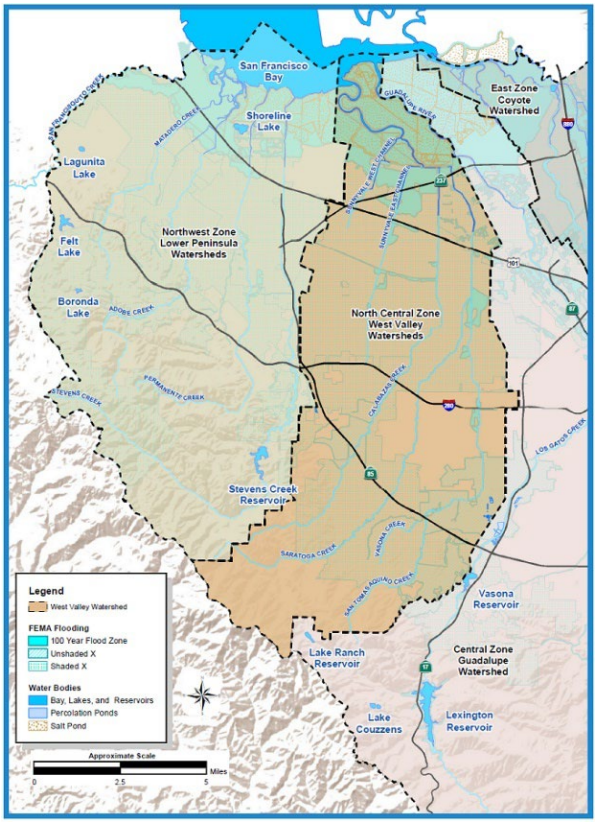
EMERGENCY ACTION PLAN FOR SEVERE STORM AND FLOOD RESPONSE WEST VALLEY WATERSHED



SANTA CLARA VALLEY WATER DISTRICT

Revision Date: July 9, 2025

PUBLIC VERSION

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APPROVAL & IMPLEMENTATION

The Emergency Action Plan for Severe Storm and Flood Response in the West Valley Watershed (EAP) prepared by the Santa Clara Valley Water District (Valley Water) is hereby approved for implementation. This plan includes Appendices with more specific guidance for San Tomas Aquino Creek, Sunnyvale East Channel and Sunnyvale West Channel. It shall be reviewed and updated as necessary by Watersheds Operations & Maintenance Division in coordination with other affected Valley Water divisions/units and, if appropriate, external stakeholders.

This plan uses resources currently available to Valley Water and does not obligate other stakeholders. It is intended to provide guidance on how Valley Water will coordinate, communicate, and make decisions for preparation and response to storm and flood events. It is not intended to prescribe responsibilities or actions nor constrain the freedom of Valley Water during any phase of operations.

Valley Water's Chief Executive Officer has assigned oversight of emergency management to the Chief Operating Officer (COO) of Information Technology & Administration Services and management of activities relating to creeks in the West Valley Watershed to the COO of Watersheds. Approval and implementation of this EAP is the responsibility of these COOs.

By signing here, the COOs agree to the concepts outlined in this EAP and will continue work on maintaining the EAP, and provide appropriate risk-based resources for preparedness, mitigation and response to ensure business interruption is minimized and Valley Water's services remain reliable to its customers.

DocuSigned by:
Christopher Hakes
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8/6/2025
DATE

Christopher Hakes, P.E.
Chief Operating Officer,
Watersheds

Signed by:
Tina Nguyen Yoke
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8/7/2025
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Tina Nguyen Yoke, C.P.M.
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ACRONYMS

Readers of this plan may find it useful to be familiar with the Acronyms used in the document.

Acronym	What is it
AAR	After-Action Report
ALERT	Automated Local Evaluation in Real Time
Alert SCC	Alert Santa Clara County
AP	Action Plan
County	Santa Clara County
DOC	Departmental Operations Center
EAP	Emergency Action Plan for Severe Storm and Flood Response in West Valley Watershed
EMO	Emergency Management Organization
EOC	Emergency Operations Center
EOP	Emergency Operations Plan
ES&S	Emergency Services & Security Unit
FEMA	Federal Emergency Management Agency
FIT	Field Information Team
HH&G	Hydrology, Hydraulics & Geomorphology Unit
IC	Incident Command(er)
ICS	Incident Command System
IPAWS	Integrated Public Alert & Warning System
JIC	Joint Information Center
JIS	Joint Information System
MAC	Multi-Agency Coordination
NIMS	National Incident Management System
NWS	National Weather Service
OC	Office of Communications
O&M	Watersheds Operations & Maintenance Division
O&MES	Watersheds Operations & Maintenance Engineering Support Unit
PIO	Public Information Officer
SEMS	Standardized Emergency Management System
SME	Subject Matter Expert
WFOU	Watersheds Field Operations Unit
VFOU	Vegetation Field Operations Unit

GLOSSARY OF TERMS

Readers of this plan may find it useful to understand some terms that may be used in the Emergency Action Plan or may be used before or during an event or training exercise.

TERM	DEFINITION
After-Action Report (AAR)	An After-Action Report (AAR) is the final product of an exercise or actual event. The AAR has three components: 1. Summary of exercise objectives and actual events; 2. Observations and recommendations based on the exercise objectives or actual event as associated with the capabilities and tasks; and 3. A section that identifies specific corrective/improvement recommendations.
Action Plan (AP)	The Incident Action Plan describes the basic incident strategy, incident objectives, command emphasis/priorities, and safety considerations for use during the next operational period. This is often summarized using a document similar to ICS Form 202 (https://training.fema.gov/icsresource/icsforms.aspx).
Boil/Seepage	When the floodwaters are higher than the land, the groundwater, under pressure from the river, exerts an upward pressure on the land inside the levee or floodwall. With time this increased "head pressure," as it is known to engineers, can drive water through or under a levee/floodwall to the surface as seepage. When floodwaters remain high for a long time though, seepage can increase in volume and velocity and begin the destructive process of moving sand/soil from the foundation, through the ground, to the surface, forming boils.
Channel Capacity	The maximum flow which can pass through a channel without overflowing the banks.
Channel Improvements or Channelization	The improvement of the water carrying capacity or flow characteristics of a natural or artificial channel by clearing, excavation, bank stabilization, or other means. Also referred to as channel alterations.
Collaboration Software	Collaboration software enables the sharing, processing, and management of files, documents, and other data types among several users and/or systems. This type of software allows two or more remote users to jointly work on a task or project and/or to view the same data.
Community Rating System (CRS)	A program developed by FEMA to provide incentives for those communities in the Regular Program that have gone beyond the minimum floodplain management requirements to develop extra measures to provide protection from flooding.
Critical Facility	For some activities and facilities, even a slight chance of flooding is too great a threat. Typical critical facilities include hospitals, fire stations, police stations, storage of critical records, and similar facilities. These facilities should be given special consideration when formulating regulatory alternatives and floodplain management plans. A critical facility should not be located in a floodplain if at all possible.
Cubic Feet per Second (CFS)	The rate of discharge representing a volume of 1 cubic foot passing a given point during 1 second and equivalent to 7.48 gallons per second or 448.8 gallons per minute.

TERM	DEFINITION
Design	The term “design flood” is used to denote the maximum flood flow used for design and operation of flood risk reduction structures and other protective measures. The Design is often set as the 100-year or 1% flow rate, but it may be set at other levels.
Design Stage	The term “design stage” is used to denote the maximum level (generally denoted in feet) above the channel bottom or above sea level at the specific location for which flood risk reduction structures and other protective measures are designed. The design stage is based on a Design that is often set as the 100-year or 1% flow rate, but it may be set at other levels.
Design Storm	Design storm means a hypothetical discrete rainstorm characterized by a specific duration, temporal distribution, rainfall intensity, return frequency, and total depth of rainfall.
Discharge	The amount of water that passes a point in a given period of time. Rate of discharge is usually measured in cubic feet per second (cfs).
Emergency Communications Plan	An emergency communications plan (EC plan) is a document that provides guidelines, contact information, and procedures for how information should be shared during all phases of an unexpected occurrence that requires immediate action.
Emergency Management Organization	An Emergency Management Organization (EMO) coordinates activities related to an event. Examples of EMOs are: • Agency leadership and other staff that meet to assess, monitor and determine how to respond to an event. • Emergency Operations Centers • Department Operations Centers
Erosion	The collapse, undermining, or subsidence of land along the bank of a body of water. Erosion is caused by waves or currents of water and can result in flooding or failure of adjacent structures.
Federal Emergency Management Agency (FEMA)	The Federal agency under which the National Flood Insurance Program (NFIP) is administered. In March 2003, FEMA became part of the newly created U.S. Department of Homeland Security. An agency within the U.S. Department of Homeland Security charged with responding to Presidentially declared disasters.
Flash Flood or Flashy System	A flood that reaches its peak flow in a short length of time (hours or minutes) after the storm or other event causing it. Often occurs in watersheds with mostly storm drain runoff and is often characterized by high-velocity flows.
Flood Risk Reduction	Keeping flood waters away from specific developments and/or populated areas by the construction of flood storage reservoirs, channel alterations, dikes and levees, bypass channels, or other engineering works.
Flood Fighting	Actions taken immediately before or during a flood to protect human life and to reduce flood damages such as evacuation, emergency sandbagging and diking, and provision of assistance to flood victims.
Flood Flow	The discharge at which a body of water begins to flow over its banks and onto dry land, usually expressed in cubic feet per second (cfs).
Flood Forecasting	The process of predicting the occurrence, magnitude, and duration of an imminent flood through meteorological and hydrological observations and analysis.

TERM	DEFINITION
Flood Frequency	A statistical expression of the average time period between floods equaling or exceeding a given magnitude. For example, a 100-year flood has a magnitude expected to be equaled or exceeded on the average of once every 100 years; such a flood has a 1% chance of being equaled or exceeded in any given year. Often used interchangeably with "recurrence interval".
Flood Insurance Rate Map (FIRM)	An official map of a community on which the Federal Insurance Administration has delineated the area in which the purchase of flood insurance is required under the National Flood Insurance Program.
Flood Stage	The level at which a body of water begins to flow over its banks and onto dry land, usually expressed in feet above channel bottom or above sea level at a specific location.
Flooding – Fluvial or Riverine	Fluvial, or riverine flooding, occurs when excessive rainfall over an extended period of time causes a river to exceed its capacity.
Flooding – Surface or Local Drainage	When rain hits the ground quicker than it can drain or flow away, water builds up and develops the potential to flood streets and properties. In some places, it forms isolated puddles in ground depressions and in others it accumulates and flows downhill towards streams. Typically, surface water flood events have localized effects, impacting properties in close proximity to where the rain fell and for a short amount of time until it can drain into a stream, be pumped into a stream, percolate into the ground, or evaporate.
Floodplain	Any land area susceptible to being inundated by floodwaters from any source. The channel of a stream or watercourse is part of the floodplain.
Floodplain Management	The operation of an overall program of corrective and preventive measures for reducing flood damage, including but not limited to, emergency preparedness plans, flood-control works, and floodplain management regulations. Floodplain management is a decision-making process that aims to achieve the wise use of the nation's floodplains. "Wise use" means both reduced flood losses and protection of the natural resources and function of floodplains.
Floodplain Management Regulations	A general term for the full range of codes, ordinances, and other regulations relating to the use of land and construction within stream channels and floodplain areas. The term encompasses zoning ordinances, subdivision regulations, building and housing codes, encroachment line statutes, open-space regulations, and other similar methods of control affecting the use and development of these areas.
Freeboard	A margin of safety added to the flood elevation to account for waves, debris, miscalculations, or lack of data. This term is often used when describing distance of the water surface to top of bank of a stream or in determining the level at which a structure's lowest floor must be elevated or floodproofed to be in accordance with state or community floodplain management regulations.
High Flow Stage	The depth of water when a stream flood risk reduction facility is nearing Flood Stage or Design stage.

TERM	DEFINITION
Incident Commander	The Incident Commander is the individual responsible for all incident response activities, including the development of strategies and tactics and the ordering and release of resources. The Incident Commander has overall authority and responsibility for conducting incident operations and is responsible for the management of all incident operations at the incident site.
Levee or Dike	Permanent or temporary mounds of earth (often engineered with maintenance roads on top) and/or fill, such as sand, sandbags or gravel, piled along a body of water to prevent it from overflowing onto dry land.
Long Range Acoustical Device (LRAD)	LRAD is a high-powered speaker system that emits a shrill sound followed by spoken instructions such as “shelter in place” or “flooding is imminent, evacuate now”. The speakers are strategically mounted to cover wide areas as needed. This system cannot only wake you up but inform you as to what’s going on.
Multi-Agency Coordination (MAC) Group	The primary function of MAC Group is to coordinate activities above the field level and to prioritize the incident demands for critical or competing resources, thereby assisting the coordination of the operations in the field. A MAC consists of a combination of elements: personnel, procedures, protocols, business practices, and communications integrated into a common system. For the purpose of coordinating resource and support between multiple jurisdictions, a MAC can be implemented from a fixed facility or by other arrangements outlined within the system.
National Flood Insurance Program (NFIP)	The program of flood insurance coverage and floodplain management administered under the Act and applicable federal regulations promulgated in Title 44 of the Code of Federal Regulations, Subchapter B.
Recovery Activities	Activities that include the development, coordination, and execution of service- and site-restoration plans; the reconstitution of government operations and services; individual, private-sector, nongovernmental, and public-assistance programs to provide housing and to promote restoration; long-term care and treatment of affected persons; additional measures for social, political, environmental, and economic restoration; evaluation of the incident to identify lessons learned; post-incident reporting; and development of initiatives to mitigate the effects of future incidents.
Stage or Gauge Height	The water-surface elevation referred to some arbitrary datum. The stage or gauge height represents the water-surface elevation above the channel bottom elevation at a specific location. For example, the elevation of the datum (channel bottom) of the gauge might be 100.00 feet, which, when added to a stage of 12.50 feet, represents a water-surface elevation of 112.50 feet at that location.
Top of Bank	Top of Bank means the point along the bank of a stream where an abrupt change in slope is evident, and where the stream is generally able to overflow the banks and enter the adjacent floodplain during an annual flood event. For steep and narrow valleys, it will generally be the same as the top of slope.
Unified Command	A unified command is established when incidents under an area command are multi-jurisdictional. It is a method for all agencies or individuals who have jurisdictional responsibility, or in some cases who have functional responsibilities at the incident, to contribute to: determination of overall objectives for the incident, and selection of strategies to achieve the objectives.

RECORD OF HOLDERS OF CONTROL COPIES OF THIS EMERGENCY ACTION PLAN

Copy Number	Location	Person/Department Receiving Copy or Link	Date
1	Public Version is posted on Valley Water Website and a link is provided on the library internal webpage	• Public Website - https://www.valleywater.org/flooding-safety/flood-emergency-action-plans • Internal Website - https://aqua.valleywater.org/organization/divisions-offices/administration/information-management-services-division/records-library-unit/library-services	
2	Agency Version	Internal server at W:\Watersheds EAP Project\EAPs_Final Versions\West Valley	
3	Watershed O&M Engineering Support Unit	Devin Mody	
3	Departmental Operations Center	Valley Water O&M Field Operations Unit	
3	Emergency Operations Center	Alexander Gordon – Three copies located in EOC	

RECORD OF REVISIONS AND UPDATES MADE TO EMERGENCY ACTION PLAN

Revision Number	Date	Revision Made	By Whom
1	11/29/2023	Minor updates to: Record Holders, website links, contact information, Valley Water Stakeholders, public information flyers, minor flooding threshold and sandbag location.	Office of Emergency Services
2	7/9/2025	Added Sunnyvale East and Sunnyvale West Channels, revised flood condition table to remove colors and change to flood readiness, added Emergency Management Organization term to allow for flexibility in decision making during emergency events, added Glossary of Terms, updated contact information, and updated web links.	Office of Emergency Services

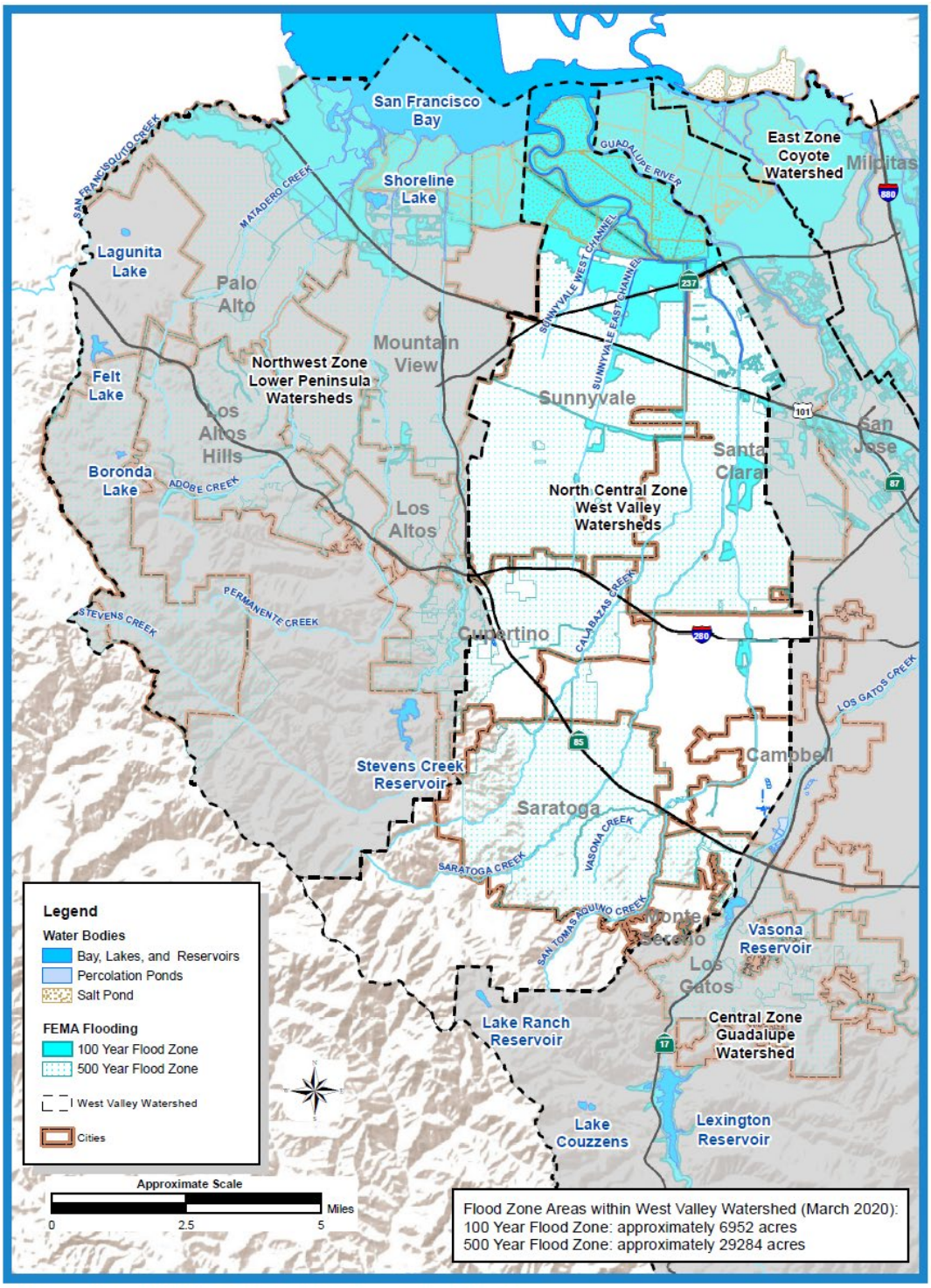
1. INTRODUCTION

A. PURPOSE

The Federal Emergency Management Agency (FEMA) has identified that floods are the most frequent and costly natural disaster in the United States. Creeks in the West Valley Watershed have flooded the cities of Campbell, Cupertino, Los Gatos, Monte Sereno, Santa Clara, San José, Saratoga, and Sunnyvale in Santa Clara County several times over the years. FEMA estimates that there are currently about 5,000 parcels and 7,000 acres subject to flooding from a 100-year (1%) flood event (Figure 1) in the West Valley Watershed. In addition, other properties not shown in the FEMA flood area are still subject to flood threats due to potential unforeseen events (e.g., extreme storm events, levee failures, channel blockages) and from water ponding due to inadequate storm drainage. With this in mind, it is important to adequately prepare and respond to potential or actual flood events to protect the people and property in the Watershed.

This Emergency Action Plan for Severe Storm and Flood Response in the West Valley Watershed (EAP), a Valley Water internal document, is based on previously prepared Valley Water Emergency Action Plans and follows the same format as other Valley Water Emergency Action Plans for Severe Storms and Flood Response. It is focused on fluvial flood threats caused by severe storms and high flows in the creeks and is intended to provide general guidance for response in the West Valley Watershed. In addition, specific guidance is included for select creeks within the Appendices (San Tomas Aquino Creek, Sunnyvale East & West Channels) to facilitate Valley Water's activities within the following four areas:

1. Pre-incident planning prior to a storm/flood event,
2. Response to potential, imminent or actual storm/flood events,
3. Recovery actions following a storm/flood event, and
4. Coordination with the other responsible jurisdictions



GIS themes are for illustration and general analysis purposes only and are not accurate to surveying or engineering standards. Information is not guaranteed to be accurate, current, or complete and use of this information is your responsibility.

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Valley Water

FIGURE 1
West Valley Watershed & FEMA Flood Map
(500-yr flood zone may not reflect actual conditions)

B. STRUCTURE OF THIS EMERGENCY ACTION PLAN

The plan is organized in three sections:

Base Plan	The Base Plan identifies the roles, responsibilities and actions assigned to Valley Water and responsibilities and actions expected of other stakeholders in the West Valley Watershed.
Attachments	Attachments include information and guidance useful in any Severe Storm or Flood Incident.
Appendices	Provides specific details on creeks in the West Valley Watershed.

C. STAKEHOLDERS

Valley Water is one of many stakeholders in the Watershed and will fulfill related responsibilities before, during and after flood emergencies as resources are available and/or can be safely deployed. Other stakeholders include property owners along the creek and public agencies that have responsibility related to emergency preparedness or response in the West Valley Watershed. In addition to Valley Water and private property owners, other stakeholders included in the list below have important responsibilities or functions that may be identified in this EAP:

- City Stakeholders
  - City of Campbell
  - City of Cupertino
  - Town of Los Gatos
  - City of Monte Sereno
  - City of Santa Clara
  - City of San José
  - City of Saratoga
  - City of Sunnyvale
- County of Santa Clara (County)
- Caltrans
- Santa Clara Valley Transportation Authority
- Caltrain (also known as Peninsula Corridor Joint Powers Board)
- School Districts (Sunnyvale, Campbell, Fremont, Los Gatos-Saratoga, Moreland, and Santa Clara)
- National Weather Service (NWS)
- Federal Emergency Management Agency (FEMA)

While some of the stakeholders may have jurisdictions, responsibilities and, in some cases, oversight of the creek for flood protection, this plan is focused on the related activities of Valley Water. As such, the Valley Water has many internal stakeholders that are involved in preparing

and responding to emergency situations. including leadership that is part of the Emergency Management Organization (EMO) that takes an active decision-making role early in any event. Valley Water EMO during an event includes:

- Chief Operating Officer of Information Technology and Administrative Services
- Chief Officers for Water Utility, Watersheds, External Affairs
- Assistant Officer of Emergency, Safety and Security
- Deputy Operating Officer of Raw Water Operations
- Deputy Operating Officer of Treated Water Operations
- Deputy Operating Officer of Watersheds Operations and Maintenance
- Deputy Operating Officer of Information Technology
- Facilities and Fleet Manager
- Environmental Health and Safety Manager
- Security Manager
- Office of Emergency Services (OES)

The primary internal Valley Water stakeholders that may have responsibilities and actions assigned in this EAP and may be members of the multi-disciplined groups are:

- Valley Water Board of Directors
    - Office of District Counsel
        - Risk Management Program
    - Office of the Chief Executive Officer
        - Office of Chief Operating Officer – Administrative Services
            - Office of Emergency, Safety and Security
                - Office of Emergency Services (OES)
            - General Services Division
                - Business Customer Support & Warehouse Services
                - Equipment Management
                - Facilities Management
                - Purchasing & Consultant Contracts Services
            - Information Technology Division
        - Financial Planning & Management Services Division
        - Office of Integrated Water Management
            - Raw Water Division
                - Community Projects Review Unit

- Office of Chief Operating Officer – Watersheds
  - Operations & Maintenance Division (O&M)
    - ✓ Watersheds Field Operations Unit (WFOU)
    - ✓ Vegetation Field Operations Unit (VFOU)
    - ✓ Operations & Maintenance Engineering Support Unit (O&MES)
  - Watershed Stewardship & Planning Division
    - ✓ Hydrology, Hydraulics & Geomorphology Unit (HH&G)
  - Watersheds Design & Construction Division
    - ✓ Design and Construction Unit
- Office of Chief of External Affairs
  - Office of Communications (OC)
  - Office of Government Relations

D. LIMITATIONS OF EAP

This EAP shall not constrain the freedom of an Incident Commander (IC) in the field or others when dealing with flooding in the West Valley Watershed. This EAP does NOT and will NOT replace or override Valley Water's:

- Emergency Operations Plans,
- Department Operations Center Plans,
- Public Safety Authority,
- Public Information Officer role/responsibility,
- Purchasing Authority, nor
- Responsibility for documentation for any state or federal Declaration of Emergency.

Instead, this EAP will focus on how Valley Water can improve coordination before, during and after a flood incident to include providing oversight and guidance. It is not intended to set precedent or commit resources without knowledge of the conditions that may occur, nor provide prescriptive lists of what to do during storm and flood monitoring and response, that Valley Water and other Stakeholders are individual jurisdictions and have independent responsibility to accomplish their tasks. The conditions of the emergency dictate the response needs and availability of staff and resources as each emergency can be different and updates in stream management and control systems could vary the conditions. Valley Water will utilize this EAP as needed to develop decisions and actions based on the situation and current capabilities, resources and priorities.

While this EAP, an Attachment, or an Appendix within may reference an activity related to facility improvements or maintenance, those will be done through separate plans or activities.

E. USE OF THE EAP

This Valley Water internal document is intended to be used by Valley Water before, during and after a storm and includes proactive cooperation with the cities, County of Santa Clara, and other stakeholders as needed. Some response data includes restricted or sensitive information. The restricted portions of this document will clearly be indicated on the subject pages and will not be distributed or made available externally to individuals outside of the Valley Water. Valley Water may distribute the full EAP internally but will handle with the same care as other restricted documents.

F. RELATIONSHIP TO OTHER PLANS

This EAP provides additional guidance specific to Valley Water in its planning, response and recovery activities related to flood emergencies in the West Valley Watershed. This guidance does not supersede existing agreements or internal plans, such as the Valley Water Emergency Operations Plan (EOP), and is consistent with other plans and procedures. It may include responsibilities or actions that may be taken by other external stakeholders, many of which are included in this plan, but is not intended to prescribe that responsibility or action to them or to Valley Water. The reference to external stakeholders is intended to show that the responsibility or action is not expected of Valley Water.

G. TRAINING ON EAP

Regular emergency operations training and exercising of plans is critical to successfully respond to emergency events. As the lead agency for flood protection in Santa Clara County, Valley Water will regularly conduct related training and include other stakeholders as appropriate. Valley Water staff participating in these training exercises should use it as an opportunity to review and exercise the Valley Water EOP and, when appropriate, this EAP.

The Emergency Services & Security Unit (ES&S) is generally responsible to coordinate and conduct these training sessions that may include: Discussion-based exercises, such as Workshops, Seminars, or Tabletop Exercises; Operational exercises to test communications or notifications systems; or Functional Exercises to test the operational capabilities of the Departmental Operations Centers (DOC) and/or Emergency Operations Centers (EOC). These will often be general training but may also use specific scenarios that could include the use of this EAP.

If this EAP has not been included as part of another training effort or activated for any other reason over a 5-year period, the Watersheds Operations & Maintenance Engineering Support Unit (O&MES) will work with ES&S to schedule a test of the EAP.

This test can consist of a meeting, including a tabletop exercise, or be conducted as part of Watersheds Operation & Maintenance Division (O&M) tabletop exercises. If a tabletop exercise is held, a scenario or scenarios specific to a creek included in this EAP should be given to allow participants to discuss response and actions they would take to address and resolve the scenario. It is preferable if each section of the EAP should be utilized during the exercise.

Following any exercise or activations, responses and actions should be reviewed, any opportunities to improve or make changes to the EAP should be discussed, and all of this should be documented in a summary document or After-Action Report (AAR) prepared by an appropriate party.

H. MAINTENANCE OF EAP

O&M will work with ES&S, Hydrology Hydraulics & Geomorphology (HH&G) and other appropriate stakeholders to review and, if needed, update the EAP at least once each year. The EAP annual review should include the following:

- Verify that the phone numbers and persons in the specified positions are current and revise if any of the contacts have changed;
- Verify and, if necessary, update flood maps and flood thresholds;
- Verify the locally available resources and equipment are current; and/or
- Incorporate appropriate recommendations from any AAR prepared after training or activation of the EAP.

