



# MEMORANDUM

FC 14 (01-02-07)

**TO:** Board of Directors  
**SUBJECT:** Environmental and Water Resources Committee Meeting Summary for January 22, 2018

**FROM:** Environmental and Water Resources Committee  
**DATE:** February 13, 2018

This memorandum summarizes agenda items from the meeting of the Environmental and Water Resources Committee held on January 22, 2018.

## ELECTION OF CHAIR AND VICE CHAIR

Mr. Loren Lewis is the 2018 Environmental and Water Resources Committee Chair and Arthur M. Keller, Ph.D. is the 2018 Environmental and Water Resources Committee Vice Chair.

## ACTION ITEMS

### 5.1 REVIEW AND APPROVE 2017 ANNUAL ACCOMPLISHMENTS REPORT FOR PRESENTATION TO THE BOARD

The Committee approved their 2017 Annual Accomplishments Report whereby the presentation to the Board that pertains to the purpose, structure, and function of the Committee will be done by the Chair sometime in March.

### 5.2 CIVIC ENGAGEMENT

Ms. Marta Lugo reviewed the materials as per the agenda item from the following:

#### SUMMARY:

This is an update to the committee regarding the programs and projects in the Office of Civic Engagement

#### BACKGROUND:

The Office of Civic Engagement (OCE) was officially formalized on August 28, 2017. The purpose of the new unit is to advance and build positive and proactive relationships with the community through engagement, education, and partnerships. The programs and projects in the unit are designed to provide the community with access to resources and opportunities that will help build understanding, trust, and support for the District's goals and mission.

The OCE is organized into two (2) program areas:

#### Community Benefits Program

1. Safe, Clean Water Grants & Partnerships Program
2. Creek Stewardship
3. Public Arts & Signage

#### Water Education & Volunteer Program

1. District Volunteer Project
2. Water Education Outreach
3. Recycled Water Outreach

#### Water Education & Volunteer Program

The Office of Civic Engagement is in the process of expanding the Water Education and Volunteer Program in a way that will help further the District's goals in water education and diversity engagement. Currently, the Program includes the following project areas: Recycled Water Outreach, Water Education Outreach, and a new District Volunteer pilot project.

**A. District Volunteer Project.** The goal of this new project is to develop an integrated and robust volunteer experience that engages a diverse group of volunteers to expand opportunities beyond just creek cleanups to other functions and areas within the District that could benefit from volunteer support. The first two project areas that will be expanded by volunteer support include the Water Education and Recycled Water Outreach projects to add bilingual teachers and tour docents to not only support those projects areas with trained volunteer resources, but to also further the OCE Unit's goal of diversity engagement. Having bilingual volunteers will allow the District to engage diverse communities that might not be accomplished otherwise.

Staff is currently working on developing a project plan to launch a new District Volunteer project in early 2018. Staff is gathering information from similar volunteer programs throughout the County to better understand structure, training programs, HR compliance and regulatory issues, background clearance and projected costs among other items, to build out our own program.

The volunteer project will include the following components and elements that are still under development for an early spring 2018 launch:

- a. Volunteer Staff Advisory Group - Form staff advisory group of influential volunteer leaders to help build and recruit other interested volunteers and provide input on volunteer opportunities.
- b. Bilingual Volunteers - Recruit and train a cadre of 5 -10 bilingual volunteers initially to serve as either education teacher aids, and/or tour docents for facility tours at the Silicon Valley Advanced Water Purification Center and/or other facilities, open house events, or special projects.
- c. Adopt-A-Creek Volunteers - Continue to grow and expand Adopt-a-Creek volunteers for creek cleanups and other potential volunteer opportunities.
- d. Ambassador program - Develop District ambassadors in which volunteers get specific training on local water issues and messaging. Ambassadors will then and serve as neighborhood leads in distributing messages when needed.

**B. Water Education Outreach Project Area.** The goal of the Water Education Outreach project area is to provide educational programming and outreach to students and youth about important water issues but also District projects and initiatives, as well as to showcase the type of careers possible with the District. Project staff have been busy presenting at libraries and in classrooms, leading field trips at the District's five outdoor classrooms and fielding many other requests for educational programming.

Silicon Valley Boys and Girls Clubs - Staff visited all the first and second graders at the local clubs over the Spring and repeated the visits again over the Summer to the third and fourth graders. Staff presented activities focused on watersheds, water pollution, the water cycle, and salmon survival.

Public Library outreach - Staff reached out to both Santa Clara County Libraries as well as City of San Jose Libraries to begin programming during pre-school story times, as well as Summer "lunch and learn" family programming. Through this outreach, staff has been communicating flood safety and awareness, promoting conservation rebates, education outreach, and overall district awareness in the community to build and foster positive relations. In total, staff conducted 28 visits, amounting to over 1,250 contacts with attendees between July - December 2017.

Summer camps - Working with the City of San Jose, staff visited 5 summer camps and presented outdoor obstacle courses for participants to rotate through in smaller age groups. Camp attendees participated in lessons about salmon survival and the water cycle. 250 youths were introduced to our programming through these efforts.

Schools outreach - September kicked off a new 2017 school year in which Next Generation Science Standards (NGSS) are expected to now be implemented and begin to be integrated into curriculum. Staff launched two new lessons focused on global water awareness as well as plastic pollution for 5<sup>th</sup> grade and up. Staff is working in partnership with a collaboration network called Change Scale, to work with school districts to implement environmental education opportunities by grade level that include external providers, including the District, to provide programming on an on-going basis. The goal set for our school outreach is to connect with 15,000 students annually; by the end of December, staff expects to have reached close to 6,000 students through our lessons and outreach.

First Lego League Hydrodynamics Competition - Beginning in July 2017, staff started receiving calls from many First Lego League teams throughout the County informing staff that their theme and Annual Challenge this year was on hydrodynamics. Staff fielded and responded to over 100 separate team requests, and worked closely with other District project teams, including the Recycled Water Outreach team to provide tours at the Silicon Valley Advanced Water Purification Center. Overall, staff provided over 15 tours/presentations, and saw over 500 students and coaches before the competition began.

