Santa Clara Valley Water District

File No.: 20-0982

Agenda Date: 11/24/2020
Item No.: 2.9.

BOARD AGENDA MEMORANDUM

SUBJECT:
Receive Winter Preparedness Briefing.

RECOMMENDATION:
Receive information on the Santa Clara Valley Water District's preparedness for winter operations.

SUMMARY:
As the agency authorized to provide local flood protection, Santa Clara Valley Water District (Valley Water) works diligently to protect Santa Clara Valley residents and businesses from the devastating effects of flooding. Since the early 1980s, Valley Water and its partners have invested approximately $960 million in flood protection programs, including constructing major flood protection projects. About 150,000 parcels were prone to flooding back in the 1950's and about 50,000 parcels remain at some risk of flooding today.

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

- Weather Forecast
- Board Natural Flood Protection Ends Policies
- Emergency Action Planning
- Monitoring and Flood Forecasting
- Reservoir Management
- Real-time Information, Alerts and Warnings
- Valley Water, Countywide and Regional Emergency Management Systems
- Valley Water Field Response Actions and Capabilities
- Storm Ready Certification

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 Valley Water 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 land movement that have the potential to impact power, communication and water utility infrastructure.

Weather Forecast
National Weather Service (NWS) seasonal weather models <https://iri.columbia.edu/our-expertise/climate/forecasts/enso/current/?enso_tab=enso-sst_table> predict about an 80% chance of La Niña and about a 20% chance of neutral El Niño Southern Oscillation conditions occurring this 2020/2021 fall-winter season. Current expectations are below normal precipitation during the core of winter for Santa Clara County.
NWS meteorologists will also be watching how the Arctic Oscillation (AO) and Madden-Julian Oscillation (MJO) fluctuate through the winter season. These, and other, seasonal and intra-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 below normal rainfall can still produce flooding, especially if much of the rainfall occurs over a short period of time.

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

Board Natural Flood Protection Ends Policies

Valley Water 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:

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

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

1. Protect Parcels from Flooding (3.1.1)

Valley Water'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 17 flood protection projects are underway in Fiscal Year 2020-2021 with a total FY21 budget of $76.8 million. Nine of these projects are Safe, Clean Water projects and eight 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 Program, 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)

Valley Water's Watersheds Operations and Maintenance Division (Watersheds O&M) 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. Watersheds O&M work that has been accomplished in 2020 through Valley Water's Stream Maintenance Program includes the following:

- Removal of 43,314* cubic yards of sediment (estimated)
- About 4,179* linear feet of bank stabilization (estimated)
- Completion of 1,016* acres of in-stream vegetation control over 161* miles of streams

*Work still in progress. Quantities estimated through 10/20/20.

Valley Water 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 selectively reposition or remove fallen 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)

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

Valley Water Community Projects Review Unit issues encroachment permits that regulate the third-party use of Valley Water lands adjacent to local waterways and acts on enforcement cases. Additionally, Valley Water annually reviews environmental documents and plans for projects outside Valley Water right-of-way to promote Valley Water's water resource interests. Through these

processes, Valley Water advocates for 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 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:

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

Valley Water is not a participant in the NFIP; however, Valley Water can participate in the CRS program as a fictitious community which allows local municipalities to receive credits for Valley Water activities, thereby reducing flood insurance premiums for the community. CRS activities Valley Water carries out are verified by the Insurance Services Office, Inc. (ISO) who works on behalf of the Federal Emergency Management Agency (FEMA). Verified credits are 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. Currently, Valley Water receives CRS points for our outreach program, mapping of flood risks, open space preservation in floodplains, and maintenance and management of our creeks. In Santa Clara County, discount on flood insurance premiums between 10% to 20% are earned through the CRS program.

The Santa Clara County CRS Users Group, consisting of Valley Water and participating CRS communities, was formed in 2013. The Users Group has proven to be very useful for discussion of activities that earn CRS points, allows for dialogue of ongoing flood risk reduction efforts and related topics among all cities in the county, and serves as an information sharing platform.

<u>Flood Awareness Campaign and Community Outreach</u>

This winter, Valley Water will deliver multilingual flood preparedness messages throughout Santa Clara County, focusing on flood-prone areas and targeting ethnic communities that are lagging on flood awareness. We will conduct outreach to "hot spots" by providing additional materials for community organizations to share with the public.