Revisions

Watersheds O&M Division is responsible for updating the EAP document. If the revisions are minor (e.g., updating names and phone numbers), the updated document does not require extensive reviews and new signature approvals. If there are major revisions (e.g., adding new facilities), stakeholder reviews and new signature approvals are required.

The EAP document held by Watersheds O&M Engineering Support Unit Manager is the master document. When revisions occur, the Watersheds O&M Division will provide the updated version to all EAP document holders. This can be done utilizing several methods including electronically using Portable Document Format (PDF) file sharing or emails.

EAP document holders are responsible for updating outdated copies of the respective documents whenever revisions are received. Outdated pages or files should be immediately discarded or archived to avoid any confusion with the revisions.

OES is responsible for maintaining Valley Water's Flood Emergency Action Plans webpage and will post all revised public versions of the EAP on valleywater.org as determined appropriate.

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2. CONCEPT OF OPERATIONS

A. READINESS LEVELS

The primary purpose of this EAP is to provide guidance during flood emergencies, to maintain the collaborative nature of the emergency preparedness and response with other stakeholders. As such, this **EAP is in a state of perpetual activation, throughout the year, regardless of the flood readiness level**. As the flood threat changes the readiness levels will change to reflect the current condition. Guidance for readiness level is described in Table 1.

When a potential flood situation develops Valley Water leadership meets as an Emergency Management Organization (EMO) to determine whether to continue "business as usual" in the preparedness level, to monitor the situation, or to activate the EOC. If the EOC is activated, the EOC Director should determine the flood readiness level. Table 1 provides additional guidance to decide the flood readiness level. In addition to high flow readiness levels as describe in Table 1, Attachment 1 lists other events that may be considered when determining a flood readiness level.

TABLE 1
Flood Readiness Levels

PREPAREDNESS	This is the base stage of readiness that will be the typical condition throughout most of the year. An Emergency Management Organization (EMO) is not active at this level. Preparedness is defined as: • Flood stage (Minor Flooding or greater) is not estimated within the next 72 hours or • Measured stream depth is below 50% of flood stage.
MONITORING	This condition is variable and requires more intense monitoring and a heightened level of alertness. A portion of the EMO may be minimally active to monitor for any developing flood concern. Monitoring is defined as: • Flood stage may occur in 48 to 72 hours, or • Measured stream depth is at 50% to 70% of flood stage, or • For areas that are controlled purely by storm drain runoff (flashy systems), the stream depth is estimated to reach flood stage within 24 hours.
WATCH	Flood level or a serious flood threat is expected to occur. Multiple portions of the EMO may be activated at an appropriate level. Watch is defined as: • Stream depth is estimated to reach flood stage or greater within 24 to 48 hours, or • Measured stream depths are at 70% to 100% of flood stage, or • For areas that are controlled purely by storm drain runoff (flashy systems), the stream depth is estimated to reach flood stage within 6-12 hours.
WARNING	This is a more urgent situation with flooding imminent or occurring. The EMO is more completely active. Warning is defined as: • Flood stage or greater is occurring or is estimated to occur within 24 hours, or • For areas that are controlled purely by storm drain runoff (flashy systems), the stream depth is estimated to reach flood stage or greater within minutes/hours or is occurring.
Note: Flood stage is the depth of water at which a stream or facility begins flooding (see Glossary of Terms).	

B. EMERGENCY ACTION PLAN: OBJECTIVES AND FUNCTIONS

Valley Water and other stakeholders focus on the following Objectives, Capabilities, and Functions. The following is consistent with the concepts of the National Incident Management System (NIMS) and Incident Command System (ICS) from the FEMA and the Standardized Emergency Management System (SEMS) from the State of California Office of Emergency Services.

1. Objectives

The following objectives are in alignment with the purpose of this EAP to coordinate the interagency response, resource management and recovery operations; and to collaborate on public messaging.

- **Objective 1: Identify Conditions, Actions, and Needs**
    - Core Capability: Situational Awareness
- **Objective 2: Notification of Involved Agencies and Staff**
    - Core Capability: Activation; Coordination
- **Objective 3: Emergency Public Information**
    - Core Capability: Public Information Officer (PIO) Collaboration in communications
- **Objective 4: Warning**
    - Core Capability: Public Warning
- **Objective 5: Coordination of Field Operations; Resource Sharing**
    - Core Capability: Personnel Accountability; Mutual Aid; Tracking; Finance Issues

2. Functions & Personnel

In keeping with the concepts of SEMS and NIMS, utilizing common functions to maintain the orderly flow of information and responsibility within an agency and between agencies is important during emergency situations. Consistency in utilizing the SEMS functions in an activation improves the organization and communication flow.

Four Emergency Management Organization (EMO) levels for Valley Water's Emergency Response are described in the Valley Water Emergency Operations Plan (EOP) and are shown below:

1. Policy Group – The Policy Group includes the Board of Directors, District Counsel (Risk and Legal Advisors), Chief Operating Officer (CEO), Assistant CEO and the Valley Water Emergency Steering Committee (ESC). The ESC, led by the Unclassified Leadership Team, provides direction and resourcing for emergency-related preparedness efforts.

2. Emergency Operations Center (EOC) – The EOC is organized based on the SEMS and NIMS functions of Management, Planning & Intelligence, Operations, Logistics, and Finance & Administration.

3. Department Operations Center (DOC) – The DOC is part of the Watersheds Division management that controls and coordinates actions specific to their area of operations. The DOC communicates internally and with other organizations through the EOC (when activated). They may function similar to an EOC following SEMS and NIMS, but often will utilize other procedures that is more appropriate for their response to the event while still supporting documentation necessary for an EOC activation.

4. Field Response Teams – These teams have specific skills and capabilities to command or support field incident objectives (e.g., Incident Commanders (IC) and Field Information Teams (FIT)).

During any readiness level, personnel will be assigned to fulfill the required actions. In early progression of an event (e.g., Monitoring), staff may perform the duties of multiple functions. But, as an event progresses in levels and an EOC is activated, the functions will likely require dedicated staff assigned to SEMS/NIMS Sections to fulfill the duties. The Sections and/or functions utilized during readiness levels are listed below and are described in Valley Water's Emergency Operations Plan (EOP). The EOP is supplemented with additional direction provided in the Valley Water EOC Responder Handbook (copies are located in EOC) and the Valley Water Crisis Management Plan (QEMS ID#: Q-830-033).

a. Management

Activation of an EOC or DOC is a Management Section function as described in the EOP or other Standard Operating Procedures consistent with SEMS and NIMS. Responsibilities of the Management Section include: EOC Director, liaison, safety/risk, and public information. As conditions warrant or progress, EOC/DOC Management personnel have the ability to make policy decisions within constraints defined by the Elected Officials, including those on matters of cost and/or liability, staffing levels, and resource needs. Agency Representative and Agency Coordinators, which are personnel terms used in other Emergency Action Plans and Multi-Agency Coordination Plan, are members of the Management Section. Valley Water and other Stakeholders Management Sections may confer on:

- Critical conditions
- Agency priority responses
- Common resource needs
- Resource request processing
- Managing conflicting policy issues
- Co-locating EOC personnel
- Sending liaison staff to other stakeholder EOCs

Managing the EOC facility, maintaining the EOP and related documents (excluding the Emergency Action Plans), and assuring staff is properly trained at Valley Water is a responsibility of Emergency Services & Security Unit (ES&S). ES&S supports the Management and other EOC Sections during an activation with guidance on procedures, related materials and emergency forms (e.g., ICS Form 214 – Activity Log).

Public Information Officers (PIOs) are staff assigned to the Management Section and are typically staff from the Valley Waters Office of the Chief of External Affairs. As an event unfolds there is a constant need of notifying the public of conditions and what to do. The PIOs are responsible for identifying with whom to communicate, creating the message, and specifying the format and method of communication to deliver the message to the public and stakeholders.

The PIOs from Valley Water and from each involved Stakeholder Agency will follow the checklists and responsibilities identified in their EOPs. This EAP does not change that responsibility or override the tasks outlined in the EOP.

PIOs should coordinate to create a common message to avoid confusing the public, which can occur when each of the agencies sends out disparate messages. They should also communicate on methods and multi-lingual needs to sending out messages that may be accomplished through use of the Alert Santa Clara County (AlertSCC), Integrated Public Alert & Warning System (IPAWS), deployment of Long Range Acoustic Devices, door to door contact with volunteers or employees, or other methods.

During an event requiring a significant about of coordination, the PIOS should consider the establishment of a Joint Information System (JIS) or Joint Information Center (JIC).

Elected Officials have important public and policy functions during the Watch and Warning stages of emergencies, but they should not be involved in the details of an emergency response. To assist them in their function, Valley Water PIO or other Management Section assigned liaison staff will be directed to contact and keep them informed of the situation and provide them with appropriate public messaging. If Elected Officials are in contact with affected constituents and receive pertinent information, they should convey that information to the EMO (e.g., EOC) through PIO or their assigned liaison staff.

b. Planning/Intelligence

In an emergency, it can take some time for an agency to (1) ascertain what has happened, (2) what is likely to happen, and (3) what areas and/or systems are affected. The SEMS and NIMS function of Planning/Intelligence helps gather and validate information and thereby fulfill the need for intelligence. In the early readiness levels of an emergency, Planning/Intelligence Section may be combined under one person who may also be filling other functions (e.g., Operations). As an

emergency response grows and additional staff are required it should be separated from other functions and all associated responsibilities transferred to the appropriate Section. Below are some of the responsibilities of Planning/Intelligence.

(1) Documentation

All activity and actions will be documented as best as possible using standard forms available at the EOC Facility (e.g., ICS Form 214 Activity Log or similar form). The use of status boards is encouraged to clearly communicate information to EOC personnel.

(2) Situation Status

The **Subject Mater Experts (SMEs)** consolidate all intelligence and provide Situational Awareness regarding weather forecasts, damage assessments, flooding reports, traffic conditions, etc. This is accomplished through reports, documentation on status boards and/or maps, and is conveyed through an Action Plan (AP). The AP may be verbal at the Monitoring stage of operations. When the EOC is activated at a Watch or Warning Operational Level, an AP for a specified operational period should be written (may be documented using ICS Form 202 or other standard form in the EOC Facility). For Valley Water, staff from the **Hydrology, Hydraulics & Geomorphology Unit (HH&G)** are generally assigned this function in the Planning/Intelligence Section, but staff from other units may also be assigned to serve as SMEs.

(3) Agency and Resource Status

Determining what agencies have accomplished and what they may need includes identifying what personnel and resources have been deployed, the prevailing condition, the need for mutual aid, and tracking other resource demands or similar requests.

(4) Notification

The Planning/Intelligence activities accomplished by the SMEs lead to the appropriate notification of Stakeholders as described in Section 3, Mobilization of EAP.

c. Operations

Staff from Valley Water's Watersheds Field Operations Unit (WFOU) are often the first responders to flood events in the field and will initiate the ICS by assigning an Incident Commander (IC) for the area of concern. WFOU or Operations & Maintenance Engineering Support Unit (O&MES) will generally open a Department Operations Center (DOC) to coordinate the response. The IC will notify their DOC and, if activated and

appropriate, the Valley Water Emergency Operations Center (EOC) of activities and conditions in the area.

Operations Section and sometimes Planning/Intelligence Section will deploy Field Information Teams (FITs) to observe and inspect facilities. The FIT provides critical “boots on the ground” information and intelligence back to the EMO (e.g., EOC/DOC) on facility conditions and storm related concerns.

- *FIT Personnel*: These may be personnel assigned to the Operations Section or Planning/Intelligence Section in their respective EMO. Or these may be staff in the field conducting operations and maintenance related activities as part of the ICS. HH&G manages a Valley Water FIT program and maintains a current master list of “hotspots” for deployments in preparedness for severe storm and high flow events.

- *FIT Authority includes*: Provide field intelligence to their EMO, EOC Section Leader or their organizational supervisor/manager. Take actions that would mitigate risks only if capable and appropriate.

d. Logistics

As the incident unfolds and resources respond to the prevailing conditions, skilled or scarce resources will be tapped-out and require backfill, replacement or additional support. The support can come in the form of mutual aid assistance, contractors, vendors, or other sources. Resource requests will be noted and coordinated as much as possible through the EOCs or DOCs. The method of request, including any related form, will be coordinated with the Agency fulfilling the need. If resources cannot be met by local stakeholders, a request for assistance can be sent to the Santa Clara County Operational Area.

e. Finance

Acquiring resources or entering into procurement contracts or mutual aid agreements may require financial actions. In addition, the costs associated with an event should be documented for potential future reimbursements. This is especially the case as resources from one Agency are shared with another Agency. This use of equipment, personnel or other resources may be reimbursable, based upon agreement.

C. PROGRESSION

There are general responsibilities for each flood readiness level that are recommended. Responsibilities and activities listed in Table 2 demonstrate how the Valley Water and other Stakeholders functions grow from Pre-Incident Preparedness to Monitoring, Watch, and Warning. The overall change in level of participation, number of participants, and staffing needs is incident specific, because not all potential or actual incidents are the same and availability of resources can vary.

The list of progressive responsibilities and activities listed in Table 2 are not intended to be all-inclusive or to commit resources without knowledge of the conditions that may occur, nor are they intended to be a prescriptive list of what to do before and during storm and flood monitoring and response. The actual conditions dictate the response needs and availability of staff and resources as each situation can be different and updates in stream management and control systems could vary the conditions.

TABLE 2
Progressive Responsibilities

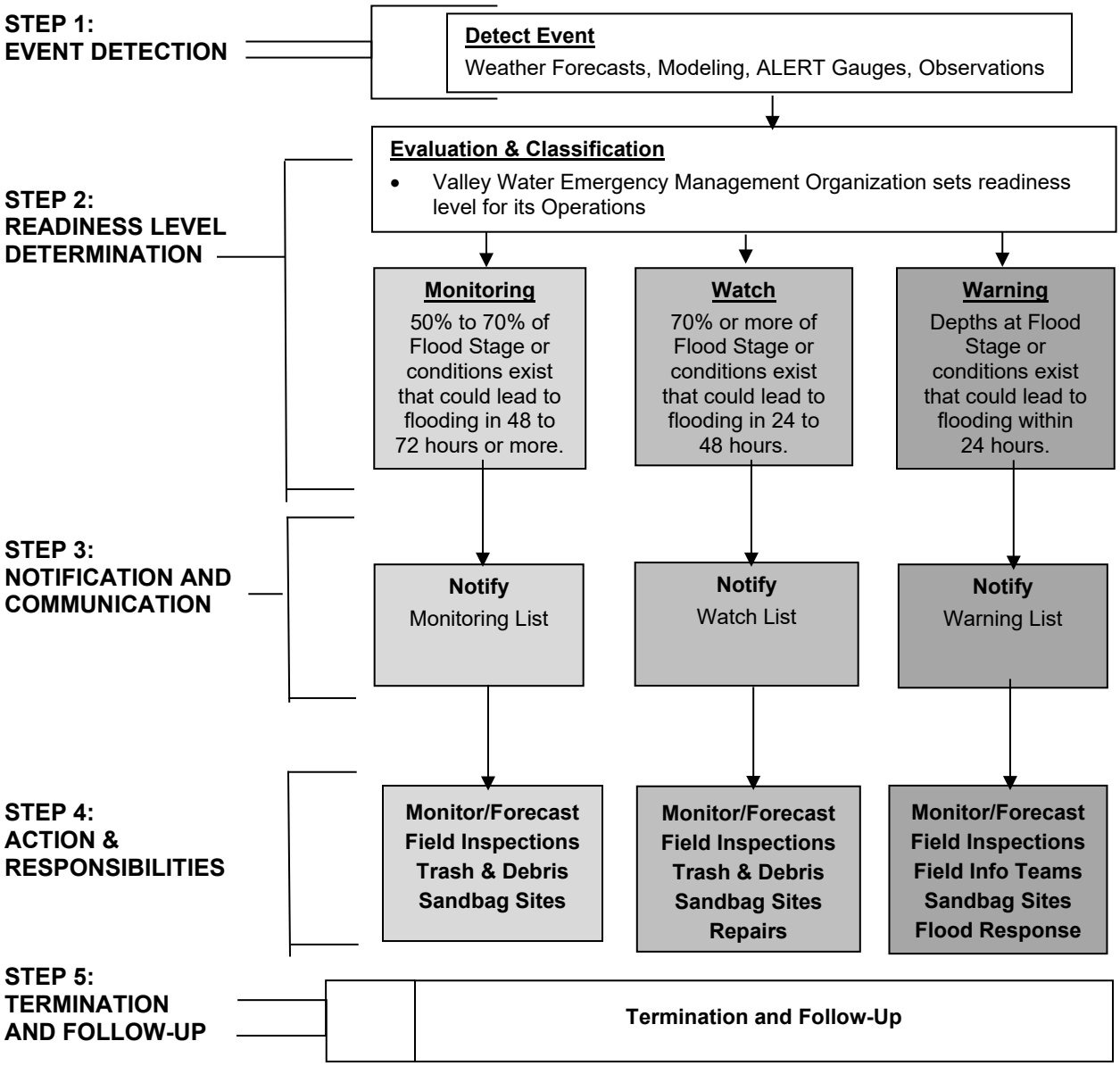
	Responsibility/Activity	Stakeholder/ Personnel/Unit*
Preparedness	Provide policy level guidance.	Elected Officials (City Council and Board of Directors)
	Provide organization-wide leadership to improve the ability to articulate and identify risks and respond to emergencies	Executive Management
	Assess a situation or event and decide whether to activate EOC, monitor the situation or to remain in preparedness ("business as usual").	Emergency Management Organization (e.g., executive leadership)
	Train & Exercise EOP/EAP and document any outcomes in an After-Action Report (AAR).	Office of Emergency Services (OES)
	Annual review and update of EAP.	O&M, OES, HH&G
	Maintain and update EOC equipment and facilities	OES
	Coordinate meeting of leadership to assess a situation and document and decisions.	OES
	Conduct winter preparedness workshop.	OES
	Meet with Stakeholders as appropriate to discuss property management needs and plans.	Operations & Maintenance (O&M)
	Conduct field inspections of creeks and facilities.	Operations & Maintenance Engineering Support (O&MES)
	Perform mitigation work to reduce flood risk.	O&M, Watersheds Design & Construction Unit
	Inventory and Procure Flood Fighting Materials and Equipment (Attachments 11 & 12).	WFOU, VFOU, General Services Division
	Identify location for flood fighting resources for the public (e.g., sandbag locations shown in Attachment 7).	O&MES & VFOU
	Support & Coordinate with FEMA Floodplain Managers who maintain the National Flood Insurance Program Community Rating System certification.	Community Projects Review Unit and Office of Civic Engagement
	Coordinate, as members of the National Flood Insurance Program, on updates or modifications to FEMA floodmaps.	City Stakeholder, Community Projects Review Unit and Office of Civic Engagement
	Develop and maintain computer models of watersheds and creeks.	Hydrology, Hydraulics & Geomorphology (HH&G)
	Provide technical floodplain mapping expertise and provide a copy of flood maps on a Valley Water internal drive that can be accessed by appropriate personnel as necessary.	HH&G

	Responsibility/Activity	Stakeholder/ Personnel/Unit*
Preparedness	Maintain equipment, gauges, telemetry, communications systems, etc.	HH&G, City Stakeholder
	Prepare Field Information Teams (FITs) and maintain FIT Hot Spot information.	HH&G
	Manage flood information websites (Attachment 13).	Office of Communications (OC), & Stakeholders
	Publish Preparedness Public Outreach (e.g., Winter Preparedness) in multiple languages.	OC, City
	Provide public education in multiple languages.	OC, City
	Update and maintain Emergency Public Communication Plan and notification systems	OC, City
	Implement and enforce building codes for structures in the floodplain.	City
Monitoring	Assess the event and set readiness level at “Monitoring” and meet periodically to monitor the situation.	Valley Water Emergency Management Organization (EMO)
	Coordinate periodic meetings of Valley Water EMO to monitor the situation.	OES
	Brief the CEO and Board of Directors about the situation/event as needed.	OES
	Communicate with other agencies to discuss readiness level.	OES
	Coordinate Field Information Teams (FIT) and deploy as appropriate.	HH&G
	Update computer modeling based on forecast and watershed conditions and provide a copy of flood maps on a Valley Water internal drive that can be accessed by appropriate personnel. If possible and deemed necessary, provide forecast flood maps to Agency Stakeholders.	HH&G
	Participate in informational calls/meetings with National Weather Service and Stakeholders.	HH&G, OES
	Implement priority actions to inspect and clean Trash Racks, Bridge Pier Noses, and Tide Gates.	O&M
	Respond to, and mitigate, minor events as needed (examples of remedial actions are listed in Attachment 2); coordinate with each responding agency.	O&M
	Maintain inventory of sandbags at locations shown in Attachment 7.	VFOU
	Respond to equipment needs at localities likely to be affected if possible; coordinate with each responding agency.	WFOU
	Evaluate funding available and advise as needed	Financial Planning & Management Services Division
	Begin tracking costs associated with event.	Financial Planning & Management Services Division
	Coordinate public information between stakeholders	City, OC
	Provide public education in multiple languages.	OC and City Stakeholders
	Provide information to Elected Officials.	EOC Management-PIO

	Responsibility/Activity	Stakeholder/ Personnel/Unit*
	Monitor Stream Gauges.	HH&G
	Review evacuation planning needs.	City Stakeholder and County
	Report to Agency Stakeholder EOC when directed and available.	EOC Planning/Intelligence or Operations
Watch	Activate the EOC and determine what level and how to activate.	Valley Water EMO
	Assess situation and set readiness level for "Watch."	EMO (includes EOC Director)
	Establish and maintain communications with Policy Group, Operational Area, and appropriate Stakeholders.	EMO or EOC Director
	Establish incident response and priorities for Action Plans during each operational period.	EOC Director
	Provide information to and from respective EOC's, including status reports and briefings.	EOC Management
	Report to Agency Stakeholder EOC when directed and available.	Agency Representative, Planning/Intelligence, Operations
	Brief and communicate risk to elected officials.	EOC Management-PIO/Liaison
	Update website to show readiness level.	PIO
	Activate other public notification systems (e.g., Alert SCC, Facebook, Nextdoor), as appropriate.	City Stakeholder is lead.
	Activate Joint Information System (JIS) and, if necessary, Joint Information Center (JIC) as appropriate.	City Stakeholder or County is lead.
	Participate in JIS/JIC if activated.	EOC Management-PIO
	Communicate with media as needed.	PIO, JIS/JIC or each Stakeholder PIO is lead for own agency activities.
	Deploy public notification systems as appropriate.	City
	Begin planning for evacuations and shelter support if appropriate.	City
	Confer with Stakeholders to determine response coordination and resources needs.	Planning/Intelligence or Operations
	If appropriate, evaluate possible recommendations for City storm pump station operating changes and communicate with City.	Planning/Intelligence and Management
	Prioritize actions to mitigate flood threats as needed (examples of remedial actions are listed in Attachment 2	O&M
	Respond to equipment needs at localities likely to be affected and, if possible, coordinate with each responding Agency Stakeholder.	EOC Operations and/or O&M
Warning	Set level of readiness at "Warning."	EMO (e.g., EOC Director)
	Evaluate need and implement evacuation and shelter support.	City EOC and/or County EOC is lead.
	Coordinate resources/mutual aid through respective EOCs.	EOC Management or Logistics
	Deploy and coordinate Field Information Teams (FIT).	O&MES/HH&G
	Monitor Stream Gauges.	HH&G
	Provide forecast flood maps if possible.	HH&G

	Responsibility/Activity	Stakeholder/ Personnel/Unit*
Warning	Provide public warning and shelter information in multiple languages.	City is lead. County is key support.
	Activate other public notification systems (e.g., Alert SCC, Facebook, Nextdoor, door to door/mobile for warning) as appropriate.	City Stakeholder EOC Management-PIO is lead.
	Activate Joint Information System (JIS) and, if necessary, Joint Information Center (JIC) as appropriate.	City Stakeholder or County is lead.
	Participate in JIC/JIS if activated.	EOC Management-PIO
	Communicate with media as needed.	JIS/JIC or each Stakeholder is lead for own agency activities.
	Provide information to and from respective EOC's, including status reports and briefings.	EOC Management
	Proclaim Local Emergency as appropriate.	City Stakeholder is lead.
*If only one Stakeholder is noted as lead, other Stakeholders/Personnel/Units may support the effort.		

D. EMERGENCY ACTION PLAN OVERVIEW



E. EMERGENCY ACTION PLAN MOBILIZATION

While the primary purpose of this EAP is to provide guidance to Valley Water during emergencies, the EAP is in a state of perpetual activation, throughout the year, regardless of the condition. For a majority of the time, Valley Water and City operations are focused on preparedness. Preparedness is critical to reduce the risk of flooding and during this period, Valley Water and City perform activities consistent with their jurisdictional responsibilities. Table 2 describes some of the activities performed by Valley Water and City's during the preparedness readiness level.

As conditions progress, there are four general steps to determine the readiness level.

Step 1: Event Detection

Several detection methods can be utilized in the West Valley Watershed that include weather forecasts, hydrologic/hydraulic modeling, Automated Local Evaluation in Real Time (ALERT) stream/reservoir/precipitation gauge systems, and field observations. Some of these detection methods are available through websites that are listed in Attachment 13.

a. Weather Forecasts

The National Weather Service (NWS) provides weather (e.g., precipitation) forecasts in advance of storm events and Valley Water contracts with a service provider for enhanced forecasting.

During storm events, the NWS will host webinars with affected agencies and utilities to discuss forecasts and share information to enhance regional preparedness. The Valley Water and Agency Stakeholders can participate in these webinars and share all current information. In addition, the NWS maintains websites (Attachment 13) that provide forecasts and will issue public notices of forecasted flood threats on local television and radio programming.

b. Hydrologic/Hydraulic Modeling

If forecasts show a heightened possibility of flooding, it is possible that Valley Water will run hydrologic and hydraulic modeling to determine risk and impact areas for a specific storm event.

c. Gauge System

A listing of all Valley Water gauges and a United States Geological Survey gauge on Saratoga Creek can be found at http://alert.valleywater.org (links are listed in Attachment 13). Valley Water's Automated Local Evaluation in Real Time (ALERT) system can set alarms to automatically notify appropriate staff at predetermined stages. These gauges and alarms provide data in near real-time and can provide extra warning to determine the level of threat for flooding.

d. Visual Observations

As water levels increase in the creeks, rivers, and waterways, visual observations are an important tool. Valley Water has installed Webcam at locations to remotely monitor field conditions (https://valleywateralert.org/scvwd/webcams/watersheds.php). In addition, Field Information Teams (FITs) are deployed to visually monitor and report back to an EMO the rate of increase in areas of potential flooding. FITs monitor facilities for potential damage, identify surface drainage issues, thoroughly document actual flooding, and report landslides/erosion affecting the adjacent land uses.

The Valley Water and, in some cases, other Stakeholders have individual teams in the field to observe flood conditions at "hot spots." Deployment of these teams should be coordinated so that personnel are used most efficiently and effectively. HH&G maintains a master list of flooding hotspots to deploy FITs and other teams (Attachment 14).

Operations & Maintenance staff are also typically in the field inspecting and repairing facilities during storm events. These personnel should also provide intelligence back to their agencies EOC/DOC regarding facility conditions and any storm related concerns.

In addition, the public may be helpful in reporting situations that may pose a flood threat. These are typically reported to Valley Water, City Stakeholder or other stakeholder who should promptly relay that intelligence to the EMO or to Valley Water through a contact method shown below:

- Main Valley Water telephone – (408) 265-2600
- After hours telephone – (408) 395-9309
- Valley Water website report problems – https://www.valleywater.org/contact-us or https://access.valleywater.org/s/
- Non-Emergency Police & Fire dispatch – 311
- Emergency Police & Fire dispatch – 911

All together the intent of these observations is to cover the following:

(1) Visual stream gauges—check for high water and rate of change
(2) Known Flood Hot-Spots
(3) Real-time Flooding—report and document flooding
(4) Bridge Piers—check for debris blockages
(5) Trash Racks—check for debris blockages
(6) Levees and Floodwalls—check for damage and stability
(7) Sandbag sites—check for supply and access issues
(8) Previously repaired or other project sites—check for performance
(9) Bank Stability—check for threats to adjacent land uses

Step 2: Readiness Level Determination

Evaluation—After detecting and gathering adequate intelligence regarding the situation, an evaluation of waterway conditions must be performed by appropriate personnel. The personnel evaluating the intelligence will generally be one or more SMEs that will generally include staff from O&M and HH&G. SMEs evaluation of intelligence information will be shared with an EMO with appropriate management staff for decisions on actions and establishing readiness levels.

