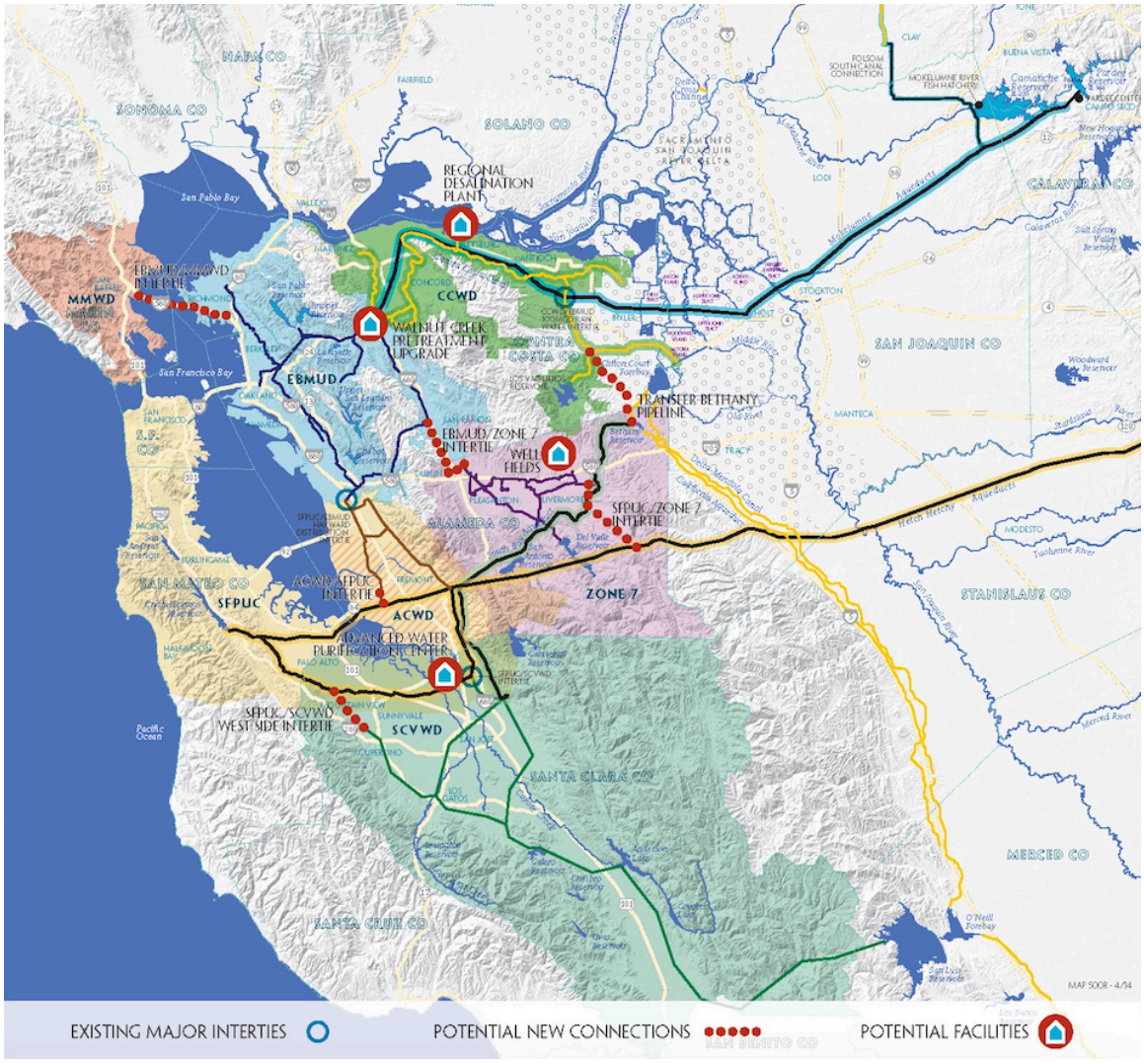
Bay Area's Regional Approach To Water Management Prompts Concerns For Marin

By Sharon Rushton (May 7, 2016)



Map of potential mitigation measures to be evaluated as part of the Bay Area Regional Reliability Drought Contingency Plan

The push toward a Bay Area regional approach to planning is not restricted to land use planning (E.g. Planning by the Association of Bay Area Governments - ABAG) and transportation planning (E.g. Planning by the Metropolitan Transportation Commission - MTC). A regional planning approach to water management by Bay Area water agencies is also well underway. The "San Francisco Bay Area Integrated Regional Water Management Plan" (IRWMP) was first completed and adopted in 2006. A corresponding plan is the "Bay Area Regional Reliability Partnership".