Looking ahead, staff will look to expand the project area by providing bilingual volunteer teachers and docents to support project goals, and provide engagement opportunities to community members interested in enrichment and volunteering opportunities. Staff will also be targeting outreach to Middle Schools, South County & underserved communities, and ensuring that curriculum is aligned with the Next Generation Science Standards, and furthering school partnerships. Staff will also be furthering the District Flood Awareness campaign & outreach by incorporating a flood awareness coloring contest and furthering school partnerships

**C. Recycled Water Outreach Project.** Since the reorganization, staff has focused further on expanding potable reuse education and outreach, specifically under stakeholder engagement and multi-cultural outreach efforts where several key milestones were met.

Multi-cultural outreach - Efforts have included extensive outreach to the Asian community this summer to promote the recycled and purified water program and tours, as well as a hosting a hugely successful Asian Community Tour Day event that was part of staff's strategy to increase the District's visibility in the Asian community. The Asian Community Tour Day was held on July 15, 2017 at the Silicon Valley Advanced Water Purification Center. The event was well-attended with 250 community members

attending, well above the projected number of 100 people. Directors Nai Hsueh and Richard P. Santos met guests with welcome remarks, and tours were offered in multiple languages of English, Chinese, and Vietnamese.

Youth Tours - Staff collaborated and worked closely with the water education outreach staff to accommodate requests to lead tours at the Silicon Valley Advanced Water Purification Center for the First Lego League Competition this year. Two large special event tours were held on September 23 and October 21, 2017. In total over 230 students were reached.

Stakeholder engagement -During this new fiscal year, staff coordinated three speaking engagements for our Board members. In July, Chair Varela made a presentation to the Saratoga Rotary on District and recycled purified water efforts. In August, Chair Varela and Director Kremen addressed the San Jose and Palo Alto Kiwanis, respectively, about the importance and future of recycled water in Santa Clara County. Future engagements are being coordinated for Directors to go out to the San Jose Rotary Club, and Almaden Kiwanis. Other stakeholder engagement efforts have included employee education and outreach through both planned brown bag events and employee tours.

Currently, staff is wrapping up a potable reuse opinion survey and working on securing a Social Marketing/ Media contractor within the next few months to develop a Potable Reuse social media plan that addresses Direct Potable Reuse. Looking ahead, staff will also plan for ways to incorporate volunteer support in the form of bilingual tour docents and provide training to volunteers to assist in this effort to engage with diverse and multi-ethnic communities.

**Community Benefits Program**

The development of the Community Benefits Program demonstrates the District’s commitment to providing opportunities that will make positive and sustainable social impacts in the communities that we serve. The programs and projects under Community Benefits Program will provide access to resources, engage, and collaborate with community members through grants and partnerships, creek stewardship volunteerism, and public arts projects.

**A. Safe Clean Water Grants & Partnerships.** Reorganizing the Safe, Clean Water Grants & Partnerships Program (SCW Grants Program) under the Office of External Affairs allows the District to increase our engagement with the community as well as broaden the reach and impact of our grant and partnership dollars. With the SCW Grants Program closely connected to the other units under External Affairs, staff is able to coordinate broader outreach efforts with Communications and Government Relations and stay closely connected with the needs and concerns of the community through Community Engagement and the Education programs.

Below is the current status for each SCW priority:

SCW Program Priority	# Funded Projects	Total Funding Awarded	FY2018 Status
A2 - Hydration Stations	50	\$250,000	5 additional schools to fund
B3 - Pollution Prevention	12	\$1.8 M	Funding released Nov 1; due Jan 12, 2018
B7 - Volunteer Cleanup & Education	7	\$350,000	Funding released Aug 4 - Oct 27; funding decisions Mar 2018
D3 - Trails & Open Space	3	\$570,000	Funding released Aug 4 - Oct 27; funding decisions Mar 2018
D3 - Restoration	22	\$4 M	Anticipated release Jan 2018
D3 - Mini-grants	0	\$ 0	Funding released Jul 31; apps accepted ongoing until all funding is awarded

Moving forward, staff will prioritize three areas for the SCW Grants Program: *Engagement, Outreach, and Efficiency*. Staff intends to get more engaged with grantees and their projects by conducting more site visits, providing timely technical assistance, and staying engaged with project status. Grantees’ projects are intended to be an extension of the District’s positive impacts to the community, therefore, establishing strong relationships with grantees allows staff to not only stay connected but also have a stronger presence as the project moves along to completion. Staff is also committed to expanding our outreach efforts. In order for projects to be more diverse and have a broader community impact, the outreach efforts to ensure a more diverse pool of applicants is critical. For FY2018’s grant cycle, Staff has conducted outreach in communities that have not submitted project proposals in the past and hopes to build more relationships in the community to encourage more active participation in our grants & partnerships program. Staff is also seeking to utilize partnership funding to expand the District’s impact in underserved communities.

For the grant cycles in FY2018, the District piloted an online grants application system to streamline the application process. All applications were submitted online and are also currently being reviewed and evaluated through the online system. Staff is seeking to expand the grants system to also include the management of the grant-funded projects once awarded. Grantees will be able to submit invoices, project status reports, and other supporting documents all through the online system with built in forms and templates to make the process easier and more efficient for the grantees and staff. Staff is working with Procurement to solicit bids for a vendor that will be able to implement the expansive grants management system to provide greater efficiency for the program. Staff anticipates implementing the full grants management system in FY2019.

**B. Creek Stewardship.** The District continues to receive active and increasing participation from the community for our various cleanup efforts. Through all our cleanup projects, volunteers contribute thousands of in-kind service hours and remove hundreds of thousands of pounds of trash throughout Santa Clara County (County). There are currently 139 Adopt-A-Creek (AAC) partners that actively coordinate bi-annual cleanups at their adopted sites. The District also coordinates the One-Day Use Permits project and have already provided 36 one-day permits this calendar year for cleanups. Additionally, the District continues to host annually the National River Cleanup Day (NRCD) and Coastal Cleanup Day (CCD). This year, 1,251 volunteers for NRCD cleaned 48 sites (65 miles of creek) and collected 36,494lbs of trash. For CCD, 1,892 volunteers cleaned 50 sites (68 miles) and picked up 50,838lbs of trash. On September 30<sup>th</sup>, the District worked with the Board to host the Coyote Creek Cleanup, where 136 volunteers gathered at two sites and collected a total of 5.25 tons of trash.