Classification—The EAP is always active, however, after detection of an unusual event the readiness level may be changed. If the EOC is not active, **Valley Water will convene an Emergency Management Organization (EMO) that includes executive leadership to determine whether and how to activate the EOC.**

Based on a technical evaluation of the intelligence detected by SMEs that the threat exists, they may recommend to that the EMO monitor the situation over a general area or for a specific creek and location. If a specific creek is being assessed the recommendation for monitoring or activating the EOC would be based on facility specific thresholds detailed in an Appendix of the EAP or situations as described in Attachment 1. These thresholds are consistent with Flood Severity Levels used by the National Weather Service as shown in Table 3.

If the EOC is activated, the readiness level of either Watch or Warning would be set by the EMO (EOC Management) based on all intelligence gathered.

The decision for a change in readiness level from Preparedness to Monitoring is made at a meeting of Valley Water EMO. If they determine that the EOC should be activated, the EOC Director, as part of the EMO, will take the lead to determine whether to set the readiness level at Watch or Warning.

TABLE 3
Flood Severity Levels

Action (Yellow)	An established gauge height which when reached by a rising stream, lake, or reservoir represents the level where action is taken in preparation for possible significant hydrologic activity.
Minor Flooding (Orange)	Minimal or no property damage, but possibly some public threat (e.g., inundation of roads).
Moderate Flooding (Red)	Some inundation of structures and roads near stream, evacuations of people and/or transfer of property to higher elevations.
Major Flooding (Purple)	Extensive inundation of structures and roads, significant evacuations of people and/or transfer of property to higher elevations.

Step 3: Notification and Communication

After the readiness level has been determined, appropriately communicating the situation to responsible agencies, staff, and other identified individuals and groups is critical. Depending on the readiness level, responsibilities for notifications and who is notified would vary. During a monitoring condition, the Emergency Operation Center

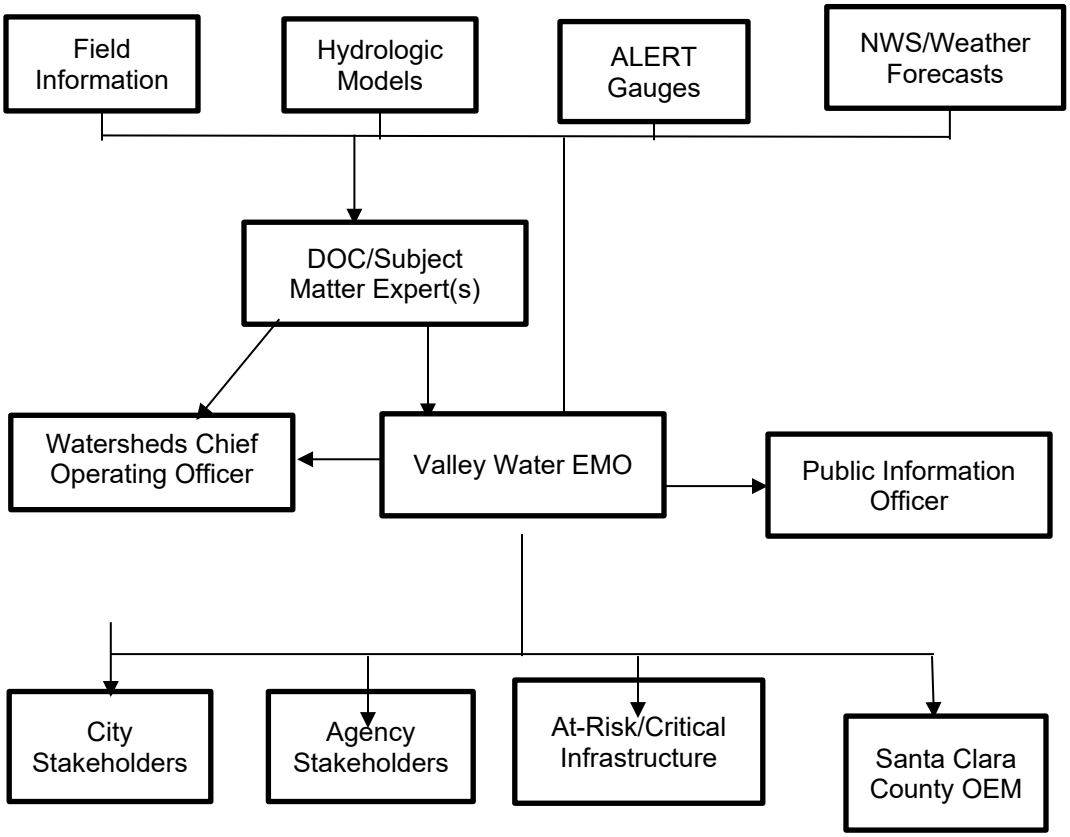
would not be open or only minimally staffed and the DOC may not be activate, however, SMEs and/or Operations may be very active as part of the Emergency Management Organization (EMO). Valley Water's list of entities that may be provided information by Emergency Services or notifications of the readiness level and event severity could include:

- Internal Valley Water staff;
- City Stakeholders;
- County of Santa Clara Office of Emergency Management;
- Other Agency Stakeholders;
- Valley Water Elected Officials;
- Important Facilities and Infrastructure at risk of flooding, such as, schools, medical, governmental facilities or businesses;
- Public (Generally Valley Water is in a support role to the City Stakeholder during events); and
- Impacted businesses and residents (Valley Water is typically in a support role to City Stakeholders).

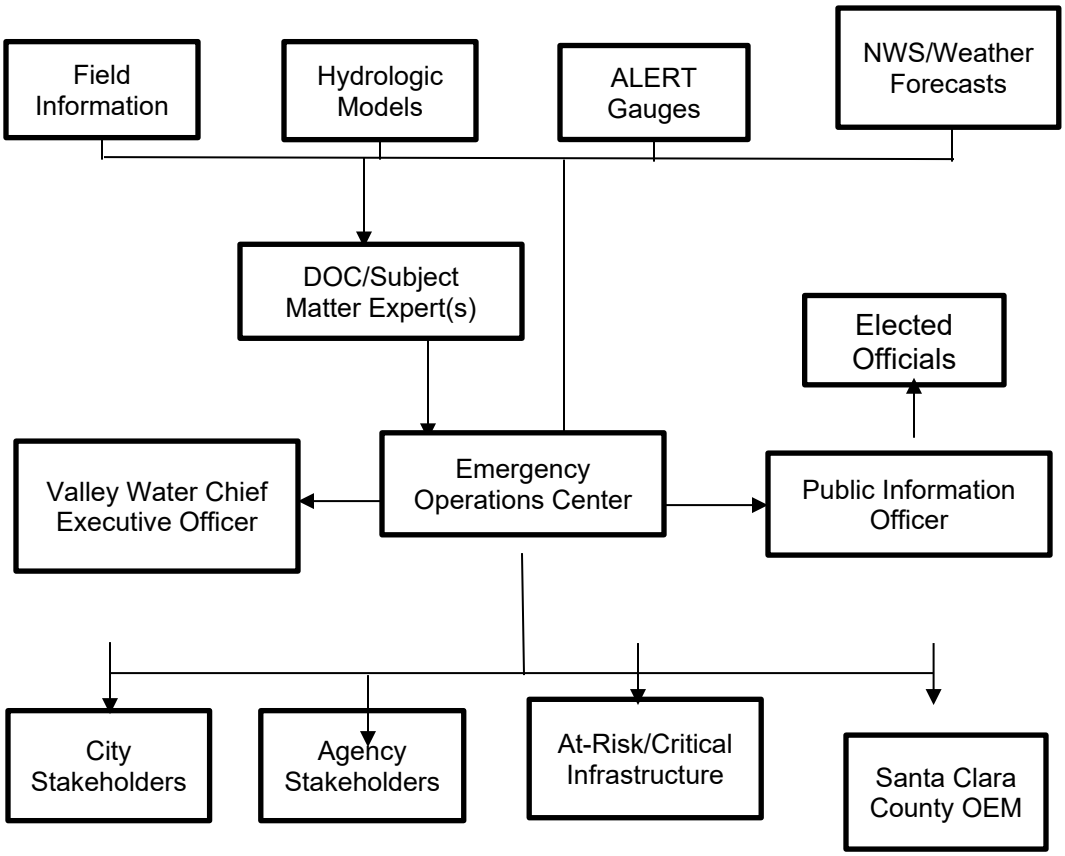
In addition, the readiness level and severity should be reflected on the Valley Water website which should strive to be consistent with website information and public notifications provided by the City Stakeholders and NWS.

The following are charts showing the flow of information and notifications for the three flood threat readiness levels and the contact list is in Attachment 9 – Emergency Services Contact List and Attachment 10 – Valley Water Emergency Responders Contact List.

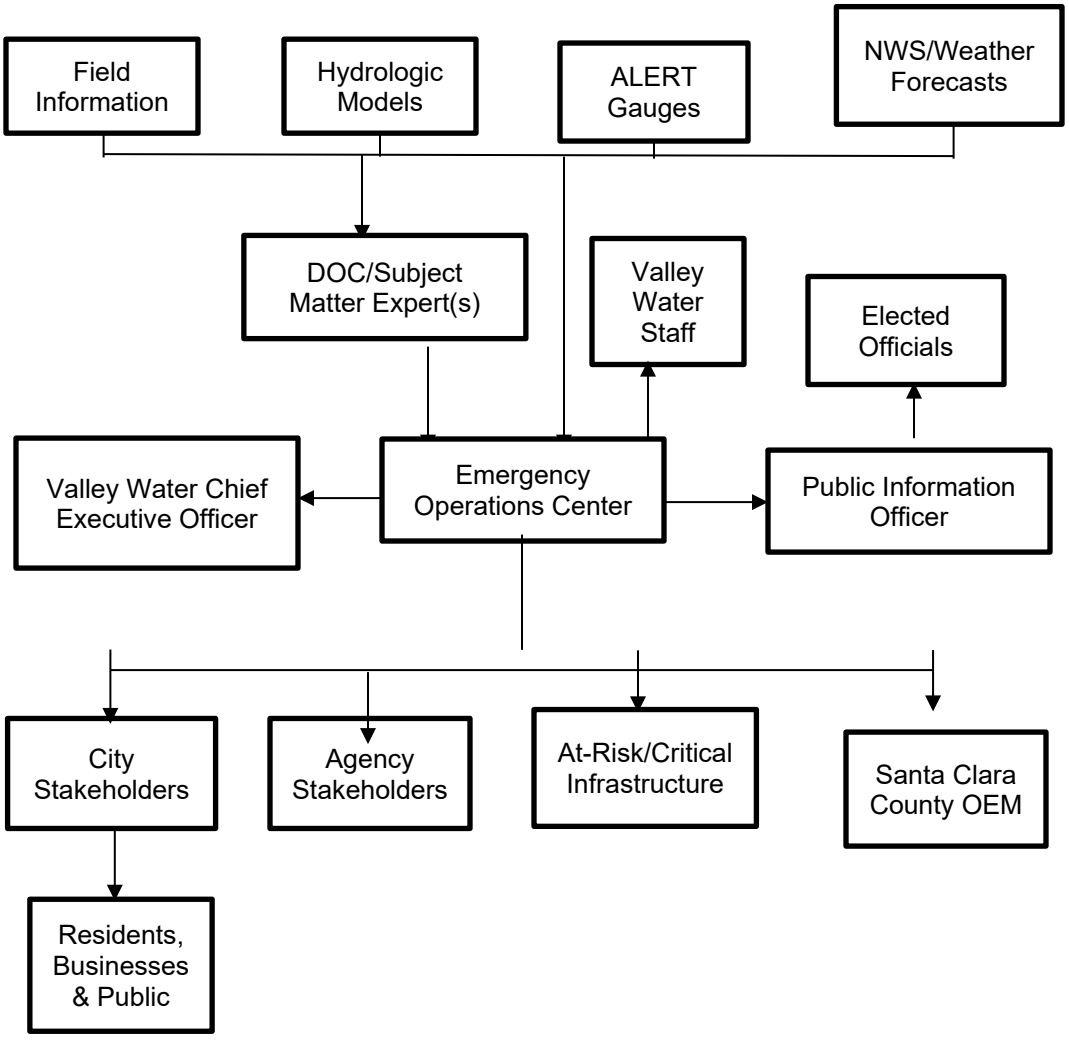
Monitoring Level Information/Notification Flow



Watch Level Information/Notification Flow



Warning Level Information/Notification Flow



External emergency services contacts are listed in Attachment 9 and Valley Water emergency responders are listed in Attachment 10.

Step 4: Actions & Responsibilities

The readiness level is considered in the Preparedness level as a standard operational practice. After an unusual or emergency event is detected, the Valley Water leadership will assess the situation and determine whether to activate the EOC. If activated, the EOC Director decides on the readiness level. All meetings and decisions of the Valley Water leadership (Emergency Management Organization) will be documented by OES.

At each readiness level, there are actions and responsibilities for Valley Water personnel (described in the Concept of Operations Section). Progressive responsibilities are described in Table 2.

The Incident Commander or Watersheds Field Operations staff will take action to mitigate the event as appropriate. Examples of emergency remedial actions that could be taken to mitigate the event are provided in Attachment 2 – Emergency Remedial Actions.

Step 5: Termination and Follow-Up

After this EAP has been activated at a level of Monitor, Watch or Warning and then returned to Preparedness, EAP operations must be terminated and follow-up procedures completed.

a. Termination Responsibilities

In a Watch or Warning, the EOC Director, is responsible for terminating EAP operations and directing that this decision is relayed to each person notified during the original event.

EOC Management will ensure that all forms for Action Planning, Situational Reports, or others utilized during the event are collected and organized chronologically as determined appropriate. If electronic documentation was utilized, these could be saved on a storage device that could be retrievable or could be printed and saved as a hard copy in the file.

b. Follow-Up Responsibilities

The Operations & Maintenance Engineering Support Unit (if DOC is activated), or the Emergency Services & Security Unit (if EOC was activated), will prepare an After-Action Report (AAR) of the event and will track implementation of appropriate recommendations in the AAR.

The City or other stakeholders will be responsible for damage assessment to homes and businesses and any permit requirements required to reoccupy structures and to promote flood mitigations measures during any reconstruction.

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ATTACHMENT 1
Guidance Table for Evaluating Facility During High Flow and Determining the Readiness Level

EVENT	SITUATION	READINESS LEVEL*
Bank Erosion	Erosion scour that is threatening a facility but is stable (i.e., scour is not getting bigger).	Monitor
	Erosion scour during high flows that is threatening a facility (e.g., a bridge) that if allowed to continue, could result in failure of facility.	Watch
	Erosion scour that is threatening a structure on an adjacent property during high flows.	Watch
	Erosion scour during high flows that has caused or will cause a blockage in the creek that will produce flooding.	Warning
Boil/Seepage	Seepage area with clear water discharging less than 1 gallon per minute.	Monitor
	Seepage area with cloudy water or increasing rate.	Watch
	Seepage area with discharge greater than 10 gallons per minute.	Warning
Levee Damage	New cracks in embankment greater than ¼ inch without seepage.	Monitor
	Slippage or erosion scour of levee bank during high flows.	Monitor
	Cracks in levee with seepage discharging less than 1 gallon per minute.	Watch
	Cracks in levee with seepage discharging more than 1 gallon per minute.	Warning
	Sudden or rapid slumping or scour on levee slopes.	Warning
Stage at ALERT or Visual Stream Gauge	Water depth corresponds to 50% capacity.	Monitor
	Water depth corresponds to 70% capacity.	Watch
	Water depth at or greater than top bank.	Warning
Downed trees in creek channel	Downed tree, high flows; could collect debris, redirect flow, or move downstream.	**Monitor**
	Downed tree, high flows; redirecting flows causing bank scour or obstructing flow creating backwater effect.	**Watch**
	Downed tree causing flooding.	**Warning**
Bridge/Pier nose blockage	Debris build up that could affect forecast flows or is affecting flows but water receding.	**Monitor**
	Debris build up affecting flows with increased flows forecast or more debris collecting, threatening to block flow under bridge/culvert.	**Watch**
	Debris build up obstructing flow backing up water and will overtop banks or is already flooding.	**Warning**
Embankment overtopping	Creek level is within 1 foot of top of bank.	**Watch**
	Creek level is overtopping bank.	**Warning**

EVENT	SITUATION	READINESS LEVEL*
Sabotage/Vandalism	Facility or levee damage that could adversely impact flows.	**Monitor**
	Facility or levee damage that is affecting flows or causing minor leakage in levees or significant levee damage during low flows.	**Watch**
	Facility damage that is blocking flows that will result in flooding or levee damage that will likely result in failure or has failed during high flows.	**Warning**
Earthquake	Magnitude 6.0 or greater within 50 miles of creek with flows below 70% of capacity and not expected to rise.	**Monitor**
	Magnitude 6.0 or greater within 50 miles of creek with flows below 70% of capacity with visible damage to bridges, facilities, or levee movement or cracking.	**Watch**
	Magnitude 6.0 or greater within 50 miles of creek with damage to levees or facilities that are affecting flows, bridge failure, levee cracking or leaking or movement but minor risk of flooding.	**Watch**
	Magnitude 6.0 or greater within 50 miles of creek with damage to levees or facilities that are affecting flows, bridge failure, levee cracking or leaking or movement when flows are above 70% of capacity or forecast to be rising.	**Warning**

*Table 1 of EAP describes the flood readiness levels.

ATTACHMENT 2
Emergency Remedial Actions

If time and conditions permit, the following emergency remedial actions should be considered for emergency situations. Immediate implementation of these remedial actions may delay, moderate, or prevent flooding. Several of the listed adverse or unusual conditions may occur along the creek at the same time, requiring implementation of several modes of remedial actions. Close monitoring of the creek must be maintained to confirm the success of any remedial action taken along the creek.

BANK EROSION

1. If the erosion is threatening public health and safety and water is no longer rising with stream velocity is low enough, erosion scour may be filled with rock, sandbags, plastic sheeting or materials to prevent further loss of soil.

BOILS OR SEEPAGE BEHIND LEVEE OR FLOODWALL

1. Monitor creek level and seepage flow until seepage stops.

2. Inspect slopes to determine if the entrance to the seepage origination point is visible (whirlpool) and accessible. Attempt to plug entrance with readily available material such as soil, rockfill or plastic sheeting if conditions are safe.

3. Cover the seepage exit area (s) with sand or gravel to hold fine-grained soils in place. Alternatively, construct a sandbag or other type of ring dike around the seepage exit area to retain a pool of water, providing backpressure and reducing the erosive nature of the seepage.

4. Do not drive vehicles or equipment between the seepage area and the creek to avoid collapse of any underground voids.

LEVEE DAMAGE

1. Settlement of crest may be filled with sandbags or earth and rockfill materials in the damaged area to restore freeboard.

2. Sloughing may be stabilized by placing a soil or rock filled buttress against the toe of the sloughing.

EMBANKMENT OVERTOPPING

1. If water level is no longer rising, place sandbags along the low areas of the top of the bank/levee to reduce flow concentration during minor overtopping.

2. Assess whether to recommend reduction in operation of storm drain pump stations that may impact the area of overtopping (e.g., pump stations upstream of overtopping).

DOWNED TREES/BLOCKAGE

1. Where it is safe to do so, clear debris and downed trees that pose a threat to obstructing flow. Clear bridge pier noses and trash racks.

EARTHQUAKE

1. Immediately conduct a visual inspection of the levees if a magnitude 6.0 or greater earthquake occurs within 50 miles of Santa Clara County.

2. If time allows, perform a field survey to determine if there has been any settlement or movement of levees.

3. Visually inspect creek for any movement or damage along the creek including creek banks, outlets, bridges, access ramps.

ATTACHMENT 3
Management Action List

- Management is generally the lead of the Emergency Management Organization that is responsible for deciding on readiness levels and EOC activation. In the early EOC activation stages, the level of Management Section staffing may be a Unit Manager filling the position of EOC Director At the Warning activation level the Management Section staff serving as the EOC Director would likely be a Chief Operating Officer.

- Management Section has the authority to assign resources and implement Action Plans that are developed under their oversight.

- Staff assigned and directed by Management Section may be provided with specified authorities to act as their delegate unless they are filling another EAP personnel position (e.g., Planning/Intelligence).

PURPOSE:

- Serve in the Management Section roles in the DOC and/or EOC.
- Assure all sections are staffed and assigned adequate authorities to implement the EAP.
- Direct actions to facilitate the EAP.
- Allocate agency resources to address EAP as needed.
- Provide directives and affect emergency orders.
- City makes final decision on the level of their activation and on evacuation orders.

WHO DESIGNATED:

City	Valley Water
• City Manager • Assistant City Manager • Deputy City Manager	• Chief Operating Officer or delegate o Information Technology & Administrative Services o Watersheds o External Affairs o Water Utility

ACTIONS:

	Responsibility/Activity	Stakeholder*
Preparedness	Provide organization-wide leadership to improve the ability to articulate and identify risks and respond to emergencies	Executive Management
	Assess a situation or event and decide whether to activate EOC, monitor the situation or to remain in preparedness (“business as usual”).	Emergency Management Organization (e.g., executive leadership)

	Responsibility/Activity	Stakeholder*
Monitoring	Assess the event and set readiness level at “Monitoring” and meet periodically to monitor the situation.	Valley Water Emergency Management Organization (EMO)
	Periodic meetings of Valley Water EMO to monitor the situation.	EMO and Office of Emergency Services (OES)
	Brief the CEO and Board of Directors about the situation/event as needed.	EMO/OES
	Communicate with other agencies to discuss readiness level.	EMO/OES
	Evaluate funding available and advise as needed	Financial Planning & Management Services Division
	Determine whether to begin tracking costs associated with event.	EMO/Financial Planning & Management Services Division
	Review evacuation planning needs.	City Stakeholder and County
Watch	Assess situation and set readiness level for “Watch.”	EMO (includes EOC Director)
	Activate the EOC and determine what level and how to activate.	Valley Water EMO
	Establish and maintain communications with Policy Group, Operational Area, and appropriate Stakeholders.	EMO or EOC Director
	Establish incident response and priorities for Action Plans during each operational period.	EOC Director
	Provide information to and from respective EOC’s, including status reports and briefings.	EOC Management
	Report to Agency Stakeholder EOC when directed and available.	Agency Representative, Planning/Intelligence, Operations
	Brief and communicate risk to elected officials.	EOC Management-PIO/Liaison
	Begin planning for evacuations and shelter support if appropriate.	City
Warning	Set level of readiness at “Warning.”	EMO (e.g., EOC Director)
	Evaluate need and implement evacuation and shelter support.	City EMO and/or County EMO is lead.
	Coordinate resources/mutual aid through respective EOCs.	EOC Management or Logistics
	Provide information to and from respective EOC’s, including status reports and briefings.	EOC Management
	Proclaim Local Emergency as appropriate.	City Stakeholder is lead.

*If only one Stakeholder is noted as lead, other Stakeholders/Personnel/Units may support the effort.

ATTACHMENT 4
Planning/Intelligence Action List

- Planning/Intelligence Section documents and communicates Action Plans, maintains other information logs (e.g., Situation Summary form #209) related to the event and provides Subject Matter Experts.
- Staff filling the role are generally engineering or technical staff from Watersheds Stewardship & Planning Division or other technical divisions of Watersheds.
- Critical Subject Matter Experts are staff of HH&G that are responsible for the ALERT gauges, watershed modeling, floodplain mapping and flood/storm forecasts.

PURPOSE:

- Provide hydrological, geological and water way estimated assessments.
- Provide expertise on flood management operations and estimated impacts on critical infrastructure including utilities and transportation.

WHO DESIGNATED:

City Stakeholders	Valley Water

• Public Works
• Transportation
	• Watersheds Operations & Maintenance Division (O&M)
	  ○ O&M Engineering Support Unit (O&MES)
	  ○ Watershed Field Operations Unit (WFOU)
	• Watersheds Stewardship & Planning Division
	  ○ Hydrology, Hydraulics & Geomorphology Unit (HH&G)
	• Watersheds Design & Construction Division

ACTIONS:

	Responsibility/Activity	Stakeholder/ Personnel/Unit*
Preparedness	Participate in annual review and update of EAP.	O&M, OES, HH&G
	Participate in winter preparedness workshop.	Watersheds O&M and HH&G
	Support & Coordinate with FEMA Floodplain Managers who maintain the National Flood Insurance Program Community Rating System certification.	Watersheds Community Projects Review Unit
	Coordinate, as members of the National Flood Insurance Program, on updates or modifications to FEMA floodmaps.	City Stakeholder, Community Projects Review Unit and Office of Civic Engagement
	Develop and maintain computer models of watersheds and creeks.	Hydrology, Hydraulics & Geomorphology (HH&G)

	Responsibility/Activity	Stakeholder/ Personnel/Unit*
Preparedness	Provide technical floodplain mapping expertise and provide a copy of flood maps on a Valley Water internal drive that can be accessed by appropriate personnel as necessary.	HH&G
	Maintain equipment, gauges, telemetry, communications systems, etc.	HH&G, City Stakeholder
	Prepare Field Information Teams (FITs) and maintain FIT Hot Spot information.	HH&G
	Manage flood information websites (Attachment 13).	HH&G, Office of Communications (OC), & Stakeholders
Monitor	Participate in periodic meetings of Valley Water EMO to monitor the situation.	Watersheds HH&G
	Coordinate Field Information Teams (FIT) and deploy as appropriate.	HH&G
	Update computer modeling based on forecast and watershed conditions and provide a copy of flood maps on a Valley Water internal drive that can be accessed by appropriate personnel. If possible and deemed necessary, provide forecast flood maps to Agency Stakeholders.	HH&G
	Participate in informational calls/meetings with National Weather Service and Stakeholders.	HH&G, OES
	Monitor Stream Gauges.	HH&G
	Report to Agency Stakeholder EOC when directed and available.	Agency Representative, Planning/Intelligence, Operations
	If appropriate, evaluate possible recommendations for City storm pump station operating changes and communicate with City.	Planning/Intelligence and Management
Watch	Provide information to the EMO to raise level of readiness to “Watch”	Planning/Intelligence
	Provide leadership in development of EOC Action Plans	Planning/Intelligence
	Confer with Stakeholders to determine response coordination and resource needs	Planning/Intelligence
	If appropriate, evaluate possible recommendations for City storm pump station operating changes and communicate with City.	Planning/Intelligence and Management
Warning	Provide information to the EMO to set level of readiness at “Warning.”	Planning/Intelligence
	Evaluate need and implement evacuation and shelter support.	City EOC and/or County EOC is lead.
	Provide updated forecast flood maps if possible.	HH&G

*If only one Stakeholder is noted as lead, other Stakeholders/Personnel/Units may support the effort.

ATTACHMENT 5
Operations Action List

- Staff of Watersheds Operations & Maintenance Division are often the first to respond incidents and assign an Incident Commander before the EOC is activated.
- Operations Section coordinates deployment of Field Information Teams.
- Operations implements the field activities and other duties assigned in EOC Action Plans.

PURPOSE:

- Operations Section primary role is to respond to storm events and coordinate actions as appropriate between the Stakeholders to prepare and respond to related events. Recommend assignment of resources from their respective agency for comprehensive support to the storm conditions and storm related incidents.

WHO DESIGNATED:

City	Valley Water

EOC Operations Section staff for:
• Public Works
• Transportation
• Utilities
• Police
• Fire
• Parks, Recreation and Neighborhood Services
• Emergency Management
	• Watersheds Operations & Maintenance Division (O&M)
	  ○ Operations & Maintenance Engineering Support Unit (O&MES)
	  ○ Watershed Field Operations Unit (WFOU)
	  ○ Vegetation Field Operations Unit (VFOU)
	• Watersheds Stewardship & Planning Division
	  ○ Hydrology, Hydraulics & Geomorphology Unit (HH&G)
	• Watersheds Design & Construction Division

ACTIONS:

	Responsibility/Activity	Stakeholder/ Personnel/Unit*
Preparedness	Participate in training & exercises of EOP/EAP	O&M, HH&G
	Participate in annual review and update of EAP.	O&M, OES, HH&G
	Meet with Stakeholders as appropriate to discuss property management needs and plans.	Operations & Maintenance (O&M)
	Conduct field inspections of creeks and facilities.	Operations & Maintenance Engineering Support (O&MES)
	Perform mitigation work to reduce flood risk.	O&M, Watersheds Design & Construction Unit
	Inventory and Procure Flood Fighting Materials and Equipment (Attachments 11 & 12).	WSFOU, VFOU, General Services Division
	Identify location for flood fighting resources for the public (e.g., sandbag locations shown in Attachment 7).	O&MES & VFOU

	Responsibility/Activity	Stakeholder/ Personnel/Unit*
Monitoring	Assist in the assessment of the event by EMO to set readiness level at “Monitoring” and meet periodically with EMO to monitor the situation.	O&M
	Implement priority actions to inspect and clean Trash Racks and Bridge Pier Noses.	O&M
	Respond to, and mitigate, minor events as needed (examples of remedial actions are listed in Attachment 2); coordinate with each responding agency.	O&M
	Maintain inventory of sandbags at locations shown in Attachment 7.	VFOU
	Respond to equipment needs at localities likely to be affected if possible; coordinate with each responding agency.	WFOU
	Report to Agency Stakeholder EOC when directed and available.	EOC Planning/Intelligence or Operations
Watch	Assist EMO in assessing situation to set readiness level for “Watch.”	O&M
	Report to EOC and Agency Stakeholder EOC when directed and available.	Agency Representative, Planning/Intelligence, Operations
	Confer with Stakeholders to determine response coordination and resources needs.	Planning/Intelligence or Operations
	Prioritize actions to mitigate flood threats as needed (examples of remedial actions are listed in Attachment 2	O&M
	Respond to equipment needs at localities likely to be affected and, if possible, coordinate with each responding Agency Stakeholder.	EOC Operations and/or O&M
Warning	Assist EMO in assessing situation to set readiness level for “Warning.”	Operations
	Deploy and coordinate Field Information Teams (FIT).	O&MES/HH&G
	Monitor Stream Gauges.	HH&G
	Provide forecast flood maps if possible.	HH&G
*If only one Stakeholder is noted as lead, other Stakeholders/Personnel/Units may support the effort.		

