

Joint Emergency Action Plan for Severe Storm and Flood Response in City of San José

Last Revised:
December 2018



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EXECUTIVE SUMMARY—JOINT EMERGENCY ACTION PLAN

The first version of the Joint Emergency Action Plan for Severe Storm and Flood Response in City of San Jose (EAP) was approved by the Santa Clara Valley Water District (District) Board of Directors and San Jose City (City) Council at a joint meeting held on November 3, 2017. The EAP provided guidance on how the District and City would coordinate, communicate, and make decisions during storm and flood events and established a new method of classifying Flood Emergency Operational and Severity Levels. Since there was flooding on Coyote Creek in February of 2017, the EAP included an appendix of specific guidance related to Coyote Creek.

The EAP is to be reviewed and/or exercised annually and updated/revised as appropriate. The District Board of Directors and San Jose City Council delegated approval authority for updates and revisions of the EAP to the City Manager and District Chief Executive Officer (CEO) or their designee. In addition to an annual review and revision of the EAP in 2018, three new appendices are being added to provide specific guidance related to flood risks on Guadalupe River, Canoas Creek and Ross Creek.

The 2018 review and update to the EAP was initiated in April under the direction of a Joint Management Team and continues to be based on the concept of a Multi-Agency Coordination (MAC) Group. The updated EAP, which was drafted by a combined team of City and District staff, tested with independent reviews and reviewed in a multi-agency exercise, is responsive to knowledge gained from past flood events and is meant to serve as guidance during severe storms or flood events.

Three important improvements embodied in the EAP are:

1. The recognition that even though flood projects have been completed to protect the community, continued vigilance is required for those areas during severe storm events.
2. Appendices were added for Guadalupe River, Canoas Creek and Ross Creek that define detailed flood stages and severity of flooding in specific locations. The four threat stages and flood severity levels are keyed to National Weather Service levels of alert. These will be publicly visible at the District FloodWatch website with continually updated situational information.
3. Guadalupe River Temporary Flood Barrier deployment to protect downtown San Jose from flooding has been refined based on new modeling and the new threat and severity classifications.

This EAP will continue to provide oversight and guidance. It is not intended to provide ultra-detailed action lists of what to do during storm and flood monitoring and response, as the Stakeholders are individual jurisdictions and have independent responsibility and discretion on how to accomplish their tasks.

By signing here, on December 12, 2018, the City of San Jose City Manager and the Santa Clara Valley Water District Chief Executive Officer agree that the two primary Agency Stakeholders will respond according to the concepts outlined in this updated EAP and will continue work on maintaining the EAP, associated projects, and continually work to improve preparedness, mitigation and response to the next flood emergency:

David Sykes, City Manager
City of San Jose

Norma J. Camacho, Chief Executive Officer
Santa Clara Valley Water District

Executive Summary—Joint Emergency Action Plan

Joint Emergency Action Plan for Severe Storm & Flood Response



What is the Joint Emergency Action Plan?

The City of San José and the Santa Clara Valley Water District have created a Joint Emergency Action Plan (EAP) for severe storms and flood response. The plan outlines how the City and District manage, prepare for and communicate about flooding issues on Coyote Creek as well as other waterways where flooding might occur.

Here are three elements of the plan that are of public interest:

1

We have improved how we measure water levels in Coyote Creek.

You can see gauges near your neighborhood and monitor water levels at a new website.



The District installed more gauges on Coyote Creek. The gauges are painted or attached to bridges, or are free-standing stakes with markings that show the height of the water at that location.

- At gis.valleywater.org/SCVWDFloodWatch/, there is a chart for each gauge location that shows the levels associated with a Monitor, Watch, or Warning status.
- We will use measurements and field observations at these locations, as well as model predictions, to predict the likelihood of flooding.
- You can look at the stream gauge in your neighborhood to assess the water level yourself. Or visit gis.valleywater.org/SCVWDFloodWatch/ to see a map of the locations of gauges and the water levels in both Anderson Reservoir and Coyote Creek and inflow into Coyote Reservoir.

2

We will communicate every stage of a potential flood using improved data analysis.

District staff improved the analytics to help decision makers and the public understand potential and/or imminent flooding conditions.

- Our preparedness levels match those used by the National Weather Service for specific levels of flood threat.
- Public communications will include current status level.
- See our Public Notification Handout on the appropriate actions to take for each status level.

