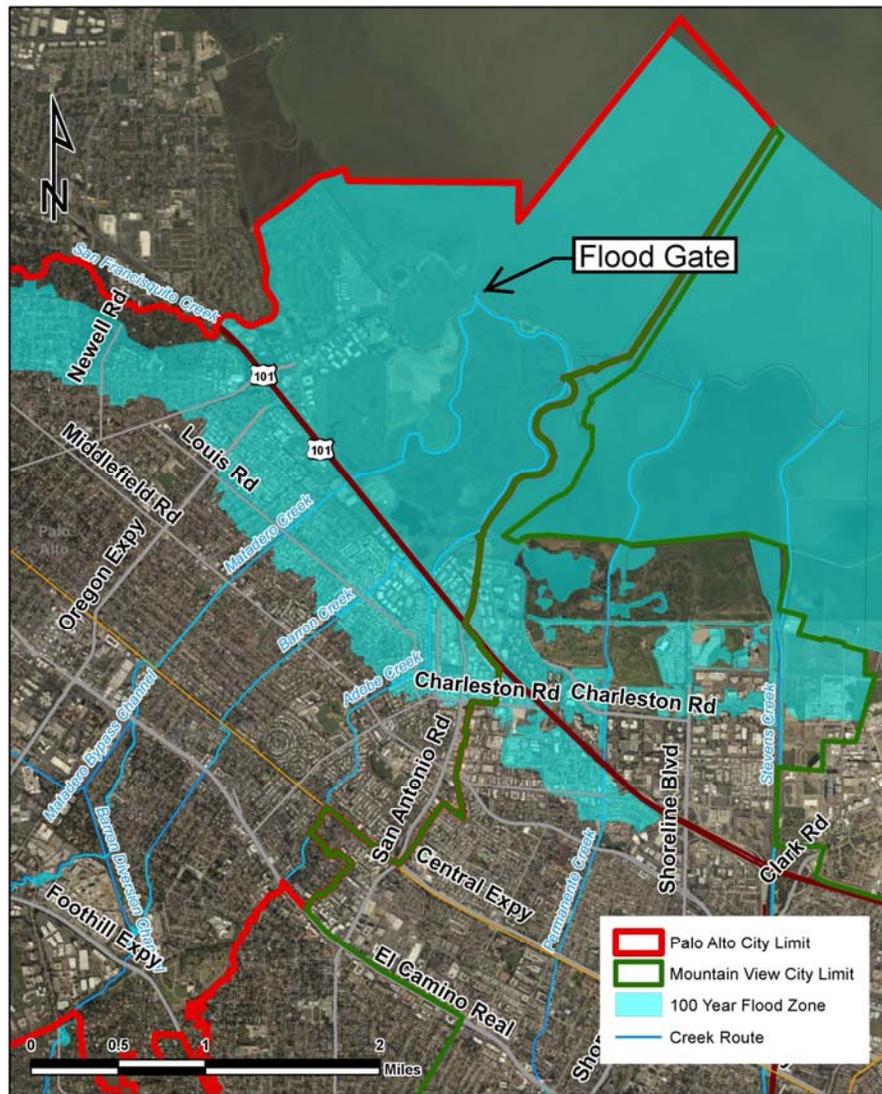


# Palo Alto Flood Basin Emergency Action Plan (EAP)



Revision Date: June 15, 2019

SANTA CLARA VALLEY WATER DISTRICT

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## 1. INTRODUCTION

### 1.1 Purpose of the Emergency Action Plan (EAP)

The purpose of this Emergency Action Plan (EAP) is to provide guidance and an approach to ensure communications, planning, and implementation between the agencies regarding threatened and actual flooding emergencies. This plan is specific to Santa Clara Valley Water District (District) actions and does not include the details of how other jurisdictions will respond during a flood event.

This Draft Emergency Action Plan, which is based on the successful San Francisquito Creek Multi-Agency Coordination and Operational Plan, is designed to establish general guidance for the Water District, Cities of Palo Alto and Mountain View (Cities), and other Stakeholders to facilitate:

1. Pre-incident planning prior to a storm/flood event
2. Coordination of an interagency response and recovery operation, and
3. Collaboration on public messaging for potential, imminent, and actual flooding at the Palo Alto Flood Basin and/or along Adobe, Matadero, and Barron Creeks in Palo Alto and Mountain View

### 1.2 Limitations of the EAP

**This EAP shall not constrain the freedom of an Incident Commander (IC) in the field or others when dealing with flooding on Adobe, Matadero, and Barron Creeks or the Palo Alto Flood Basin. This EAP does NOT and will NOT replace or override an Agency'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 the responsible agencies can improve coordination before, during and after a flood incident. This EAP provides 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 and that the 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. The Water District, Cities and other stakeholders will utilize this EAP as needed to develop joint decisions and actions based on the situation and their jurisdictions capabilities, resources and priorities.

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

## 1.3 Use of the EAP

This District internal document is intended to be used by the Water District before, during and after a storm and includes proactive cooperation with the Cities 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 Water District and Cities or to persons not on the original distribution list. The Water District and Cities may distribute this internally but are to handle with the same care as other restricted documents.

## 1.4 Potential Impacted Areas

For the purpose of this EAP, the Water District has identified the following potential flooding areas:

- East of Highway 101 from Adobe Creek to San Francisquito Creek
- West of Highway 101 from Embarcadero Road to Adobe Creek and about halfway to Middlefield Road

See *Historical Breakout Map* tab (Appendix B-1) for areas that have flooded in the past during large storm events and are likely to flood in future events.

## 1.5 Palo Alto Flood Basin Description

The Palo Alto Flood Basin (Basin) Tide Control Structure was constructed in 1956 to protect the areas upstream of Highway 101 from high tides in Matadero, Adobe, and Barron Creeks. The Basin provides the downstream hydraulic boundary control for the levee/floodwall freeboard and the levees surrounding this basin would not otherwise meet the required free board for a 100-year storm event. In the event of a failure at the Tide Control Structure, water from the Bay, specifically at high tide, would result in fluvial flooding of low lying areas in the vicinity of the Palo Alto Flood Basin and upstream along Matadero, Adobe, and Barron Creeks.

The Tide Control Structure has 2 telemetered level indicators, one on the flood basin side and the other on the bay side, that are monitored by the City of Palo Alto and can be viewed at [http://www.cityofpaloalto.org/gov/depts/pwd/creek\\_monitor/creek\\_monitor\\_only.asp](http://www.cityofpaloalto.org/gov/depts/pwd/creek_monitor/creek_monitor_only.asp). The tide gate structure was built and maintained by the District and the sluice gates and level indicators are operated by the City of Palo Alto Rangers at the Baylands Park. The rangers operate the sluice gate to maintain a 2.0 ft. elevation (NGVD 29) on the flood basin side of the structure most of the year but before storm events it is lowered to -2.2 ft. to accommodate runoff.

## 2. CONCEPT OF OPERATIONS

### 2.1 EAP Personnel

The effectiveness of the EAP relies on the designated level of authority provided to each Stakeholder representative and the level of the EAP activation. Based on the event condition level and related potential for flooding, the personnel who staff the Emergency Operation Centers (EOC) may evolve, due to the knowledge and authority required.

**Subject Matter Experts:** Staff from the Cities, District and other Stakeholders who have specific knowledge related to the issues of permitting, flood control dynamics, creek flow, potential impacts of flood, geology, hydrology, flood monitoring, engineering and flood response.

- **Personnel:** These may be personnel assigned to the Operations or Planning Section in their respective Emergency Operations Plan (EOP)/EOC.
- **Authority includes:** Represent their Agency on technical matters; Confer with Department Operations Center (DOC)/EOC Director regarding activation of next level; and Engage outside resources such as the National Weather Service.

**Public Information Officers (PIO):** Staff from the Cities, District and other Stakeholders who have experience with managing and disseminating information to the public via traditional media, social media, electronic methods or other tools with the purpose of distributing preparedness, response, evacuation and recovery information.

- **Personnel:** These may include personnel assigned to the following EOC positions:
  - Public Information Officer (PIO)
- **Authority includes:** Ability to create and distribute outreach materials for community awareness and preparedness; Represent each Agency to produce and distribute public notices regarding potential flood, as appropriate; and Cities PIO initiates activity to disseminate evacuation orders and shelter information.

**Elected Officials:** Through each Agency PIO or Liaison staff, elected officials will be contacted and kept informed of the situation during the Potential Flooding Situation and Warning stages and provided with appropriate public messaging. If officials are in contact with affected constituents and receive pertinent information, they will convey that information to the EOC through PIO or Liaison staff.

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## 2.2 Emergency Level Descriptions

The concepts and activities described in this EAP are associated with the level of storm or flood threat relative to the water elevation in the flood basin. Possible elevation changes in the flood basin might be the result of failure of one of the tide gates or the entire structure, a levee breach, piping under the tide gates or levees, or large inflows from the creeks from a storm event. This EAP is considered active 12 months of the year, 24 hours a day, and 7 days a week. The intensity and degree of activity will increase along with creek and flood basin conditions. The flood condition levels utilized in this EAP are consistent with the National Weather Service and defined as:

**Table 1: Flood Condition Levels**

<b>Level Green</b>	<b>Preparedness</b> – <i>See table in Appendix A-3</i> If the measured stream stage at gage SF91 on Adobe Creek and at Gauge SF101 on Matadero Creek and the level in the PAFB are not estimated to exceed the green levels in the table within the next 72 hours.
<b>Level Yellow</b>	<b>Monitoring</b> – <i>See table in Appendix A-3</i> If the measured stream stage at gage SF91 on Adobe Creek and at Gauge SF101 on Matadero Creek and the elevation in the flood basin are estimated to exceed the green levels in the table within the next 72 hours. This condition is variable and requires monitoring and a heightened level of alertness.
<b>Level Orange</b>	<b>Potential Flooding Situation</b> – <i>See table in Appendix A-3</i> If the measured stream stage at gage SF91 on Adobe Creek and at Gauge SF101 on Matadero Creek and the elevation in the flood basin are estimated to exceed the yellow levels in the table within the next 72 hours. This condition is variable and requires monitoring and a heightened level of alertness.
<b>Level Red</b>	<b>Warning</b> – <i>See table in Appendix A-3</i> This is an urgent situation when the measured stream stage at gage SF91 on Adobe Creek and Gauge SF101 on Matadero Creek and elevation in the flood basin are estimated to exceed the orange levels in the table within the next 72 hours. Flooding is expected from the flood basin to south of Embarcadero Road to east of US-101 to north of Adobe Creek. When the triggers are expected to exceed the red level then expect flooding from east of Highway 101 from Adobe Creek to San Francisquito Creek and inland west of Highway 101 to about halfway to Middlefield Road from Embarcadero Road to Adobe Creek

\*See Appendix B-4 for information on the stream flow stations.