<b>Creek Stewardship Cleanup Efforts Achievements 2017 (to date)</b> <i>National River Cleanup Day (May)</i> <i>Coastal Cleanup Day (Sept) Coyote Creek Cleanup (Sept)</i>	
# of Volunteers	3,279
# of Volunteer Hours	13,116
# of Creek Miles Cleaned	133.37
# lbs of trash removed	101,092
Total of Hours In-Kind Value	\$367,248

Staff is working to continually improve how we coordinate our cleanup efforts, collect data, and support the volunteerism for the projects. For the AAC project, staff is developing an interactive GIS map that will allow the public to locate all the creeks on District property. The map would identify adoptable creek sections as well as the ones that are currently adopted. The map would allow the public to submit the adoption form directly online to streamline the process and allow for residents to research areas of interest and easily register as AAC partners. Staff established an online reporting form to capture the number of volunteers, pounds of trash collected, miles of creek cleaned, and pictures of the trash that was collected via Access Valley Water. This will allow the District to start collecting more data for AAC and the One-Day Use Permit projects.

**C. Public Arts & Signage.** Staff is in the process of developing the Public Arts & Signage program that will utilize art to convey messages about water conservation, environmental protection and stewardship, pollution prevention, and other District values. Creating art projects throughout the County will allow the District to have a presence and be a part of the culture and fabric of the various communities we serve. Additionally, the public art projects will further educate, bring awareness, and build community support around stream stewardship, environmental protection, water conservation, among other District efforts and initiatives. Staff has developed an outline of the program which will initially consist of the following two components:

1. **Adopt-A-Bench Project** - Revitalize interpretive signs & benches by allowing the public to “adopt” a bench and propose an artistic design for the bench.
2. **Art Grants** - Award grants to the community to collaborate on public arts projects (i.e. murals, art installation)

In FY2018, staff will continue to research and gather information to build out the components of the program. Staff is working to reach out to all the cities in the County to understand the procedures for commissioning public arts within each respective jurisdiction. Staff is also working to identify the locations of all the District’s interpretive signs and benches to develop an interactive GIS map, similar to the Adopt-A-Creek project. The map will allow the public to view information about the benches & signage and, if interested, submit a form to “adopt” the bench and propose an art design. Staff anticipates piloting the program with 7 adoptable benches in FY2018, with one bench in each Board Member’s district. Staff intends to request resources through the FY2019 budget process to carry out the program.

No action was taken.

**5.4 REVIEW ENVIRONMENTAL AND WATER RESOURCES COMMITTEE WORK PLAN, THE OUTCOMES OF BOARD ACTION OF COMMITTEE REQUESTS; AND THE COMMITTEE’S NEXT MEETING AGENDA**

The Committee approved adding the following items to their work plan, 1. Salmonid of the District’s Water Ways and 2. Removing Habitat Conservation Plan and adding the FAHCE update.

**INFORMATION ONLY ITEMS**

**6.1 WINTER PREPAREDNESS BRIEFING**

Mr. Raymond Fields was to available to answer any clarifying questions on the following:

**SUMMARY:**

As the agency responsible for local flood protection, the District works diligently to protect Santa Clara Valley residents and businesses from the devastating effects of flooding. Since the early 1980s, the District and its partners have invested approximately \$900 million in flood protection programs, including constructing major flood protection projects that have removed approximately 100,000 parcels from previously flood-prone areas. Despite these efforts, 67,000 parcels continue to be at risk of flooding during a 100-year storm event.

Over the last one year, the District has carried out several efforts to prepare for extreme weather events, respond effectively and minimize the impacts of flooding. In October 2017, the National Weather Service (NWS) recertified the District as Storm Ready. The certification is valid through October 2020.

This report provides information regarding various measures the District has taken to prepare for the Winter season. Specifically, it includes information on the following:

- Weather outlook
- Flood protection and conveyance capacity
- Public engagement
- Preparing and responding to flood emergencies
- Monitoring and flood forecasting
- Reservoir management
- Emergency management systems and response

## **BACKGROUND:**

### **Winter Hazards**

Winter brings an additional set of seasonal hazards that threaten both watersheds and water utility operations. Severe and/or extended precipitation can overwhelm engineered and natural channels and has the potential to damage District flood protection infrastructure. The resulting flooding can prompt municipalities to initiate evacuations and sheltering, and disrupt transportation. Severe storms can also bring high winds and cause landslides that have the potential to impact power, communication and water utility infrastructure.

### **Weather Forecast**

National Weather Service (NWS) seasonal weather models predict about a 75% chance of a La Niña ENSO conditions and a 25% chance of neutral El Niño Southern Oscillation (ENSO) occurring this 2017/2018 fall-winter season. Current expectations are a near normal precipitation for the first part of the water year with a higher likelihood for drier than normal conditions for Santa Clara County January through March of 2018.

NWS forecasters will also be watching how the Pacific Decadal Oscillation (PDO) and Madden-Julian Oscillation (MJO) develop for the winter season. These, and other, seasonal oscillations could bring swings in precipitation amounts, fluctuating snow levels, and/or atmospheric rivers. Medium range forecast capabilities will help to distinguish these events with as much lead time as 10-14 days, though the details may not be worked out until within a few days of any given event. Keep in mind that a season with near normal rainfall can still produce flooding especially if much of the rainfall occurs over a short period of time.

Near-term weather forecasts enable the District to anticipate the location and intensity of rainfall to better mobilize response efforts. The District receives weather forecasts from multiple sources, including meteorology consultants and the NWS. Using this data, District staff makes decisions for flood fighting and for reservoir operations.