Preparedness	No storms are forecast within the next 72 hours. Stream depths are below 50% of flood stage. Reservoirs are not spilling.
Flood Monitoring	Storms are forecast. Stream depths are at 50% to 70% of flood stage. This condition is fluctuating and requires monitoring and being alert for potential flooding and possible evacuation notification.
Flood Watch	Storms have occurred. Stream depths may reach flood stage in 24 to 72 hours. Prepare for possible evacuation notice.
Flood Warning	Flooding is imminent, generally within 24 hours or is occurring.

Executive Summary—Joint Emergency Action Plan

3

We will communicate more effectively with you and the community using better tools and improved procedures.



DISTRICT COMMUNICATIONS

As the flood management agency in Santa Clara County, the District (at www.valleywater.org/floodready/) will communicate:

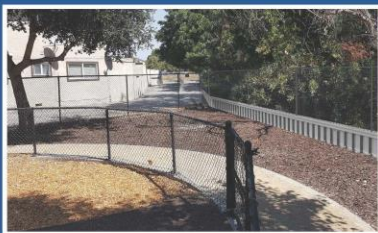
- Flood preparedness.
- Sandbag locations and instructions.
- Water levels in reservoirs and creeks.
- Status of flood improvement projects.

CITY COMMUNICATIONS

The City is responsible for emergency notifications to San José residents, and has trilingual messages that are ready to send for Flood Monitoring, Flood Watch, and Flood Warning conditions. Methods for communicating include:

- AlertSCC, which reaches all landline phones and subscribers who enroll their mobile phones.
- WEA (Wireless Emergency Alerts), which reaches mobile devices in geographically targeted areas.
- Warnings announced through powerful sound systems driven through the affected areas.
- Coordination with radio and TV news outlets.
- Social media such as NextDoor, Twitter and Facebook.
- Flyers and door-to-door alerts as possible.
- Street signage as possible.

Actions to reduce the flood risk of Coyote Creek



Rendering of new flood wall in Rock Springs.

Staff surveyed the creek to analyze why flooding was so severe in 2017. For the coming winter, the City and District are working on near-term projects that can reduce the flood risk of the creek:

- Removing fallen trees and invasive vegetation.
- Construction of a temporary berm and vinyl sheet pile wall near Rock Springs.
- Reinforcement of an earthen levee near mobile home parks.
- Installation of large trash capture device and flap gate on stormwater outfall in Rock Springs.
- Modified operation of Anderson and Coyote reservoirs to reduce winter storage and potential for large spills into Coyote Creek.

Some additional improvements are long-term and will require substantial funding.

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ACRONYMS

Readers of this plan may find it useful to understand the Acronyms used in the document.

Acronym	What is it
AC	Agency Coordinator
ALERT	Automated Local Evaluation in Real Time
AP	Action Plan
AR	Agency Representative
CalOES	California Office of Emergency Services
City	City of San José
District	Santa Clara Valley Water District
DCC	Departmental Command Center
DOC	Department Operations Center
DWR	California Department of Water Resources
EAP	Emergency Action Plan
EOC	Emergency Operations Center
EOP	Emergency Operations Plan
EPIWCC	Emergency Public Information Warning Core Capability
FEMA	Federal Emergency Management Agency
FIT	Field Information Team
IAP	Incident Action Plan
IC	Incident Command(er)
ICS	Incident Command System
IPAWS	Integrated Public Alert Warning System
JIC	Joint Information Center
JIS	Joint Information System
LFO	Lookout field observation
LHMP	Local Hazard Mitigation Plan
LRAD	Long Range Acoustical Device
MAA	Mutual Aid Agreement
MAC	Multi-Agency Coordination
MAC Group	Multi-Agency Coordination Group
MEOC	Mobile Emergency Operations Center
NWS	National Weather Service
OEM	Office of Emergency Management
OES	Office of Emergency Services
PIO	Public Information Officer
SME	Subject Matter Expert
UC	Unified Command(ers)
vMAC	Virtual Multi Agency Coordination Group

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DISTRIBUTION OF THE PLAN

ELECTRONIC VERSION

A copy of the **Joint Emergency Action Plan** (EAP) is located on a secure intranet server. Access to the intranet electronic materials is granted to those with designated EAP responsibilities.