## 2.3 Determining Flood Condition Levels

# Palo Alto Flood Basin – Emergency Action Plan (EAP)

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

As conditions in flood basin progress, there are four general steps the Water District and City follow to determine the level at which to activate the EAP, or when to increase the EAP condition level.

## **Step 1: Event detection, evaluation, classification**

**Event Detection** - There are several detection methods that include weather forecasts, hydrologic/hydraulic modeling, Automated Local Evaluation in Real Time (ALERT) stream/reservoir/precipitation gauge systems, and field observation of stage gauges along creeks and flood basin and other areas of high flow.

### *Weather Forecasts*

The National Weather Service (NWS) provides weather (e.g., precipitation) forecasts up to 72 hours in advance of a storm event and the District 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 Water District and Cities participate in these webinars and share all current information.

### *Hydrologic/Hydraulic Modeling*

Based on the weather forecast and elevation in the flood basin, the District and the NWS River Forecast Center utilize computer modeling of the watershed and creeks to estimate severity of flooding. These models are considered estimates and can vary, sometimes significantly, from the actual flood flows.

To improve the accuracy of the modeling, the District reviews the computer models periodically and determines if additional information can be gathered to update the models. The typical type of information that can be used to update the models includes: surveys of channel geometry, reevaluation of channel roughness due to vegetation or blockages, and data gathered during high flow events.

The NWS has limited modeling capability and generally focuses on broader areas due to their larger area of scope. The District is often more focused and detailed in their modeling and utilizes additional available information for modeling. As modeling results become available, the District and the NWS will share results to help improve accuracy of the estimations.

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With the results of modeling, condition levels can be assigned and severity of flooding can be estimated such that appropriate notices can be made. The NWS will issue threat level information, which is similar to the EAP condition levels.

## *ALERT Gauge System*

A listing of all ALERT gauges can be found at <http://alert.valleywater.org/sgi.php>. These gauges provide data in near real-time on most creeks in Santa Clara County and can provide critical data to determine the level of threat for flooding.

The following is a summary of the current stream gauge program:

- (a) Annually, sites will be prioritized for manual gauging and teams are assigned to inspect and maintain the gauges.
- (b) After high flow event, the rule curves (depth versus discharge) are updated/calibrated.

## *Field Information Teams (FIT)*

As water levels increase in the creek, and flood basin, Cities and District staff and/or Field Information Teams (FITs) are deployed to visually monitor and report back to a DOC or EOC the rate of increase in the flood basin. In addition, FITs can monitor creek levels and the surface drainage. The Cities, District and other Agency Stakeholders have individual teams who respond to designated “hot spots”. Deployment of these FIT teams and/or agency staff are coordinated between the Cities DOCs and the District’s DOC (or other facility).

**Evaluation** - After detecting and gathering adequate intelligence regarding the situation, an evaluation of the water way conditions must be performed by appropriate District personnel.

**Classification** - Based on evaluation of the threat, a specific threat level will be identified and documented at the Agency Stakeholder DOC (or other facility) and EOC so all staff recognize the determined level (Monitoring, Potential Flooding Situation, or Warning). If possible, the severity of flooding will also be determined and documented. The severity is consistent with the NWS and are: minor, moderate, and major with the affected areas described.

## **Step 2: Notification and Communication**

After the condition level has been determined, appropriately communicating the situation to responsible agencies, staff, and other identified individuals and groups is critical. Notification will include City, District and other stakeholders personnel, elected officials, and the National Weather Service, as a minimum. The contact list is in Appendix A.

## **Step 3: Emergency Activity/Actions**

## Palo Alto Flood Basin – Emergency Action Plan (EAP)

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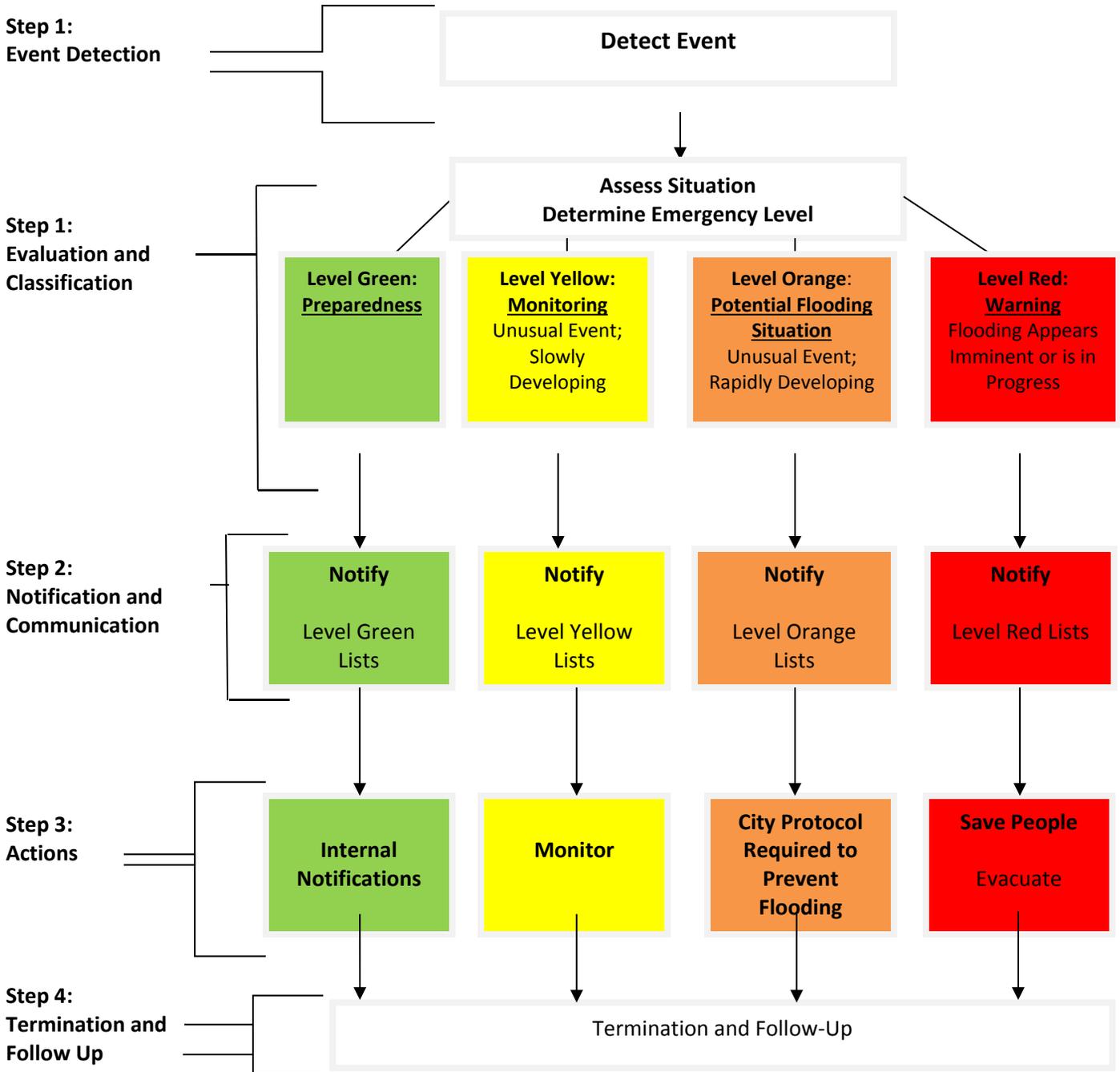
Based on the event and condition classification, activity/actions by the Cities, District and other stakeholders will be determined. Table 2 identifies progressive levels of activation and actions.

### **Step 4: Termination**

Following response to an emergency, the District will determine when to enter into recovery activities. The District EOC staff will determine if the threat no longer exists or if impacts require the engagement of recovery operations. Decisions on how long the EOC remains open depends on the conditions, needs of the community, and need to return to regular operations.

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This flow chart is a guide to show what steps to take during an emergency event:



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## 2.4 Progressive Responsibilities

**As the weather and flood basin conditions change, the responsibilities of the Cities, District and other Stakeholders adjust.** The list of responsibilities provided in Table 2 illustrate in general terms what actions are needed at each threat level, and whether the Cities or District have the lead responsibility. More detail on how the action is completed is provided in additional tables in this document or Appendices to this EAP.