### **Climate Change**

Climate change impacts challenge the District's core business. Global climate models and regional or local climate projections indicate the potential for changes in the amount, intensity, and duration of precipitation in the future. To adapt to the effects of climate change, the District has established a Climate Change Framework and team to identify impacts and ways to adapt to climate change scenarios. The District's core service area of flood protection is challenged by climate change, particularly by changes in precipitation patterns and sea-level rise. Even though some effects of climate change, such as sea-level rise will not be fully realized for decades, the long-life expectancy of flood protection projects means those projects must be designed to account for likely future conditions.

### **Board Natural Flood Protection Ends Policies**

The District Board of Directors has established Natural Flood Protection (NFP) Goals 3.1 and 3.2 to provide flood protection for residents, businesses and visitors; and to reduce the potential for flood damages. These goals establish the following five natural flood protection objectives:

- o Protect parcels from flooding by applying an integrated watershed management approach that balances environmental quality and protection from flooding (Objective 3.1.1)
- o Preserve flood conveyance capacity and structural integrity of stream banks, while minimizing impacts on the environment and protecting habitat values. (Objective 3.1.2)
- o Promote the preservation of flood plain functions (Objective 3.2.1)
- o Reduce flood risks through public engagement (Objective 3.2.2)
- o Prepare and respond effectively to flood emergencies countywide to protect life and property (Objective 3.2.3)

This memorandum describes how District staff is working to achieve each of these objectives.

#### **1. Protect Parcels from Flooding (3.1.1)**

The District's Watersheds Design and Construction Division plans, manages, and implements capital improvements to comply with the Board's Ends Policy to protect parcels from flooding. A total of 15 flood protection projects are underway in Fiscal Year 2017-18 with a total FY18 budget of \$59.6 million. Five of these projects are Safe, Clean, Water projects and 10 are funded by property taxes. All have the primary objective of providing natural flood protection for residents, businesses and visitors. As

specified in the 5-year Capital Improvement Plan, approximately 25,500 parcels will be protected and/or eligible for removal from the flood hazard zone when these projects are completed.

## **2. Preserve Flood Conveyance Capacity (3.1.2)**

The District's Watershed Operations and Maintenance Division performs sediment removal, levee inspection and maintenance, debris removal, vegetation management, and erosion protection and repairs to comply with the Board's Ends Policy to preserve flood conveyance capacity. These efforts have improved the channel conveyance capacities of many local streams and channels. Work that has been accomplished through the District's Stream Maintenance Program this year includes the following:

- o Completion of 390\* acres of in-stream vegetation control over 116\*miles of streams
- o Removal of 33,946\* cubic yards of sediment
- o About 2,959\* linear feet of bank stabilization

\*These are year-end estimates and will be revised once all projects have been completed and the end of the year totals are calculated.

District staff continues to receive calls from throughout the county to service problematic trees plagued by disease or die off associated with the recent drought. Field crews continue to remove trees that could potentially block flows in local creeks or cause other hazards. Staff is also coordinating with owners of properties where trees have been reported as a potential issue and could pose additional blockage threats in local creeks.

## **3. Promote the preservation of flood plain functions (3.2.1)**

The District preserves floodplain functionality and other watershed assets and interests from external land-use activities by promoting streamside setbacks through implementation and enforcement of the District's Water Resources Protection Ordinance and by participating on municipal General Plan update committees reviewing and commenting on development proposals.

The District's Community Projects Review Unit issues encroachment permits that regulate the third-party use of District lands adjacent to local waterways and acts on enforcement cases. Additionally, the District annually reviews environmental documents and plans for projects outside the District right-of-way to promote District's water resource interests. Through these processes, the District advocates the development setbacks and site layouts that strive to maximize protection of stream and riparian corridors and floodplain function.

## **4. Reduce flood risks through public engagement (3.2.2)**

The District engages the public through its Office of External Affairs to provide flood awareness and safety messages and direct residents to resources. Additionally, through its Office of Water Resource Planning and Policy, the District works with municipal partners and the Community Rating System (CRS) to provide a direct financial benefit to the public through reduced premiums for flood insurance.

### **Community Rating System, National Flood Insurance Program**

The National Flood Insurance Program's (NFIP) Community Rating System (CRS) is a voluntary incentive program that recognizes and encourages community floodplain management activities that exceed the minimum NFIP requirements.

As a result, flood insurance premium rates are discounted to reflect the reduced flood risk resulting from the community actions meeting the three CRS goals:

- o reduce flood damage to insurable property;
- o strengthen and support the insurance aspects of the NFIP; and
- o encourage a comprehensive approach to floodplain management.

CRS activities that the District carries out are verified by the Federal Emergency Management Agency (FEMA) and then claimed by the participating CRS communities in Santa Clara County where those activities apply. This simplifies FEMA's CRS bookkeeping and avoids duplicating efforts. Total annual savings on flood insurance premiums are estimated to be over \$2.3 million from the 10% to 20% discount earned through the CRS program for approximately 16,000 policy holders in Santa Clara County.

The District receives CRS points for our outreach program, mapping of flood risks, open space preservation in floodplains, and maintenance and management of our creeks. A CRS Users Group, consisting of the District and participating CRS communities, was formed in 2013. The Users Group has proven to be very useful not only for discussion of activities that earn CRS points, but also allows dialogue ongoing flood risk reduction efforts and related topics among all cities in the county and serves as an information sharing platform.

### **Public Education and Community Engagement**

This winter, the District will continue to deliver flood-safety messages throughout Santa Clara County. The main public education objectives are the following:

- o Convey to the general public that flooding can be a serious threat (even if you don't live in the floodplain)
- o Explain what people can do to protect themselves and reduce risk to life and property
- o Direct the public to appropriate District resources on valleywater.org for additional information
- o Earn credit towards FEMA's Community Rating System through our Program for Public Information, which helps communities earn discounted flood insurance premium rates for residents

In early December, a targeted mailing of the annual floodplain mailer will be distributed to about 53,000 parcel-owners and residents in or near flood-prone areas. The piece provides information on flood-protection projects and flood-safety resources. The mailer is written in English, Spanish, Vietnamese and Chinese. This year, we are including a watershed-specific insert in each mailing which includes a watershed map that shows sandbag sites and 100-year FEMA flood zones.