ATTACHMENT 6
Field Information Team Action List

- Field Information Teams (FIT) are Valley Water staff who have either volunteered or have been assigned to be deployed in the field to make observations during storm and high flow events. They may be directed in their assignments by Operations, Subject Matter Expert from the Hydrology, Hydraulics & Geomorphology Unit (HH&G), FIT Coordinator (Attachment 10), or by the EOC Planning/Intelligence Section.

- Field Information Teams preferably have some knowledge or expertise relative to storms and flood events and ideally the location assigned.

- A Field Information Team is composed of at least two people who have been trained and adequately equipped and are generally trained and selected by HH&G.

PURPOSE:

- Visually identify and verify areas on the creek that need attention during storm and flood events.

- Provide real-time on-the-ground information to decision makers in the EOC.

- Document events with notes, logs, photos, drawing and maps that will be utilized after an event occurs for analysis, public meetings, planning studies, and documentation.

WHO DESIGNATED:

- Valley Water personnel

ACTIONS:

	Responsibility/Activity
Preparedness	Volunteer to be trained as a Field Information Team (FIT) member.
	Receive approval from immediate supervisor to be a FIT member.
	Receive training as a FIT.
	Provide current contact information to the FIT coordinator.
Monitoring	Report to the duty if called and available and go to assigned location(s). Generally assigned locations to observe the depth of water at the flood hot spots (e.g., Williams Road Trash Rack on San Tomas Aquino Creek).
	Report observations to the FIT coordinator or EOC.
	Document events as trained utilizing equipment provided.
	Notify FIT Coordinator or EMO if staff from another agency is assigned to the same location.

	Responsibility/Activity
Watch	Report to the duty if called and available and go to assigned location(s). Generally assigned locations to observe the depth of water at the flood hot spots (e.g., Williams Road Trash Rack on San Tomas Aquino Creek).
	Report observations to the FIT coordinator or EOC.
	Document events as trained utilizing equipment provided.
	Notify FIT Coordinator or EOC if staff from another agency is assigned to the same location.
Warning	Report to the duty if called and available and go to assigned location(s). Generally assigned locations to observe the depth of water at the flood hot spots (e.g., San Tomas Aquino Creek – Williams Road Trash Rack).
	Report observations to the FIT coordinator or EOC.
	Document events as trained utilizing equipment provided.
	Notify FIT Coordinator or EOC if staff from another agency is assigned to the same location.

ATTACHMENT 7
Public Information Officer Action List

PURPOSE:

- Provide public communications before, during and after a flood emergency.
- Prepare and coordinate public message between agencies
- Provide public notification.
- Communicate with Elected Officials

WHO DESIGNATED:

City	Valley Water

• Communications Director
• Designated city reps
	• Office of the Chief of External Affairs
	  ○ Office of Communications (OC)
	  ○ Office of Civic Engagement
	  ○ Office of Government Relations
	• Watersheds Stewardship & Planning Division
	  ○ Hydrology, Hydraulics & Geomorphology Unit (HH&G)

ACTIONS:

	Responsibility/Activity	Stakeholder*
Preparedness	Participate in Winter Preparedness Workshop.	Valley Water Emergency Services and Security Unit is lead and appropriate stakeholders participate.
	Participate in annual EAP review/exercise/updates; ensure public components of EAP are functional and up to date.	OC
	Publish Preparedness Public Outreach (e.g., Winter Preparedness).	OC
	Manage the information provided in the Valley Water website.	OC/HH&G
	Provide public education regarding flooding. Stakeholders should communicate and coordinate on outreach.	OC and City Stakeholder is lead for own agency resources.
	Update Emergency Public Communications Plan and notification systems.	City is lead. County is key support for warning.
Monitoring	Notify staff of own agency about the increased readiness level.	Each Stakeholder EMO is lead for their staff.
	Provide public education regarding flooding. Stakeholders should communicate on outreach.	OC and City Stakeholder collaborate and are lead to their constituents.
	Provide information to Elected Officials.	Each Stakeholder PIO is lead for own agency.

	Responsibility/Activity	Stakeholder*
Watch	Notify staff of own agency about the increased readiness level.	Each Stakeholder EOC is lead for own agency.
	Provide public information in multiple languages.	OC and City Stakeholder collaborate and are lead to their constituents.
	Provide public warning in multiple languages.	City is lead. County is key support.
	Deploy Long Range Acoustic Device or other public notification as appropriate.	City is lead.
	Provide information to Elected Officials.	Each Stakeholder PIO is lead for own agency.
	Activate Joint Information System (JIS) and if appropriate a Joint Information Center (JIC) as appropriate.	City Stakeholder or County is lead.
	Report to designated Joint Information Center (JIC) when directed, and available.	Each Stakeholder responds to designated JIC as available.
	Communicate with media as needed.	Each Stakeholder PIO is lead for own agency.
Warning	Provide public information in multiple languages.	OC and City Stakeholder collaborate and are lead to their constituents.
	Provide public warning and shelter information in multiple languages.	City is lead. County is key support.
	Activate JIS/JIC as appropriate to jointly communicate with media.	City Stakeholder or County is lead.
	Report to designated Joint Information Center (JIC) when directed, and available.	Each Stakeholder responds to designated JIC as available.
	Coordinate resources through respective EOCs.	Each Stakeholder EOC is lead for own resources.
*If only one Stakeholder is noted as lead, all other Stakeholders support the effort.		

GET FLOOD READY

- Develop an emergency plan.
- Put together your 3-day emergency kit.
- Download disaster emergency apps.
- Check if your home or business is in a FEMA Special Flood Hazard Area at **valleywater.org/floodready**.
- Get sandbags before a flood.
- Keep debris and trash out of streams.
- Get flood insurance ahead of time. Most property insurance policies, such as homeowner's insurance, will not cover flood damage. Visit **floodsmart.gov**.
- Don't drive through standing water. One foot of water is enough to float a vehicle away.
- Check with your city or county floodplain manager before you build.

¿Está preparado para las inundaciones?

- Elabore un plan de emergencia.
- Arme su kit de emergencia de 3 días.
- Descargue aplicaciones para emergencias durante desastres.
- Revise si su hogar o negocio se encuentra en un área especial de riesgo de inundación de FEMA en **valleywater.org/floodready**.
- Consiga sacos de arena antes de una inundación.
- Mantenga los escombros y la basura fuera de los arroyos.
- Obtenga un seguro contra inundaciones con anticipación. La mayoría de las pólizas de seguro, como el seguro del propietario, no cubren los daños que ocasionan las inundaciones. Visite **floodsmart.gov**.
- Comprenda los riesgos de las inundaciones poco profundas; no conduzca por agua estancada.
- Revise con el gerente de planicies aluviales de su ciudad o condado antes de construir.

Quý vị đã sẵn sàng ứng phó với ngập lụt chưa?

- Thiết lập một kế hoạch khẩn cấp.
- Tập hợp bộ dụng cụ khẩn cấp đủ dùng trong 3 ngày.
- Tải về các ứng dụng ứng phó thảm họa khẩn cấp.
- Kiểm tra xem nhà hoặc cơ sở kinh doanh của quý vị có nằm trong Khu vực đặc biệt có nguy cơ ngập lụt của FEMA hay không tại **valleywater.org/floodready**.
- Chuẩn bị các bao cát trước khi ngập lụt.
- Dọn sạch mảnh vụn và rác khỏi các dòng suối của chúng ta.
- Mua bảo hiểm lũ lụt trước. Hầu hết các hợp đồng bảo hiểm tài sản, chẳng hạn như bảo hiểm dành cho chủ sở hữu nhà, sẽ không bao trả thiệt hại do lũ lụt. Truy cập **floodsmart.gov**.
- Hiểu rõ các rủi ro ở vùng ngập nông không lái xe qua vùng nước đọng.
- Kiểm tra với viên chức quản lý vùng ngập lụt trên địa bàn thành phố hoặc quận của quý vị trước khi quý vị xây dựng công trình.

ValleyWater.org/floodready

您做好防洪准备了吗？

- 制定应急计划。
- 将3天应急包放在一起。
- 下载灾害应急应用程序。
- 在**valleywater.org/floodready**上确认您的住宅或商家是否位于FEMA特别洪水危险区。
- 在发生洪水之前准备好沙袋。
- 让碎屑和垃圾远离河流。
- 提前购买防洪险。大多数财产保险，例如业主保险，是不承保洪水带来的损失。访问**floodsmart.gov**。
- 切勿在积水中行车。一英尺深的洪水足以冲走一辆车。
- 建造之前，向市或县河漫滩管理者咨询。

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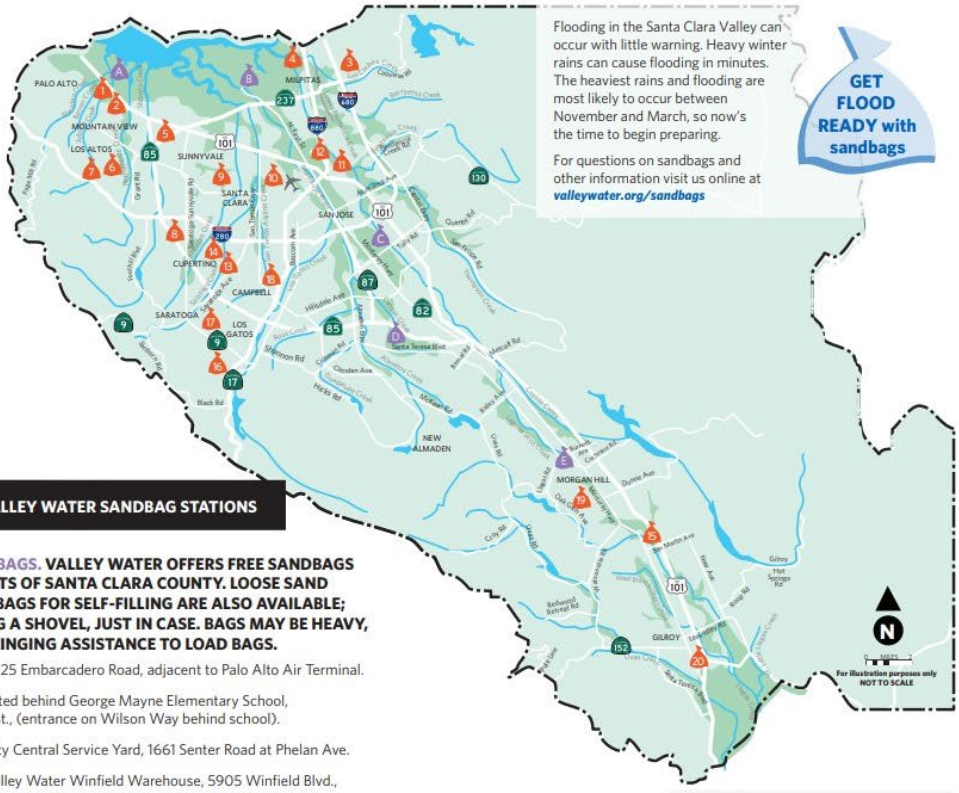
Valley Water

Sandbag Locations

Valley Water



VALLEY WATER SANDBAG STATIONS

FILLED SANDBAGS. VALLEY WATER OFFERS FREE SANDBAGS FOR RESIDENTS OF SANTA CLARA COUNTY. LOOSE SAND AND EMPTY BAGS FOR SELF-FILLING ARE ALSO AVAILABLE; PLEASE BRING A SHOVEL, JUST IN CASE. BAGS MAY BE HEAVY, CONSIDER BRINGING ASSISTANCE TO LOAD BAGS.

A. **Palo Alto**: 1925 Embarcadero Road, adjacent to Palo Alto Air Terminal.

B. **Alviso**: Located behind George Mayne Elementary School, 5030 N 1st St., (entrance on Wilson Way behind school).

C. **San José**: City Central Service Yard, 1661 Senter Road at Phelan Ave.

D. **San José**: Valley Water Winfield Warehouse, 5905 Winfield Blvd., between Blossom Hill Rd. and Coleman Ave. Bag pickup street access only.

E. **Morgan Hill**: El Toro Fire Station, 18300 Old Monterey Rd., next to the Union Pacific Railroad overpass above Monterey Highway.

LEGEND

- Creeks, rivers and reservoirs
- Flood prone areas
- City/County public works yards
- Valley Water maintained sites

OTHER SOURCES OF UNFILLED SANDBAGS

BAGS AND SAND. OTHER SOURCES ALSO PROVIDE BAGS AND SAND. PLEASE BRING A SHOVEL AND ASSISTANCE FOR LOADING HEAVY BAGS, IF NECESSARY. BE AWARE THAT SOME SITES REQUIRE PROOF OF RESIDENCY:

1. **Palo Alto**: Mitchell Park, 600 E. Meadow Dr. near baseball field. Bags and sand. 650-496-6974.
2. **Palo Alto**: Rinconada Park Tennis Court Parking Lot (intersection of Hopkins Ave. and Newell Rd.). Filled bags. 650-496-6974.
3. **Milpitas**: Sport Center Parking Lot at 1325 E. Calaveras Blvd. Filled bags. 408-586-2600, after hours: 408-586-2399.
4. **Milpitas**: Hall Memorial Park Parking Lot, Cross Streets La Honda and Hermina St. Bags and sand. 408-586-2600.
5. **Mountain View**: Public Services, 231 N. Whisman Rd. Bags and sand at parking lot. Must bring shovel. 650-903-6395.
6. **Los Altos**: Municipal Service Center, 707 Fremont Ave. at McKenzie Park parking lot. Bags and sand. 650-947-2785.
7. **Los Altos Hills**: Corporation Yard, 27500 Purissima Rd. at Little League Field. Must bring bag and shovel. 650-941-7222.
8. **Cupertino**: City Corporation Yard, 10555 Mary Ave. Bags and sand outside the gate. Must provide own shovel. 408-777-3269.
9. **Sunnyvale**: Corporation Yard, 221 Commercial St. at end of California St. Filled bags. 408-730-7566, after hours: 408-730-7490.

"All 'Bags and Sand' sites are open 24 hours a day, 7 days a week unless otherwise noted."

10. **Santa Clara**: City Corporation Yard, 1700 Walsh Ave. Filled bags at front door. Daytime: 408-615-3080, after hours: 408-615-5640.
11. **San José**: City Mabury Yard, 1404 Mabury Rd. Bags and sand provided. 408-277-4373.
12. **San José**: County East Yard, 1505 Schallenberger Rd., 408-494-2750.
13. **San José**: County West Yard, 11030 Doyle Rd. Bags and sand outside gate. Must bring shovel. 408-366-3100, after hours: 408-299-2507.
14. **San José**: City West Yard, 5090 Williams Rd., Filled bags outside gate. 408-343-3100.
15. **San Martin**: County South Yard, 13600 Murphy Ave. Bags and sand. 408-683-1240
16. **Los Gatos/Monte Sereno**: 41 Miles Ave. at Balzer Field parking lot (Monte Sereno citizens pick up at Los Gatos site). Bags and sand. 408-399-5770, after hours: 408-354-8600.
17. **Saratoga**: Corporation Yard, 19700 Allendale Ave., near Post Office. Self-fill bags. Bags and sand provided outside gate. 408-868-1245.
18. **Campbell**: Serivce Center, 290 South Dillon Ave. Bags and sand available Monday through Friday from 7 a.m.–3 p.m. Must bring shovel. 408-866-2145.
19. **Morgan Hill**: City Corporation Yard, 100 Edes Ct. Bags and sand outside gate. Must bring shovel. 408-776-7333.
20. **Gilroy**: Corporation Yard, 613 Old Gilroy St. Bags and sand in the parking lot behind fire station. Must bring shovel. 408-846-0370.

valleywater.org

Clean Water • Healthy Environment • Flood Protection

GUIDANCE FOR PUBLIC COMMUNICATIONS DELIVERY METHODS (City Stakeholder Is Lead)

1. ALERT SCC and IPAWS if warranted.

2. Deploy Long Range Acoustic Device if available and appropriate.

3. MEDIA NEWS RELEASE including ethnic media.

4. RADIO & TV STATIONS: Provide specific broadcast information.

5. INTERNET/SOCIAL MEDIA: Post messages to internet site (e.g., NEXTDOOR, FACEBOOK, X, City website, or Valley Water website).

6. HOMELESS ENCAMPMENTS: Walk encampments in teams of 2 or more and share warnings.

Contact and provide downloadable flyer:

1. Inform administrators at At-Risk or Critical Facilities (e.g., SCHOOLS, CHURCHES, MEDICAL FACILITIES, TECHNOLOGY PARKS, etc.).

2. Contact managers at MOBILE HOME PARK OFFICES.

3. Contact leaders at Chamber of Commerce, Downtown Associations to engage BUSINESS DISTRICT.

4. Place SANDWICH BOARD SIGNS ON MAJOR CORNERS: **Be alert to the likelihood of flooding in 24-72 hours**.

5. KNOCK-AND-TALK in at-risk neighborhoods. Staff prepared with numbers to call and basic info if asked.

6. Implement NO PARKING zones and, if necessary, detours.

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ATTACHMENT 8
Elected Officials Action List

PURPOSE:

- Coordinate with constituents.
- Check with respective PIO/Liaison or EOC Director on conditions.
- Coordinate information through the PIO/Liaison.

WHO DESIGNATED:

City	Valley Water
• City Councilmember	• Board of Directors

ACTIONS:

	Responsibility/Activity	Stakeholder*
Preparedness	Participate in Winter Preparedness Workshop as requested.	Valley Water is lead.
	Provide resources to support on-going activity to support this EAP and mitigation efforts along waterways.	Each Stakeholder is lead for own agency resources.
Monitoring	Communicate with PIO personnel regarding situation and public/media messages.	Each Stakeholder is lead for own agency resources.
	Respond to constituents.	Each Stakeholder is lead for own agency resources.
	Report any constituent concerns or observations to PIO liaison.	Each Stakeholder is lead for own agency resources.
Watch	All Monitoring Responsibilities/Actions	Each Stakeholder is lead for own agency resources.
	Communicate with PIO at designated facility for more detailed briefing when requested, as available.	Each Stakeholder is lead.
Warning	All Watch Responsibilities/Actions	Each Stakeholder is lead for own agency resources.
	Respond to media and constituents with agreed upon messages.	Each Stakeholder is lead.
	Proclaim Local Emergency as appropriate.	City is lead.
*If only one Stakeholder is noted as lead, all other Stakeholders support the effort.		

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ATTACHMENT 9
Emergency Services Contact List

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ATTACHMENT 10
Valley Water Emergency Responders Contact List

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ATTACHMENT 11
Available Resources

FLOOD FIGHT MATERIALS LIST

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ATTACHMENT 12
Equipment List

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ATTACHMENT 13
Web-Based Data Sources

WEBCAMS:

- Saratoga Creek upstream Prospect Road - https://valleywateralert.org/scvwd/webcams/site.php?cid=9002
- San Tomas Creek at Williams Trash Rack - https://valleywateralert.org/scvwd/webcams/site.php?cid=9016
- San Tomas Creek at Agnew Road - https://valleywateralert.org/scvwd/webcams/site.php?cid=9001
- El Camino Storm Drain - https://valleywateralert.org/scvwd/webcams/site.php?cid=5103
- Sunnyvale East Channel at Tasman Drive - https://valleywateralert.org/scvwd/webcams/site.php?cid=9008
- Sunnyvale East Channel above Hwy 101 - https://valleywateralert.org/scvwd/webcams/site.php?cid=5074

RAIN GAUGES:

- Rain Gauge Site – https://alert.valleywater.org/?p=map
- Valley Christian – https://alert.valleywater.org/?p=sensor&sid=6077&disc=f
- West Yard – https://alert.valleywater.org/?p=sensor&sid=6108&disc=f

STREAM FLOW STATIONS:

- Stream Flow Station Site – https://alert.valleywater.org/?p=map&disc=f
- San Tomas @ Williams Rd with Thresholds – https://alert.valleywater.org/?p=sensor&sid=5024&disc=f
- San Tomas at Mission College Blvd. with Thresholds – https://alert.valleywater.org/?p=sensor&sid=5122&disc=f
- El Camino Storm Drain at Willow Avenue (Stage Only) – https://alert.valleywater.org/?p=sensor&sid=5103&disc=f
- Sunnyvale East Channel at Baylands Park (Stage Only) – https://alert.valleywater.org/?p=sensor&sid=5149&disc=f
- Sunnyvale East Channel at Ahwanee Bayshore Freeway Frontage Road with Thresholds – https://alert.valleywater.org/?p=sensor&sid=5074&disc=f
- Calabazas above Rainbow Avenue – https://alert.valleywater.org/?p=sensor&sid=5031&disc=f
- Calabazas at Wilcox HS – https://alert.valleywater.org/?p=sensor&sid=5026.1&disc=fSaratoga Creek at Saratoga (USGS) – https://alert.valleywater.org/?p=sensor&sid=5096&disc=f or https://waterdata.usgs.gov/ca/nwis/uv?11169500
- Saratoga at Pruneridge – https://alert.valleywater.org/?p=sensor&sid=5025&disc=f

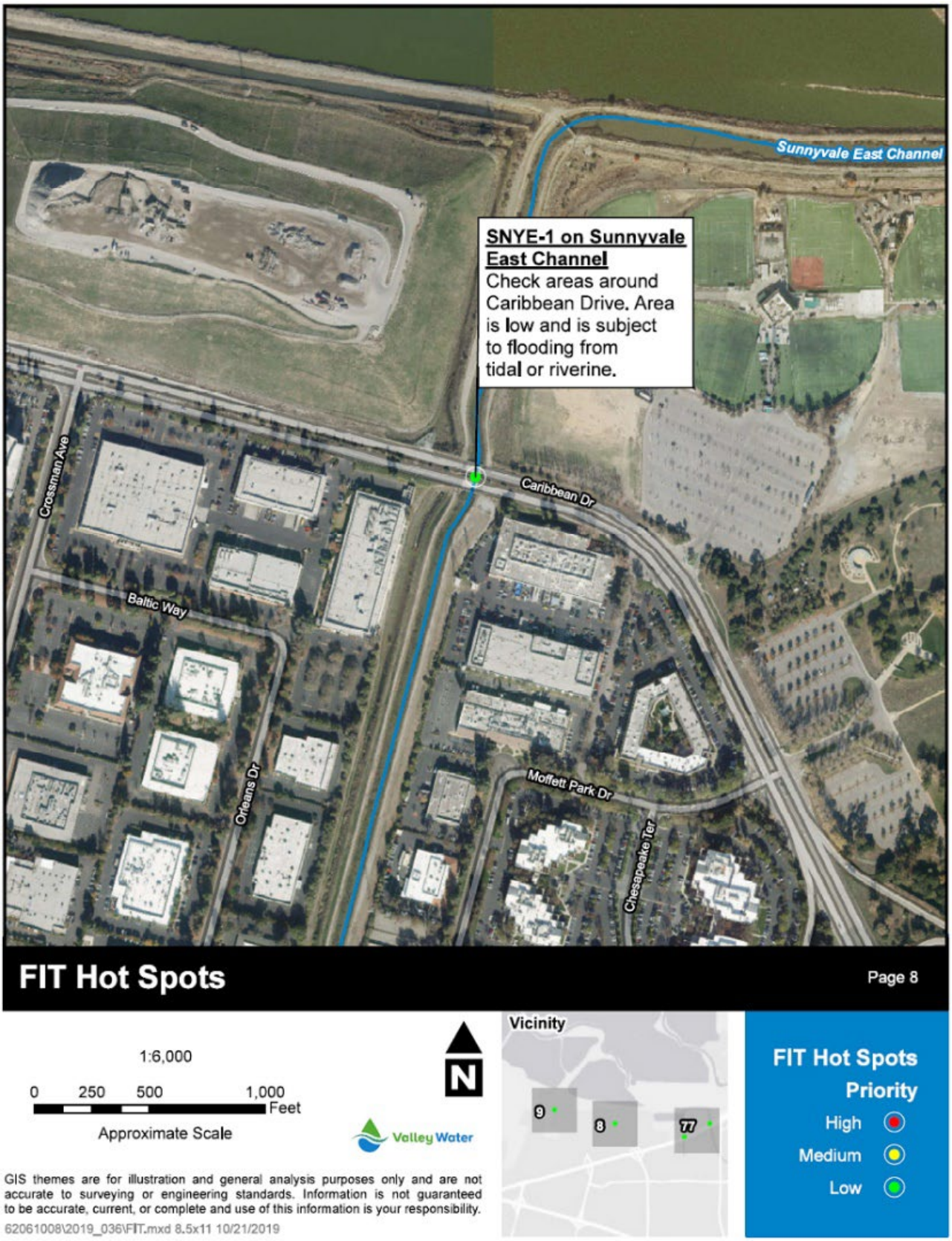
OTHER SITES:

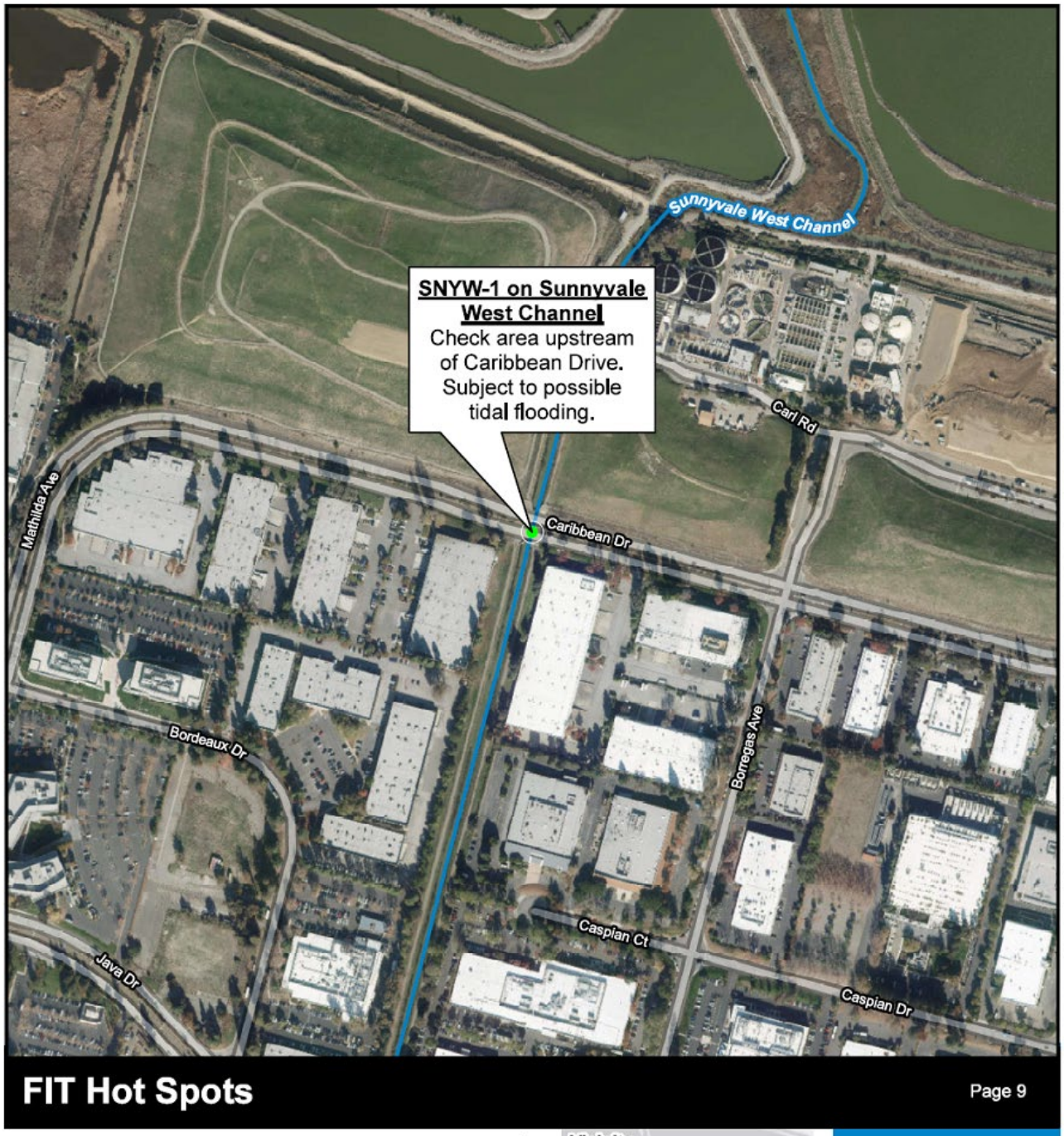
- Valley Water Homepage – http://valleywater.org/
- Valley Water Submit a Request – https://access.valleywater.org/s/
- Report Blockages/Flooding – https://access.valleywater.org/s/ or https://www.valleywater.org/flooding-safety/flood-ready/report-creek-blockages-local-flooding
- NWS Flood Severity – https://water.weather.gov/ahps2/index.php?wfo=mtr
- Valley Water Flood Protection Resources – https://www.valleywater.org/floodready
- Sandbags – https://www.valleywater.org/floodready/sandbags
- FEMA Flood Map Search – https://msc.fema.gov/portal/search
- FEMA NIMS ICS Forms – https://training.fema.gov/icsresource/icsforms.aspx
- Cupertino Emergency Preparedness – https://www.cupertino.org/online-services/emergency-preparedness
- Sunnyvale Emergency Preparedness - https://www.sunnyvale.ca.gov/your-government/departments/public-safety/emergency-preparedness
- City of Santa Clara Emergency Preparedness - https://www.santaclaraca.gov/services/emergency-services/emergency-preparedness
- Saratoga Emergency Preparedness - https://www.saratoga.ca.us/224/Emergency-Preparedness
- Campbell Emergency Preparedness - https://www.campbellca.gov/265/Emergency-Preparedness
- Los Gatos Emergency Preparedness - https://www.losgatosca.gov/2026/Emergency-Preparedness
- Monte Sereno Emergency Preparedness - https://www.montesereno.org/2214/Emergency-Preparedness