The campaign features the slogan GET FLOOD READY supported by three key messages:

1. Find out if you live in a flood zone.

2. Get Prepared.

3. Get Insured - both as a renter or a homeowner.

The call to action is for residents and business owners to visit www.valleywater.org/floodready to locate their address in the FEMA SFHA, obtain information on creating a family emergency plan and kit, download alert apps, get flood insurance information, and identify sandbag locations.

FLOOD MAILER

In early December, we will distribute our multilingual floodplain mailer to nearly 50,000 homes and businesses in or near flood-prone areas. The piece features nine tips for flood preparedness, a floodplain manager phone directory by city, as well as a magnet with websites for the FEMA SFHA map, National Flood Insurance Program, and Valley Water's flood ready site. The mailer is written in English, Spanish, Vietnamese, and Chinese.

FLOOD AWARENESS MEDIA/DIGITAL CAMPAIGN

Our annual advertising campaign will launch in December 2020 and continue through the end of February 2021, or longer if the winter is particularly wet. The campaign features multilingual social media videos and postings, digital banners, newspaper advertorials, radio, and television/mobile ads targeted by area and language. There is an emphasis on reaching the Latino and Chinese communities, for which polling shows a lag on flood awareness.

GOVERNMENT RELATIONS

This fall, we will collaborate with elected officials in several cities within the county to distribute digital flood-preparation materials, which they can pass on to their constituents. These flood-prone areas include parts of South County in Morgan Hill and Gilroy, Sunnyvale, Palo Alto and Mountain View along the shoreline, as well as vulnerable areas in San Jose. We will also distribute our materials and share digitally with local cities for distributions at potential community events.

CIVIC ENGAGEMENT AND EDUCATION OUTREACH

Education Outreach will include flood awareness and preparedness messaging during winter season virtual visits to schools in flood-prone areas. Materials available for teachers include the "Prepare with Pedro Disaster Preparedness Activity Book" and "Prepárate con Pedro Libro de

Actividades de Preparación para Casos de Desastre", created by FEMA in partnership with the American Red Cross. Education Outreach will also offer the "I Am Ready" and "Soy Listo" Flood Preparedness Activity Books, created by the US Army Corps of Engineers.

EMERGENCY ALERT APPS

Through our outreach, we are also promoting Santa Clara County's AlertSCC emergency notification system and the 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.

EMERGENCY TOTES & KITS

This year, Valley Water has partnered with Second Harvest Food Bank to hand out 4,600 emergency tote bags to the public. The tote bags have a list of items printed on the outside of the bag to assist the public with preparing for a flood event.

Valley Water will also be providing 300 emergency tote bags to the CRS Coordinators at County of Santa Clara cities, along with American Red Cross emergency contact cards and postcard promotional material for ReadySCC.

Additionally, Valley Water will continue to provide emergency kits to the public through our community partners. The emergency kit distribution is continued from last year and includes essential supplies, such as a hand-operated flashlight, mylar blanket, rain poncho, safety whistle, gloves, and glow stick. While these kits are basic, they serve as encouragement for residents to begin preparedness on a larger scale.

VALLEY WATER WEBSITE, NEWSLETTER, AND SOCIAL MEDIA CHANNELS

Valley Water's website serves as a one-stop-shop for flood-related information, including how to register for emergency updates, flood safety tips and information on sandbag sites, stream and reservoir gauges in the county. The website also prominently displays Valley Water's Flood Watch Tool. 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.

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.

Flood emergency preparedness entails the combined efforts of many units at Valley Water, notably Emergency Services and Security, Field Operations, Water Supply Operations and Planning, Hydrology Hydraulics and Geomorphology, Communications, Government Relations, the Clerk of the Board Office as well as other units. Valley Water staff perform field emergency response and recovery activities, while others fulfill positions in the Departmental Operation Centers (DOCs) and Emergency Operations Center (EOC). Other staff are key components to the preparedness planning for flood emergencies.

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

<u>Emergency Action Planning</u>

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

- Actions, in coordination with emergency management authorities, to respond to incidents or emergencies
- 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
- Roles and responsibilities between responding agencies

The EAPs for dams are created following the Federal Emergency Management Agency guidelines for emergency action planning (FEMA Publication No. P-64). The Anderson Dam EAP also incorporates the guidance of the Federal Energy Regulatory Commission (Chapter 6 Emergency Action Plans of the Engineering Guidelines for the Evaluation of Hydropower Projects), with Anderson being an energy producing facility.