HARDCOPY DISTRIBUTION

This EAP is readily available to key personnel that have roles and responsibilities in the implementation of the EAP. Portions of the EAP will also be issued to outside response agencies whose familiarity with the EAP is essential to its implementation. This EAP contains potentially sensitive information that identifies critical assets.

Distribution of the EAP is documented in the following Log:

EAP Number	Title	Organization	Number of Copies

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PLAN UPDATES

The City of San José Office of Emergency Management is responsible for EAP review and amendment distribution. Pre-identified staffs from the City, District, and other Stakeholders review the EAP annually. Based on this review, needed updates are prepared and issued. For instance, updates are made to the EAP when there are changes in the contact lists or roles and responsibilities of those involved in response activities. Updates are also included whenever there is an operational change to the facilities or systems that affects EAP content. Every five years the entire plan will be reviewed, revised, re-published, and distributed. Those receiving the update will destroy old copies.

Other EAP review and/or amendment triggers include, but are not limited to, the following:

1. After each incident that requires activation of the EAP.
2. After each exercise testing the effectiveness of the EAP.
3. Changes in the following types of information:
 - Roles or responsibilities of EAP identified positions or departments, and roles and responsibilities of other EAP identified outside agencies or organizations;
 - Facility construction, operation, maintenance, or other circumstances that alter the hazards or methods of response to an incident; or
 - Applicable regulations or laws.

Amendments to the EAP are recorded on the Revision Log. Once a need for EAP changes are identified, the change will be documented in the Revision Log. A hard copy of the log will be attached to the appropriate pages where the changes occurred. The distribution will follow the previous Distribution Log. Electronic updates will be made to the copy on the secure intranet server.

REVISION LOG

Revision No.	Description of Revision	Date Issued	Approved By
1	Joint EAP Adopted	2017	City Council and District Board of Directors
2	Added: Guadalupe River, Canoas and Ross Creek appendices, additional public messaging in Attachment 5, providing flood mapping in Table 2 and Attachment 3; and providing temporary sandbag sites in Table 2 and Attachment 10. Updated Attachment 2—Web-Based Data Sources.	2018	City Manager and District CEO

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1. INTRODUCTION

A. PURPOSE OF THE JOINT EMERGENCY ACTION PLAN

The Federal Emergency Management Agency (FEMA) has identified that floods are the most frequent and costly natural disaster in the United States and estimates that there are about 38,000 parcels in the City of San José (City) subject to flooding in a 100-year flood event (1 percent flood). With this in mind, there exists an opportunity to enhance coordination and communication between the two primary jurisdictions responsible for protecting the people and property in the City from floods.

The City Council (City) and Santa Clara Valley Water District (District) Board of Directors met on April 28, 2017, to discuss how to improve coordination and decision making during flooding events setting out the development of this plan. Development of this Emergency Action Plan (EAP) proceeded jointly with extensive involvement of management and personnel of both jurisdictions. The development was overseen by a Management Team and utilized six workgroups to prepare the EAP and to plan and implement other actions to mitigate the flood concerns:

1. Emergency Action Plan
2. Technical
3. Communications
4. Action Planning
5. Creek Management
6. Short-Term Project

This EAP, which is based on the successful San Francisquito Creek Multi-Agency Coordination (MAC) and Operational Plan, is designed to establish general guidance for the City, the District, and other Stakeholders to facilitate:

1. Pre-incident planning prior to a storm/flood event,
2. Coordination of interagency response and recovery operation, and
3. Collaboration on public messaging for potential, imminent, and actual flooding along the creeks in San José.

B. STAKEHOLDERS

All parcel owners along the water ways within the City of San José are Stakeholders and have responsibilities identified in this EAP. This includes the Agency Stakeholders (City, District, Santa Clara County, and San José Unified School District) and Private Property Stakeholders. Combined these are the Stakeholders responsible for the tasks identified in this EAP. Stakeholders combined have a responsibility to respond to the needs of residents, business, property owners, and the environment when affected by severe storms that create floods within city boundaries. There are other agencies/entities that have a role in preparing and responding to flood events, who may have specified roles to support the response. For example, Santa Clara County Office of Emergency Services provides support for assisting in warning.

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C. 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 the Multi-Agency Coordination (MAC) Group.
Attachments	Attachments include information and checklists useful in any Severe Storm or Flood Incident.
Appendices	Provides specific details on each water way.