WEATHER:

- NWS Watch, Warning, Advisory – https://www.spc.noaa.gov/products/wwa/
- NWS Forecasts – https://graphical.weather.gov/sectors/pacsouthwest.php

ATTACHMENT 14
Field Information Team Hot Spots


Sunnyvale East Channel
SNYE-1 on Sunnyvale East Channel
Check areas around Caribbean Drive. Area is low and is subject to flooding from tidal or riverine.
Crossman Ave
Caribbean Dr
Baltic Way
Orleans Dr
Moffett Park Dr
Chesapeake Ter
FIT Hot Spots
Page 8
1:6,000
0 250 500 1,000 Feet
Approximate Scale
N
Valley Water
GIS themes are for illustration and general analysis purposes only and are not accurate to surveying or engineering standards. Information is not guaranteed to be accurate, current, or complete and use of this information is your responsibility.
62061008\2019_036\FIT.mxd 8.5x11 10/21/2019
Vicinity
9
8
77
FIT Hot Spots
Priority
High
Medium
Low



FIT Hot Spots

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FIT Hot Spots Priority

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FIT Hot Spots

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FIT Hot Spots Priority

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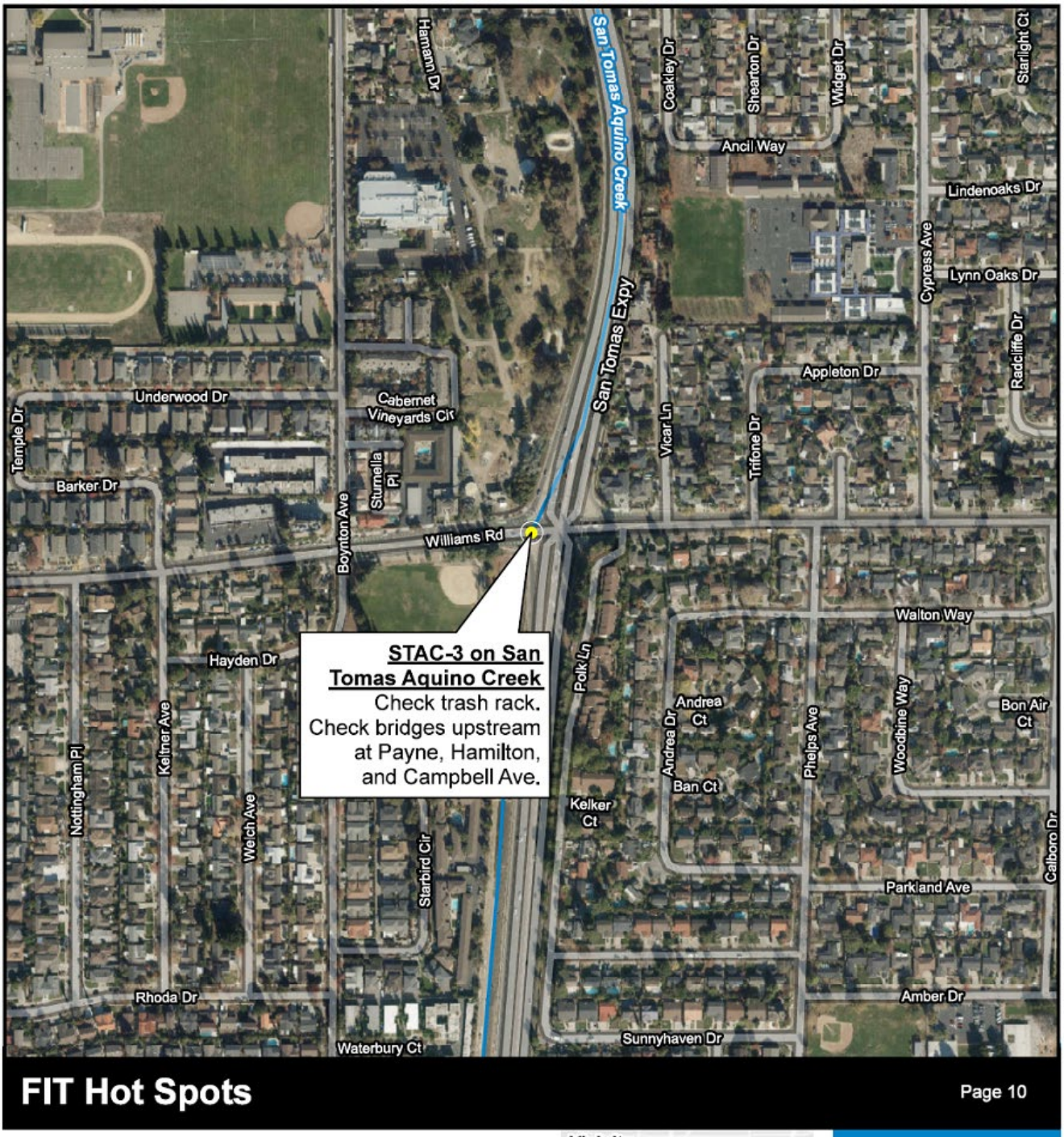

FIT Hot Spots

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Approximate Scale

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Vicinity

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FIT Hot Spots
Priority
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- Low

GIS themes are for illustration and general analysis purposes only and are not accurate to surveying or engineering standards. Information is not guaranteed to be accurate, current, or complete and use of this information is your responsibility.

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FIT Hot Spots

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GIS themes are for illustration and general analysis purposes only and are not accurate to surveying or engineering standards. Information is not guaranteed to be accurate, current, or complete and use of this information is your responsibility.

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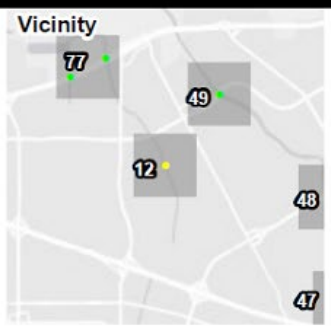

FIT Hot Spots Priority

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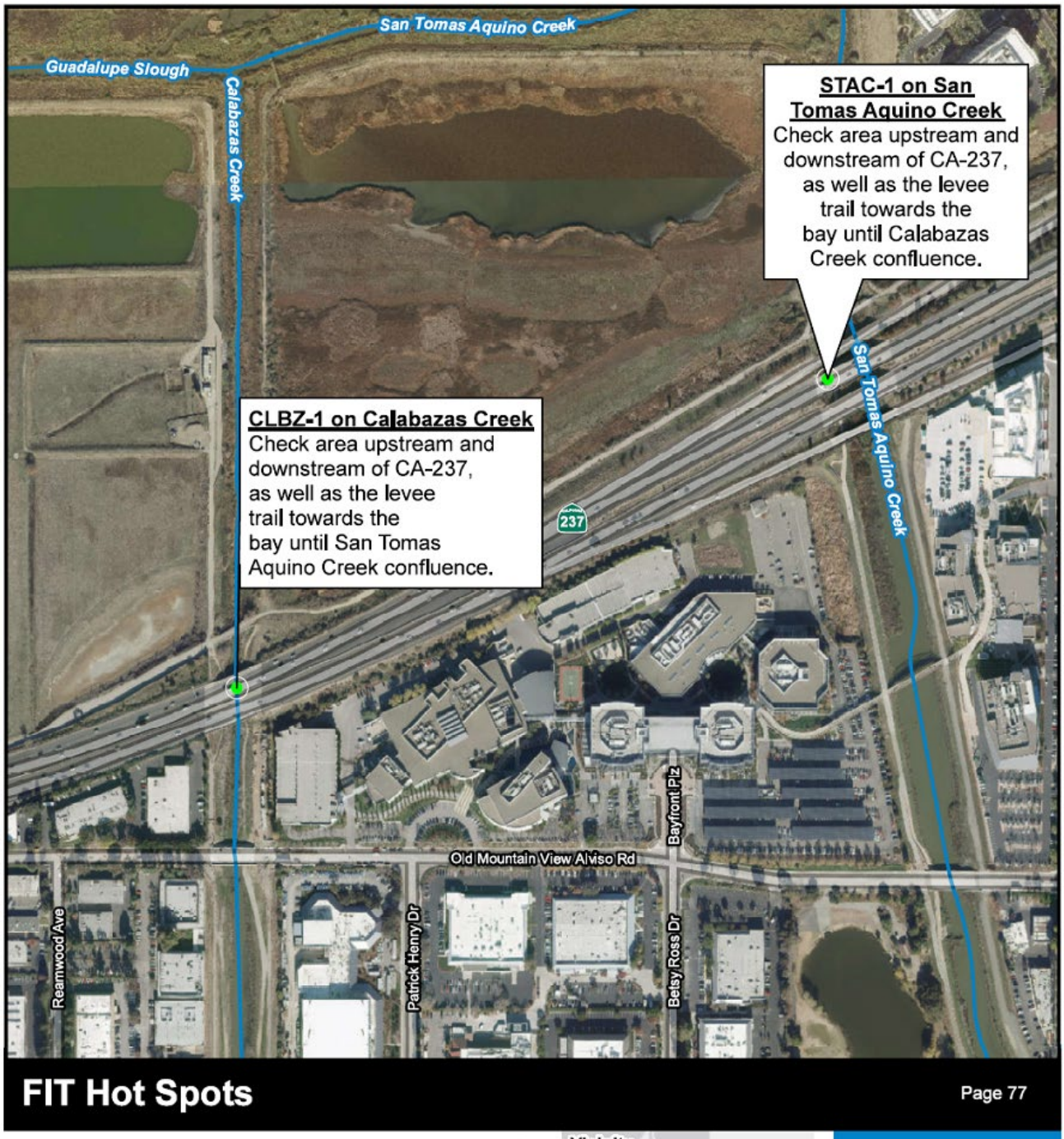
- Medium
- Low



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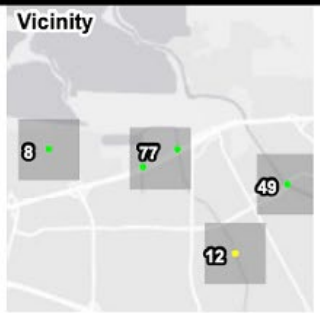

FIT Hot Spots Priority

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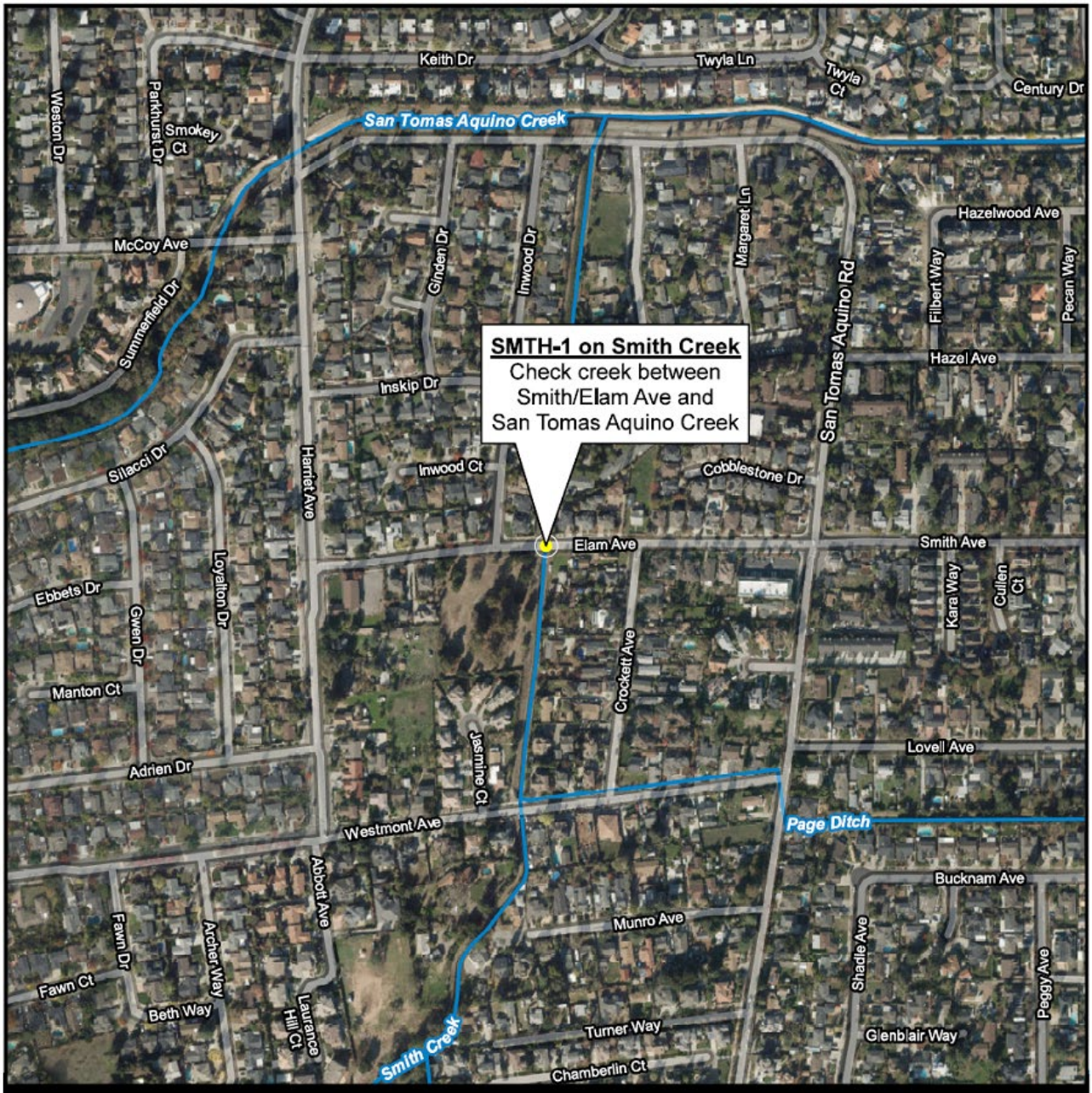

FIT Hot Spots

1:6,000

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Approximate Scale

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Valley Water

GIS themes are for illustration and general analysis purposes only and are not accurate to surveying or engineering standards. Information is not guaranteed to be accurate, current, or complete and use of this information is your responsibility.

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FIT Hot Spots Priority

- High
- Medium
- Low

APPENDIX A
San Tomas Aquino Creek

A. PURPOSE

This Appendix to the Emergency Action Plan for Severe Storms and Flooding in West Valley Watershed (EAP) is meant to provide additional guidance specific to San Tomas Aquino Creek. It will not duplicate information already in an Emergency Operations Plan or the EAP, but will provide specific information and guidance for San Tomas Aquino Creek.

B. SAN TOMAS AQUINO CREEK DESCRIPTION

The San Tomas Aquino Creek begins in unincorporated Santa Clara County in the hills above the City of Saratoga and flows through portions of the cities of Saratoga, Monte Sereno, Campbell, San José, Santa Clara and Town of Los Gatos. Saratoga Creek joins San Tomas Aquino Creek in the City of Santa Clara before it discharges into the Guadalupe Slough and finally San Francisco Bay at the northern end of the West Valley Watershed. It drains a watershed that is approximately 45 square miles in extent on the eastern edge of the West Valley Watershed. Figure 2A is a map of the creek that shows the cities/Town and FEMA mapped 100-year (1%) floodplain.

Of the approximate 25 miles of creek, about 68% (17 miles) are modified. Upstream of Highway 85, San Tomas Aquino Creek is a relatively unmodified natural channel with significant vegetation and homes along the banks. As it enters the alluvial plain downstream of Highway 85 the channel becomes more modified with downstream areas straightened and hardened. Valley Water owns fee-title or some form of easement on nearly all of the reach of creek downstream of Highway 85. Following are reach descriptions of San Tomas Aquino Creek downstream of Highway 85:

Highway 85 to McCoy Avenue – Valley Water has fee title property ownership along the tree lined earthen channel that has sections of sacked concrete levees and floodwalls. The land use adjacent is a little more than 50% residential and the remainder are two Campbell Union School District parcels (Westmont High School and Forest Hill Elementary School). There is good access on the east bank throughout this reach.

McCoy Avenue to Williams Road – Valley Water owns fee title or easement along this approximate 3-mile reach of trapezoidal concrete channel. Most of the channel runs along San Tomas Expressway with residential along the opposite bank. Access would primarily be from adjacent roadways or from sections that have a maintenance road. Valley Water operates an injection well parcel along San Tomas Aquino Creek where the channel alignment meets San Tomas Expressway and a stream gauge about 700 feet upstream of Williams Road (https://alert.valleywater.org/?p=sensor&sid=5024&disc=f). The channel passes beneath several arterial roads that include Campbell Avenue and Hamilton Avenue.

Williams Road to Downstream of Cabrillo Avenue – Valley Water owns a maintenance easement for hydraulic conveyance on this approximate 3.7-mile reach of concrete box culvert that runs under San Tomas Expressway. Santa Clara County is the owner of the property and is responsible for operating and maintaining San Tomas Expressway along this reach. The box culvert varies in size from 13.5'x15.0' to 15.0'x18.0' and daylights to become a u-frame concrete channel in three stretches of from 800' to 1000' in length between Forbes Avenue and Homestead Road, Benton Street and El Camino Real, and El Camino Real and Cabrillo Avenue. Maintenance access in this reach is only possible at the entrance in order to clean the trash rack and the daylighted sections in the middle of San Tomas Expressway.

Downstream of Cabrillo Avenue to Caltrain – The concrete box culvert ends about 800’ downstream of Cabrillo Avenue and becomes a trapezoidal concrete channel for 0.4 miles to the Caltrain crossing. Saratoga Creek flows into San Tomas Aquino Creek at a grade control drop structure about 250’ upstream of Monroe Street. Valley Water owns fee title throughout this reach except at the Caltrain crossing. A pedestrian/bicycle path on the west bank and a maintenance road (somewhat depressed for a short section) on the east bank provide good access for visual inspections and maintenance.

Caltrain to Guadalupe Slough – Valley Water owns fee title through most of this reach. This reach is primarily trapezoidal earthen channel with levees, floodwall (upstream of Highway 101) and sections of concrete lining under the bridges at Walsh Avenue, Central Expressway, Scott Boulevard, and Highway 101. An adjacent pedestrian/bicycle path continues throughout this reach on the west bank and connects to the Bay Trail on the north side of Highway 237. The path and the maintenance road on the east bank between Highway 101 and Highway 237 provide good access for inspections and maintenance. The lower (northern) portions of this reach is influenced by tides from San Francisco Bay up to about Great America Parkway. Downstream of Highway 237 the levee to Harvey Marsh has been breached, but poses no flood threat. Major creek crossings include Hetch-Hetchy pipelines, Central Expressway, Highway 101, and Highway 237. An ALERT stream gauge is located at Mission Boulevard and there are existing visual stream gauges at Central Expressway, Mission Boulevard and Great America Parkway.

C. SAN TOMAS AQUINO CREEK FLOOD THREATS

San Tomas Aquino Creek drains a total of about 45 square miles before emptying into Guadalupe Slough and then San Francisco Bay. Over half of the watershed drains the highly urbanized valley floor where the creek has been significantly straightened and modified.

The creek has capacity, though possibly with inadequate freeboard, to convey the existing 100-year (1%) flow rates of about 4,100 cubic feet per second (cfs) upstream of Campbell Avenue and 7,600 cfs downstream of Highway 101 (design 100-year flow is 9,100 cfs), but has inadequate capacity in the reaches between those roads. It is estimated that nearly 2,600 parcels and 830 acres are subject to flooding during a 100-year event (Figure 2A shows the FEMA estimated flood area that may differ from actual flooding). The total estimated losses due to 100-year flood event (including business interruptions) exceeds $800 million.

The most significant flood threat and typically the first breakout point is between Forbes Avenue and Homestead Road. This reach, which includes the box culvert under San Tomas Expressway, only has capacity for between a 10-year (10%) flow of 2,500 cfs and 50-year (2% flow of 3,500 cfs) event. The overbank spills flow north on both sides of San Tomas Expressway and end up ponding behind the Caltrain tracks. Some floodwaters may get past the tracks and continue north, but most will eventually reenter the channel. Other deeper ponding areas occur south of Interstate 280, Homestead Road and El Camino Real. The following is a list of the overbank spills along this reach of channel during a 100-year event and Figure 1A shows the spills:

- 10 cubic feet per second (cfs) to the west at Campbell Avenue,
- 250 cfs to the east at Hamilton Avenue,
- 270 cfs to the west at Payne Avenue, and
- 460 cfs to the west and 630 cfs to the east at the daylight section of culvert near Homestead Road.

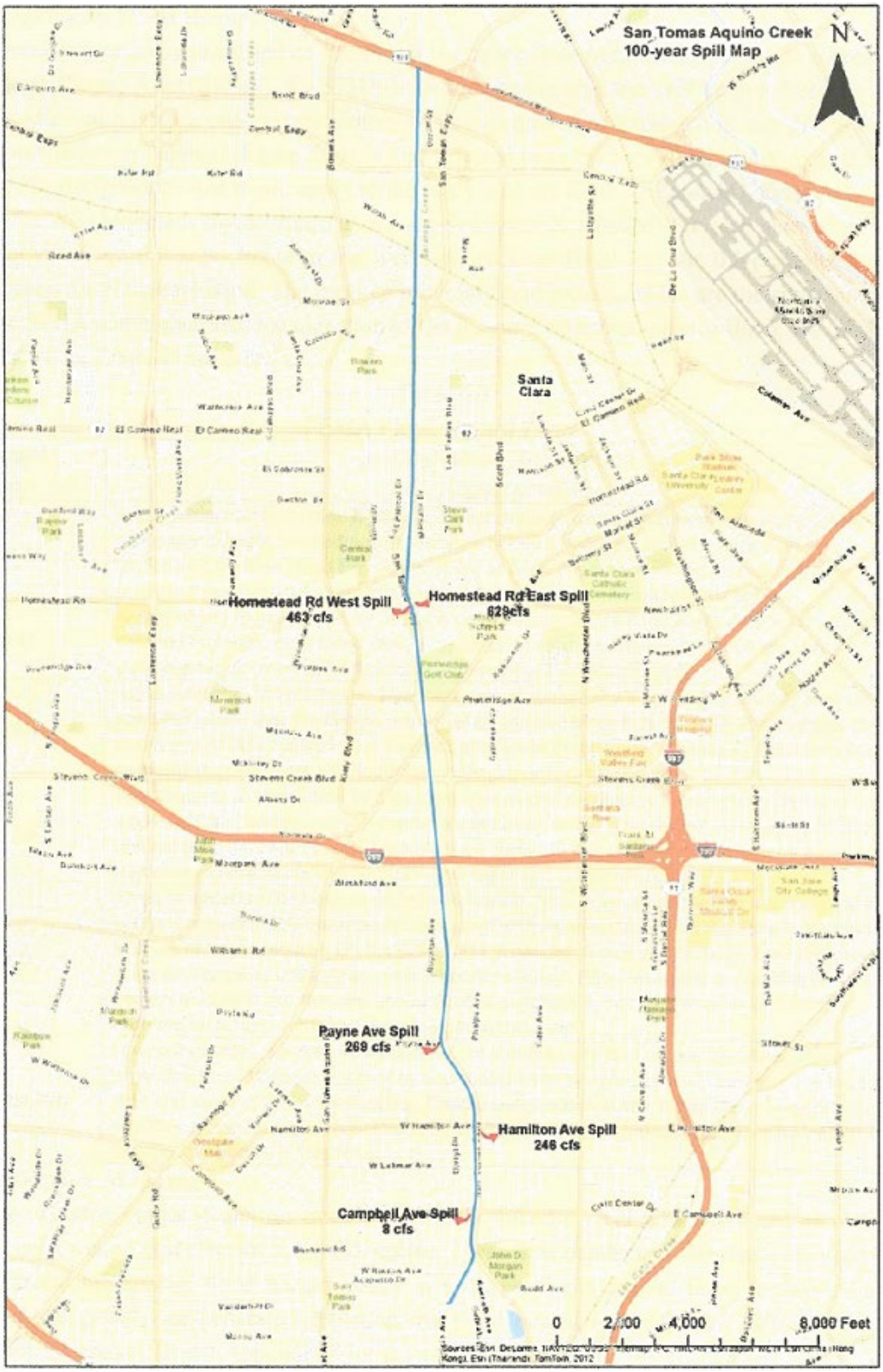


FIGURE 1A
San Tomas Aquino Creek 100-Year Spill Map

Flooding is expected into an office park to the east of the creek between Scott Boulevard and Highway 101 when Saratoga is contributing to already high flows in San Tomas Aquino Creek. And a low east bank near Great America Parkway could overtop and flood a parking area to the east.

In addition to the flooding caused by inadequate capacity, storm runoff unable to discharge into a channel already at capacity may contribute to the flooding. In the area around the box culvert under San Tomas Expressway runoff water not able to discharge into the culvert already at capacity would combine with the overland flows. And in the downstream reaches, north of Caltrain crossing to Highway 237 where there are levees and floodwalls, high water may not allow runoff to discharge into the creek.

The City of Santa Clara operates six storm water pump stations from Mission Boulevard to Highway 237 to pump runoff into San Tomas Aquino Creek when the water elevation in the creek does not allow gravity flow (Table 1A). All six pump stations operate with local automatic motor controls that automatically start when needed. Information about conditions at the pump stations are transmitted to the City's utility operations center which is staffed 24 hours every day. In addition, there is a small pump station operated by Paramount Great America. The maximum discharge of all pump stations combined is 451 cubic feet per second (CFS). During high creek flows the additional pumping could add up to another 4%-5% of flow to already high flows and could increase risk of overtopping or add to flooding that may be occurring. In a situation where Flood Severity Levels are Moderate or Major (Table 3A), or when the stage at the Mission Boulevard ALERT stream gauge is 16.5 feet or higher, consideration should be given to modifying pump station operations. The table below provides some information on each pump station:

TABLE 1A
Storm Water Pump Stations

PUMP STATION NAME	PUMPS	MAXIMUM DISCHARGE Cubic Feet per Second (CFS)
Freedom Circle 3905 Freedom Circle	3 – 75 HP & 1 – 35 HP	78 cfs
Lake Santa Clara 4268 Lake Santa Clara Drive	2 – 35 HP	13 cfs
Rambo 4526 Lakeshore Drive	3 – 150 HP & 1 – 10 HP	136 cfs
Gianera 2339 Gianera Street	2 – 60 HP, 2 – 77 HP & 1 – 10 HP	40 cfs
Santa Clara Golf Course 2501 Stars and Stripes Drive	3 – 32 HP	25 cfs
Westside Retention Basin 2900 Old Mountain View-Alviso Road	3 – 150 HP & 2 – 25 HP	144 cfs
Paramount Great America 4701 Great America Parkway	2	15 cfs

In addition to the flood threats described above, the potential exists for unforeseen flood issues. For example:

- Levees between Scott Boulevard and Highway 237 pose a threat during high flows because of potential for structural failures or
- Blockages due to trash and debris in the channel may result in overtopping especially in areas with inadequate freeboard.