This year we are preparing for a full-scale paid advertising campaign to launch by December and continue through the end of April of 2018. To reach diverse ethnic audiences, media messages will be delivered through Spanish, Chinese and Vietnamese media outlets. The campaign may be further expanded if the winter turns out to be particularly wet.

During the winter months, the District will convey flood preparedness messages through a selected range of communications platforms including radio spots, newspaper ads, online ads, social media and web videos. The focus of the District's flood awareness outreach is to inform the community of flooding hazards in the county and to provide information on what community members can do to protect their family and property before, during and after a potential flooding event. Flood-safety tips and messages will also be heard by callers to the District when placed on hold.

This fall we participated in 16 community events to distribute flood-preparation materials and answer questions about flood safety. We have chosen events that are in areas most prone to flooding. These include parts of South County in Morgan Hill and Gilroy, as well as vulnerable areas in San Jose, including along Senter Road, across from the Rock Springs neighborhood. District staff has pursued partnership opportunities with local community-based organizations in cities with flood-prone areas to identify opportunities for outreach. This outreach was added to our annual outreach effort to foster a more direct, grassroots connection to communities at risk of flooding. We have also made sure to incorporate flood safety materials during the fall months for all community events in which the district has sponsored a booth.

Through our outreach, we are also promoting Santa Clara County's AlertSCC emergency notification system and their ReadySCC app. AlertSCC is a free, easy, and confidential way for anyone who lives or works in Santa Clara County to get emergency warnings sent directly to their cell phone, mobile device, e-mail, or landline. It is one of the most effective ways for local jurisdictions to communicate flood hazards and evacuation orders, but it requires residents to opt into the system. The ReadySCC App allows residents to prepare a family emergency plan with five simple questions, send status updates to contacts, receive advisories and alerts via push notifications, and includes a detailed guide with step-by-step instructions for creating an emergency kit. As an incentive to download ReadySCC, residents who download the app receive a free emergency starter kit. These kits were first introduced to the community last year and include basic supplies such as a hand-operated flashlight, mylar blanket, rain poncho, safety whistle, gloves and glow stick. While these kits are basic and serve to encourage residents to begin preparedness on a larger scale. Residents who do not have a mobile phone are encouraged to fill out emergency contact cards to receive their kit.

The District website serves as a one-stop shop for flood-related information, including emergency updates, flood safety tips and information on sandbag sites, stream and reservoir gauges in the county, as well as links to the National Weather Service, County Office of Emergency Services; and FEMA'S preparedness site, Ready.gov. Social media and online publications through our news website, valleywaternews.org, will continue to be utilized to provide registered recipients with timely and immediate flood-hazard messages.

In the wake of the February 2017 flooding, the District is committed to continually improving strategies for effective flood safety messaging.

### **5. Prepare and Respond Effectively to Flood Emergencies (3.2.3)**

Despite all the proactive efforts to remove parcels from flood hazard zones, maintain channel conveyance capacities and floodplain function, and engage the public with flood awareness and safety messages, floods still can and do occur - usually with little warning and sometimes with potentially devastating effects.

Flood emergency preparedness entails the combined efforts of many units of the District, notably Emergency and Security Services, Field Operations, Water Supply Operations and Planning, Hydrology and Hydraulics, Communications and other units that contribute staff that are trained to participate in roles assigned in the field, Departmental Operation Centers (DOC), and within the Emergency Operations Center (EOC).

To ensure that the District is in the best possible state of readiness to address flooding when it does occur, the District maintains tools, processes, trained staff and interagency relationships that enable coordinated field response and public information.

### **Emergency Action Planning**

Emergency Action Plans (EAPs) are documents that identify potential emergency conditions at facilities, such as creeks, and specifies actions to be followed to minimize loss of life and property damage. These documents include:

- Actions taken to moderate or alleviate a problem
- Actions, in coordination with emergency management authorities, to respond to incidents or emergencies
- Procedures to follow and warning and notification messages for responsible downstream emergency management authorities
- Inundation maps to help emergency management authorities identify critical infrastructure and population-at-risk sites that may require protective measures, warning, and evacuation planning
- Delineation of the responsibilities of all those involved in managing an incident or emergency and how the responsibilities should be coordinated

The EAPs are created following the guidance from the Federal Emergency Management Agency federal guidelines for emergency action planning for dams (FEMA Publication No. P-64). As well, EAPs also incorporate the guidance of the Federal Energy Regulatory Commission's Chapter 6 Emergency Action Plans of the Engineering Guidelines for the Evaluation of Hydropower Projects.

The most recent of these plans is the joint Coyote EAP developed in coordination with the City of San José, following the February 2017 flooding along sections of Coyote Creek. The joint EAP was adopted by the San José City Council and the District Board in November 2017.

### **Monitoring and Flood Forecasting**

The District forecasts incoming weather systems based on weather reports received from multiple sources including the National Weather Service (NWS) and media sources such as Fox Weather. In addition, the District augments standard weather reports with detailed quantitative precipitation forecasts (QPFs) from several sources, leveraging knowledge from private meteorologists, academia, and the NWS, to get a picture of a storm event. These QPFs include details such as the amount, duration, location, and timing of storm patterns.

For real-time monitoring, as the rain and flood events unfold, the District operates more than a 100 precipitation, reservoir level, and stream gauges, including 85 stream flow gauges, 10 reservoir gauges and 47 precipitation stations. All the District stream and rain gauges are regularly maintained and calibrated. This year, the District installed an "X-band" radar unit on top of the rooftop of the Penitencia Water Treatment Plant. The unit is part of the Bay area AQPI (Advanced Quantitative Precipitation Information) system. The short range and lower elevation radar supplements our existing rainfall gauge system and provides more precise rainfall data in real time.

In addition, under the District's Safe, Clean Water Program Priority C Project, Emergency Response Upgrades Project, the District is running an experimental flood forecast and warning system, using automated hydrologic and hydraulic models to determine creek runoff and expected reservoir levels. The models ingest data from both the QPFs and monitoring sensors mentioned earlier. As the back-end modeling system and front-end user interface are perfected, additional forecast points and features can be added to provide intelligence to decision makers, emergency responders, and the general public.

