

March 17, 2017

State Water Resources Control Board
Attn: Ms. Jeanine Townsend, Clerk of the Board
1001 I Street, 24th Floor
Sacramento, CA 95814-0100

Via email: commentletters@waterboards.ca.gov

Subject: Comment Letter – 2016 Bay-Delta Plan Amendment and Revised Draft Substitute Environmental Document (SED)

Dear Members of the State Water Resources Control Board,

The Santa Clara Valley Water District (District) appreciates the opportunity to comment on the 2016 Bay-Delta Plan Amendment and Revised Draft Substitute Environmental Document (Draft SED). The District is the primary water resource management agency for Santa Clara County providing water supply, flood protection, and environmental stewardship for Silicon Valley and its 1.9 million residents. The District supports the ultimate goal of improving the Bay-Delta ecosystem, and water is clearly an important component of that restoration; however, given the stakes involved, we urge you to take a more reasoned and balanced approach to addressing ecosystem needs.

Santa Clara County relies on water from the Delta watershed for 55 percent of its water supply on average. Forty percent is conveyed through the Delta by the State and federal water projects (SWP and CVP) and 15 percent, or about 60 thousand acre-feet (TAF) per year, comes from San Francisco's Regional Water System to cities in the northern part of the County. Any reductions in San Francisco's supplies will put significant additional pressure on Santa Clara's supplies.

The San Francisco Public Utilities Commission (SFPUC) provides water to nine entities in Santa Clara County, including the cities of Milpitas, Mountain View, Santa Clara, Sunnyvale, Palo Alto, and northern parts of San Jose – the heart of Silicon Valley. They also provide water to Purissima Hills, Stanford University, and NASA Ames.

The Draft SED analysis shows an average reduction of 137 TAF in supplies to San Francisco's regional system during a repeat of the 1987 to 1992 drought. Based on SFPUC's predicted future demand of 297 TAF, this would constitute a 46% shortage in supply. SFPUC's most recent analysis shows annual impacts as high as 54% shortages during a similar extended drought scenario (refer to SFPUC's March 17, 2017 comments on the Draft SED for details on their recent analysis). The Draft SED does not adequately analyze the impacts of this reduction. This level of reduction could significantly impact the ability of the District to provide reliable water supplies to our communities, businesses, and local streams, and make it more difficult for us to protect our local groundwater basins and prevent land surface subsidence.

The Draft SED analysis asserts that there will not be a supply impact because San Francisco will be able to secure transfer supplies to make up the difference. Based on our experience, the District and SFPUC will be hard pressed to find the volume of transfer supplies that the Draft SED envisions. In dry years, demand exceeds available transfer supplies, and sellers face political and environmental pressures to abstain from transferring water outside of their region. Implementation of the proposed Phase 1 reductions in supply will exacerbate this situation, increasing the demand on limited water supplies. In years when transfer supplies are more plentiful, conveyance capacity across the Delta can be limited; in 2016, there was no conveyance capacity for new transfers of non-SWP/CVP water. Conveyance losses are also high; as much as 35% of purchased water can be lost in transit.

The economic and environmental impacts of this supply reduction to Santa Clara County need to be fully and adequately analyzed in order for the State Water Board to make an informed decision that properly balances all beneficial uses. More detailed comments on impacts of this supply reduction to Santa Clara County are provided in Attachment 1.

There is no debate that fish need water, but the State Water Board must consider the importance of timing, quantity, location, and quality of water releases in the context of all the stressors on the species in order to identify effective solutions. Given the potential impacts of proposed flow modifications, these solutions must utilize the best available science to craft approaches that recognize and respond to competing needs. In many cases, strategic actions can be implemented to provide the functions that historic flows provided with minimal water costs. An example is the recent North Delta Food Web Adaptive Management Project that was implemented in 2016 as part of the California Natural Resources Agency's Delta Smelt Resiliency Strategy.

Unimpaired flows do not have the same form and function as natural flows in our highly altered system. Native fish evolved under natural flow conditions, not unimpaired flow conditions. Under natural or historic flows, water would spill out of the rivers into vast floodplains and wetlands where native fish would spawn and rear. The water that was not taken up by vegetation would then slowly drain back into the rivers, carrying with it the fish and large amounts of food material. Today's unimpaired flows travel down channelized river systems, disconnected from the landscape except in extreme flood events. In fact, recent studies have

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calculated that Delta inflows and outflows under historic conditions were significantly less than unimpaired flows¹.