The Bay Area Regional Reliability (BARR) Effort
In 2014, eight Bay Area water agencies, including the Marin Municipal Water District (MMWD), initiated an effort to evaluate near and long-term reliability projects that could use existing infrastructure, new interconnections, recycled water, regional desalination, storage, water transfers, and other institutional arrangements that encourage a regional approach to achieving water supply reliability. Essentially all the water districts could be connected together and share water resources as needed. The project, called the "Bay Area Regional Reliability" (BARR) effort, is still in the planning stage.

The BARR effort will be conducted in two phases. Phase 1 (March 2016 to April 2017) includes the development of the Bay Area Regional Reliability Drought Contingency Plan. Phase 2 (January 2017 to December 2017) includes the development and evaluation of portfolios of potential projects and actions under a range of potential future conditions. Based on the outcome of the portfolio evaluations, a suite of near-term implementable actions will be developed.

Proposed Intertie Between MMWD & EBMUD And A Delta Desal Plant
One of the interconnections that the BARR effort is evaluating is a $45 million Intertie (AKA pipeline) across the Richmond San Rafael Bridge to connect the Marin Municipal Water District (MMWD) with the East Bay Municipal Utility District (EBMUD). The Intertie could move potable water in both directions. Another reliability project under evaluation is a Regional Desalination Plant located in the Delta, estimated to cost $200 million.

Although the Regional Reliability Drought Contingency Plan is still being developed and specifics are not yet available, there are concerns about the potential development of the Richmond San Rafael Bridge Intertie and the Delta Regional Desal Plant, which are discussed below.

EBMUD's Questionable Future Water Supply
75% of the Marin Municipal Water District's (MMWD's) water is derived from 21,000 acres of protected watershed on Mt. Tamalpais and the grassy hills of west Marin. Rainfall from these watersheds flows into one of MMWD's seven reservoirs. 25% of MMWD's water is imported from the Sonoma County Water Agency (SCWA). SCWA water originates from rainfall that flows into Lake Sonoma and Lake Mendocino and is then released into the Russian River. The Russian River water is filtered naturally through 80 feet of sand beds adjacent to the river. The reservoir water and Russian River water are then treated at respective treatment plants.

Currently, 90% of the East Bay Municipal Utility District's (EBMUD's) water supply (325 million gallons/ day) comes from the Mokelumne River watershed.

Snowmelt from the protected watershed of the Mokelumne River is collected at the Pardee Reservoir, 90 miles east of the Bay Area. The Camanche Reservoir, 10 miles downstream from the Pardee Reservoir, stores water for fisheries, riparian habitat, downstream water-rights, and flood control. A small portion (21 million gallons/ day) is derived from local runoff, stored in several East Bay reservoirs. EBMUD also has a contract with the U.S. Bureau of Reclamation for a supplemental water supply (100 million gallons/ day) from the Sacramento River in dry years.

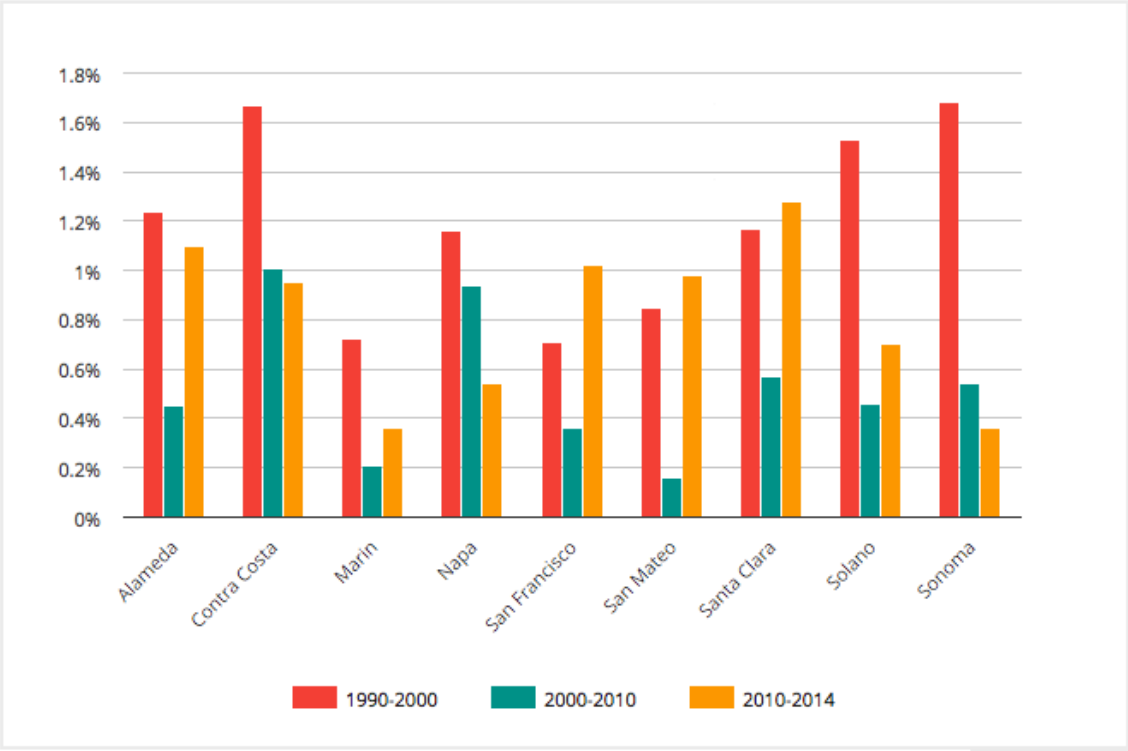
In the future, however, EBMUD's water supply may include desalinated water from a proposed Regional Desalination Plant in the Delta, which could have similar problems to the proposed Marin desal plant that Marin residents rejected.