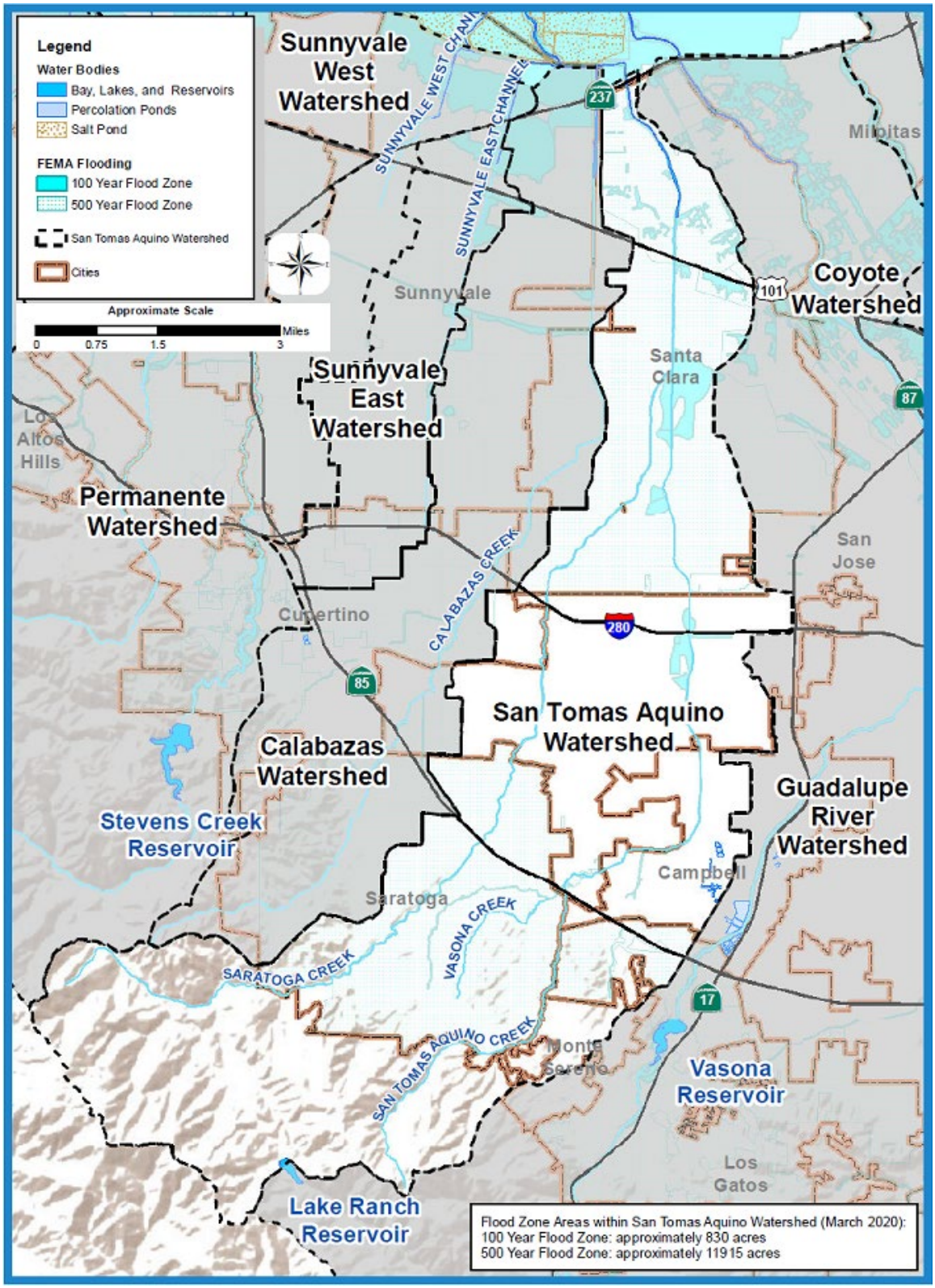


FIGURE 2A
San Tomas Aquino Watershed & FEMA Flood Map
(500-yr flood zone may not reflect actual conditions)

D. FLOOD EVENT DETECTION

Several detection methods can be utilized for San Tomas Aquino Creek that include weather forecasts, hydrologic/hydraulic modeling, Automated Local Evaluation in Real Time (ALERT), other stream/precipitation gauge systems, and field observations. Some of these are available through websites that are listed in Attachment 13.

1. Weather Forecasts

The National Weather Service (NWS) provides weather (e.g., precipitation) forecasts in advance of a storm events. Valley Water also contracts with a service provider for enhanced forecasting in the regional area.

During storm events, the NWS will host webinars with affected agencies and utilities to discuss forecasts and share information to enhance regional preparedness. The Valley Water and Agency Stakeholders can participate in these webinars and share all current information. In addition, the NWS maintains websites (Attachment 13) that provide flood threat information and they will issue public notices of forecasted flood threats on local television and radio programming if the level of threat is high.

2. Hydrologic/Hydraulic Modeling

Based on the weather forecast and other real-time data, Valley Water may utilize computer modeling of San Tomas Aquino Creek to predict flood stage up to 72 hours in advance. These models are not run operationally and performed on an ad hoc basis. Outputs are considered estimates and can vary, sometimes significantly, from the actual flood flows.

To improve the accuracy of the modeling, Valley Water will review the computer model periodically and determine if additional information can be gathered to update the model. The type of information that can be used to update the models include: surveys of channel geometry, reevaluation of channel roughness due to vegetation or blockages, and data gathered during high flow events.

Valley Water and NWS will utilize this modeling to help set their threat level for San Tomas Aquino Creek (Table 2A) and provide the information to local agencies and the public as appropriate. And, this same modeling and information that helps determine threat levels is used by Valley Water in determining flood severity levels for San Tomas Aquino Creek (Table 3A) during storm events.

3. Gauge System

Stream gauges provide valuable information for high flow events and may give notice to take action or to deploy staff for field observations. Gauges may be both visual and remote sensing Automated Local Evaluation in Real Time (ALERT). ALERT gauges are set with alarms to automatically notify appropriate staff at stages as described in Table 3A.

All ALERT gauges can be found at https://alert.valleywater.org/?p=map&disc=f. These gauges provide data in near real-time upstream of Williams Road and at Mission College Blvd on San Tomas Aquino Creek and for two location on the Saratoga Creek tributary.

4. Visual Observations

As water levels increase in the creeks, rivers, and waterways, Valley Water Field Information Teams (FITs) or other personnel or stakeholders are deployed to visually monitor and report back to an Emergency Management Organization (EMO) the water levels in areas of potential flooding. In addition, a Webcam at Agnew Road (https://valleywateralert.org/scvwd/webcams/site.php?cid=9001) can be monitored remotely.

FITs or others can monitor facilities for potential damage, identify surface drainage issues, thoroughly document actual flooding, and report landslides/erosion affecting the adjacent land uses.

Valley Water has identified "hot spots" that should be monitored. HH&G maintains a master list of flooding hotspots (Attachment 14) to deploy FITs and other teams in the West Valley Water that includes San Tomas Aquino Creek at:

- **Campbell Avenue to Williams Road** – possible high flows and blockages at Williams Road trash rack and bridges can cause overtopping and flooding along San Tomas Expressway,
- **Hetch-Hetchy Pipelines** – check for high flows on levees and debris on pipeline crossing, and
- **Highway 237** – check levees upstream and downstream for high flows and possible levee stability issues.

Field Operations & Maintenance personnel are also typically out in the field inspecting, repairing, and removing debris from facilities during storm events. These personnel also provide intelligence back to their agencies regarding facility conditions and any storm related concerns.

In addition, the public may be helpful in reporting situations that may pose a flood threat. These are typically reported to Valley Water, City Stakeholder or other Agency Stakeholder who should promptly relay to the DOC/EOC or to Valley Water through a contact method shown below:

- Main Valley Water telephone – (408) 265-2600
- After hours telephone – (408) 395-9309
- Valley Water website report problems – https://www.valleywater.org/ or https://access.valleywater.org/s/
- Non-Emergency Police & Fire dispatch – 311
- Emergency Police & Fire dispatch – 911

All together the intent of these observations is to cover the following:

a. Visual stream gauges—check for high water and rate of change
b. Known Flood Hot-Spots
c. Real-time Flooding—report and document flooding
d. Bridge Piers—check for debris blockages
e. Trash Racks—check for debris blockages
f. Levees and Floodwalls—check for damage and stability
g. Sandbag sites—check for supply and access issues
h. Previously repaired or other project sites—check for performance
i. Bank Stability—check for threats to adjacent land uses

E. SAN TOMAS AQUINO FLOOD READINESS LEVELS AND SEVERITY DETERMINATION

Sometimes an event is a flash flood that occurs suddenly without much early notice, which is likely to occur in small watersheds that are controlled by storm drain runoff. However, with weather forecasting and modeling there is often an ability to estimate flood events before they occur. This is extremely valuable when preparing for necessary evacuations and road closures.

To provide this advanced notice, a threat level should be used to provide an indicator of preparedness for a response and a level of potential severity for areas subject to flooding to assist the Agency's in planning and implementing appropriate actions. Modeling in the future is filled with uncertainties; therefore, a readiness of Watch will be used when flood stage is estimated about 24 to 72 hours or more in the future. If flooding is estimated within about 24 hours, the threat level will be elevated to Warning.

TABLE 2A
Flood Readiness Levels

PREPAREDNESS	This is the base stage of readiness that will be the typical condition throughout most of the year. An Emergency Management Organization (EMO) is not active at this level. Preparedness is defined as: • Flood stage (Minor Flooding or greater) is not estimated within the next 72 hours or • Measured stream depth is below 50% of flood stage.
MONITORING	This condition is variable and requires more intense monitoring and a heightened level of alertness. A portion of the EMO may be minimally active to monitor for any developing flood concern. Monitoring is defined as: • Flood stage may occur in 48 to 72 hours, or • Measured stream depth is at 50% to 70% of flood stage, or • For areas that are controlled purely by storm drain runoff (flashy systems), the stream depth is estimated to reach flood stage within 24 hours.
WATCH	Flood level or a serious flood threat is expected to occur. Multiple portions of the EMO may be activated at an appropriate level. Watch is defined as: • Stream depth is estimated to reach flood stage or greater within 24 to 48 hours, or • Measured stream depths are at 70% to 100% of flood stage, or • For areas that are controlled purely by storm drain runoff (flashy systems), the stream depth is estimated to reach flood stage within 6-12 hours.
WARNING	This is a more urgent situation with flooding imminent or occurring. The EMO is more completely active. Warning is defined as: • Flood stage or greater is occurring or is estimated to occur within 24 hours, or • For areas that are controlled purely by storm drain runoff (flashy systems), the stream depth is estimated to reach flood stage or greater within minutes/hours or is occurring.
Note: Flood stage is the depth of water at which a stream or facility begins flooding (see Glossary of Terms).	

When the threat level is at a Watch or Warning, there is an expectation that flooding will occur or is occurring at some locations. The severity of the situation at specific locations is determined by the flood stage. The areas subject to flooding for different stream stages are estimated utilizing hydraulic models and flood maps prepared by the Hydrology, Hydraulics and Geomorphology Unit (HH&G).

Flood severity categories are defined by Valley Water and the NWS as:

TABLE 3A
San Tomas Aquino Creek Flood Severity Levels

Action (Yellow)	An established gauge height which when reached by a rising stream, lake, or reservoir represents the level where action is taken in preparation for possible significant hydrologic activity. **San Tomas Aquino Creek** – The stream gauge at Williams Road is near or expected to be near 8 feet (10-year flow rate).
Minor Flooding (Orange)	Minimal or no property damage, but possibly some public threat (e.g., inundation of roads). **San Tomas Aquino Creek** – Williams Road stream gauge is at or is expected to be between 7.5 to 9 feet (exceeds a 10-year flow rate). • Overbanking possible onto Williams Road, Payne Avenue, West Hamilton Avenue, and Campbell Avenue, causing street flooding. • Possible overbanking onto San Tomas Expressway between Homestead Road and Forbes Avenue at the daylight area of the box culvert.
Moderate Flooding (Red)	Some inundation of structures and roads near stream, evacuations of people and/or transfer of property to higher elevations. **San Tomas Aquino Creek** – Williams Road stream gauge is at or is expected to be between 9 to 9.5 feet (exceeds a 50-year flow rate). • Overbanking upstream of Williams Road move west and northward along Boynton Avenue, ponding along Interstate 280 (I-280). Worst flooding is east of Boynton High School. • Overbanking upstream of Homestead Road spread along San Tomas Expressway moves northward and spreads into surrounding neighborhoods. • If Saratoga Creek has substantial flows as well, overbanking on the east bank is possible between Highway 101 and Scott Boulevard.
Major Flooding (Purple)	Extensive inundation of structures and roads, significant evacuations of people and/or transfer of property to higher elevations. **San Tomas Aquino Creek** – Stream gauge at Williams Road is above or expected to be at or above 9.5 feet (100-year flow rate). • San Tomas Expressway will flood with water moving northward under the I-280 viaduct toward Homestead Road. Water sheet flows toward Pruneridge Golf Course. • Extensive flooding stemming from the daylighted section of the culvert upstream of Homestead Road. • Areas east of Kiely Boulevard and west of Scott Boulevard are at risk. • Floodwaters may continue to move northward, bounded by San Tomas Aquino Creek and Scott Boulevard, crossing the Caltrain tracks toward Highway 101. • If Saratoga has significant flows as well, overbanking will occur on the east bank into an office park between Highway 101 and Scott Boulevard, bounded by the creek and San Tomas Expressway, inundating the office park.

F. NOTIFICATIONS AND ACTIVITIES

General activities and actions are described in Concept of Operations – Table 2 and Attachments 3 through 8 of the EAP. General notifications are described in EAP Mobilization – Step 3 of the EAP. The general level of activity and notifications will be guided by the best information available to the EMO Personnel. The level of activity may mirror those activities of the individual jurisdictional Emergency Operations Centers (EOCs) or Multi-Agency Coordination (MAC) Groups.

San Tomas Aquino Creek flows through the cities below and may pose a threat to any of them, however, it poses the greatest flood threat to the City of Santa Clara and City of San José. Contact information for the cities and other Agency Stakeholders is included as Attachment 9 of the EAP.

- City of Campbell
- Town of Los Gatos
- City of Monte Sereno
- City of Santa Clara
- City of San José
- City of Saratoga

There are important infrastructure and facilities at risk of flooding from San Tomas Aquino. Based on intelligence gathered during the storm event, the EMO and other stakeholders will determine the risk and provide notifications as appropriate. In general, a City Stakeholder would provide notifications to critical facilities at risk.

Below is a list of some important facilities that may be at risk. If needed and available, more detailed flood maps may be provided to City Stakeholders by Valley Water's Hydrology, Hydraulics and Geomorphology Unit to better determine which facilities are threatened:

FACILITY TYPE	NAME	ADDRESS	PHONE
SCHOOLS & COMMUNITY CENTERS	Starbird Youth Community Center	1050 Boynton Avenue, San José	(408) 564-4239
	Boynton High School	901 Boynton Avenue, San José	(408) 626-3404
	The Harker School – Middle School Campus	3800 Blackford Avenue, San José	(408) 248-2510
	Lynhaven Elementary School	881 Cypress Avenue, San José	(408) 556-0368
	City of San José – Cypress Community and Senior Center	403 Cypress Avenue, San José	(408) 244-1353
	The Cabrillo Montessori School of Silicon Valley	2495 Cabrillo Avenue, Santa Clara	(408) 418-3568
	Cabrillo Middle School	2550 Cabrillo Avenue, Santa Clara	(408) 423-3700
MEDICAL	Central Medical Center	2344 El Camino Real, Santa Clara	(408) 249-1212
FIRE STATION	Santa Clara Fire Station 4	2323 Pruneridge Avenue, Santa Clara	(408) 615-4900

APPENDIX B
Sunnyvale East & West Channels

A. PURPOSE

This Appendix to the Emergency Action Plan for Severe Storms and Flooding in West Valley Watershed (EAP) is meant to provide additional guidance specific to Sunnyvale East Channel. It will not duplicate information already in an Emergency Operations Plan or the EAP but will provide specific information and guidance for Sunnyvale East Channel.

B. SUNNYVALE EAST & WEST CHANNEL DESCRIPTIONS

The Sunnyvale East Channel flows south to north approximately 6 miles from Interstate 280 to the confluence with Guadalupe Slough. It drains about 7.25 square miles of watershed within the cities of Cupertino and Sunnyvale (Figure 1B). The channel is not a natural creek and was constructed as a storm water conveyance facility by Valley Water in the 1960s and 1970s to convey storm water flows. It was designed to convey about a 10-year flow rate discharging from city storm drains.

Sunnyvale East starts in Cupertino and flows through Sunnyvale. It starts in a pipe at Interstate 280 (I-280) for the first 0.5 miles until it passes Inverness Way. From Inverness Way to Hwy 237 it is a mix of box culverts and trapezoidal channel that is a combination of sack concrete, rock and earth. Downstream of Hwy 237 it is generally an earthen trapezoidal channel with levees.

Sunnyvale West Channel drains about 7.6 square miles of urban watershed and flows 3 miles starting in the south at Maude Avenue and ending in the north at its confluence with Guadalupe Slough. The channel was constructed in the late 1950s and early 1960s to convey a 10-year flow from the local drainage systems. Figure 2B shows the watershed area and 1% FEMA floodplain.

Sunnyvale West is located in the City of Sunnyvale and starts in a pipe at Maude Avenue for the first 0.5 miles until it passes Almanor Avenue. After Almanor Avenue it becomes a trapezoidal earth channel to Ross Drive. After Ross Drive the channel is a concrete u-frame or box culvert until after Mathilda Avenue at which point it becomes an earthen trapezoidal channel with levees to its confluence with Guadalupe Slough.

The channels have been divided into reaches to provide a more detailed description. Sunnyvale East is described in 7 reaches and Sunnyvale West is described in 4 reaches in the following pages.

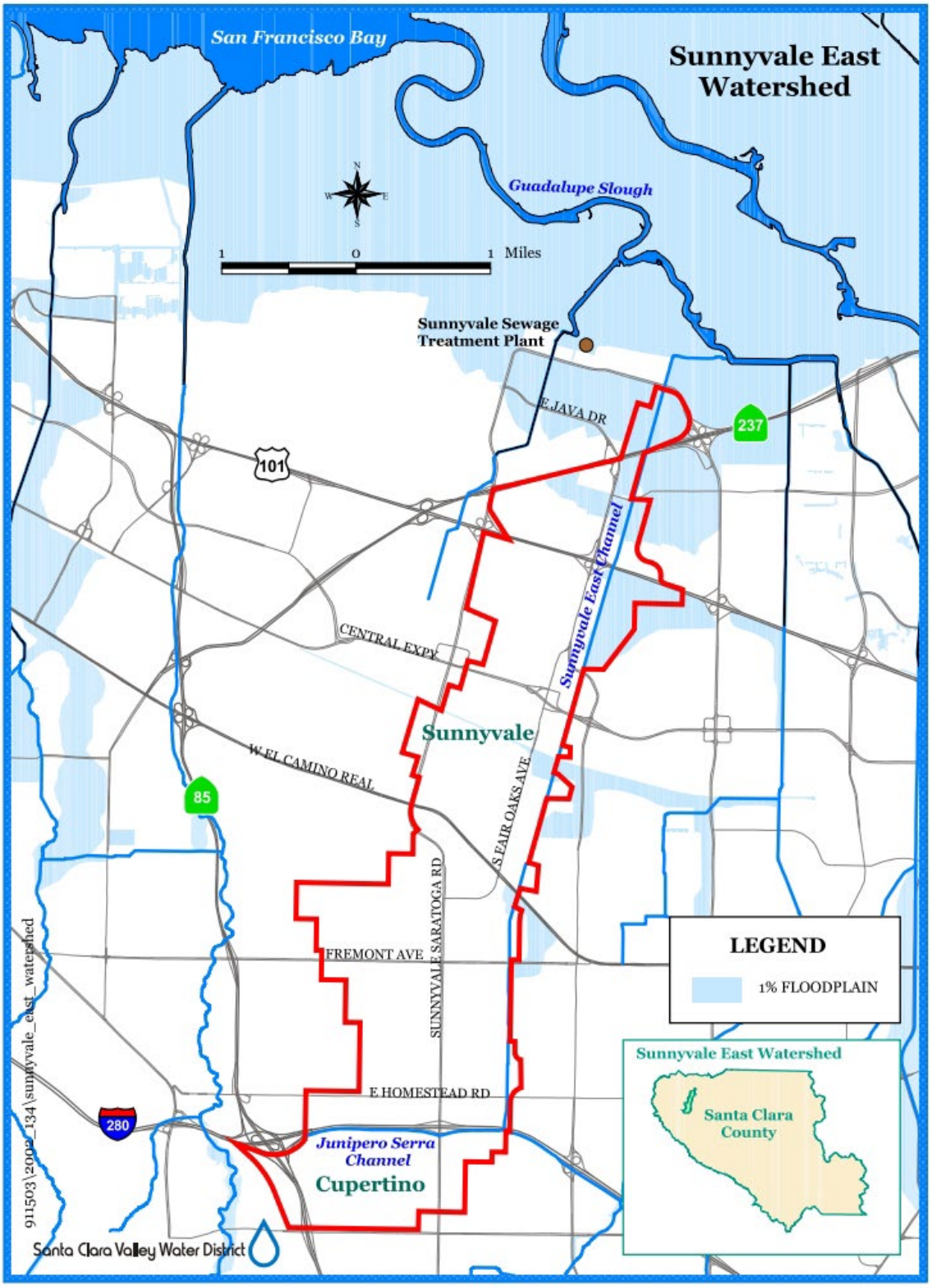


FIGURE 1B
Sunnyvale East Channel Watershed & FEMA Flood Map

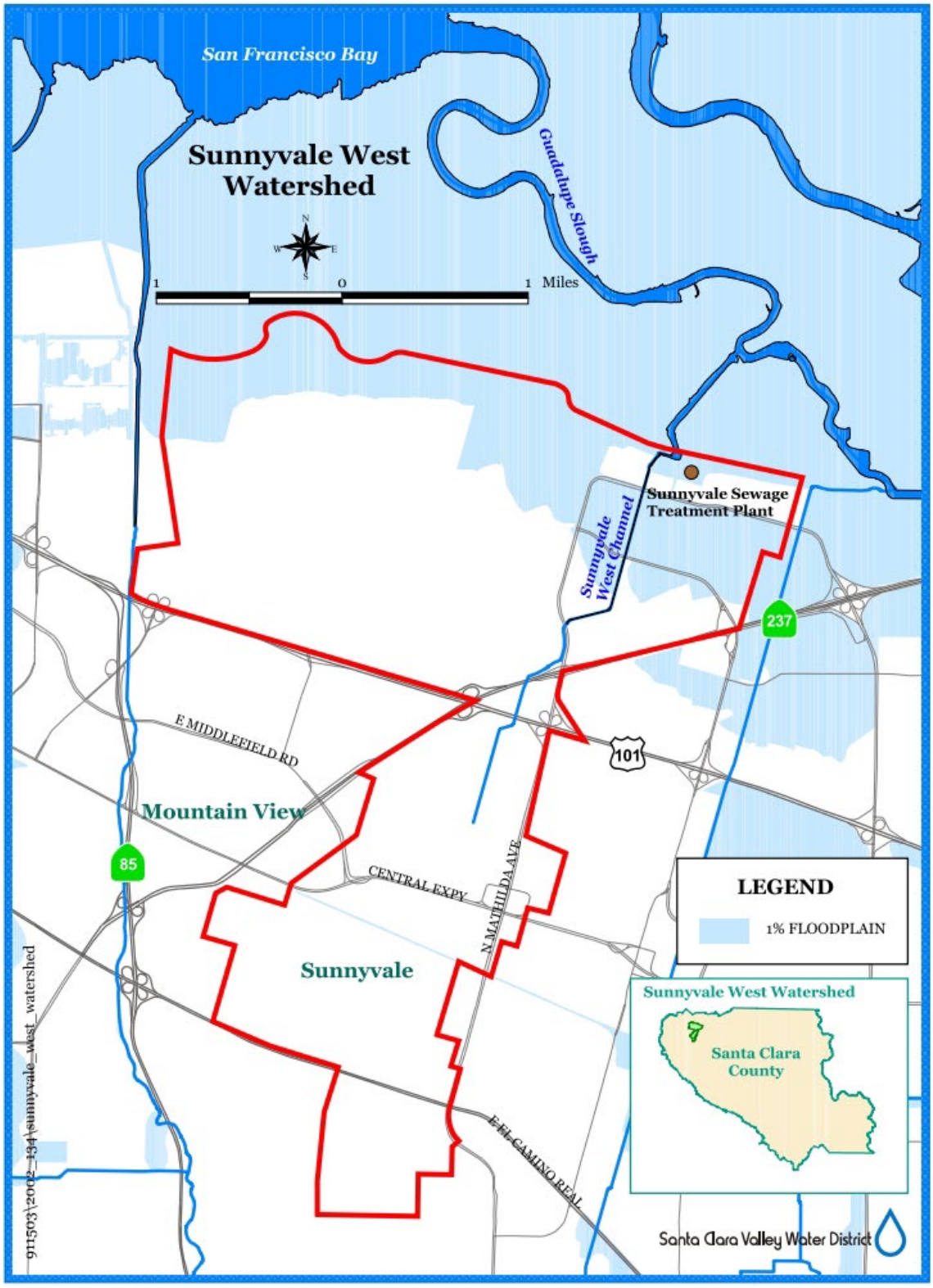


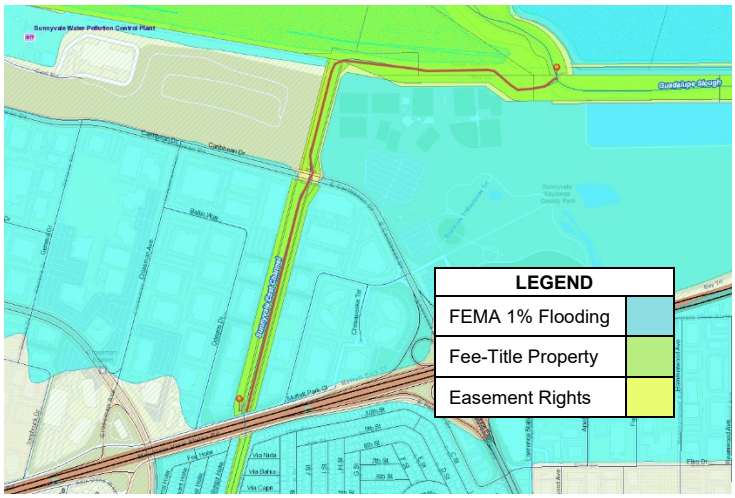
FIGURE 2B
Sunnyvale West Channel Watershed & FEMA Flood Map

Sunnyvale East Channel Reach Descriptions

Reach E1 – Guadalupe Slough to Caribbean Drive

This approximate 3,700 foot reach of Sunnyvale East Channel has a near 0% slope and flows south to north for about 1,200 feet and turns east flowing adjacent to Valley Water Pond A4 for about 2,500 feet until it discharges into Guadalupe Slough. The reach is an earthen trapezoidal channel with levees on both banks that is in the tidal area with a bottom consisting of bay mud and banks that are vegetated with dense grasses.

There is maintenance access from both banks with public access trails on both sides. A Bay Trail pedestrian bridge is located at the bend where it turns from north to east with an ALERT stage gauge mounted on the bridge (https://alert.valleywater.org/?p=sensor&sid=5149&disc=f). Valley Water owns the channel in fee-title and holds an easement for most of the maintenance road on the east bank. Adjacent land uses are Pond A4, Stevens Creek Quarry, and Twin Creeks Sports Complex that includes softball and soccer fields.