**Table 2: Progressive Responsibilities**

Level	Responsibility/Activity	Stakeholder*
<b>Preparedness (Green)</b>	<ul style="list-style-type: none"> <li>Provide technical data on mitigation and preparedness measures</li> </ul>	Each <b>Stakeholder</b> is lead for their own agency resources
	<ul style="list-style-type: none"> <li>Conduct field inspections of creeks and facilities</li> </ul>	Each <b>parcel owner</b> is lead in their own right of way
	<ul style="list-style-type: none"> <li>Jointly discuss property management needs and plans</li> </ul>	Each <b>parcel owner</b> is responsible
	<ul style="list-style-type: none"> <li>Inventory and Procure Flood Fighting Materials and Equipment</li> </ul>	Each <b>Stakeholder</b> is lead for their own materials and equipment
	<ul style="list-style-type: none"> <li>Perform mitigation work to reduce flood risk</li> </ul>	Each <b>Stakeholder</b> is lead on their own right of way. By agreement can release to others
	<ul style="list-style-type: none"> <li>Involve FEMA Floodplain Manager who maintains the National Flood Insurance Program (NFIP) Community Rating System (CRS) certification</li> </ul>	<b>City</b> is lead
	<ul style="list-style-type: none"> <li>Implement and enforce building codes for building in floodplains</li> </ul>	<b>Water District</b> is lead
	<ul style="list-style-type: none"> <li>Provide technical floodplain mapping expertise</li> </ul>	<b>Water District</b> is lead for stream gauges and District equipment. <b>City</b> is lead for city equipment
	<ul style="list-style-type: none"> <li>Maintain equipment, gauges, telemetry, communications systems, etc.</li> <li>Develop and maintain computer models of watersheds and creeks</li> </ul>	<b>Water District</b> is lead where it has property rights
	<ul style="list-style-type: none"> <li>Participate in winter preparedness workshop</li> </ul>	<b>City</b> is lead
	<ul style="list-style-type: none"> <li>Update EAP and Contact/Roles list and provide revisions to Stakeholders</li> </ul>	<b>Water District</b> is lead
* If only one Stakeholder is noted as lead, all other Stakeholders support the effort.		
Level	Responsibility/Activity	Stakeholder*
<b>Prepared</b>	<ul style="list-style-type: none"> <li>Manage flood information websites</li> </ul>	Each <b>Stakeholder</b> manages own site; points to water district for

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		flow for their own agency resources
	<ul style="list-style-type: none"> <li>Publish Preparedness Public Outreach (e.g., Winter Preparedness) in multiple languages</li> </ul>	Water <b>District</b> is lead
	<ul style="list-style-type: none"> <li>Provide public education in multiple languages</li> </ul>	Each <b>Stakeholder</b> is lead for their own agency resources
	<ul style="list-style-type: none"> <li>Provide resources to support on-going activity to support this EAP and mitigation efforts along waterways in multiple languages</li> </ul>	<b>City</b> is lead
	<ul style="list-style-type: none"> <li>Review and update EAP, including contact personnel annually, and provide copies of revised EAP to all current roles who received original EAP.</li> </ul>	Each <b>Stakeholder</b> is lead for their own staff

Level	Responsibility/Activity	Stakeholder*
<b>Monitoring (Yellow)</b>	<ul style="list-style-type: none"> <li>Activate the EAP for “Monitoring”</li> </ul>	Water <b>District</b> is lead
	<ul style="list-style-type: none"> <li>Notify staff about the increased condition level</li> </ul>	Each <b>Stakeholder</b> is lead for their own staff
	<ul style="list-style-type: none"> <li>Conduct formal monitoring, communicate via virtual systems; communicate with DOC/EOC Director to determine next level of activation.</li> </ul>	Each <b>Stakeholder</b> is lead for their own agency resources
	<ul style="list-style-type: none"> <li>Communicate risk to DOC/EOC representatives</li> </ul>	Each <b>Stakeholder</b> is lead within their agency
	<ul style="list-style-type: none"> <li>Respond to, and mitigate, minor events as needed; coordinate with each responding agency.</li> <li>Stage equipment at localities likely to be affected as needed; coordinate with each responding agency.</li> </ul>	Each <b>Stakeholder</b> is lead for their own materials and equipment where it has jurisdiction
	<ul style="list-style-type: none"> <li>Provide public education in multiple languages</li> </ul>	Each <b>Stakeholder</b> collaborates and is lead to their constituents
	<ul style="list-style-type: none"> <li>Provide information to Elected Officials</li> </ul>	Each <b>Stakeholder</b> PIO is lead for their own agency
* If only one Stakeholder is noted as lead, all other Stakeholders support the effort.		

Level	Responsibility/Activity	Stakeholder*
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<b>Monitoring (Yellow)</b>	<ul style="list-style-type: none"> <li>Confer with EOC Director on conditions for activating next level</li> <li>Identify location for flood fighting resources for the public (e.g. sandbag locations)</li> </ul>	<b>Water District</b> is lead
	<ul style="list-style-type: none"> <li>Review evacuation planning needs</li> <li>Check hotspots and problem areas.</li> <li>Prefilled sandbags deployed to key locations.</li> </ul>	<b>City</b> is lead

Level	Responsibility/Activity	Stakeholder*
<b>Potential Flooding Situation (Orange)</b>	<ul style="list-style-type: none"> <li>Activate the EAP for “Potential Flooding Situation”</li> </ul>	<b>Water District</b> is lead
	<ul style="list-style-type: none"> <li>Manage information from the Department Operations Center or like facility</li> <li>Allow the DOC (or like facility) to manage field response</li> <li>Communicate risk to EOC representatives</li> </ul>	Each <b>Stakeholder</b> PIO is lead for their own agency
	<ul style="list-style-type: none"> <li>Notify staff about the increased condition level</li> </ul>	Each <b>Stakeholder</b> is lead for their own agency
	<ul style="list-style-type: none"> <li>Confer with responding DOC/EOC Director to determine response coordination needs and resources needs</li> </ul>	Each <b>Stakeholder</b> is equally responsible for cross coordination
	<ul style="list-style-type: none"> <li>Respond to, and mitigate, minor events as needed; coordinate with each responding agency</li> <li>Stage equipment at localities likely to be affected as needed; coordinated with each responding agency</li> </ul>	Each <b>Stakeholder</b> is lead for their own materials and equipment where it has jurisdiction
	<ul style="list-style-type: none"> <li>Update location for flood fighting resources for the public and supply additional resources as needed (e.g. sandbag locations)</li> </ul>	<b>Water District</b> is lead
	<ul style="list-style-type: none"> <li>Provide public information in multiple languages</li> </ul>	Each <b>Stakeholder</b> collaborates and is lead to their constituents
	* If only one Stakeholder is noted as lead, all other Stakeholders support the effort.	

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Level	Responsibility/Activity	Stakeholder*
<b>Potential Flooding Situation (Orange)</b>	<ul style="list-style-type: none"> <li>Provide information to Elected Officials</li> <li>Communicate with media as needed</li> </ul>	Each <b>Stakeholder</b> is lead for their own agency
	<ul style="list-style-type: none"> <li>Provide public warning in multiple languages</li> </ul>	<b>City</b> is lead, <b>County</b> is key support
	<ul style="list-style-type: none"> <li>Provide information on impact and available resources to and from respective EOCs</li> </ul>	Each <b>Stakeholder</b> is lead for their own agency resources
	<ul style="list-style-type: none"> <li>Confer with EOC Director on conditions for potential evacuation and shelter support</li> </ul>	<b>City</b> EOC Staff is lead
	<ul style="list-style-type: none"> <li>Confer with EOC Director on conditions for activating next level.</li> <li>Prepare to open shelters.</li> </ul>	<b>City</b> is lead
	<ul style="list-style-type: none"> <li>Confer with legal staff on process for proclaiming a Local Emergency</li> </ul>	<b>City</b> EOC Director is lead

Level	Responsibility/Activity	Stakeholder*
<b>Warning (Red)</b>	<ul style="list-style-type: none"> <li>Activate the EAP for “Warning”</li> </ul>	<b>Water District</b> is lead
	<ul style="list-style-type: none"> <li>Communicate risk to EOC representatives</li> </ul>	Each <b>Stakeholder</b> is lead within their agency
	<ul style="list-style-type: none"> <li>Provide public information in multiple languages</li> </ul>	Each <b>Stakeholder</b> collaborates and is lead to their constituents
	<ul style="list-style-type: none"> <li>Provide public warning and shelter information in multiple languages</li> </ul>	<b>City</b> is lead, <b>County</b> is key support
	<ul style="list-style-type: none"> <li>Implement evacuation plans and deploy resources to evacuate</li> </ul>	<b>City</b> is lead
	<ul style="list-style-type: none"> <li>Coordinate resources through respective EOCs</li> </ul>	Each <b>Stakeholder</b> is lead for their own resources
	<ul style="list-style-type: none"> <li>Proclaim Local Emergency as appropriate</li> </ul>	<b>City</b> EOC Director is lead

\* If only one Stakeholder is noted as lead, all other Stakeholders support the effort.

### 2.5 Emergency Remedial Actions

If time and conditions permit, the following emergency remedial actions should be considered by the District for Emergency Level Yellow, Orange or Red situations. **These actions are specific to the District and will only be implemented in areas where the District has property rights and jurisdiction to work.** Immediate implementation of these remedial actions may delay, moderate, or prevent flooding. Several of the listed adverse or unique conditions may occur along the creek at the same time, requiring implementation of several modes of remedial actions. Close monitoring of the flood basin and creeks must be maintained to confirm the success of any remedial action taken along the creek. See Resources Available (Appendix B-3).

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## ***Failure of tide gate(s)***

1. If any or all of the tide gates are stuck open and water elevation in the flood basin is rising.
2. City of Palo Alto and District staff will evaluate the situation and determine appropriate repair method. (Note: If repair requires stop logs to be used to isolate the bay, they may not seal due to damage and wear to the concrete)

## ***Failure of tide gate structure***

1. If the tide gate structure fails, depending on the type of failure, such as cracks or more severe failures of gates, mountings, or concrete, District staff will determine the appropriate repair method.

## ***Piping under levee or tide gate***

1. If the elevation in the flood basin is rising and it is determined that it is likely from piping under the tide gate structure or levee, efforts will be made to identify the location of the piping and District staff will evaluate and recommend potential repairs.

## ***Bank Erosion***

1. If water is no longer rising, erosion scour may be filled with rock, sandbags, plastic sheeting or materials to prevent further loss of soil.

## ***Boils or Seepage***

1. Monitor flood basin 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 bentonite, soil, rockfill or plastic sheeting.
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 the levee crest may be filled with sandbags or earth and rockfill materials in the damaged area to restore freeboard.

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2. Sloughing may be stabilized by placing a soil or rockfilled 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.