The water source for the proposed Regional Desal Plant would be polluted brackish water from the Delta near the City of Pittsburg. Although some improvements have been made to desal's reverse osmosis technology, concerns remain. Desalination is very expensive and could result in potential adverse impacts, such as detrimental health effects due to contaminants entering the water supply, greenhouse gas (GHG) emissions from the high energy-intensity of desalination processes, and harm to aquatic wildlife. An unlimited desalinated water supply could also encourage faster growth.

In response to Marin residents' advocacy, the MMWD Board of Directors recently agreed to continue a ban on the use of pesticides in the MMWD watershed. In contrast, Marin residents would likely have little influence on EBMUD's Board decisions or the management of associated reservoir watersheds.

Marin County May Fare Better Than The East Bay During Dry Periods

FIGURE 3.2 Average Annual Population Growth Rate by County



Source: California Department of Finance

Population Growth

Marin County, compared to other Bay Area counties, has grown at a much slower pace. So far Marin's population has been able to live within the capacity of current water supplies. Marin County residents also tend to conserve more water than residents in other counties. In 2009, Marin households used 283 gallons a day, which was about three-quarters of the average household use in the Bay Area, per the New York Times.

According to ABAG Projections, population growth in the EBMUD service area is projected to grow 21% (300,000 people) by the year 2040, from 1.4 million in 2015 to 1.7 million in 2040. (See Table 1-3) Whereas MMWD's service area population is projected to grow by 11%, from 189,000 in 2015 to 210,400 in 2040, which is half the rate of EBMUD's. (See Table 3-4) It is pertinent to note that the projected population growth (300,000) in EBMUD's area is one and a half times the total current population (189,000) in MMWD's area.

Table 1-3 - Projected Population Growth of EBMUD's Service Area:

TABLE 1-3 POPULATION PROJECTIONS (MILLIONS)

REGION	2015	2020	2025	2030	2035	2040
ALAMEDA COUNTY	1.6	1.7	1.7	1.8	1.9	2.0
CONTRA COSTA COUNTY	1.0	1.0	1.2	1.2	1.3	1.3
EBMUD SERVICE AREA	1.4	1.4	1.5	1.6	1.6	1.7
SERVICE AREA WITHIN ALAMEDA COUNTY	64%	64%	64%	64%	64%	65%
SERVICE AREA WITHIN CONTRA COSTA COUNTY	36%	36%	36%	36%	36%	35%

Table 3-4 - Projected Population Growth of MMWD's Service Area:

Table 3-4: Population - Current and Projection (DWR Table 3-1)

	2015	2020	2025	2030	2035	2040	Data Source[2]
Service Area Population[1]	189,000	191,300	195,500	199,800	205,000	210,400	ABAG

NOTES: 1) Service area population is defined as the population served by the distribution system. 2) The population is based on Association of Bay Area Governments (ABAG) 2013 Projections, which use Census data.

Local Coastal Water Supplies May Be More Resilient Than Those From The Sierra Nevada

According to Paleoclimatologists' findings and archeological evidence noted in the book; "The West Without Water", in times of prolonged drought in the past, California's coastal areas fared better than inland areas. During the latest drought, the Bay Area counties, which are dependent on water from the Sierra Nevada, had a more difficult time than Marin, where most water comes from local sources.