### **Reservoir Management**

The District operates 10 surface water reservoirs throughout the county. The District reservoirs are operated primarily as water supply facilities that provide incidental flood protection, environmental and recreational benefits. Many reservoirs are operated to flood risk reduction rule curves. The volume of water above the flood management rule curve may be released if it is safe to do so, to create additional storage in the reservoir and reduce flood potential. The curves maximize water supply benefit and minimize flood risk with a high probability of the water being recovered by the end of the season. For the 2017/2018 winter season, because of the improved water supply resulting from last winter's above-average precipitation, the Board has directed staff to operate Anderson and Coyote Reservoirs at a lower combined level this year than in past years, which will further reduce the risk of flooding downstream.

The following is a checklist of activities performed by Raw Water Operations/Field Operations staff before a reservoir flood release is initiated;

- Check weather forecast (estimate rainfall runoff)
- Check stream flow
- Check for National Weather Service Advisories/Watches/Warnings
- Coordinate with Watershed Operations (identify any existing blockages or restrictions downstream)
- Notify residents and agencies on creek contacts list

### **Real-time Information, Alerts and Warnings**

The District provides precipitation and stream gauge data to the public via its website and this year the District launched a new flood watch website that utilizes a user-friendly interactive map to allow residents to monitor levels in their own neighborhoods.

The District website also provides access to weather forecasts, reservoir levels, precipitation, and flood-safety measures through its Weather/Hydrologic Assessment and Strategic Update Plan (WHASUP) that, beginning in November, is issued twice per week or more frequently as needed throughout the winter. The public can sign up to receive automatic emails when WHASUP information is updated. The District also promotes the County's emergency alert system AlertSCC as well the ReadySCC.



## **District, Countywide and Regional Emergency Management Systems**

The District maintains facilities, equipment, procedures, trained staff and inter-agency relationships that enable it to respond to floods and other emergencies. District emergency management facilities include its Districtwide Emergency Operations Center (EOC) and Water Utility and Watersheds Departmental Operations Centers (DOCs). The District maintains a dedicated, primary EOC that is equipped with both high and low-tech communication and information storage and display technologies to allow the enable EOC functions to perform under all hazard scenarios. EOC equipment is regularly inventoried, maintained and tested to ensure readiness. District DOCs facilities are equipped for emergencies that can be handled within departmental resources and capabilities. The District maintains its Emergency Operations Plan and EOC Activation Guides within the District's Quality and Environmental Management System (QEMS). Position-specific checklists are available within the EOC to help guide EOC staff in the performance of their Standardized Emergency Management System (SEMS) response functions.

Over the last year, select District EOC response staff have participated in internal and multi-agency exercises. Exercises are designed to develop, learn, and test response capabilities under various hazard scenarios.

12/07/16	San Francisquito Creek Workshop and Tabletop Exercise (TTX)
02/07/17	San Francisquito Creek Levee Activation
02/09/17	San Francisquito Creek HWY 101 Activation
02/20/17	Coyote Creek Flood Event Activation
03/01/17	Llagas-Chual Spur Potential Landslide Activation
April 2017–Present	Development of a Joint Coyote Creek EAP
09/14/17-09/15/17	SCC Operational Area-Wide Exercise
09/21/17	Joint Coyote Creek EAP TTX

These exercises enabled staff to practice and identify areas of improvement for the operational coordination, operational communication, situational awareness, public information and warning, and infrastructure system core capabilities as defined by the National Response Framework.

Each fall, the District Emergency and Security Unit hosts a multi-jurisdictional Winter Emergency Operations and Preparedness Workshop. This year's event was held on Oct. 26, 2017. Attendees included emergency managers and public works representatives from all 15 cities within the county, the County, and other local and state agencies. District staff reviewed the following topics during the workshop:

- o Flood priority inspection locations (flooding hot spots)
- o Real-time online resources for stream/reservoir/precipitation data
- o Dam operations during the winter (flood rule curves, seismic stability operating restrictions)
- o Coordination of District flood fighting resources (levee repair, debris blockages, and sand bagging)

The following made presentations on resource support:

- o California Department of Water Resources (DWR)
- o California Conservation Corps (CCC)
- o CAL FIRE
- o NWS
- o Santa Clara County Office of Emergency Services (SCC OES)
- o City of San José (CSJ OEM)

In addition to the Winter Preparedness Workshop, District emergency management staff, senior executives and elected officials foster strong interagency emergency preparedness relationships by participating in several important groups including the Santa Clara County Emergency Managers Association, the Santa Clara County Operational Area Signatories, and the Santa Clara County Emergency Operational Area Council.

## **District Field Response Actions and Capabilities**

During a flood event the District can mobilize a field response that includes:

- o maintaining a watersheds 24/7 hotline;
- o deploying Field Information Teams (FIT); and
- o maintaining a list of known flooding hotspots to expedite on-site arrival of resources and crews that are able to remove blockages, deploy sandbags and perform other functions to maximize flood conveyance capacity during a storm.

The District provides filled sandbags to 5 sites throughout Santa Clara County. Typically for winter seasons with average rainfall forecasts, the District stocks 20,000 filled sandbags to these locations by the end of October, restocking those sites with up to 40,000 filled bags as needed. When all the filled sandbags have been used, the District will then supply empty bags and sand at those locations.

Additionally, the District provides empty sandbags to municipal and county public works departments to stock an additional 19 sites around the County. Empty sandbags are offered to county public works agencies beginning October 1.

Maps of sandbag locations have been prepared in conjunction with other entities. The site locations are provided through the following link: <<http://valleywater.org/services/sandbagsites.aspx>>.

The Morgan Hill and Palo Alto sites have webcams installed to allow residents to check on sandbag availability via the District webpage. These webcams provide the District a cost-effective way to remotely monitor the sites to replenish and provide more timely services to the residents and the county.