## ***Downed Trees/Blockage***

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

## ***Earthquake***

1. Immediately conduct a visual inspection of the levees and the tide gate structure if a magnitude 6.0 or greater earthquake occurs within 50 miles of the creek.
2. If time allows, perform a field survey to determine if there has been any settlement or movement of levees.
3. Visually inspect the creek for any movement or damage along the creek including creek banks, outlets, bridges, and access ramps.

## **2.6 Facilities**

The EAP responders are comprised of staff from the Water District, Cities, and other stakeholders. As the conditions require the stakeholders to respond during Monitoring, Potential Flooding Situation, or Warning Stages, a virtual meeting place will be established. To facilitate communication between stakeholders, the Cities should initiate contact with the District and other Stakeholders via an e-mail group. The conditions of the storm will identify when the e-mail will expand to conference calls, Skype, or other means to electronically communicate. If the EOC transitions to a physical location, virtual activities may continue to enhance communications between multiple EOCs and DOCs. The storm conditions and availability of EAP personnel will determine the need and efficiency of the virtual meeting operations.

## **2.7 EAP Contact Information**

Except for elected officials, the Cities, District and other Agency Stakeholders will maintain a staff roster. Staff designated to fill these roles shall assign alternate persons to account for vacation, sick leave, etc. When an EOC is activated, anyone filling these roles needs to provide contact information to the Cities of Mountain View and Palo Alto Offices of Emergency Management. Contact information would include office and mobile phone numbers, e-mail, and other pertinent data.

## Palo Alto Flood Basin – Emergency Action Plan (EAP)

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Within the City's EOC, e-mail accounts will be provided. This will allow first shift responders to leave information for incoming or alternate staff. It also allows for a common repository for information.

### **2.8 Procedures**

The Cities and/or District, if needed, may develop additional procedures, beyond what is provided herein. For example, the District may choose to co-locate or assign a liaison to the City's Department of Public Works' and/or Department of Transportation's DOCs. This could facilitate better tracking of their personnel operating in the Mountain View/Palo Alto area.

### **2.9 Communications**

An emergency radio plan (ICS-215) shall be developed, along with the above-mentioned virtual meeting options.

## 3. MOBILIZATION OF EAP

This EAP is always active because preparedness is a year-round activity. Whether collaborating on flood awareness outreach before an event, responding to a flood event, recovering from an event, or planning for maintenance or improvements after the winter storm season, the need for the Water District, Cities, and other stakeholders to communicate and collaborate is critical. Once a potential or actual event is detected, responding in a coordinated way and collaborating on post incident recovery should follow a progression of actions.

During high flows, creek conditions can change at a moment's notice and may vary significantly from anticipated. This is especially true for highly response and small watersheds with natural creeks, trees and other vegetation or heavy sediment loads that could cause blockages. For example, flood flows may not be predicted to reach channel capacity, yet unexpected flooding may occur due to changes in the creek condition.

Therefore, the level of activity will be guided by the best information available to the Agency Subject Matter Experts (SME) and DOC/EOC Director. The level of activity may mirror those activities of the individual jurisdictional EOCs. As weather conditions merit and monitoring takes place, the SMEs and DOC/EOC Director may be in their home offices or jurisdiction's EOC, for the Monitoring stage. The "call to action" may be a series of phone calls among the SMEs and DOC/EOC Director to determine the next steps. As conditions progress, Cities, District, or other Stakeholders are encouraged to convene at the designated EOC facility.

## 4. EVENT DETECTION

This step describes the detection of an unusual or emergency event and provides information to assist the Water District in determining the appropriate emergency level for the event.

Unusual or emergency events may be detected by:

- Observations along the creek by government personnel, volunteers, landowners, or the public
- Evaluation of stream gage or rainfall gage data (see Appendix B-4)
- Forewarning of conditions that may cause an unusual event or emergency event such as weather forecasts for flash flooding or severe weather (see Appendix B-4)

See *Flood Conditions Level* table for assistance in evaluating specific events.

## 5. EXAMPLES OF EMERGENCY SITUATIONS

The following are examples of conditions that usually constitute an emergency situation at the Palo Alto Flood Basin or Adobe, Barron, or Matadero Creeks:

- Adverse or unusual conditions that can cause flooding are typically related to high flows in the creeks from storm events exceeding the design capacity of the flood basin
- Flooding would typically occur when the water surface elevation of the Flood Basin is higher than normal and there are high creek flows from a storm event.
- Accidental or intentional damage to the tide gate facilities may also result in emergency conditions.

District staff should be conservative when determining whether a specific condition is an emergency situation. The Cities shall make their own decision based on the District's provided information and local conditions. Refer to Appendix B-1 and B-2 for historical flooding events from Adobe, Barron, and Matadero Creeks and the Palo Alto Flood Basin.

## 6. NOTIFICATION AND COMMUNICATION

This section outlines a standard coordination effort for notification and communication between agencies during an emergency event.

### Notification:

After the emergency level has been determined, the roles on the following notification charts (pages 23-26) for the appropriate emergency level shall be notified immediately.

### Communication:

#### Emergency Level Green – Preparedness (page 24):

Potential situation is identified by the Water District and appropriate Water District staff shall be notified and will further evaluate the situation. No notification to the Cities is required at this level.

#### Emergency Level Yellow – Monitoring (page 25):

If the DOC has not been activated, then the Field Operations or Engineering Unit Manager shall contact the City designated response personnel by phone or electronically, notifying them of the situation and what actions are being taken.

#### Emergency Level Orange – Potential flooding situation (page 26):

The following message from the Water District EOC may be used to help describe the emergency situation to the City designated response personnel, Santa Clara County Communications, Cal Trans, and California Highway Patrol emergency management personnel:

*"This is \_\_\_\_\_ (identify yourself: name and position from Santa Clara Valley Water District) \_\_\_\_\_ .*

*We have an emergency condition developing at the Palo Alto Flood Basin at \_\_\_\_\_ (nearest cross street) \_\_\_\_\_ .*

*The Water District has activated our Emergency Operations Center and are currently under our Emergency Level Orange.*

*We are implementing predetermined actions to respond to a rapidly developing situation that could result in bank over topping and flooding.*

# Palo Alto Flood Basin – Emergency Action Plan (EAP)

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*Please be prepared to evacuate the area along the low lying portions of Palo Alto and Mountain View near the Palo Alto Flood Basin.*

*We will advise you when the situation is resolved or if the situation gets worse.*

*I can be contacted at the following number \_\_\_\_\_. If you cannot reach me, please call the following alternative number \_\_\_\_\_."*

## **Emergency Level Red – Warning (page 27):**

The Water District EOC shall immediately contact the Cities and Santa Clara County EOCs so they can notify emergency responders and have the affected area evacuated. The following actions shall be taken:

1. The Water District EOC shall call the City designated response personnel and County Communications. Be sure to say, "This is an emergency." They will call other authorities and the media and begin the evacuation. The following message may be used to help describe the emergency situation to County Communications.

*"This is \_\_\_\_\_ (identify yourself: name and position from Santa Clara Valley Water District \_\_\_\_\_).*

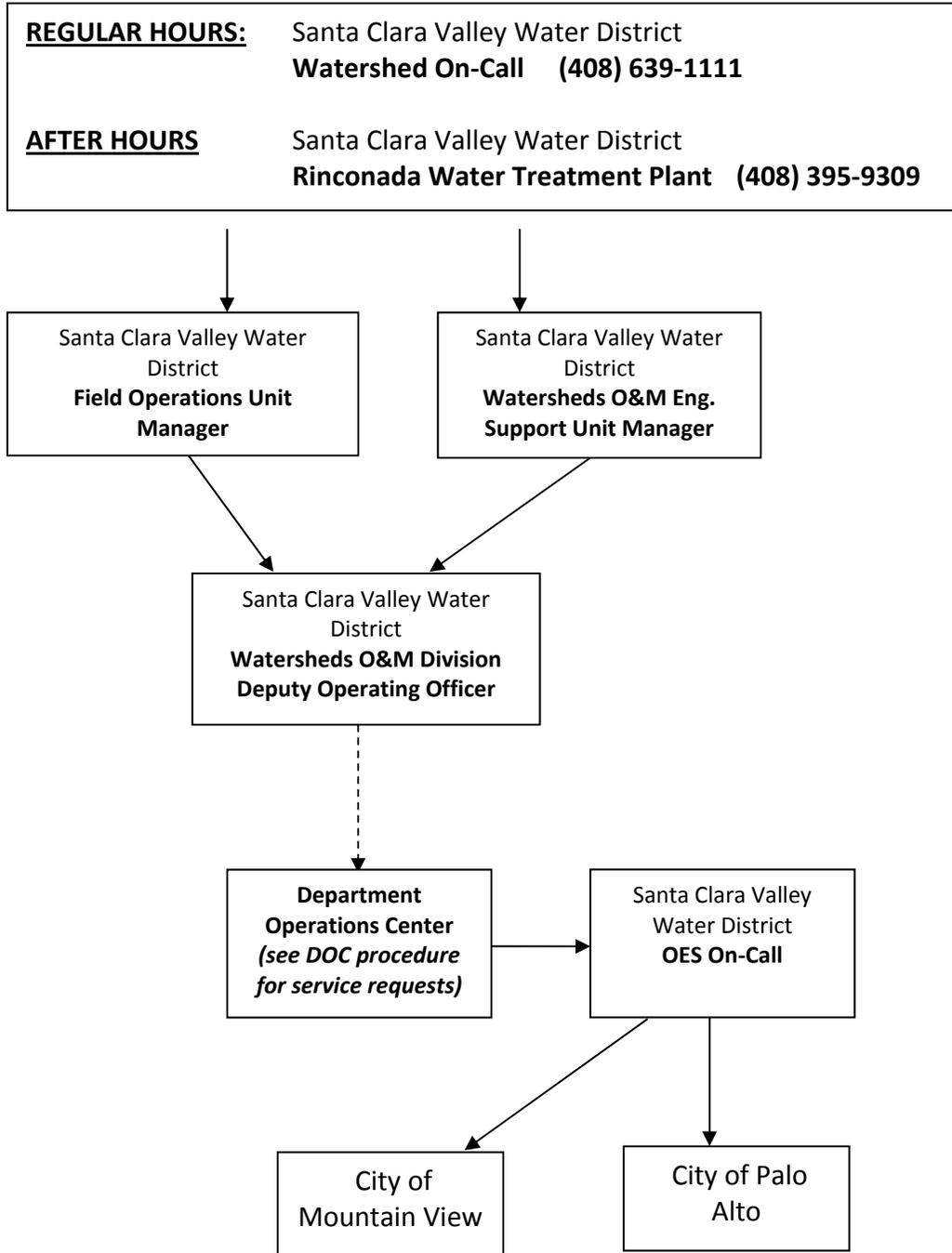
*Palo Alto Flood Basin (or Adobe, Matadero, or Barron Creeks) at (cross street) is overtopping and flooding occurring. The low lying area must be evacuated immediately. Repeat, Palo Alto Flood Basin (or Adobe, Matadero, or Barron Creeks is flooding at (cross street), evacuate the low lying areas around the flood basin (or creeks).*