We cannot restore the conditions under which native fish evolved simply by adding more water to the existing rivers and Delta channels. The State Water Board should embrace a more collaborative process to develop water quality objectives that restore the functions that historic flows provided through a combination of flow and non-flow actions. To that end, we urge the State Water Board to support, and allow sufficient time to develop the agreements that are being negotiated under Governor Jerry Brown's direction.

The District has long been committed to sustained reliable water supplies as well as environmental stewardship. We will continue to encourage the State Water Board to develop solutions that meet both of these objectives.

Sincerely,



Jim Fiedler, P.E., D. WRE
Chief Operating Officer
Water Utility Enterprise

Attachment 1: Impacts of Supply Reduction on Santa Clara County

cc: Norma Camacho, Interim CEO, Santa Clara Valley Water District
Santa Clara Valley Water District Board Members

¹ Huang, G. (2016). Estimates of Natural and Unimpaired Flows for the Central Valley of California: Water Years 1922-2014, California Department of Water Resources, Bay-Delta Office, March, Draft
Fox, P., Hutton, P.H., Howes, D.J., Draper, A.J., and Sears, L. (2015). Reconstructing the Natural Hydrology of the San Francisco Bay-Delta Watershed, Hydrology and Earth System Sciences, 19, 4257-4274.

Attachment 1
Impacts of Supply Reduction on Santa Clara County

Summary

As the primary water resource management agency for Santa Clara County, the Santa Clara Valley Water District (District) is concerned about potential impacts to water supply reliability as a result of the State Water Board's preferred alternative in the 2016 Bay-Delta Plan Amendment and Revised Draft Substitute Environmental Document (Draft SED). The San Francisco Public Utilities Commission (SFPUC) conducted its own analysis of impacts and predicts annual supply shortages as high as 54%¹ for its Regional Water System (RWS). The District's own analysis, based on SFPUC's analysis, predicts that Santa Clara County SFPUC wholesale customers could face shortages of up to 73%. The Draft SED does not adequately analyze the impacts of this reduction. This level of reduction could significantly impact the ability of the District to provide reliable water supplies to our communities, businesses, and local streams, and make it more difficult for us to protect our local groundwater basins and prevent land surface subsidence.

In order to manage these shortages, SFPUC wholesale customers in Santa Clara County will almost certainly rely on District managed supplies including groundwater, local surface water, and District supplies imported through the State Water Project (SWP) and Central Valley Project (CVP). That shift in reliance for drought supplies will (a) cause an increase in the frequency and magnitude of mandatory county wide demand reductions and/or (b) require the District to add additional supply resources, requiring additional expenditures on behalf of County ratepayers and having various environmental impacts. Based on modeling using 94-years² of hydrologic data, the District predicts the preferred alternative will double the number of years that fall into the "Alert Stage" under the District's Water Shortage Contingency Plan (WSCP) and increase the number of years in the "Critical Stage" from zero to four (over 94 years), resulting potentially in calls for county-wide demand reductions of up to 40% in those years.

Background

The District is the primary water resource management agency for Santa Clara County. The District was formed in 1929 in response to groundwater overdraft and significant land subsidence. The District has been a leader in conjunctive use in California for decades, utilizing imported and local surface water to supplement groundwater and to maintain reliability in dry years.