The EAPs for creeks have been built in coordination with the affected jurisdictions where flooding may occur. The Joint EAP with the City of San Jose includes Coyote, Guadalupe, Ross and Canoas Creeks. EAPs for West Little Llagas Creek and Uvas Creek were developed in coordination with the cities of Gilroy and Morgan Hill. Valley Water also developed an EAP for San

Francisquito Creek, which was done in coordination with the City of Palo Alto and the San Franciquito Creek Joint Powers Authority. A new EAP for West Valley Watersheds Creeks is in the final stages of approval and was developed in coordination with City of Santa Clara and City of San Jose.

Monitoring and Flood Forecasting

Valley Water evaluates forecasts of incoming weather systems based on weather reports received from multiple partners, including the National Weather Service (NWS), paid weather consultants, and partnerships with San Jose State University's Meteorology Department. In addition to standard weather reports, detailed quantitative precipitation forecasts (QPFs) are obtained from these sources 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, Valley Water operates more than 100 precipitation, reservoir level, and stream gauges. All of Valley Water's stream and rain gauges are regularly maintained and calibrated. Valley Water also hosts an "X-band" radar unit on the rooftop of the Penitencia Water Treatment Plant. The unit is part of the Bay area AQPI (Advanced Quantitative Precipitation Information) system. This short range and lower elevation radar supplements our existing rainfall gauge system, and more importantly, provides more precise radar data to the NWS for analysis and forecast products.

In addition, under Valley Water's Safe, Clean Water Program Priority C Project, Emergency Response Upgrades Project, Valley Water 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. Valley Water also partners with the California-Nevada River Forecast Center (CNRFC), who forecasts several creeks in our jurisdiction. Combined, both the Valley Water's and CNRFC's flood forecasting provides intelligence to decision makers, emergency responders, and the general public.

Reservoir Management

Valley Water operates 10 surface water reservoirs throughout the county. The reservoirs are operated as water supply facilities that capture and store water for groundwater recharge or in-lieu groundwater recharge activities. All of the reservoirs, except Vasona, are operated to rule curves that provide guidance on when to make releases from the reservoirs. When the storage in the reservoir exceeds the rule curve, the volume of water above the rule curve may be released.

Currently, all of the reservoirs, except Vasona, Uvas, and Calero have incidental flood risk reduction rule curves that maintain a balance between the reservoir's primary purpose of water supply and the incidental benefit of flood risk reduction. Vasona is a small reservoir and does not have any rule curves. Uvas Reservoir does not have an incidental flood risk reduction rule curve because its natural resource permitting provides for pulse flow events. Calero Reservoir has a seismic restriction of approximately 45 percent (45%) of capacity from the Division of Safety of

Dams, and is not presently operated with an incidental flood risk reduction rule curve. The incidental flood risk reduction rule curves maximize the water supply benefit and can reduce the flood risk with a high probability of the water being recovered by the end of the season. There are additional rules for five reservoirs for not exceeding their seismic restrictions, which can also provide incidental flood risk reduction.

Anderson-Coyote Reservoir system operation: On February 20, 2020, The Federal Energy Regulatory Commission (FERC) issued a directive to start drawing down Anderson Reservoir to water surface elevation 488 feet no later than October 1, 2020. The FERC order limits storage to a deadpool of a little less than 3,000 acre-feet, which constitutes about three percent (3%) of the reservoir's full capacity. This restriction guarantees additional storage buffer in the reservoir, thus a much reduced chance of spilling.

Lexington Reservoir operation: In February 2019, the Board directed staff to re -operate Lexington Reservoir with a temporary rule curve of approximately 73% of capacity to significantly reduce the flood risk to the community along Guadalupe River - Tasman Drive to Interstate 880. This temporary flood risk reduction rule curve can impact water supply, and a methodology was developed to comply with the District Act and State Law regarding the use of a facility funded by groundwater charges. Unless the Board directs otherwise, Valley Water will continue to operate Lexington Reservoir at the 73% rule curve during the 2020-2021 storm season and during subsequent years until the Guadalupe River - Tasman Drive to Interstate 880 Project is implemented.

Real-time Information, Alerts and Warnings

Valley Water provides precipitation and stream gauge data to the public via multiple websites, such as the flood watch website <https://gis.valleywater.org/SCVWDFloodWatch/> that utilizes a user-friendly interactive map to allow residents to monitor levels in their own neighborhoods. We coordinate regularly with the National Weather Service, as well as local jurisdictions during storm events to share information about potential floods.