*I can be contacted at the following number \_\_\_\_\_. If you cannot reach me, please call the following alternative number \_\_\_\_\_."*

2. The Water District EOC shall keep in frequent contact with the Citys' and County EOCs to keep them up-to-date on the condition of the creek and flood basin water levels.
3. If all means of communication are lost, the Water District EOC shall: 1) try to find out why, 2) try to get another radio or telephone that works, or 3) get someone else to try to re-establish communications. If these means fail, handle the immediate problems as well as you can, and periodically try to re-establish contact with the Citys' and County EOCs and emergency services.

# Emergency Level Green Notification

## Preparedness

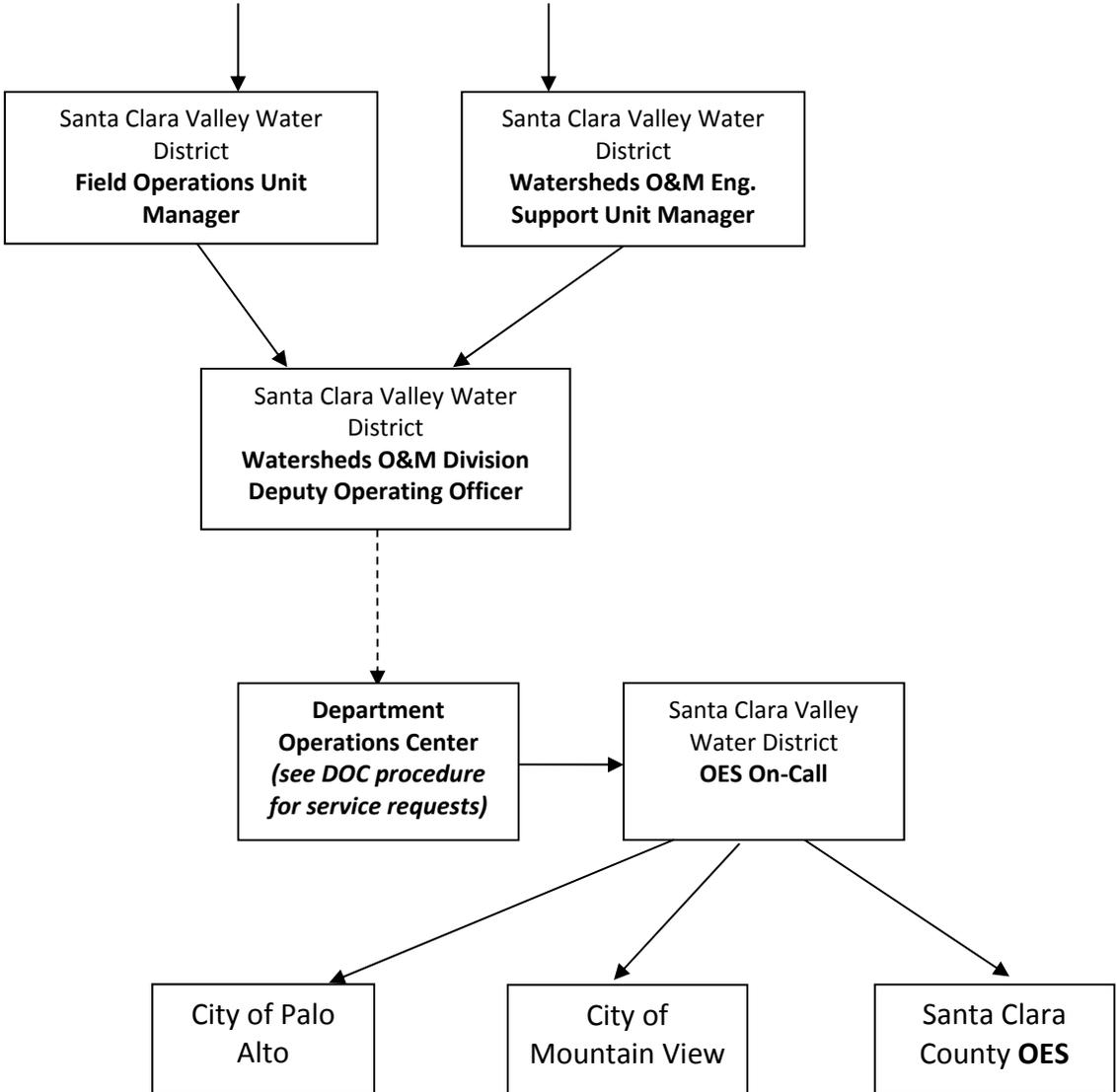


----- if needed

# Emergency Level Yellow Notification

Monitoring

<b><u>REGULAR HOURS</u></b>	Santa Clara Valley Water District <b>Watershed On-Call</b>	<b>(408) 639-1111</b>
<b><u>AFTER HOURS</u></b>	Santa Clara Valley Water District <b>Rinconada Water Treatment Plant</b>	<b>(408) 395-9309</b>
	Santa Clara Valley Water District <b>Department Operation Center</b>	<b>(408) 630-3155</b>

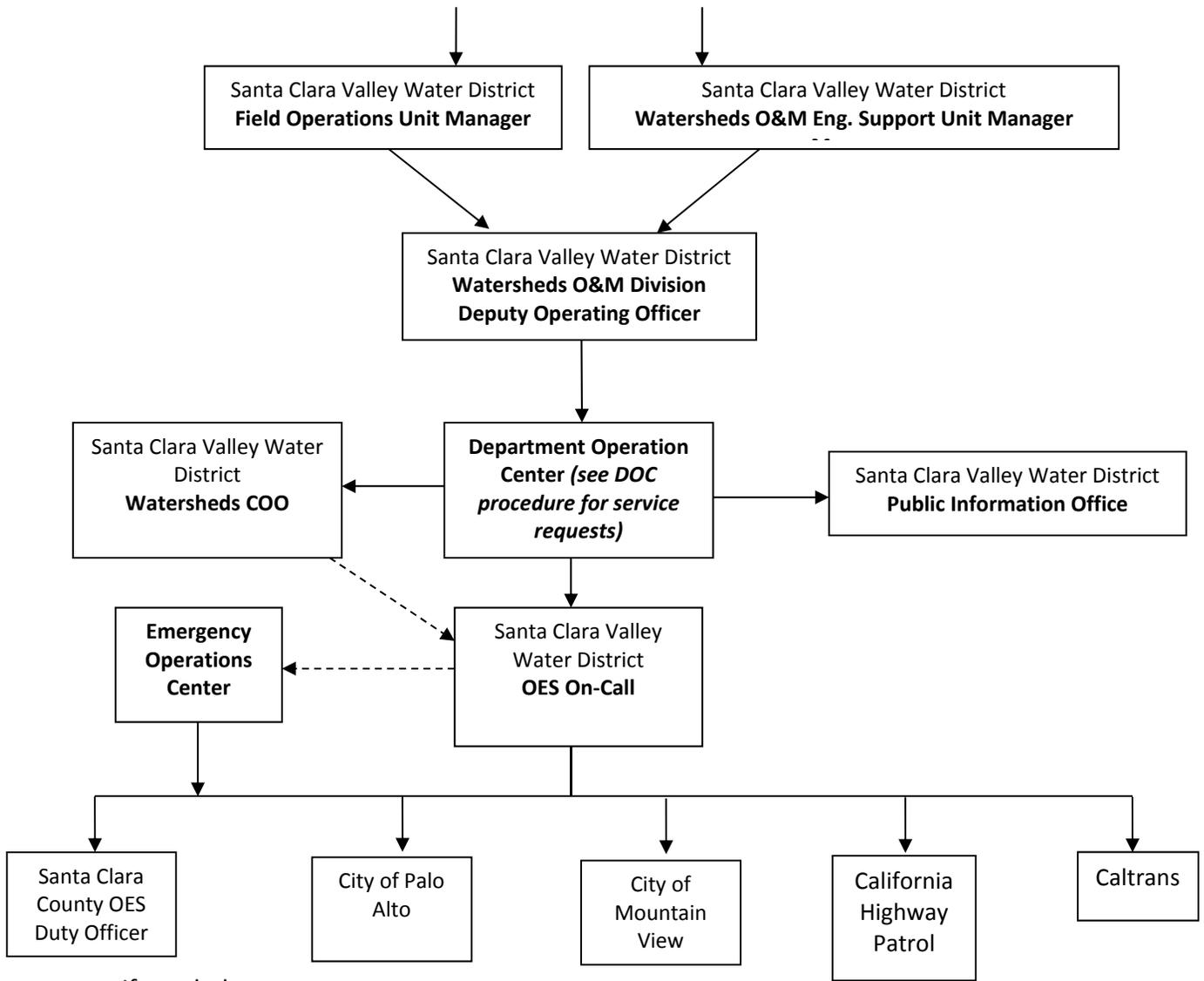


----- if needed

# Emergency Level Orange Notification

Potential Flooding Situation

<b><u>REGULAR HOURS</u></b>	Santa Clara Valley Water District <b>Watershed On-Call</b>	<b>(408) 639-1111</b>
<b><u>AFTER HOURS</u></b>	Santa Clara Valley Water District <b>Rinconada Water Treatment Plant</b>	<b>(408) 395-9309</b>
	Santa Clara Valley Water District <b>Department Operation Center</b>	<b>(408) 630-3155</b>