85 percent of the Bay Area region's water supply comes from the Sierra Nevada via the Hetch Hetchy Reservoir, serving San Francisco, most of San Mateo and parts of Alameda and Santa Clara counties. 90% of the East Bay Municipal Utility District (EBMUD) supply comes from capturing Sierra Nevada snowmelt from the watershed of the Mokelumne River and collecting it at the Pardee Reservoir, 90 miles east of the Bay Area.

In March 2014, the Hetch Hetchy Reservoir was 51% full, whereas in a normal year, the reservoir would be about 75% full at that time of year. (68% of normal) In February 2014, the Mokelumne River watershed was at 49% of normal.

In May of 2015, the Hetch Hetchy Reservoir was 70 percent full. Hetch Hetchy is just one piece of the puzzle. The entire system supplying the Bay Area, which includes five more reservoirs and a water reserve, was only at 54% of capacity.

In comparison, during the latest drought, MMWD's reservoirs' storage levels remained close to normal. On March 27, 2014 MMWD's reservoir levels were at 78% of capacity compared with an average storage of 91% for this date (86% of normal). On February 1, 2015 MMWD's reservoir levels were above average, at 97% of capacity. On April 30, 2016, the storage of water in MMWD's reservoirs was at 98.68% of capacity, which was 109.07% of the average storage for the date.

According to the 2013 Bay Area Integrated Regional Water Management Plan (IRWMP); "It is expected that the demand management measures, combined with alternative strategies, and regulatory requirements will allow Bay Area Region water agencies to continue to meet projected demand through 2035 in average years with normal rainfall. However, in dry years all but 4 major agencies (**MMWD**, City of Napa, SFPUC, and Zone 7) project a shortfall." Even though there is an overall projected short fall in dry years for the Bay Area as a whole, MMWD does not project any shortfall through Year 2035, even in dry years.

EBMUD's Water Supply & Demand

Analysis conducted for EBMUD's 2015 Draft Urban Water Management Plan (UWMP) shows that under baseline assumptions (based on historic 1921 to 2012 hydrology); "EBMUD can meet customer demands out to 2040 during normal years and single dry years." However, "During multi-year droughts, even with customer demand reduction, EBMUD will need to develop supplemental supplies to meet projected customer demands."

The EBMUD 2014 Draft UWMP also states; "In addition to demand-side water savings from conservation, the supplemental supply components that EBMUD may pursue in order to ensure delivery of emergency water supplies during dry-years include, but are not limited to, purchasing water through transfers, **exploring a regional desalination project**, groundwater banking/exchange efforts, and expanding surface water storage."

MMWD's Water Supply & Demand

The Marin Municipal Water District's Draft 2015 Urban Water Management Plan concludes that through 2040 the "district will have sufficient supplies to meet the demands during normal and dry years." "As a result, no future potable water supply projects are necessary at this time to increase the amount of available potable water supply." Marin has made great progress in water conservation and significantly reduced water use over the last decade. Additional conservation is expected. The County has essentially created a new water resource in the form of a "reservoir of conservation", as described by MMWD Director Larry Bragman.

Although it is very difficult to read the tea leaves... Due to East Bay's greater projected population growth and demand, and conceivably more vulnerable water supply, EBMUD appears to have a greater need for a supplemental water supply than MMWD does. This equation could change with EBMUD's conservation efforts and procurement of supplemental supplies. However, if such supplies include water from a Delta Regional Desal Plant, then MMWD customers may be reticent to partner with the East Bay district. MMWD customers may have different values and water use preferences than EBMUD customers.

Presently, MMWD's water supply is meeting demand. If in the future a supplemental water supply is needed for a severe multiple-year drought, then hopefully other sources, than the proposed Intertie across the Richmond San Rafael Bridge, will also be explored.

Conclusion

In summary, there are initial concerns regarding the potential Intertie between MMWD and EBMUD and the Delta Regional Desal Plant. Once the Bay Area Regional Reliability Drought Contingency Plan and associated evaluations are complete and available for review, we will see if such concerns are alleviated or if they remain.

****Related Issue:**

Please follow the below link to view a related letter from Sustainable TamAlmonte to the Marin Municipal Water District (MMWD) regarding the MMWD Draft 2015 Urban Water Management Plan (UWMP). The Draft UWMP incorporates a "2040 Resiliency Study" that has not yet been completed or evaluated. The UWMP is expected to be adopted on June 7, 2016 but the resiliency study is not scheduled for release until 2017.

Here's the link to the letter:

http://www.tamalmonte.org/letters/Letter_from_Sustainable_TamAlmonte_to_MMWD_re_DRAFT_2015_UWMP_4-26-16.pdf