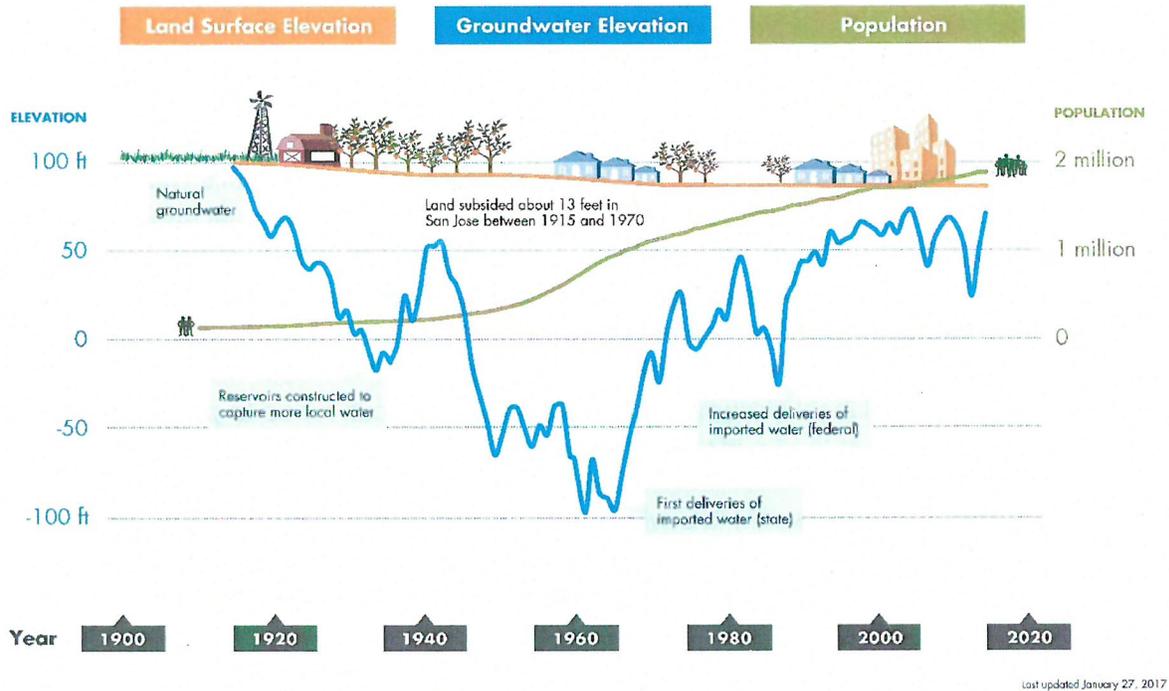
Figure 1 shows how the District's water management activities have dramatically contributed to a sustainable water supply. After it was formed to address declining groundwater levels and land subsidence, the District constructed reservoirs to capture more local water. However, local supplies

¹ Refer to SFPUC's March 17, 2017 comments on the Draft SED for their predicted annual shortages under the proposed 40% UF scenario.

² 1922 to 2015

were insufficient to meet the county’s growing population. The District began importing water from the SWP in 1965 and from the CVP’s San Felipe Division in 1987. These investments, along with water recycling and conservation, have resulted in sustainable groundwater subbasins and reliable water supplies for the county.

Figure 1: Historic Groundwater Conditions



The county relies on water from the Delta watershed for 55 percent of its water supply on average. Forty percent is conveyed through the Delta by the State and federal water projects (SWP and CVP) and fifteen percent comes from the SFPUC through the RWS. SFPUC provides water to eight wholesale customers in the northern part of Santa Clara County. These wholesale customers include the cities of Milpitas, Mountain View, Santa Clara, Sunnyvale, Palo Alto, and northern parts of San Jose – the heart of Silicon Valley. The remaining wholesale customers are Purissima Hills and Stanford University. The District’s 2015 Urban Water Management Plan projects that annual demand for SFPUC supplies in Santa Clara County will be around 59 thousand acre-feet (TAF) by 2040. Reductions to this supply could have serious repercussions to water supply reliability throughout Santa Clara County.

The District’s Water Shortage Contingency Plan provides a strategy for early water shortage detection, shortage stages, shortage response actions, and a public outreach and communication plan. The District manages water supplies and programs to maximize storage of wet period supplies for use during dry periods when other sources of supply are insufficient to meet demands. Because the groundwater subbasins are able to store the largest amount of local reserves, the District depends on maintaining adequate storage in the subbasins to get through extended dry periods. The District projected end-of-year groundwater storage serves as an early warning sign and is a good indicator of

potential water shortages. The District's Water Shortage Contingency Plan stages are described in Table 1.