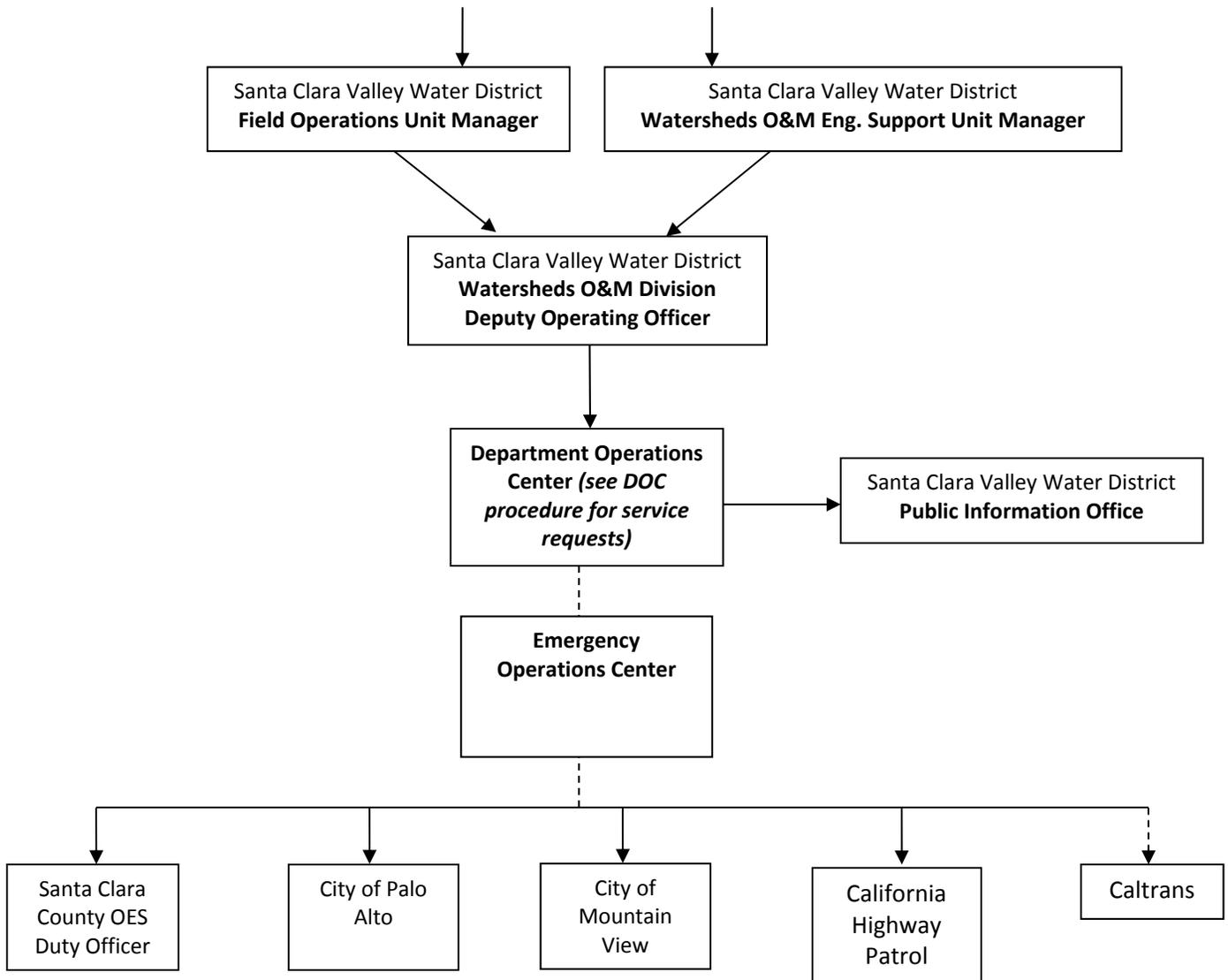


----- if needed

# Emergency Level Red Notification

Warning

<b><u>REGULAR HOURS</u></b>	Santa Clara Valley Water District <b>Watershed On-Call</b>	<b>(408) 639-1111</b>
<b><u>AFTER HOURS</u></b>	Santa Clara Valley Water District <b>Rinconada Water Treatment Plant</b>	<b>(408) 395-9309</b>
	Santa Clara Valley Water District <b>Department Operation Center</b>	<b>(408) 630-3155</b>



----- if needed

## 7. WATER DISTRICT TERMINATION AND FOLLOW-UP

Whenever this EAP has been activated, an emergency level declared, all EAP actions have been completed, and the emergency is over, the EAP operations must eventually be terminated and follow-up procedures completed.

### ***Termination Responsibilities***

In an Emergency Level Preparedness, Monitoring, or Potential Flooding Situation event the DOC Director is responsible for terminating the EAP operations and relaying this decision to each person notified during the original event that the event has been terminated.

An Emergency Level Red event will likely involve the evacuation of residents and be managed by County or City Office of Emergency Services. Prior to the termination of an Emergency Level Red event, the District will inspect the break out point(s) and determine if any damage has occurred that could potentially lead to further events. If it is determined that conditions do not pose a threat to people or property, then the District will recommend terminating the EAP operations.

The DOC or EOC Director will ensure that the Event Log (Appendix A-2) is completed to document the emergency event, including all actions that were taken, lessons learned, and areas for improvement.

## 8. WATER DISTRICT MAINTENANCE – EAP REVIEW AND REVISION

### **EAP Annual Review**

The Watersheds O&M Engineering Support Unit Manager will review and, if needed, update the EAP at least once annually. The EAP annual review includes the following:

- Verify that the phone numbers and persons in the specified positions are current. The EAP will be revised if any of the contacts have changed (to be provided by Field Operations Unit Manager and Security and Emergency Services Unit Manager)
- Verify the locally available resources and equipment are available and current (to be provided by Field Operations Unit Manager)
- Update the Record of Revisions

### **Revisions**

The Watersheds O&M Engineering Support Unit Manager is responsible for updating the EAP document. The EAP document held by Watersheds O&M Engineering Support Unit Manager is the master document. When revisions occur, the Watersheds O&M Engineering Support Unit Manager will provide the revised pages and an updated revision summary page to all EAP document holders. EAP document holders are responsible for updating outdated copies of the respective documents whenever revisions are received. Outdated pages shall be immediately discarded to avoid any confusion with the revisions.

### **EAP Periodic Test**

The Watersheds O&M Engineering Support Unit Manager will facilitate a periodic test of the EAP at least once every five years.

The periodic test of the EAP can consist of a meeting, including a tabletop exercise, or be conducted as part of Watersheds O&M table top exercises. A scenario or scenarios specific to Palo Alto Flood Basin should be given to allow participants to discuss response and actions they would take to address and resolve the scenario. Each section of the EAP should be utilized during the exercise.

Following the table top exercise, 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 by the District EOC.

## Palo Alto Flood Basin – Emergency Action Plan (EAP)

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### Record of Holders of Control Copies of this EAP

Copy number	Unit	Person receiving copy	Date
1	Watersheds O&M Engineering Support	Greg Meamber	6/15/2019
2	Watersheds Field Operations	Chad Grande	6/15/2019
3	Watersheds O&M Engineering Support UM	Devin Mody	6/15/2019
4	Security and Emergency Services	Alexander Gordon	6/15/2019
5	DOC	Chad Grande	6/15/2019
6	EOC	Alexander Gordon	6/15/2019

### Record of Revisions and Updates Made to EAP

Revision number	Date	Revision made	By whom

**Appendix A:**

## EMERGENCY SERVICES CONTACT LIST

	<u>BUSINESS PHONE</u>	<u>MOBILE PHONE</u>
<b>* IN CASE OF EMERGENCY CONTACT IMMEDIATELY *</b>		
<b>County Emergency Service Coordinators</b>		
Santa Clara County EOC	408-299-2501	
<b>County Sheriff's Departments</b>		
Santa Clara	408-808-4400	
<b>Local Agencies</b>		
City of Palo Alto	650-329-2129	650-455-4887
City of Mountain View	650-903-6922	
<b>State-Federal Flood Operations Center</b>		
Emergency Office (24-hr)	916-574-2619	
Toll Free (24-hr)	800-952-5530	
<b>Governor's OES State Warning Center</b>		
Governor's OES Region [II] (Catrina Christian)	916-845-8911	
USACE EOC (24-Hr)	925-953-1402	510-295-3340
	916-557-6911	
<b>National Weather Service</b>		
San Francisco Bay Area	831-656-1725	
<b><u>Environmental Protection</u></b>		
DWR Division of Environmental Services	916-376-9800	916-376-9839
Cal Environmental Protection Agency	916-323-2514	
Cal Department of Fish & Wildlife	916-445-9338	
National Marine Fisheries Service	301-427-8400	
U.S. Fish and Wildlife Service	916-414-6464	
<b><u>(Additional Numbers)</u></b>		
Cal FIRE (24-Hr)	916-845-8680	
California Conservation Corps (24-Hr)	916-599-1415	
California Highway Patrol (San Jose)	650-441-5441	
Caltrans	916-654-5266	
USBR Mid-Pacific Region	916-978-5100	
US Army Corps of Engineers (Duke Roberts)	415-289-3080	

## EMERGENCY RESPONDERS CONTACT LIST

Position	Name	Company/ Division	Phone	Trained in Flood Fight Methods?
Flood Information Teams (FITs)	Greg Meamber	xxxxxxxxxx	C: 408-466-4952 W: 408-630-3075	
	Stephen Huang	xxxxxxxxxx	W: 408-630-2798	
Watersheds O&M Field Operations	Chad Grande	xxxxxxxxxx	C: 408-639-3587 W: 408-630-2915	
	Jay Lee	xxxxxxxxxx	C: 408-623-2627 W: 408-630-2231	
Watersheds O&M Engineering Support	Devin Mody	xxxxxxxxxx	C: 408-821-9229 W: 408-630-2024	
	Greg Meamber	xxxxxxxxxx	C: 408-466-4952 W: 408-630-3016	
Environmental Compliance	Jennifer Castillo	xxxxxxxxxx	C: 831- 515-9028 W: 408-630-3196	
	Name	xxxxxxxxxx	C: 000-000-0000 W: 000-000-0000	
	Name	xxxxxxxxxx	C: 000-000-0000 W: 000-000-0000	
	Name	xxxxxxxxxx	C: 000-000-0000 W: 000-000-0000	
	Name	xxxxxxxxxx	C: 000-000-0000 W: 000-000-0000	
	Name	xxxxxxxxxx	C: 000-000-0000 W: 000-000-0000	
	Name	xxxxxxxxxx	C: 000-000-0000 W: 000-000-0000	

# Palo Alto Flood Basin – Emergency Action Plan (EAP)

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## APPENDIX A-1: CONTACT CHECKLIST

\_\_\_\_\_ Creek

Santa Clara County, California

Date \_\_\_\_\_

The following contacts should be made immediately after the Emergency Level is determined (see pages 24-27). The person making the contacts should initial and record the time of the call and who was notified for each contact made. See the *Notification Charts* for critical contact information and *Emergency Services Contacts* tab for contact information for other possible emergency services.