Valley Water's website provides access to reservoir levels, precipitation data, stream flow, and flood-safety measures. Valley Water promotes the County's emergency alert system AlertSCC <https://www.sccgov.org/sites/alertscc/Pages/home.aspx> as well as the ReadySCC <http://appshopper.com/reference/readyscc-santa-clara-county>.

Valley Water, Countywide and Regional Emergency Management Systems

Valley Water maintains facilities, equipment, procedures, trained staff and inter-agency relationships that enable it to respond to floods and other emergencies. Valley Water emergency management facilities include its Countywide Emergency Operations Center (EOC) and Water Utility/Watersheds Departmental Operations Centers (DOCs). Valley Water maintains a dedicated, primary EOC that is equipped with both high and low-tech communication and information storage and display technologies to allow the EOC functions to perform under all hazard scenarios. EOC equipment is regularly inventoried, maintained and tested to ensure readiness. Valley Water DOC facilities are equipped for emergencies that can be handled within departmental resources and capabilities.

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.

Valley Water EOC response staff have participated in multiple training as well as internal and multi-agency exercises. Training and exercises are designed and utilized to develop, learn, and test response capabilities under various hazard scenarios. The table below are some examples of past and future training/exercises for Valley Water EOC response staff. Also included in this table are the recent EOC Activations, which act as valuable trainings during real-life events that identify best practices and opportunities for improvement:

Multiple Sessions	EOC Trainings - ICS/EOC Interface, EOC Management and Operations, EOC Action Planning
Multiple Sessions	Satellite Phone Training and Testing
October 2019	EOC Activations for PG&E Public Safety Power Shutoffs (PSPS)
January 2020	Joint EAP Tabletop Exercise with City of San Jose
March 2020	EOC Activation for COVID-19 Pandemic (EOC still activated)
October 2020	Anderson Dam Operational Impact Contingency Planning Workshop
December 2020	All Dam Call Down Drill
June 2021	Anderson Dam Functional Exercise for Federal Energy Regulatory Commission Requirement

The training opportunities allow for EOC response staff to become more familiar with their roles and build comfort in the tools and processes they will be expected to utilize during emergencies. This has proved true during other recent emergencies such as the PG&E PSPS events, the COVID-19 Pandemic, and wildfires. The real-life experiences as well as the exercise opportunities 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, Valley Water's Emergency Services and Security Unit hosts a multi-jurisdictional Winter Preparedness Workshop. This year's event was held on October 28, 2020 and conducted virtually through Zoom due to the current pandemic emergency. Attendees include emergency managers and public works representatives from our cities, the County, and other local and state agencies. Valley Water staff reviewed the following topics during the workshop:

- Valley Water Reservoir Operations
- Emergency Services
- Flood Forecast & Warning System
- Public Information
- Sandbag Operations

- Watershed Field Operations

The National Weather Service also provided the winter season outlook regarding the probability of seasonal precipitation, temperatures, and other environmental aspects.

In addition to the Winter Preparedness Workshop, Valley Water 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.

Valley Water Field Response Actions and Capabilities

In preparation for a possible flood event Valley Water can mobilize a field response that:

- maintains a watersheds 24/7 hotline;
- deploys Field Information Teams (FIT); and
- maintains a list of known flooding hotspots to expedite on-site arrival of resources and crews that can remove blockages when safe to do so, deploy sandbags and perform other functions to maximize flood conveyance capacity during a storm.

Valley Water provides filled sandbags at 5 sites (Valley Water's Winfield site, Palo Alto Airport site, City of San Jose Central Yard, Alviso site, and Morgan Hill site) throughout Santa Clara County. Typically for winter seasons with average rainfall forecasts, Valley Water stocks 20,000 filled sandbags at these locations by mid-October, restocking those sites as needed. In the event, the availability of filled sandbags cannot meet the demand, Valley Water will supply empty bags and sand at those locations.

Additionally, Valley Water 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:

<https://www.valleywater.org/floodready/sandbags>.

Valley Water currently has 390,000 empty sandbags and 410 cubic yards of sand in storage.

Storm Ready Certification

As a result of Valley Water'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, Valley Water continues to be recognized by the NWS as Storm Ready. Valley Water has submitted its recertification application in October 2020 and is awaiting approval from NWS.

FINANCIAL IMPACT:
There is no financial impact associated with receiving a briefing on winter preparedness.

CEQA:
Receiving a briefing on winter preparedness is not subject to the requirements of CEQA.

ATTACHMENTS:
Attachment 1: PowerPoint

UNCLASSIFIED MANAGER:
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