Table 1: Water Shortage Contingency Plan Stages

Stage	Stage Title	Projected End-of-Year Groundwater Storage	Requested Short-Term Water Use Reduction	Actions
Stage 1	Normal	Above 300 TAF	None	The District continues ongoing outreach strategies aimed toward achieving long-term water conservation targets. Messages in this stage focus on services and rebate programs the District provides to facilitate water use efficiency for residents, agriculture, and business. While other stages are more urgent, successful outcomes in Stage 1 are vital to long-term water supply reliability.
Stage 2	Alert	250 – 300 TAF	0 – 10%	This stage is meant to warn customers that current water use is tapping groundwater reserves. Coordinate ordinances with cities and prepare for a Stage 3 situation. Additional communication tools can be employed to augment Stage 1 efforts, promote immediate behavioral changes, and set the tone for the onset of shortages. Specific implementation plans will be developed when a worsening of the water shortage has occurred. Supplemental funding may be identified to augment budgeted efforts.
Stage 3	Severe	200 – 250 TAF	10 – 20%	Shortage conditions are worsening, requiring close coordination with retailers and cities to enact ordinances and water use restrictions. Requires significant behavioral change by water users. The intensity of communication efforts will increase as the severity of shortage increases. Messages are modified to reflect for dire circumstances.
Stage 4	Critical	150 – 200 TAF	20 – 40%	This is the most severe stage in a multiyear drought. The District will expand Stage 3 activities and encourage retailers and cities to enforce their water shortage contingency plans, which could include fines for repeated violations.
Stage 5	Emergency	Below 150 TAF	40 – 50%	Stage 5 of the water shortage contingency plan is meant to address an immediate crisis such as a major infrastructure failure. Water supply would only be available to meet health and safety needs. The District would activate its EOC and provide daily updates on conditions.

Review of the Revised Draft Substitute Environmental Document Analysis

The preferred alternative in the Draft SED would establish an adaptively managed flow requirement on the Tuolumne River, that would start at 40% of unimpaired flow (UF). The Draft SED includes an analysis of how this could impact SFPUC water reliability in Appendix L. Under Scenario 2, the Draft

SED predicts an average RWS shortage of 137 thousand acre-feet (TAF) during each year of a repeat of the 1987-1992 drought. Based on SFPUC's predicted future demand of 297 TAF, this would constitute a 46% shortage in supply. SFPUC's most recent analysis shows annual impacts as high as 54% shortages during a similar extended drought scenario³.

The Draft SED analysis asserts that there will not be a supply impact due to these predicted shortages because San Francisco will be able to secure transfer supplies to make up the difference. Based on our experience, the District and SFPUC will be hard pressed to find the volume of transfer supplies that the Draft SED envisions. In dry years, demand exceeds available transfer supplies, and sellers face political and environmental pressures to abstain from transferring water outside of their region. Implementation of the proposed Phase 1 reductions in supply will exacerbate this situation, increasing the demand on limited water supplies. In years when transfer supplies are more plentiful, conveyance capacity across the Delta can be limited; in 2016, there was no conveyance capacity for new transfers of non-SWP/CVP water. Conveyance losses are also high; as much as 35% of purchased water can be lost in transit.

Analysis of Single-Year Effects to SFPUC's Santa Clara County Wholesale Customers

Determining how system-wide shortages of up to 54% to the RWS could affect Santa Clara County requires understanding how these system-wide shortages would impact the Santa Clara County SFPUC wholesale customers, our common customers, and how those customers will respond. The Water Shortage Allocation Plan, agreed to by SFPUC and its wholesale customers, is used to determine how shortages will be allocated amongst all SFPUC customers. Generally, the Water Shortage Allocation Plan provides greater reliability to retail customers than to wholesale customers such that a 20% system-wide shortage translates to a greater reduction to wholesale customers. Based on the Water Shortage Allocation Plan, the District's 2015 Urban Water Management Plan determined the expected water deliveries to the District's and SFPUC's common customers under different shortage scenarios. The Urban Water Management Plan only analyzed a maximum system-wide shortage of 20% because the Water Shortage Allocation Plan only includes specific rules for system-wide shortages of up to 20%. Under the Water Shortage Allocation Plan, if SFPUC determines that a system-wide shortage would be greater than 20%, then SFPUC and the wholesale customers would meet to discuss how to allocate further supply reductions. Another relevant reference in the context of this analysis is the Bay-Delta Plan -- in particular, the 2016 amendment to it. To analyze the larger-than-20% system-wide reductions expected under the preferred alternative in the 2016 Bay-Delta Plan Amendment, the District assumed that wholesale supply reductions would be prorated based on the wholesale reductions at a system-wide shortage of 20%. A summary of the District's analysis comparing supply reductions between the RWS, all SFPUC wholesale customers, and SFPUC wholesale customers in Santa Clara County can be found in *Table 2*.

³ Refer to SFPUC's March 17, 2017 comments on the Draft SED for their predicted annual shortages under the proposed 40% UF scenario.

Table 2: Calculations showing how system wide shortages to the RWS could impact the projected supply to all SFPUC’s wholesale customers and to the specific subset of those customers in Santa Clara County.