Emergency Level Yellow	Person Contacted	Time Contacted	Contacted by
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

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Emergency Level Orange	Person Contacted	Time Contacted	Contacted by
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

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Emergency Level Red	Person Contacted	Time Contacted	Contacted by
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

# Palo Alto Flood Basin – Emergency Action Plan (EAP)

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## APPENDIX A-2: EVENT LOG

Creek name: \_\_\_\_\_

Station: \_\_\_\_\_

When and how was the event detected? \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Weather conditions: \_\_\_\_\_

\_\_\_\_\_

General description of the emergency situation: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Condition level determination: \_\_\_\_\_ Made by: \_\_\_\_\_

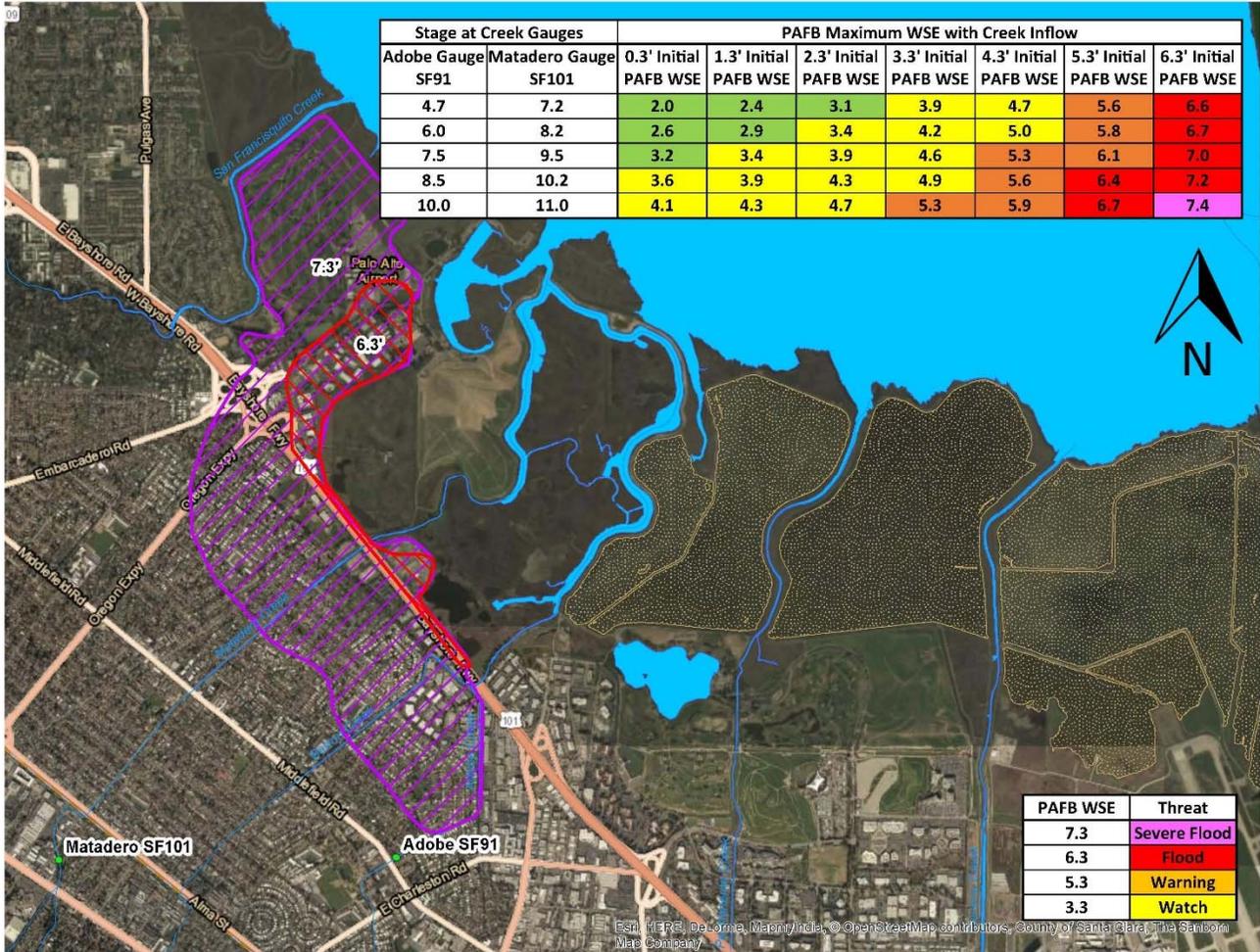
### Actions and Event Progression

Date	Time	Action/event progression	Taken by

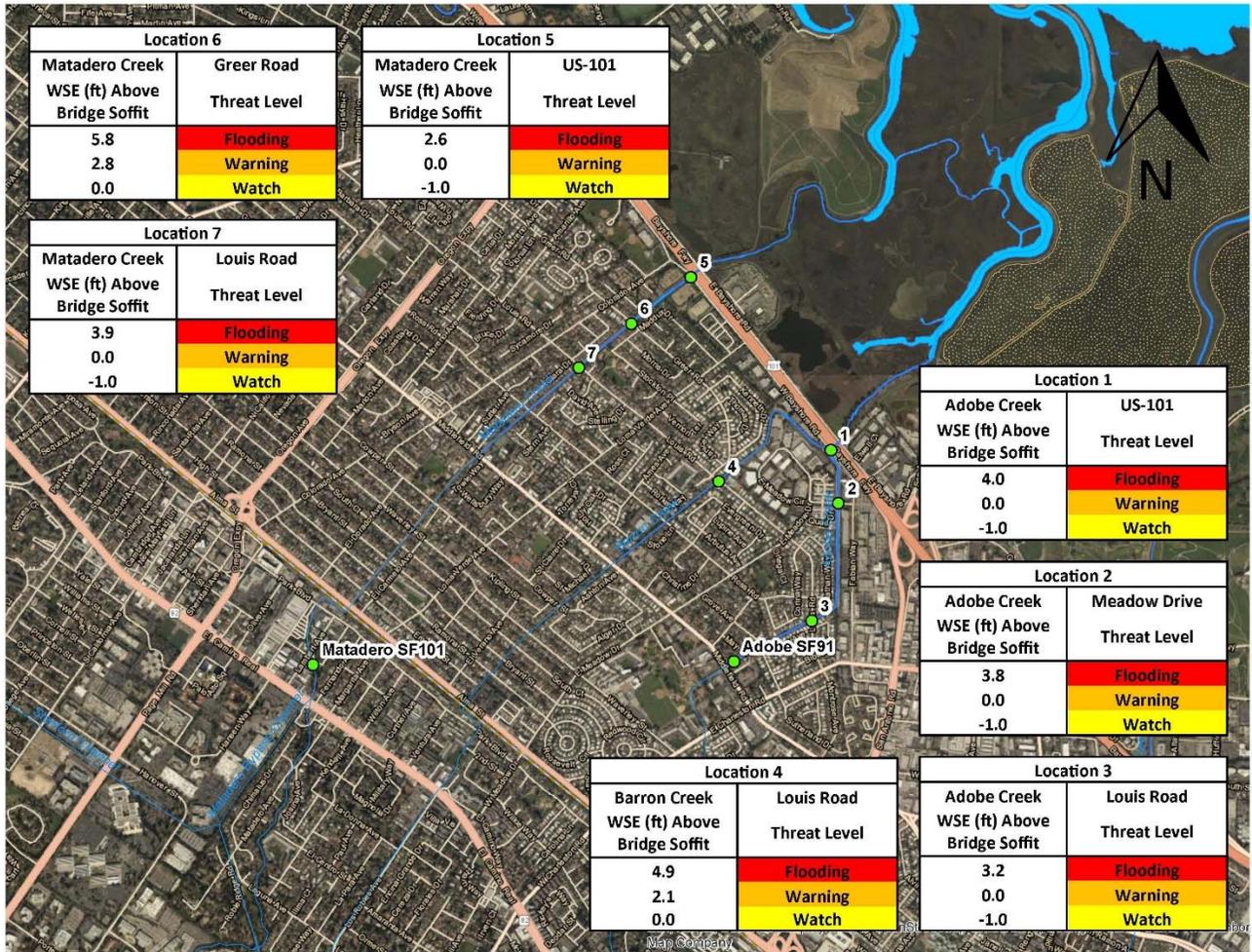
Report prepared by: \_\_\_\_\_ Date: \_\_\_\_\_