The District currently has 407,000 empty sandbags and 278 cubic yards of sand in storage.

The District is Certified Storm Ready

As a result of the District's efforts to protect parcels from flooding, preserve flood conveyance capacity, engage the public to reduce flood risks, and maintain capabilities to respond to storm and flood events, the District continues to be recognized by the NWS as Storm Ready. The District received the recertification in October 2017 and it is valid through October 2020.

No action was taken.

## **6.2 RECEIVE INFORMATION ON SHALLOW AQUIFERS, DEWATERING, RECHARGE, WELL PUMPING (WHEN TO USE OR NOT)**

Ms. Vanessa De La Piedra was to available to answer any clarifying questions on the following:

### **SUMMARY:**

Per the Committee's request, this item provides information on shallow aquifers, including dewatering, pumping and recharge. Groundwater underlying the Santa Clara Valley occurs in various aquifers, including shallow aquifers with relatively little pumping, and deeper, principal aquifers where most pumping occurs. Shallow groundwater pumping primarily supports groundwater remediation at contaminant release sites, limited domestic/agricultural pumping, or dewatering where groundwater intersects building features or infrastructure. Shallow groundwater pumping represents a small fraction of total pumping, and comprehensive groundwater management ensures that groundwater conditions are sustainable. Because shallow groundwater is more susceptible to contamination and is often of poorer quality than principal aquifers, State and District well standards require annular seals of at least 50 feet to prevent contamination of drinking water aquifers and to protect well users.

### **BACKGROUND:**

The primary subbasins in Santa Clara County are the Santa Clara and Llagas Subbasins, which cover a surface area of 297 and 74 square miles, respectively. A groundwater divide near Cochrane Road in Morgan Hill serves as the boundary between the subbasins. Groundwater flow generally follows surface water patterns, with groundwater in the Santa Clara Subbasin flowing toward San Francisco Bay and groundwater in the Llagas Subbasin flowing toward the Pajaro River. The subbasins are large natural reservoirs comprised of sand, silt, and other alluvial sediments that were eroded from adjacent mountain ranges and deposited in the valley. The depth of aquifer materials varies by location, extending to over 1,000 feet in places.

The principal recharge to the subbasins occurs in recharge areas located along the elevated margins where permeable aquifer materials are predominant (Attachment 1). Recharge sources include the District's managed aquifer recharge and natural recharge from rainfall, seepage through creeks, pipeline leakage, and return flows from irrigation and septic systems. Within the recharge areas, groundwater occurs under water table, or unconfined conditions. At various locations above the water table, perched groundwater may occur on a temporary or permanent basis above discontinuous lenses of low-permeability deposits.

Confined areas occur in the interior of the subbasins. In these areas, laterally-extensive aquitards comprised of silts and clays restrict the downward movement of water. These aquitards separate aquifer materials into shallow and principal aquifer zones, which occur above and below depths of about 150 feet, respectively. Shallow groundwater is generally unconfined, and is recharged from surface sources like stream percolation and/or from lateral connections from recharge areas. Groundwater flow is typically greater laterally as opposed to vertically, and the presence of relatively impermeable aquitards restricts the movement of water from shallow aquifers to deeper zones.

Attachment 2 is a generalized map of the depth to first groundwater, based on measurements from contaminant release sites and other monitoring wells. As shown, shallow groundwater occurs throughout Santa Clara County, with depth to water of less than 20 feet in many locations. In some areas, groundwater discharge to creeks is observed when the basin is full. This condition is currently observed in creeks near San Francisco Bay, among other places.

Annual groundwater pumping from the subbasins averages about 150,000 acre-feet over the long-term, which accounts for about 40% of the water used in the county each year. The vast majority of pumping is from deeper, principal aquifer zones. Pumping from the shallow aquifers is primarily for remediation at contaminant release sites, limited domestic/agricultural use, and dewatering. Dewatering may be temporary to address water encountered during construction of subsurface features like basements. Activities that typically require dewatering are permitted by land use agencies, which may choose to impose related restrictions. For example, the City of Palo Alto limits the duration of dewatering, encourages reuse, and requires site-specific studies or features to reduce dewatering volume. Some locations experience sustained shallow groundwater conditions, and the overlying land use may require ongoing dewatering. Dewatering discharges to creeks or other surface water bodies are also regulated through National Pollution Discharge Elimination System (NPDES) permitting to ensure water quality is protected.

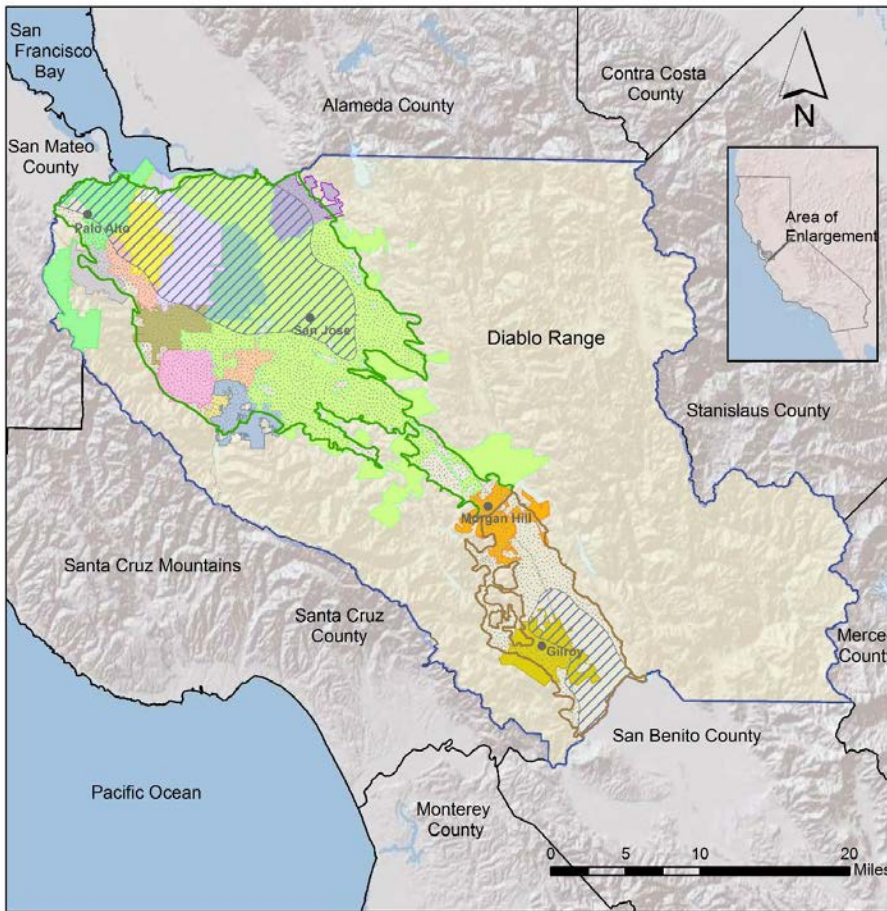
Temporary and ongoing dewatering represent a small component of subbasin outflows compared to pumping for beneficial use. For example, temporary dewatering within Palo Alto, an area experiencing increased basement construction, was approximately 350 acre-feet in 2017. Despite temporary and ongoing dewatering activities, groundwater conditions are sustainable throughout the subbasins.