System-wide Shortage	System-wide Delivery (TAF/yr)	Wholesale Shortage*	Wholesale Delivery (TAF/yr)*	Santa Clara County Wholesale Shortage	Santa Clara County Wholesale Delivery (TAF/yr)
0%	297	0%	206	0%	59**
20%	237	28%	148	18%	48
40%	179	56%	92	50%	30
54%	136	76%	49	73%	16

*The Water Shortage Allocation Plan between SFPUC and the wholesale customers only specifies allocations for system-wide shortages of up to 20%. For system-wide shortages greater than 20%, wholesale rationing is assumed to be prorated. For example, when system-wide rationing is 40%, wholesale rationing is calculated as $40\% \times (28\% / 20\%) = 56\%$.

** Value has been adjusted to reflect demand projections in the Urban Water Management Plans for the effected Santa Clara County agencies. Full delivery projections are smaller than total allocated amount, thus resulting in slightly lower percent shortages for Santa Clara County wholesale customers than for all wholesale customers, whose deliveries are based on allocated amount.

The results shown in Table 2 have significant implications for the District. While SFPUC is predicting up to a 54% system-wide shortage under the 40% UF requirement, this could translate into as much as a 73% shortage for its wholesale customers in Santa Clara County. To compensate for these shortages, SFPUC wholesale customers in Santa Clara County will almost certainly rely on District managed supplies including groundwater, local surface water, and District supplies imported through the SWP and CVP.

Analysis of Long Term Effects to Santa Clara County Supply Reliability

District staff analyzed how shortages to the Santa Clara County SFPUC wholesale customers would affect the entire District service network using the Water Evaluation And Planning (WEAP) system model. The WEAP model is used primarily to simulate the District’s water supply system comprised of facilities to recharge the county’s groundwater subbasins, local water supply systems including the operation of reservoirs and creeks, treatment and distribution facilities, and raw water conveyance systems. The model also accounts for non-District sources and distribution of water in the county such as supplies from the SFPUC, recycled water, and local water developed by other agencies such as San Jose Water Company. In essence, the model was formulated to simulate the management of the current and future water resources within the county. For this analysis, District staff started with the model upon which the 2015 Urban Water Management Plan was developed and then applied the the annual shortages predicted by SFPUC under the 40% UF requirement. The model analysis

produces the frequency and magnitude of demand reductions mandated by the District's Water Shortage Contingency Plan, which are more severe when applying the 40% UF requirement.

The WEAP results in *Table 3* show that the 40% UF requirement doubles the number of years under Stage 2, Alert Stage, and increases the number of years under Stage 4, Critical Stage, from 0 to 4 over a 94 year period. Furthermore, the WEAP model indicates that 3 of those Critical Stage years would occur during a repeat of the 1987-1992 drought, meaning that county residents and businesses could be required to reduce demand by up to 40% in consecutive drought years.

Table 3: WEAP results showing how the proposed 40% UF requirements could impact the frequency and magnitude of mandated demand reductions in Santa Clara County. Results are based on the 94-year hydrologic record from 1922-2015 and 2040 demands as described in the District's 2015 Urban Water Management Plan

Water Shortage Contingency Plan (WSCP) Stage	WSCP Demand Reduction	Number of Years Within WSCP Stage, Baseline*	Number of Years Within WSCP Stage, 40% UF
1	0%	80	70
2	0 – 10%	8	16
3	10 – 20%	6	4
4	20 – 40%	0	4

A Critical Stage demand reduction of up to 40% will have a significant financial cost to the county. Under a water shortage scenario, District expenses increase as a result of actions to augment water supply and reduce use. For instance, the District began to incur extraordinary costs as a result of actions taken in response to the 2012 to 2016 drought. As of May 2016, \$44.5M had been budgeted or spent on drought related activities. Water charges had to be increased to cover these costs.

There is also a significant cost of shortages to residents and businesses in Santa Clara County. In 2012 the District commissioned the Brattle Group to calculate economic losses to Santa Clara County under different shortage scenarios. The largest demand reduction they calculated was a 20% reduction and that resulted in a total economic loss to the county of about \$69 million per year. A 30 to 40% demand reduction would result in a much larger loss.

An additional concern is that the WEAP results show unmet demands to some of the Santa Clara SFPUC wholesale customers. Even under a county-wide demand reduction of 30%, these unmet demands amount to around 4 TAF due to these customers' potential inability to obtain sufficient supplies due to physical system constraints; these constraints could be ameliorated by construction of additional local distribution facilities, potentially including new groundwater wells.