# Palo Alto Flood Basin – Emergency Action Plan (EAP)

## APPENDIX A-3: FLOOD CONDITION LEVELS



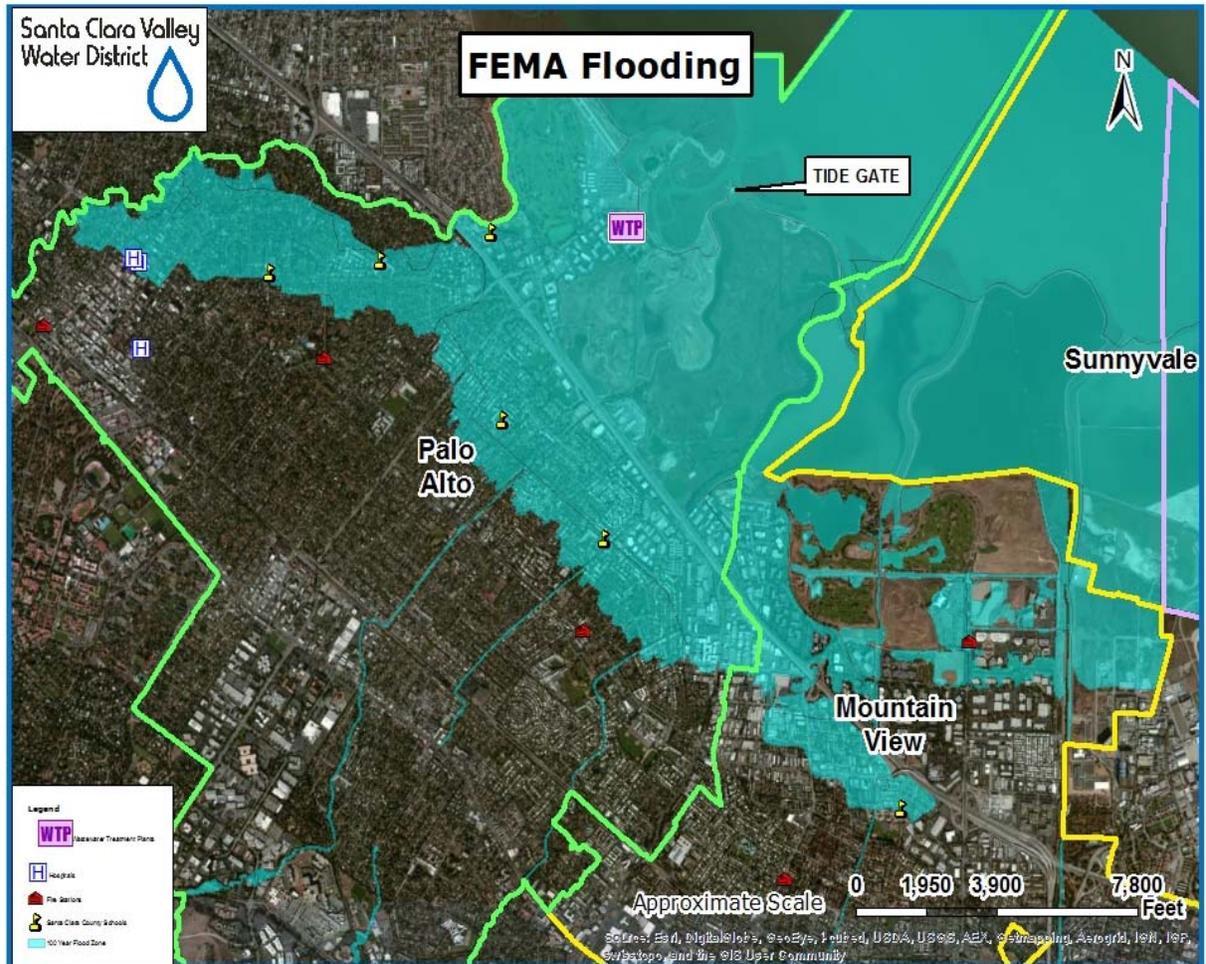
# Palo Alto Flood Basin – Emergency Action Plan (EAP)



**APPENDIX B**

# Palo Alto Flood Basin – Emergency Action Plan (EAP)

## APPENDIX B-1: HISTORICAL BREAKOUT MAP



# Palo Alto Flood Basin – Emergency Action Plan (EAP)

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## APPENDIX B-2: FLOODING HISTORY

### Adobe:

- 1955: overflowing culverts flooded 101; flooding of 73 acres of residential property and 45 acres of agricultural land occurred; major portion of damages occurred in and around 101
- 1967: high flows caused backing up of street drainage in Palo Alto leading to flooded streets and front yards

### Barron:

- 1967: high flows caused backing up of street drainage in Palo Alto leading to flooded streets and front yards

### Matadero:

- 1955: Flooded culverts west of 101 caused 3 in of water above the highway's pavement; the overflow rejoined the creek around the railroad
- 1967: overflow on Greer Rd (approx. ¼ mile upstream 101); 1ft of freeboard in channel; likely caused by inadequate storage capacity in Palo Alto Flood Basin; high flows caused backing up of street drainage in Palo Alto leading to flooded streets and front yards

**APPENDIX B-3: AVAILABLE RESOURCES**

**FLOOD FIGHTING MATERIALS LIST**

LOCATION	ITEM	QUANTITY
Camden	¼- to ½-ton boulders	*
Brokaw Yard	2 ton boulders	*
	½-ton boulders	*
	class II base rock	*
	1" x 3" rock	*
Winfield	sand bags	
Coyote Pump Station	½-ton boulders	*
	1 ton boulders	*
	2 ton boulders	*
Capitol Expressway	1 ton boulders	*
Aborn Court	1 ton boulders	*
	½-ton boulders	*

\*Quantities vary throughout the year

**FACILITY**

**CONTACT, TITLE**

**NUMBER**

Camden	Mike Sawatzky, Field Construction Supervisor	(408) 209-6848
Brokaw	Hieu Huynh, Field Construction Supervisor	(408) 821-0535
Winfield	Jennifer Codianne, Vegetation Unit Manager	(831) 234-9803
Coyote Pump Station	Hieu Huynh, Field Construction Supervisor	(408) 821-0535
Capitol Expressway	Mike Sawatzky, Field Construction Supervisor	(408) 209-6848
Aborn Court	Hieu Huynh, Field Construction Supervisor	(408) 821-0535
Church Avenue	Hieu Huynh, Field Construction Supervisor	(408) 821-0535

## **HEAVY EQUIPMENT LIST**

<b>Item</b>	<b>Quantity</b>	<b>Location</b>	<b>Contact</b>
2-axle bobtail dump trucks	2	HQ	Richard Gilmore, cell (408) 690-0950
10-wheel dump trucks	2	HQ	Richard Gilmore, cell (408) 690-0950
wheel loaders	3	HQ	Richard Gilmore, cell (408) 690-0950
tracked excavators (1 oversized)	2	HQ	Richard Gilmore, cell (408) 690-0950
backhoe/excavator	1	HQ	Richard Gilmore, cell (408) 690-0950
tracked loader (oversized)	1	HQ	Richard Gilmore, cell (408) 690-0950
knuckleboom crane	1	HQ	Jay Lee, cell (408) 623-2627
skid steer loader	1	HQ	Jay Lee, cell (408) 623-2627
14 ton crane	1	HQ	Hieu Huynh, cell (408) 821-0535
14 ton crane	1	HQ	Mike Sawatzky, cell (408) 209-6848
22 ton crane	1	HQ	Mike Sawatzky, cell (408) 209-6848
17 ton crane	1	HQ	Hieu Huynh, cell (408) 821-0535
small loader (sandbags)	1	HQ	Fidel Gonzales, cell (408) 990-6743

# Palo Alto Flood Basin – Emergency Action Plan (EAP)

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## APPENDIX B-4: WEB-BASED DATA SOURCES

### Rain Gauges:

- Los Trancos Report - [http://alert.valleywater.org/reports/pgi\\_report.php?id=1880](http://alert.valleywater.org/reports/pgi_report.php?id=1880)
- Trappers Trail Report - [http://alert.valleywater.org/reports/pgi\\_report.php?id=1457](http://alert.valleywater.org/reports/pgi_report.php?id=1457)
- Westwind Community Barn Report - [http://alert.valleywater.org/reports/pgi\\_report.php?id=1471](http://alert.valleywater.org/reports/pgi_report.php?id=1471)

### Stream Flow Stations:

- Palo Alto Flood Basin Report (Stage only) - [http://alert.valleywater.org/reports/sgi\\_report.php?id=7040](http://alert.valleywater.org/reports/sgi_report.php?id=7040)
- Matadero Creek at Lambert Ave Report - [http://alert.valleywater.org/reports/sgi\\_report.php?id=5101](http://alert.valleywater.org/reports/sgi_report.php?id=5101)
- Adobe Creek at Foothill College Report - [http://alert.valleywater.org/reports/sgi\\_report.php?id=5125](http://alert.valleywater.org/reports/sgi_report.php?id=5125)
- Adobe Creek at El Camino Real Report - [http://alert.valleywater.org/reports/sgi\\_report.php?id=5135](http://alert.valleywater.org/reports/sgi_report.php?id=5135)

### City of Palo Alto Creeks and Tide Basin Gauges:

- Palo Alto Flood Basin - [https://www.cityofpaloalto.org/gov/depts/pwd/creek\\_monitor/creek\\_monitor\\_only.asp](https://www.cityofpaloalto.org/gov/depts/pwd/creek_monitor/creek_monitor_only.asp)

### Other sites:

- Flood Watch - <https://gis.valleywater.org/SCVWDFloodWatch/>
- SCVWD Homepage - <http://valleywater.org/>
- Flood Protection Resources - <https://www.valleywater.org/floodready>
- ALERT Map - <https://gis.valleywater.org/alert/>
- ALERT System Real-Time Data - <http://alert.valleywater.org/index.php>
- Sandbags - <https://www.valleywater.org/floodready/sandbags>

### Weather:

- National Weather Service Observations - <https://water.weather.gov/ahps2/index.php?wfo=mtr>
- National Weather Service Forecasts - <https://water.weather.gov/ahps2/forecasts.php?wfo=mtr>

# Palo Alto Flood Basin – Emergency Action Plan (EAP)

## APPENDIX B-5: FLOODING HOTSPOT LOCATIONS