Compared to principal aquifers, shallow groundwater quality is often poorer due to the stronger connection to overlying land use. There are over 600 open sites where fuels or other contaminants have been released to soil and/or shallow groundwater, requiring oversight by regulatory agencies such as the Regional Water Quality Control Boards. While shallow groundwater quality is impacted at many of these sites, impacts to principal aquifers have been very limited.

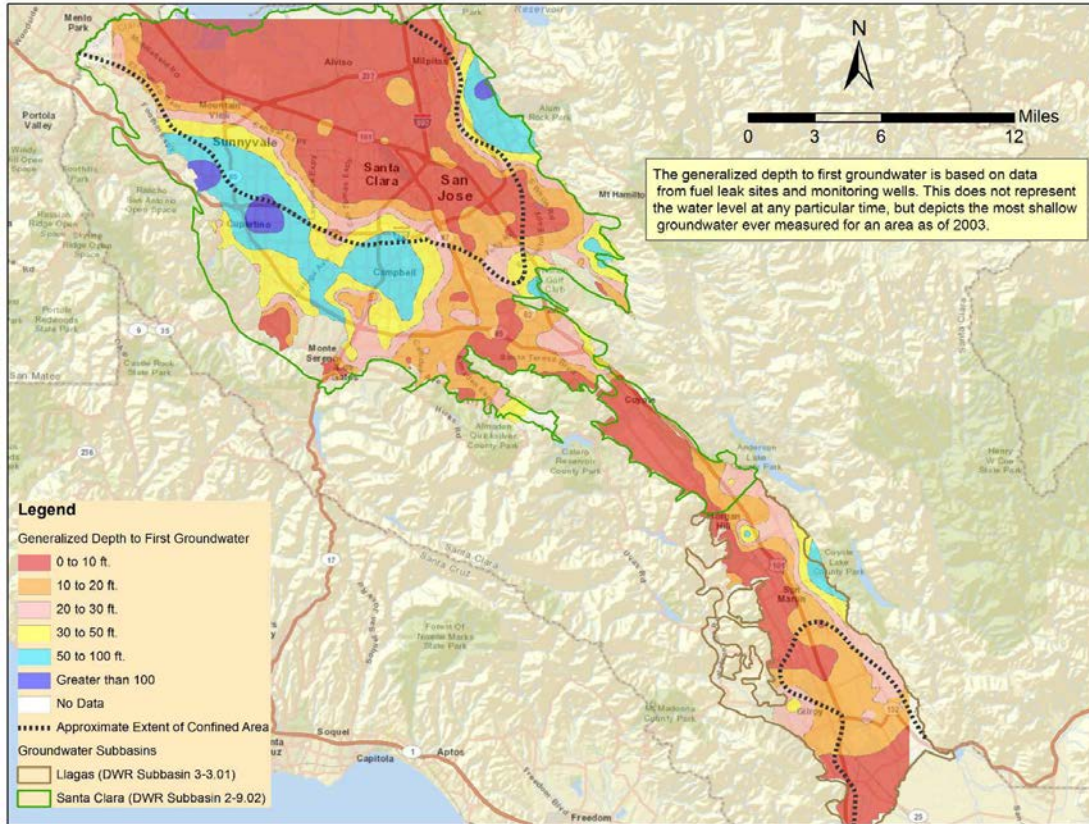
The District's Well Ordinance Program helps to ensure that wells and other deep excavations are properly constructed, maintained, and destroyed so they will not allow the vertical transport of water of poor quality into deeper aquifers used for drinking water. Through this program, all water supply wells being constructed must have a sanitary seal of at least 50 feet. Additionally, all wells that are constructed through the principal aquitards (around 100 feet deep in the Llagas Subbasin and 150 feet deep in the Santa Clara Subbasin) are required to have sanitary seals that extend from the surface and into aquitard materials. This is designed to prevent commingling of water of the shallow and principal aquifers to avoid cross-contamination to aquifers and to protect current and future users of the groundwater being pumped.

The subbasins in Santa Clara County are not adjudicated, and the District does not control the operation of wells or the amount of water that can be pumped. Rather, the District works to ensure sustainable groundwater supplies through managed aquifer recharge and "in-lieu" recharge programs that reduce pumping such as treated water deliveries, water conservation, and recycled water programs. The District's comprehensive water supply management halted historic groundwater problems, including chronic overdraft, permanent subsidence, and salt water intrusion. Effective water supply management, including proactive planning and investments, helps ensure continued, sustainable groundwater conditions into the future.

**Attachments 1 and 2 (Maps)**



## Generalized Map of Depth to First Groundwater



No action was taken.

If you have any questions or concerns, you may contact me at, [gbrambill@valleywater.org](mailto:gbrambill@valleywater.org) or 1.408.630.2408.

Thank you.

Glenna Brambill, Management Analyst II,  
Board Committee Liaison  
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