Confluence with Guadalupe Slough

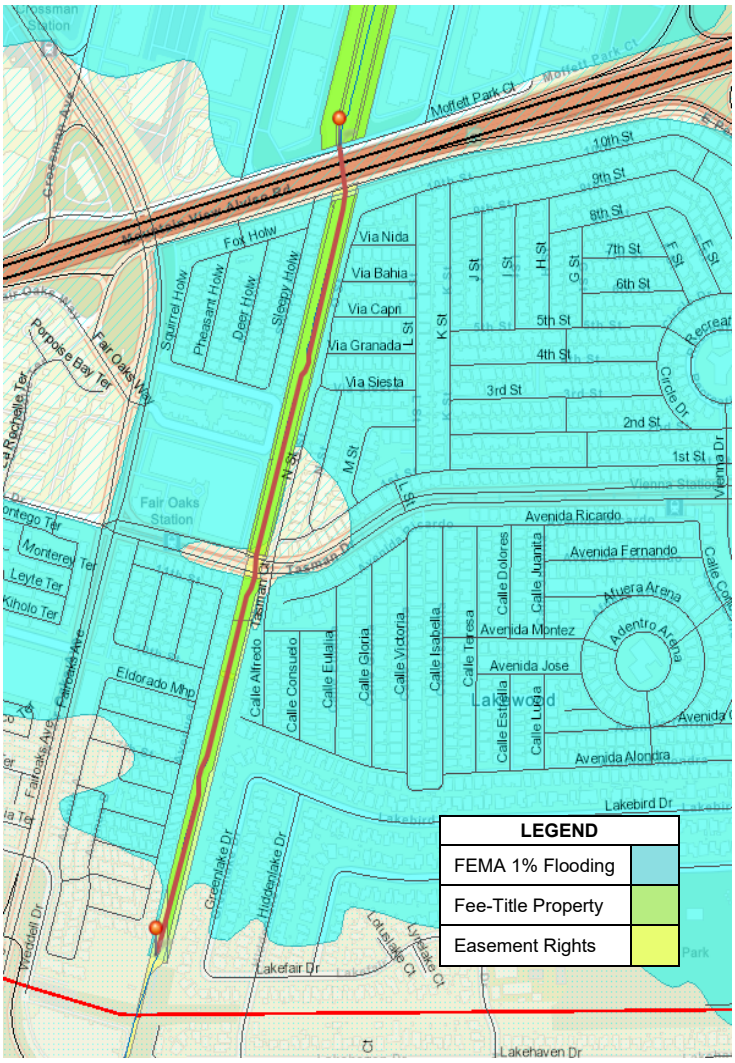
Looking downstream at ped bridge and stage gauge

Looking upstream at Caribbean Drive Bridge

Reach E2 – Caribbean Drive to 700' Downstream of Highway 101

The reach is about 6,600 feet of mostly a straight earth channel flowing south to north with a mild 0.1% slope and vegetated banks. The tidal zone extends to about Hwy 237 resulting in a bay mud channel bottom with mostly grasses on the channel bottom upstream of Hwy 237. There are short sections of concrete u-frame bypass structures that protect PG&E electrical towers about 1,000 feet upstream of Tasman Drive and about 1,000 feet downstream of Tasman Drive. Levees protect adjacent properties on both banks from about the most upstream PG&E bypass structure downstream to Caribbean Drive.

Maintenance roads are located on both banks with a public access trail located on the east side upstream of Tasman Drive. There are road crossings of the channel at Tasman Drive/VTA Light Rail, Persian Drive, Hwy 237, and Moffett Park Drive. Valley Water owns the property in fee-title for most of the reach. Adjacent land uses are mostly residential upstream of Hwy 237 and industrial downstream of Hwy 237.



Looking upstream from Caribbean Drive

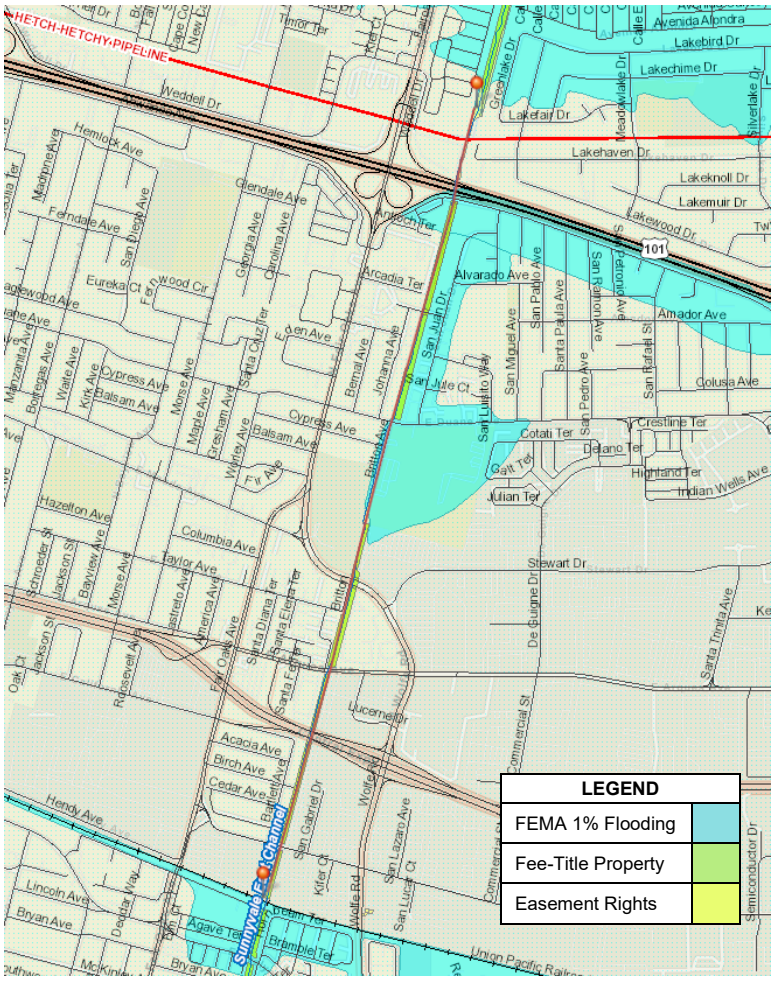
Looking downstream Hwy 237 to Tasman Dr.

Reach E3 – 700' Downstream Hwy 101 to CALTRAIN

This non-tidal reach with an average slope of about 0.6% is about 8,670 feet in length and is mostly a trapezoidal earthen channel that flows south to north. There are some areas of sack concrete slope protection, but some erosion is occurring at the transition areas from hardscape to earth banks. There are also several PG&E towers in this reach with associated concrete channel stabilization hardscape constructed for protection.

There are eight concrete box culverts with wing wall transitions. Three of special note are; Hwy 101's 980 foot long box culvert, a 1,900 feet long culvert starting downstream at Duane Avenue that passes under The King's Academy school, and a 350 foot long culvert starting upstream of The King's Academy and ending after Wolfe Road. The other box culvert road crossing of note is at Central Expressway.

Valley Water has property ownership for most of this reach except at Hwy 101 and at the culvert from Duane Avenue through The King's Academy. There is a maintenance road on the east bank along the trapezoidal channel areas and a short section with roads on both banks between Wolfe Road and Arques Avenue. There is an ALERT gauge and visual staff upstream of Hwy 101 and Ahwanee Avenue.



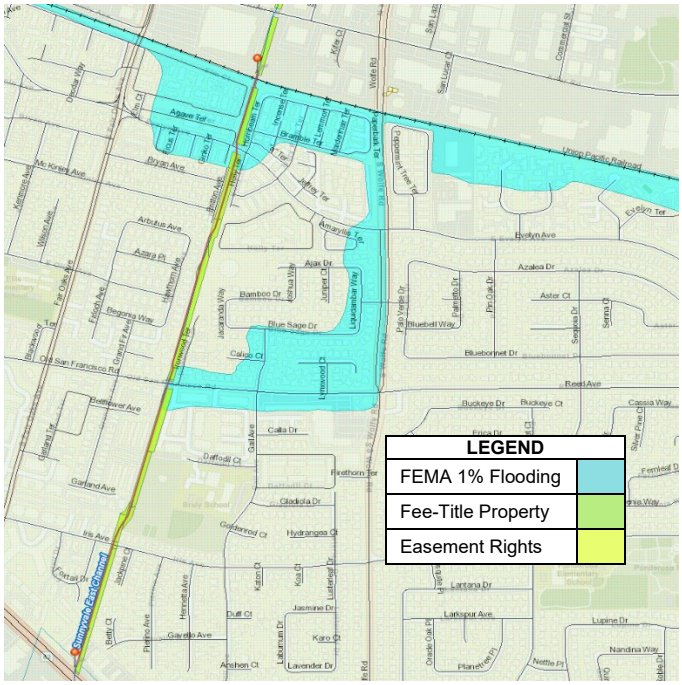
Looking upstream towards Wolfe Road

Looking upstream from Arques Avenue

Reach E4 – CALTRAIN to El Camino Real

This 5,500 foot long reach flows south to north on an average 0.5% slope and is mostly a trapezoidal channel with some sections of u-frame concrete, a significant amount of sacked concrete slope protection, some areas of channel bottom hardscape, and several drop structures to reduce erosive flow velocities.

There is good maintenance access on the east bank along this reach and Valley Water has property rights throughout this reach except at the Evelyn Avenue and Old San Francisco Road crossings.



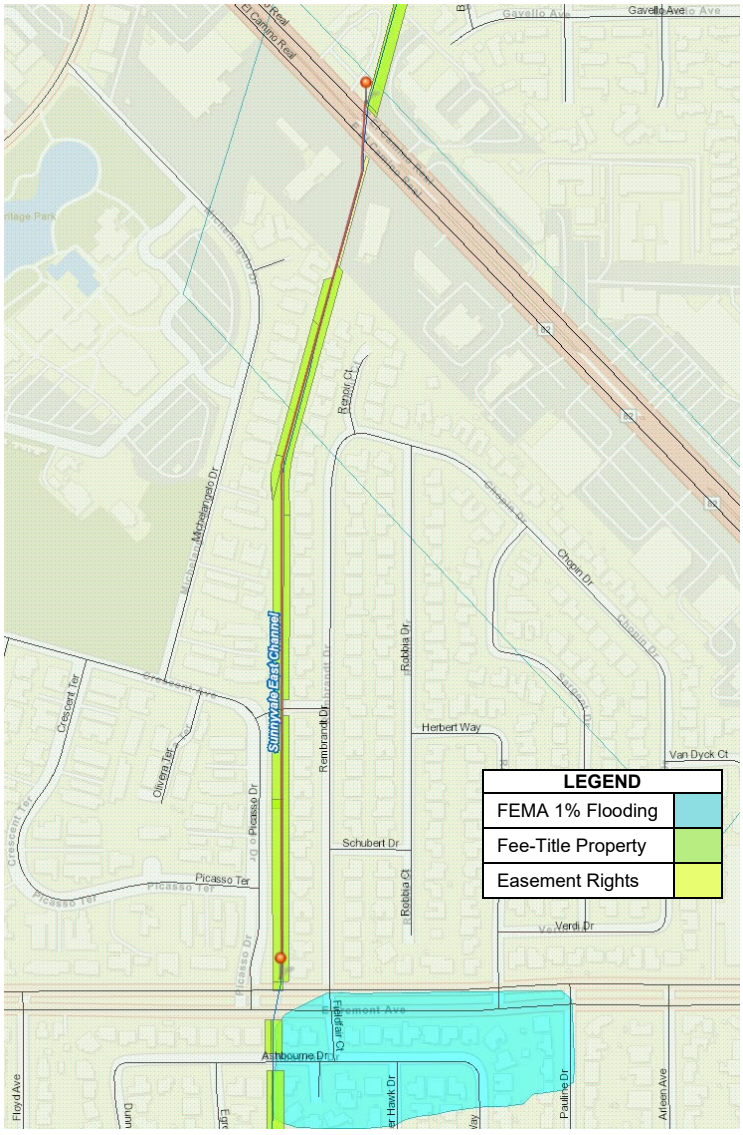
Looking upstream from Evelyn Ave.

Looking upstream from Old San Francisco Rd.

Looking upstream from Iris Ave.

Reach E5 – El Camino Real to Fremont Avenue

This approximate 2,760 foot reach has an average slope of about 0.4% and flows south to north. It is mostly an earthen trapezoidal channel with some rock rip-rap erosion repairs near Crescent Avenue. There is a concrete box culvert over 500 feet long at the El Camino Real extending under the property upstream. There is also a concrete box culver at the Crescent Avenue crossing. Valley Water has property ownership on the entire reach except under El Camino and only an easement on the property just upstream. It has good access from a maintenance road on the east side of the channel for most of the reach.



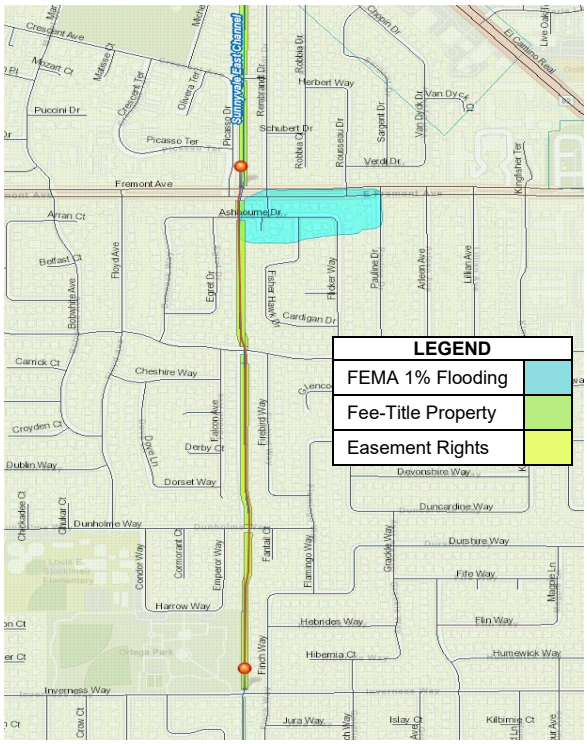
Looking upstream from El Camino Real

Looking downstream from Fremont Ave.

Reach E6 – Fremont Avenue to Inverness Way

This reach is about 3,980 feet long with an average slope of about 0.7%. It has a straight alignment flowing south to north and is an earth trapezoidal channel with some areas of sacked concrete and rock slope protection. There are culverts at road crossings for Fremont Avenue, Ashbourne Drive, Carlisle Way, and Dunholve Way. There is a drop structure in the Fremont Avenue culvert.

Surrounding land use mostly single family residential with Ortega Park on the west side just downstream of Inverness Way. There is a maintenance road on the east bank and Valley Water has property ownership through the entire reach except portions at the road crossings.



Looking upstream from Ashbourne Drive

Looking downstream from Dunholme Way

Looking upstream from Dunholme Way

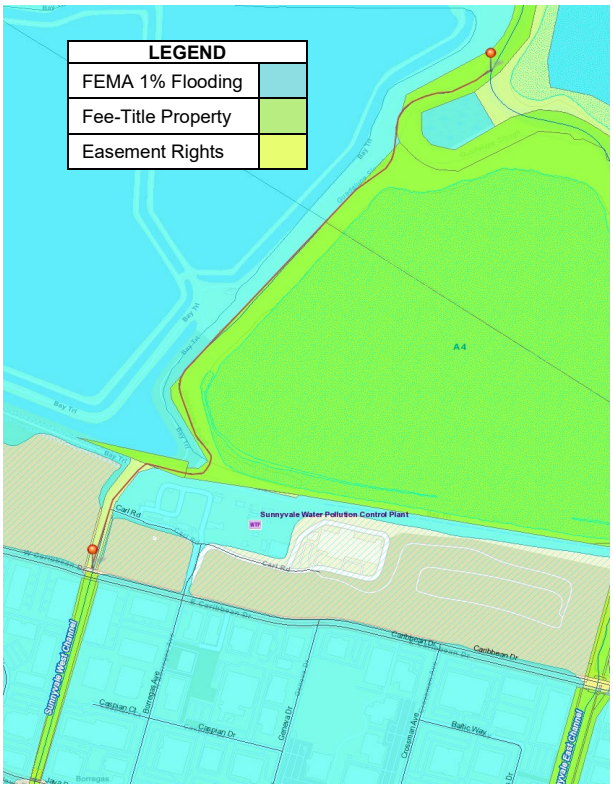
Reach E7 – Inverness Way to Interstate 280

The flow in this 2,500 foot reach is contained in a 72 inch pipe that is corrugated metal except for the most upstream 260 feet that is reinforced concrete pipe. Valley Water has easement for most of the length of pipe except for a short section of ownership just downstream of Homestead Road. The pipe is located mostly along the backyard property lines through a residential area north of Homestead Road and under a roadway north of Homestead Road.

Sunnyvale West Channel Reach Descriptions

Reach W1 – Guadalupe Slough to Caribbean Drive

This 6,600 foot long reach is a vegetated earthen trapezoidal channel with levees in a tidal area that has nearly a 0% slope. There is a box culvert at the Carl Road crossing about 600 feet downstream of Caribbean Drive and a bridge for City of Sunnyvale Water Pollution Control Plan pipelines about 700 feet downstream of Carl Road. Between the two is a pump station outfall on the west side. There's a maintenance road on the west side from Guadalupe Slough for about 1,000 feet and then maintenance roads on both banks from there to Caribbean Drive. The Bay trail is located on the maintenance roads from Carl Road to past the pipeline bridge.



Looking upstream from Guadalupe Slough

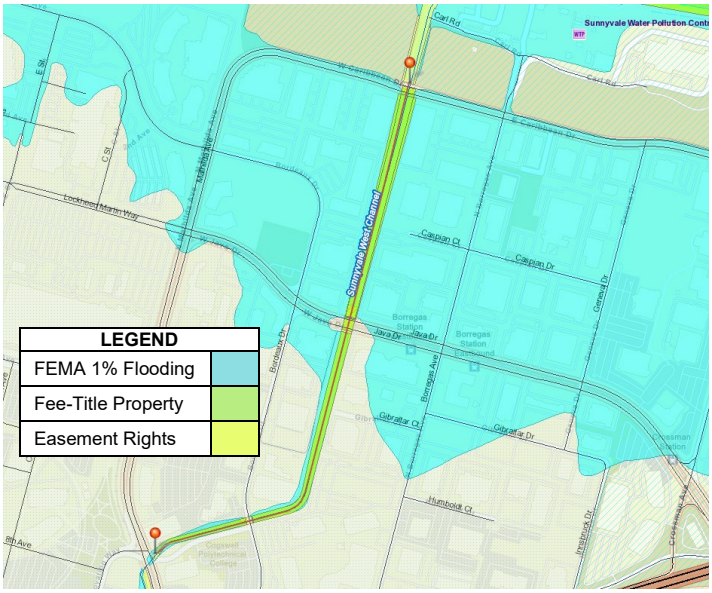
Looking downstream of Carl Road

Looking upstream at Caribbean Drive

Looking upstream at Carl Road culvert

Reach W2 – Caribbean Drive to Mathilda Avenue

This is a vegetated earthen trapezoidal channel about 4,900 feet in length flowing south to north with very little slope. It is tidally influenced with the invert consisting mainly of bay mud and silt. There are levees from Caribbean Drive to Bordeaux Drive except for floodwalls upstream Caribbean and near Bordeaux protecting an industrial area (e.g., Google IT Corporation). There are several crossings of the creek that includes culverts at Caribbean Drive, Java Road (includes VTA Light Rail line), and Bordeaux Drive and bridges for Google Corporation and pedestrians at a few locations in the reach. There is a west bank maintenance road in the entire reach and an east bank road from a Google bridge to Caribbean Drive. Valley Water has property rights in the reach.



Looking downstream at Caribbean Drive culvert

Looking upstream at Mathilda culvert

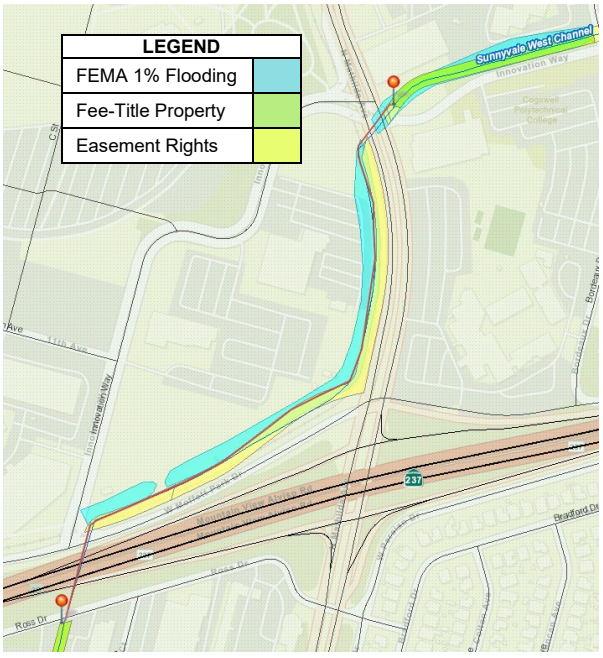
Looking upstream at Java Drive culvert

Looking upstream from Java Drive

Looking upstream at Mathilda Avenue culvert

Reach W3 – Matilda Avenue to just upstream Ross Drive

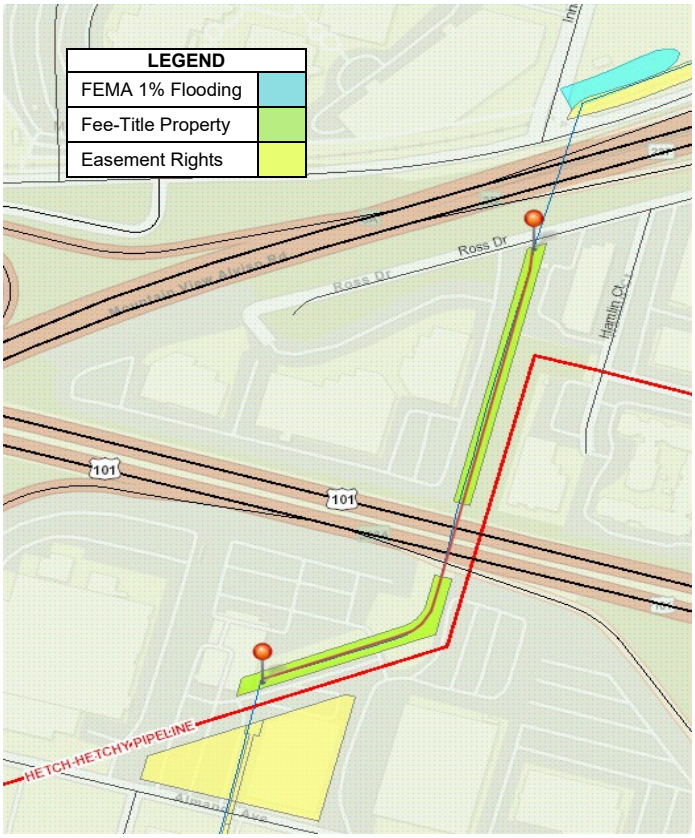
This reach is about 2,500 feet in length flowing on a 0.4% slope and is composed of three concrete sections of channel. It runs in a concrete box culvert under Matilda Avenue and along VTA Light Rail lines that run along Matilda Avenue for about 1,150 feet, 850 feet of 7'x10' u-frame channel adjacent to the VTA Light Rail lines, and back into a box culvert for about 540 feet along the VTA Light Rail lines until it turns south at Innovation Way and crosses Hwy 237 and Ross Drive. There is maintenance access to the u-frame channel section using a bridge and crossing the VTA Light Rail lines near the intersection of Moffett Park Drive and Matilda Avenue. Ramps access the channel invert of the u-frame channel at that location. Valley Water has easements in the reach.



Looking downstream at Ross Drive culvert

Reach W4 – Ross Drive to 320 feet Downstream Almanor Avenue

This reach is about 1,400 feet in length and is a trapezoidal earthen channel with grasses and weeds that has a slope of almost 0.3%. There is a box culvert at the Hwy 101 crossing and another one at the parking lot bridge just upstream. There's a maintenance road on the east side downstream of Hwy 101 and minimal access limited maintenance access upstream of Hwy 101. Valley Water has property ownership in the reach except under Hwy 101.



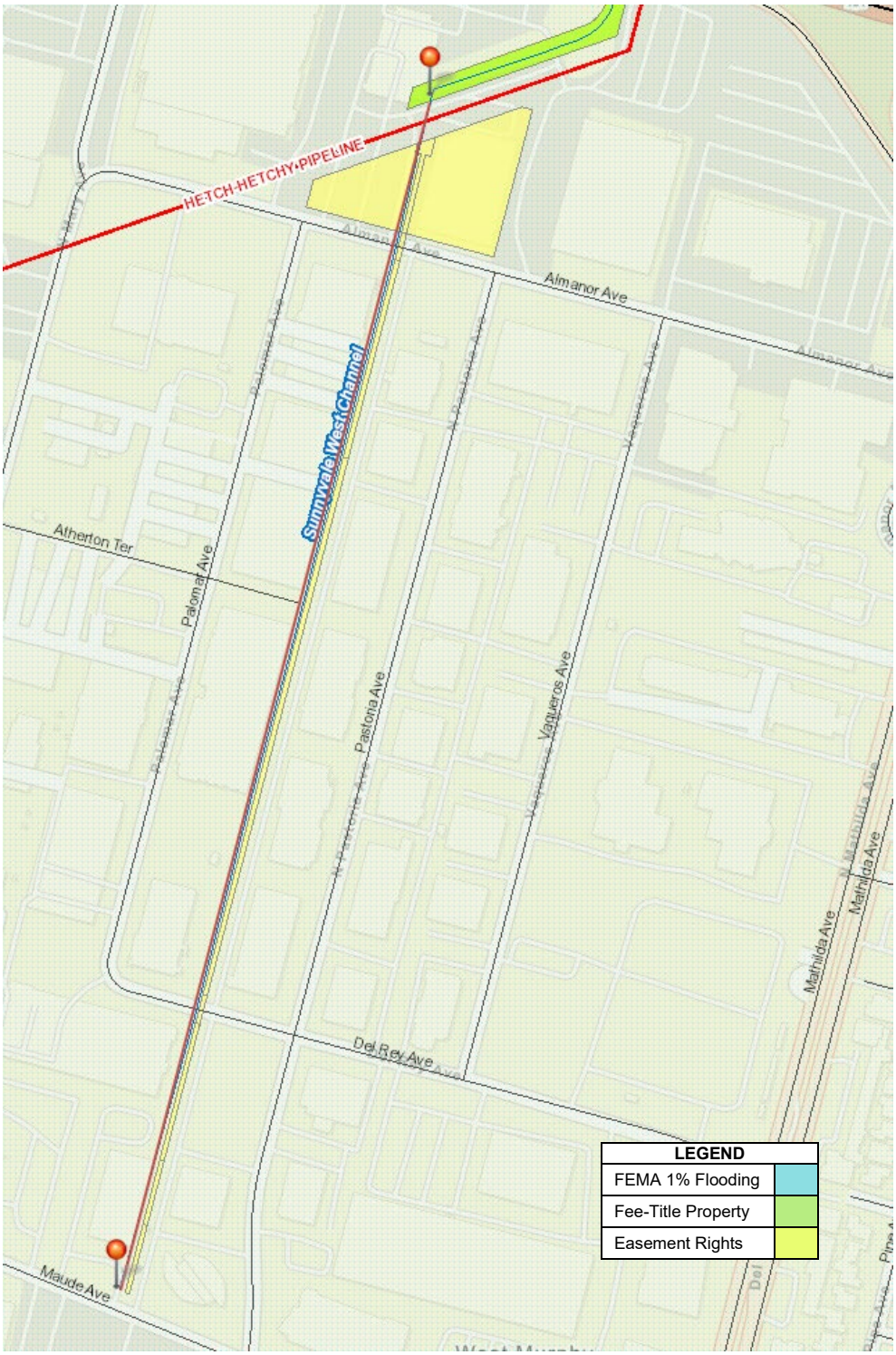
Looking downstream of Ross Drive

Looking upstream at Hwy 101

Looking upstream at Hetch-Hetchy culvert

Reach W5 – 320 fee Downstream Almanor Avenue to Maude Avenue

The reach is about 2,750 feet and transitions from a dual box culvert under Hetch-Hetchy to an 84-inch reinforce concrete pipe for 642 feet and then to a 78-inch reinforced concrete pipe for the remainder of 2050 feet. Valley Water has easement in the reach.



C. SUNNYVALE EAST CHANNEL AND SUNNYVALE WEST CHANNEL FLOOD THREATS

Storms in the 1950s caused significant flooding in northern portions of Sunnyvale partly due to land subsidence that changed the natural drainage patterns for areas that would normally drain to Stevens Creek or Calabazas Creek. To address this flooding problem, two channels were constructed in the 1960s and 1970s to drain mostly urban areas in the City of Sunnyvale, City of Mountain View, City of Cupertino and unincorporated Santa Clara County.

Both channels flow south to north crossing Hetch-Hetchy pipes, Caltrain railway lines, Highway 101 and Highway 237 and flow adjacent to Valley Water's Pond A4 before entering Guadalupe Slough that discharges into San Francisco Bay. Tides influence the water surface elevation during storm events on both channels up to past Caribbean Drive and uncertified levees and some floodwalls have been constructed to south of Tasman Drive on Sunnyvale East Channel and to Java Drive on Sunnyvale West Channel.

Sunnyvale East and West Channels drain a combined area of 14.85 square miles and were constructed to convey flow from surrounding storm drains that are generally built to about a 10-year storm capacity. Numerous repairs have been made over the years in various locations, but very little has been done to increase capacity so that they still pose a flood threat of overtopping during a 100-year (1%) storm flow.

Since both channels were constructed to primarily receive drainage from local storm drains, the capacity of the local storm drains limits the amount of flow that can be captured and conveyed into the channels from the surrounding land uses and the channels are considered very flashy systems. This means that increases in flows in the channels from the larger storms are limited due to the storm drain capacities and differences in flow are not as large for natural creeks that are fed from a diversity of sources. And the time between peak rainfall and a resulting peak flow in the channels is a matter of minutes.

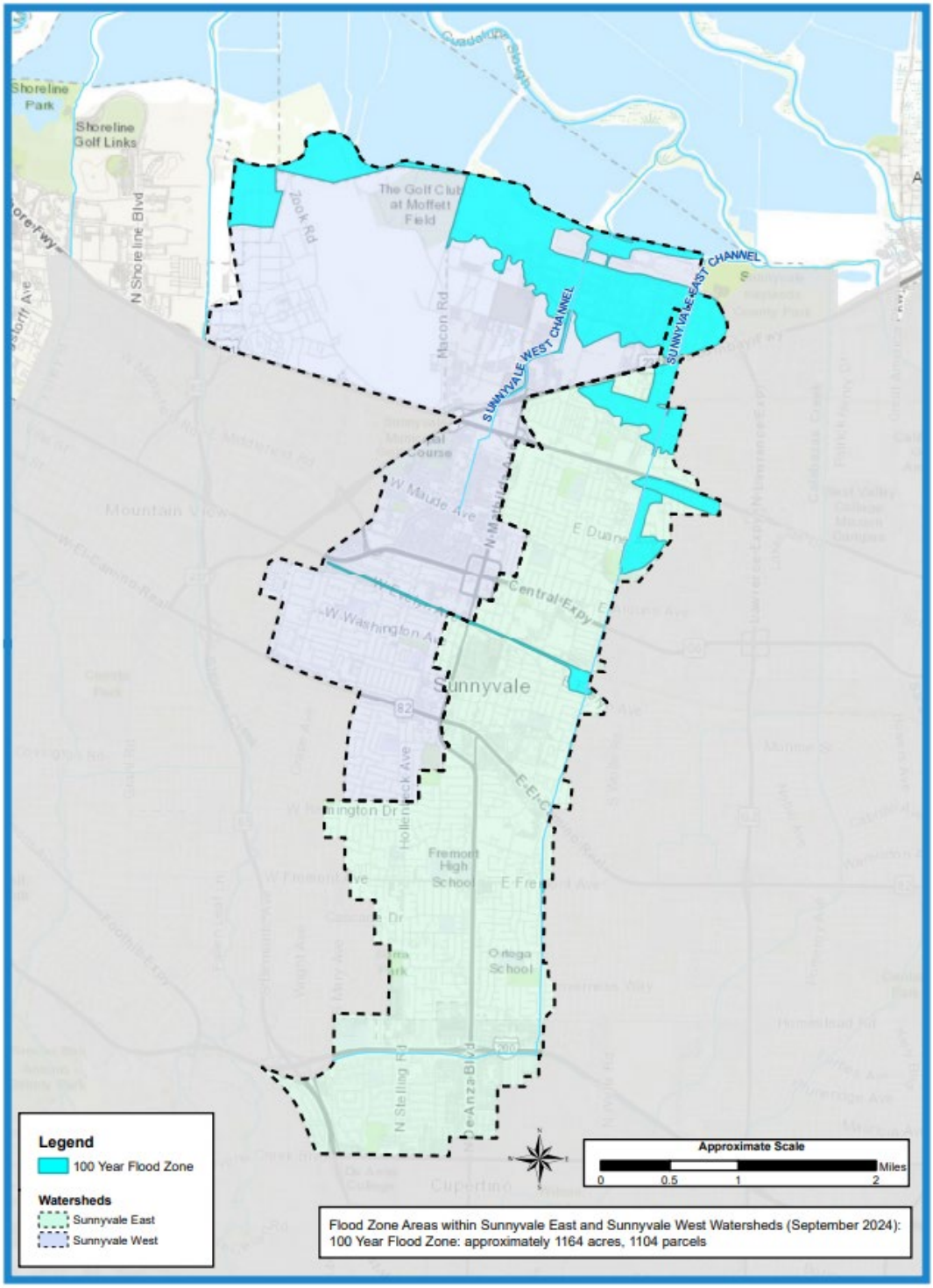
The main flood threats from these channels are:

1. Flooding due to channel overtopping from high storm flows,
2. Flooding influenced by high tides or high flows in Calabazas Creek and
3. Flooding due to backing up of the storm drain system.

Flooding occurred in 1983, 1986, and 1998 following construction of the channels. In January of 1983, flooding upstream of Caribbean Drive on both channels inundated parking lots, streets, and entered at least one business. It is likely that Sunnyvale East also overtopped north of Evelyn Avenue during these storms. The February 1986 event likely overtopped Sunnyvale East Channel between Caribbean Drive and Guadalupe Slough. And in February 1998 Sunnyvale East Channel overtopped at Duane Avenue and downstream of Hwy 237 flooding 26 businesses and manufacturing properties.

FEMA estimates that the channels pose a flood threat to 1,164 acres and 1,104 parcels shown in Figure 3B and 4B that flood insurance should be required for structures in those areas. Much of that flood threat is due to the potential of failure of the uncertified levees. Valley Water has a project planned in the next few years on Sunnyvale East Channel that will address the flood threat and recent construction of capacity improvement on Sunnyvale West Channel upstream of Caribbean Drive by Google IT Company should address that flood threat when certified by FEMA.

Valley Water has completed some recent modeling to refine the 100-year flooding area. This detailed modeling is shown in Figure 5B.



GIS themes are for illustration and general analysis purposes only and are not accurate to surveying or engineering standards. Information is not guaranteed to be accurate, current, or complete and use of this information is your responsibility.

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Valley Water

FIGURE 3B
Sunnyvale East Channel
1% FEMA Flood Map

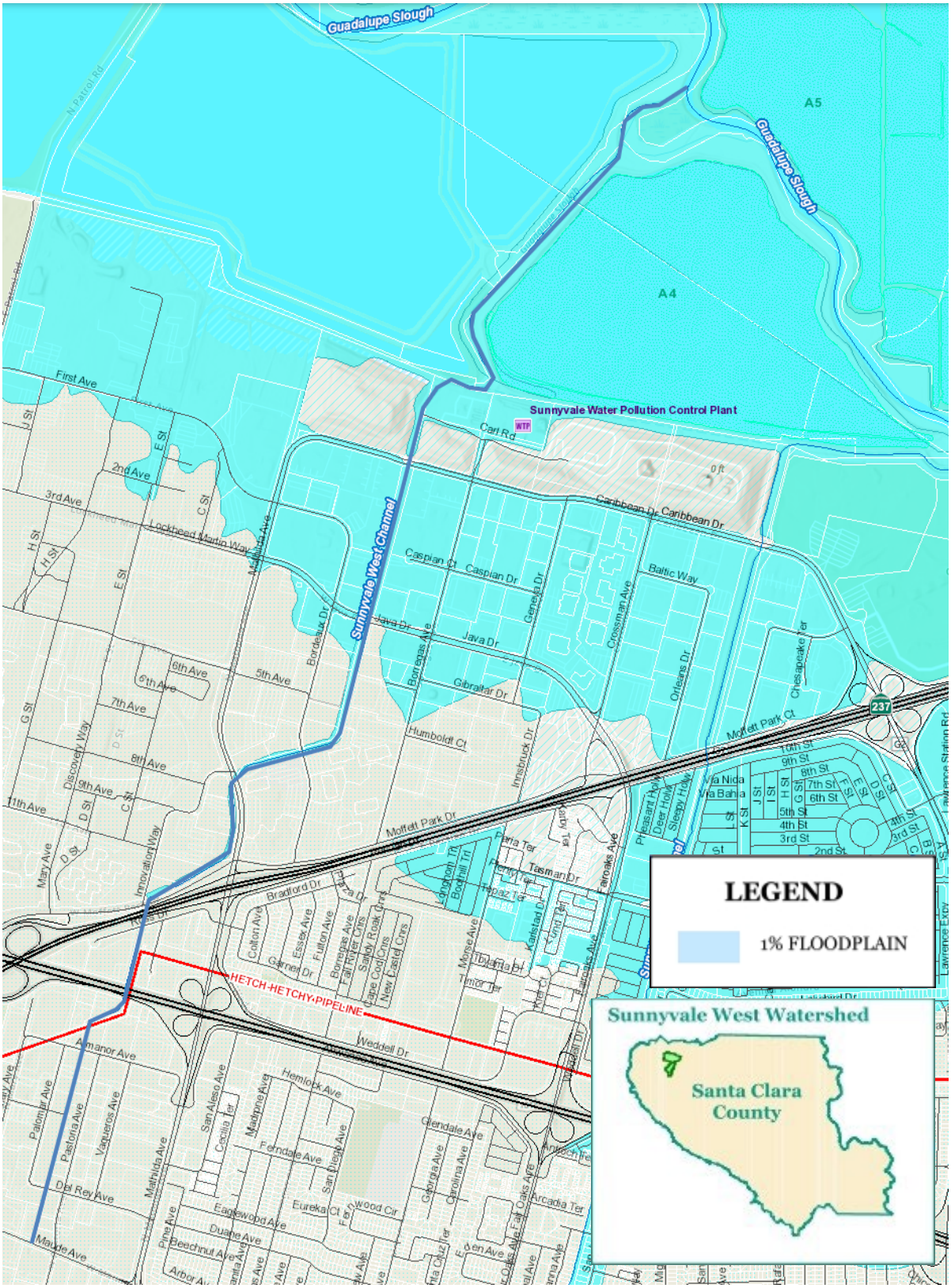

FIGURE 4B
Sunnyvale West Channel
100-Year FEMA Flood Map

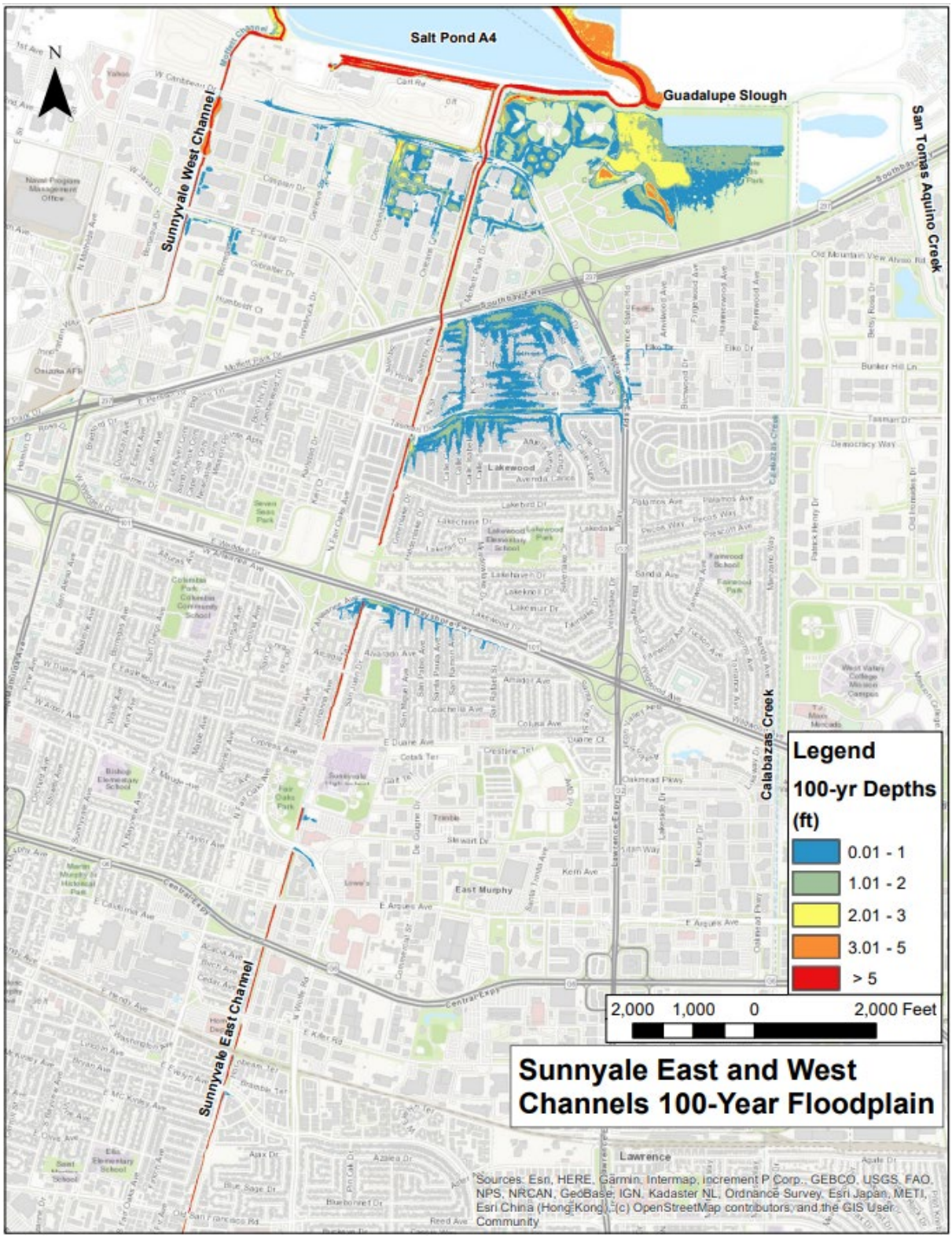

FIGURE 5B
Sunnyvale East & West Channel
100-Year Valley Water Flood Map

D. FLOOD EVENT DETECTION

Several detection methods can be utilized for Sunnyvale East and West Channels that include weather forecasts, hydrologic/hydraulic modeling, Automated Local Evaluation in Real Time (ALERT), other stream/precipitation gauge systems, and field observations. Some of these are available through websites that are listed in Attachment 13.

1. Weather Forecasts

The National Weather Service (NWS) provides weather (e.g., precipitation) forecasts in advance of a storm events. Valley Water also contracts with a service provider for enhanced forecasting in the regional area.

During storm events, the NWS will host webinars with affected agencies and utilities to discuss forecasts and share information to enhance regional preparedness. The Valley Water and Agency Stakeholders can participate in these webinars and share all current information. In addition, the NWS maintains websites (Attachment 13) that provide flood threat information and they will issue public notices of forecasted flood threats on local television and radio programming if the level of threat is high.

2. Hydrologic/Hydraulic Modeling

Based on the weather forecast and other real-time data, Valley Water may utilize computer modeling of the channels to predict flood stage up to 72 hours in advance. These models are not run operationally and performed on an ad hoc basis. Outputs are considered estimates and can vary, sometimes significantly, from the actual flood flows.

To improve the accuracy of the modeling, Valley Water will review the computer model periodically and determine if additional information can be gathered to update the model. The type of information that can be used to update the models include: surveys of channel geometry, reevaluation of channel roughness due to vegetation or blockages, and data gathered during high flow events.

Valley Water and NWS will utilize this modeling to help set their threat level for the channels (Table 1B) and provide the information to local agencies and the public as appropriate. And, this same modeling and information that helps determine threat levels is used by Valley Water in determining flood severity levels for Sunnyvale East Channel (Table 2B) during storm events.

3. Gauge System

Stream gauges provide valuable information for high flow events and may give notice to take action or to deploy staff for field observations. Gauges may be both visual and remote sensing Automated Local Evaluation in Real Time (ALERT). ALERT gauges are set with alarms to automatically notify appropriate staff at stages as described in Table 2B.

All ALERT gauges can be found at https://alert.valleywater.org/?p=map&disc=f. The Sunnyvale East Channel gauge provides data in near real-time upstream of Highway 101.

4. Visual Observations

As water levels increase in the creeks, rivers, and waterways visual observations can play an important role in evaluating the current situation. These observations can occur either on-site or remotely using WebCams, which can be accessed on Sunnyvale East Channel at:

1. Sunnyvale East Channel at Tasman Drive - https://valleywateralert.org/scvwd/webcams/site.php?cid=9008.

2. Sunnyvale East Channel upstream of Hwy 101 - https://valleywateralert.org/scvwd/webcams/site.php?cid=5074

Valley Water will typically deploy Field Information Teams (FITs) to visually monitor known hotspots (Attachment 14) or other areas of concern and report back to a Emergency Management Organization (EMO) the water levels in areas of potential flooding. In addition, FITs can monitor facilities for potential damage, identify surface drainage issues, thoroughly document actual flooding, and report landslides/erosion affecting the adjacent land uses.

Valley Water and, in some cases other Stakeholders, have individual teams who deploy into the field to observe flood conditions at “hot spots.” Deployment of these teams may be coordinated if there are more than one team in the same area. HH&G maintains a master list of flooding hotspots (Attachment 14) to deploy FITs and other teams in the West Valley Water that includes Sunnyvale East and West Channels at:

- Sunnyvale East at Evelyn Avenue (pg. 59)
- Sunnyvale East at Caribbean Drive (pg. 60)
- Sunnyvale West at Caribbean Drive (pg. 61)

Field Operations & Maintenance personnel are also typically out in the field inspecting, repairing, and removing debris from facilities during storm events. These personnel also provide intelligence back to their agencies regarding facility conditions and any storm related concerns.

In addition, the public may be helpful in reporting situations that may pose a flood threat. These are typically reported to Valley Water, City Stakeholder or other Agency Stakeholder who should promptly relay to the DOC/EOC or to Valley Water through a contact method shown below:

- Main Valley Water telephone – (408) 265-2600
- After hours telephone – (408) 395-9309
- Valley Water website report problems – https://www.valleywater.org/ or https://access.valleywater.org/s/
- Non-Emergency Police & Fire dispatch – 311
- Emergency Police & Fire dispatch – 911

All together the intent of these observations is to cover the following:

a. Visual stream gauges (Table 2B)—check for high water and rate of change
b. Known Flood Hot-Spots
c. Real-time Flooding—report and document flooding
d. Bridge Piers—check for debris blockages
e. Trash Racks—check for debris blockages
f. Levees and Floodwalls—check for damage and stability
g. Sandbag sites—check for supply and access issues
h. Previously repaired or other project sites—check for performance
i. Bank Stability—check for threats to adjacent land uses

E. SUNNYVALE EAST AND WEST FLOOD READINESS LEVELS AND SEVERITY DETERMINATION

Sunnyvale East and West Channels are considered flashy systems controlled by storm drain runoff. However, they are affected by tidal action and can be influenced by flows in Calabazas Creek. Generally, there is less than half an hour from the time of peak rainfall in the watershed to the resulting peak flow in the channels. However, with weather forecasting and modeling there is an ability to estimate a flood event before it occurs. This is extremely valuable when preparing for necessary evacuations and road closures.

To provide this advanced notice, a threat level should be used to provide an indicator of preparedness for a response and a level of potential severity for areas subject to flooding to assist the Agency's in planning and implementing appropriate actions. Modeling in the future is filled with uncertainties and the expected storm should be continually evaluated. Table 1B describes levels of readiness for Sunnyvale East and West Channels.

TABLE 1B
Sunnyvale East and West Channels
Flood Readiness Levels

PREPAREDNESS	This is the base stage of readiness that will be the typical condition throughout most of the year. An Emergency Management Organization (EMO) is not active at this level. Preparedness is defined as: • Flood stage (Minor Flooding or greater) is not estimated within the next 72 hours or • Measured stream depth is below 50% of flood stage.
MONITORING	This condition is variable and requires more intense monitoring and a heightened level of alertness. A portion of the EMO may be minimally active to monitor for any developing flood concern. Monitoring is defined as: • Measured stream depth is at 50% to 70% of flood stage, or • The stream depth is estimated to reach flood stage within 24 hours.

WATCH	Flood level or a serious flood threat is expected to occur. Multiple portions of the EMO may be activated at an appropriate level. Watch is defined as: • Stream depth is estimated to reach flood stage or greater within 24 to 48 hours, or • Measured stream depths are at 70% to 100% of flood stage, or • For areas that are controlled purely by storm drain runoff (flashy systems), the stream depth is estimated to reach flood stage within 6-12 hours.
WARNING	This is a more urgent situation with flooding imminent or occurring. The EMO is more completely active. Warning is defined as: • Flood stage or greater is occurring or is estimated to occur within 24 hours, or • For areas that are controlled purely by storm drain runoff (flashy systems), the stream depth is estimated to reach flood stage within minutes/hours or is occurring.
Note: Flood stage is the depth of water at which a stream or facility begins flooding (see Glossary of Terms).	

When the threat level is at a Watch or Warning, there is an expectation that flooding will occur or is occurring at some locations. The severity of the situation at specific locations is determined by the flood stage. The areas subject to flooding for different stream stages are estimated utilizing hydraulic models and flood maps prepared by the Hydrology, Hydraulics and Geomorphology Unit (HH&G). Sunnyvale East Channel upstream of Hwy 101/Ahwanee Avenue has a visual stream gauge and an ALERT gauge (https://alert.valleywater.org/?p=sensor&sid=5074&disc=f) that are associated with flood thresholds. The following figure shows the visual and ALERT stream gauge and Table 2B describes the flood severity levels utilized by Valley Water and NWS for Sunnyvale East Channel based on flow depths at this location upstream of Hwy 101/Ahwanee Avenue.

Stream Gauges upstream of Hwy 101/Ahwanee Avenue

TABLE 2B
Sunnyvale East & West Channels Flood Severity Levels
Stream Gauge on Sunnyvale East Channel

Action (Yellow)	An established gauge height which when reached by a rising stream, lake, or reservoir represents the level where action is taken in preparation for possible significant hydrologic activity. • **6.5' Stage – Stream Gauge on Sunnyvale East upstream Hwy 101** Sunnyvale East – Flooding north of Hwy 101 can be intensified by high tides or flows coming in from Calabazas and San Tomas Aquino Creeks - check stage gauge at Sunnyvale East Channel at Baylands Park (Stream Sensor 5149) for a rough indication. Rough vegetation is known to grow quickly in some reaches north of Hwy 101 and can intensify flooding as well. Sunnyvale West – No flooding.
Minor Flooding (Orange)	Minimal or no property damage, but possibly some public threat (e.g., inundation of roads). • **8' Stage – Stream Gauge on Sunnyvale East upstream Hwy 101** Sunnyvale East – Levees immediately downstream of Caribbean Drive overtop both banks, causing mostly less than 1 ft depth of flooding of the Twin Creeks Sports Complex (to the east) and the auxiliary side channel ditch (to the west). East bank immediately upstream of Tasman Drive overtops, flowing approximately 2,500 ft along Tasman Drive and causing some minor flooding (mostly less than 1 ft depth) in the smaller streets of Plaza Del Rey and Casa De Amigos Mobile Home Parks. Sunnyvale West – No flooding.
Moderate Flooding (Red)	Some inundation of structures and roads near stream, evacuations of people and/or transfer of property to higher elevations. • **9' Stage – Stream Gauge on Sunnyvale East upstream Hwy 101** Sunnyvale East – Flooding continues to get worse at the two aforementioned locations. In addition levees upstream of Caribbean Drive start overtopping on both banks, continuing to flood parkland areas near Twin Creeks Sports Complex, and flooding some ground adjacent to businesses on the west bank. Upstream of Tasman Drive the flooding continues to expand in the mobile home parks of Plaza Del Rey and Casa De Amigos, flooding more buildings and side streets with depths up to 2 feet. Sunnyvale West – No flooding.
Major Flooding (Purple)	Extensive inundation of structures and roads, significant evacuations of people and/or transfer of property to higher elevations. • **10' Stage – Stream Gauge on Sunnyvale East upstream Hwy 101** Sunnyvale East Downstream of Highway 237: There is significant flooding at Twin Creeks Sports complex and the Bayland Park.

Some minor flooding of several properties/businesses south of Caribbean Drive.

To the west of the channel Caribbean Drive floods up to 2 ft depth for a length of about 4,000 feet, extend almost to Sunnyvale West Channel.

Flooding of some properties occurs to the south of Caribbean Drive (up to 3 ft).

A portion of Crossman Avenue floods up to 3ft depth.

Tasman Drive:

Overtopping south of Tasman on the east bank expands, with flood waters inundating a short (~300 ft long) reach of Lawrence Expressway, continuing to the east, and causing minor flooding (up to 1ft) of side streets and possibly a handful of businesses.

The flooding continues to expand in the mobile home parks of Plaza Del Rey and Casa De Amigos, flooding more buildings and side streets with depths reaching over 2 feet.

U/S of Hwy 101:

Overtopping of the west bank causes up to 1.5 ft depth of flooding of an apartment complex adjacent to the channel and minor street flooding along Ahwanee Avenue, North Ahwahnee Terrace and South Ahwanee Terrace.

Overtopping of the east channel bank floods mostly streets, impacting Ahwanee Avenue for about 2,500ft up to San Rafael Street. Other minor streets along Ahwanee Avenue that flood are San Juniper Drive, San Mateo Court, San Pablo Avenue, and Satna Paula Avenue.

Overtopping also occurs between Wolfe Road and Duane Avenue along the east bank, partially flooding the parking lot of a business adjacent to the creek.

With any higher flows, the flooding at Wolfe Road would get worse, with flood flows traveling north and comingling with the flooding at Highway 101. In addition, the reach just upstream of Evelyn Avenue would start flooding and could impact the following streets: Evelyn Avenue, Wolfe Road, Hornbeam Terrace, Bramble Terrace, and Holly Terrace. The Sandalwood Condominiums as well as the Windsor Ridge Apartments could also potentially flood.

<u>Sunnyvale West</u>

East Java Drive:

Flows overtopping the east bank south of East Java Drive flood Borregas Avenue, East Java Drive and several parking lots (up to 1 ft).

Overtopping north of East Java drive floods the parking lots (up to 1.5 ft) of several businesses adjacent to the east side of the creek.

With larger than 100yr flows, flows would spread northeast, flooding several roads and a block of businesses (up to 3ft) bounded by Capsian Drive, Borregas Avenue, Geneva Drive, and Caribbean Drive; comingling with flooding from the Sunnyvale East Channel.

F. NOTIFICATIONS AND ACTIVITIES

General activities and actions are described in Concept of Operations – Table 3 and Attachments 3 through 8 of the EAP. General notifications are described in EAP Mobilization – Step 3 of the EAP. The general level of activity and notifications will be guided by the best information available to the EMO personnel. The level of activity may mirror those activities of the individual jurisdictional EMOs.

Sunnyvale East and West Channels flow through the cities below and may pose a threat to any of them, however, it poses the greatest flood threat to the City of Sunnyvale. Contact information for the cities and other Agency Stakeholders is included as Attachment 9 of the EAP.

- City of Sunnyvale
- City of Cupertino

There are important infrastructure and facilities at risk of flooding from the channels. Based on intelligence gathered during the storm event, the EMO and other stakeholders will determine the risk and provide notifications as appropriate. In general, a City Stakeholder would provide notifications to critical facilities at risk.

Below is a list of some important facilities that may be at risk. If needed and available, more detailed flood maps may be provided to City Stakeholders by Valley Water's Hydrology, Hydraulics and Geomorphology Unit to better determine which facilities are threatened:

FACILITY TYPE	NAME	ADDRESS	PHONE
SCHOOLS, PARKS & COMMUNITY CENTERS	Santa Clara County - Baylands Park	999 E Caribbean Dr Sunnyvale, CA 94089	(408) 730-7506
	The Kings Academy	562 N Britton Ave Sunnyvale, CA 94085	(408) 481-9900
	Rainbow Montessori	790 E Duane Ave Sunnyvale, CA 94085	(408) 783-3261
	San Miguel Elementary School	777 San Miguel Ave Sunnyvale, CA 94085	(408) 522-8278
	City of Sunnyvale Fair Oaks Park	540 N Fair Oaks Ave Sunnyvale, CA 94085	(408) 730-7350
	Lakewood Elementary School	750 Lakechime Dr Sunnyvale, CA 94089	(408) 522-8272
	Foothill College Sunnyvale Center	1070 Innovation Way Sunnyvale, CA 94089	(408) 745-8000
UTILITIES & INFRASTRUCTURE	City of Sunnyvale Water Pollution Control Plant	1444 Borregas Ave Sunnyvale, CA 94089	(408) 730-7260
	VTA Light Rail – Orange Line (Mountain View to Alum Rock)	Tasman Dr – Fair Oaks Ave – Java Dr	(408) 321-2300

FACILITY TYPE	NAME	ADDRESS	PHONE
UTILITIES & INFRASTRUCTURE (cont'd)	PG&E Fair Oaks Substation and Power Lines on Sunnyvale East Channel	1st Street Sunnyvale, CA 94089	(800) 743-8000
	CALTRAIN – Sunnyvale Station	121 W Evelyn Ave Sunnyvale, CA 94086	(650) 508-6200 (877) 723-7245
FIRE STATION	City of Sunnyvale Fire Station #5	1210 Bordeaux Dr Sunnyvale, CA 94089	(408) 730-7100
	City of Sunnyvale Fire Station #6	1282 Lawrence Station Rd Sunnyvale, CA 94089	(408) 730-7100
OTHER	Twin Creek Sports Complex	969 E Caribbean Dr Sunnyvale, CA 94089	(408) 475-0044
	Animal Assisted Happiness	999 E Caribbean Dr Sunnyvale, CA 94089	(650) 887-0887

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