D. RELATIONSHIP TO OTHER PLANS

This EAP does not supersede existing agreements or internal plans (except to introduce a preference regarding the relationship between a jurisdictional EOC and staffing a MAC Group at a facility). Terms, such as the definition of “disaster” and certain legal and procedural activities, are found in the Agency Stakeholders Emergency Operations Plans (EOPs). Therefore, they are not repeated in this EAP. Flood maps and other such background material are posted in the Local Hazard Mitigation Plan (LHMP) for the involved jurisdictions.¹

Agency Stakeholders are encouraged to regularly review their internal plans, discuss them with the MAC Group, and review other guidance such as the State of California Guidelines for Coordinating Flood Emergency Operations.²

E. DEFINITION OF A MULTI-AGENCY COORDINATION GROUP

The primary concept used in this EAP is for the City, District and other Agency Stakeholders to operate as a Multi-Agency Coordination (MAC) Group. Per the *California Statewide Multi-Agency Coordination System Guide* (rev. Feb. 2013):

“A Multi-Agency Coordination Group may be convened by an EOC Director ... to establish priorities among multiple competing incidents, provide coordinated decision making for resource allocation among cooperating agencies, harmonize agency policies, and offer strategic guidance and direction to support incident management activities. MAC Groups convene to prioritize incidents for the allocation of scarce resources. Group members should consist of administrators or executives, or their designees, who are authorized to commit agency resources and funds.”³

¹ www.sccgov.org/sites/oes/LHMP/Pages/Local-Hazard-Mitigation.aspx

² www.water.ca.gov/floodmgmt/docs/guidecooordfloodemergops.pdf

³ *California Statewide Multi-Agency Coordination System Guide* (Rev. Feb. 2013)

Introduction

Routinely, field first responders implement a version of a MAC, known as Unified Command. “First responders successfully utilize multi-agency coordination whenever multiple agencies respond to an incident, through Unified Command. Unified Command provides multi-agency support and coordination when an incident grows in complexity or multiple incidents occur in the same period.”⁴

In cases where there are multiple incidents (as is common in storm/flood incidents), there may be multiple Incident Commanders (ICs), in which case an Area Command Incident Command System (ICS) structure may be implemented in addition to this prescribed MAC Group.

FIGURE 1: Coordination Links

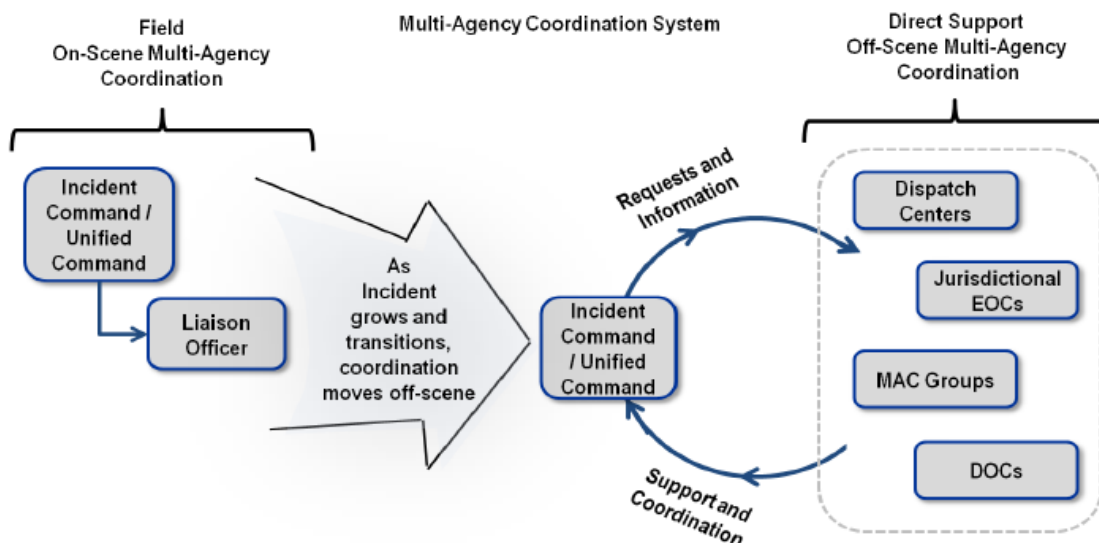


Figure 1 shows coordination links of a MAC can be established to support or facilitate coordination among Incident Commanders, Unified Command, Emergency Operations Centers, Dispatch Center and Department Operations Centers. ***The preferred staffing and operational mode will be to physically co-locate personnel from the City, District and other Agency Stakeholders at a designated facility when feasible,*** particularly in the Watch or Warning phases of response. This will:

1. Economize on staffing, and
2. Improve efficiency and communications.

The need for and use of a MAC is dynamic and depends on the potential and real impacts of a potential or active storm(s). A Virtual MAC (vMAC) can be used during

⁴ California Statewide Multi-Agency Coordination System Guide (Rev. Feb. 2013)

Introduction

Preparedness or Monitoring phases and may be considered for other phases as staff is available to physically co-locate to a MAC facility.

F. INTENTION OF THE ORGANIZATION AND PROTOCOLS NOTED IN THE EMERGENCY ACTION PLAN

This EAP provides guidance on how to staff and organize a MAC Group, and collaborate on preparedness and the response to potential, imminent, and actual flooding along the creeks in the City. To accomplish this, the intent of the plan is to provide:

1. Overarching guidance on how and when to activate a MAC for coordination purposes,
2. Suggested levels of activation of the MAC Group,
3. Suggested participants in each level of MAC activation and their decision authority,
4. Means and methods of collaborative planning, preparedness, and response activities, and
5. A document that will change over time, from experience and updates after an incident.

In the end, this EAP describes MAC mobilization procedures for maximum utilization of all available resources during a severe weather, storm, or flood event that present a risk to public safety or where disruption of transportation, utilities or other services or infrastructure is anticipated or occurs.

“Severe weather” includes situations of extreme temperatures, atmospheric rivers or atypical atmospheric phenomena (tornados, etc.).

G. FOCUS AREA(S) ASSOCIATED WITH THE EMERGENCY OPERATIONS PLAN

The MAC Group includes personnel already assigned a role and responsibility in the Emergency Operations Plan (EOP) for the City, District or other Stakeholders. The EOP responsibilities continue to require attention. The effort of the MAC Group assignments is to insure the response decisions consider what the impact of the storm has on the given focus areas that will arise during a flood scenario. This could include:

- **Identifying Flood Zones:** known flood zones; flash floods
- **Identifying Transportation Routes and Roads Conditions:** blocked roads (trees down, wires down, water, debris)
- **Taking Traffic Control Measures:** signals out, flooded areas
- **Locating Mudslides/Landslides:** especially in the Foothills

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- **Supporting Communications:** loss of telephone, internet, and other systems
- **Identifying Utility Outages:** electrical, telephone, internet, others
- **Addressing Public Health Issues:** mold, disease, etc., particularly after a storm/flood; failure/impairment of wastewater treatment (sewage) or drinking water supply systems
- **Activating Evacuation Sites and Shelters:** instructing community members on which routes to take and where to go for aid (Red Cross, etc.)
- **Responding to Crime:** opportunistic crime, looting, etc.
- **Stabilizing the Economy:** support recovery of private sector, coordinate with regional and Federal resources
- **Addressing Environmental Issues:** damage to ecological and other resources
- **Other Events:** severe weather often can coincide with other events that already stretch local resources, such as San José State planned events, holiday parades, or the holiday shopping season.

H. LIMITATIONS OF THE EMERGENCY ACTION PLAN

This EAP shall not constrain the freedom of an Incident Commander (IC) in the field or others when dealing with the referenced events. 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 ultra-detailed action lists of what to do during storm and flood monitoring and response, as 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 City, District 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.

I. TRAINING ON THE EMERGENCY ACTION PLAN

To test the concepts and mobilization activities described in the EAP, the City will work with the other Stakeholders to annually engage all appropriate agencies and agency staff to conduct discussion-based exercises such as Workshops, Seminars or Tabletop Exercises. Operational exercises such as Drills can be conducted to test communications or notification systems. Functional Exercises can be conducted to test the relationship between activated Emergency Operations Centers (EOC) and the MAC Group. Each Stakeholder is encouraged to test their participation in the MAC when they conduct exercises.

J. MAINTENANCE OF EMERGENCY ACTION PLAN

The San José Office of Emergency Management (OEM), serving as the chair of the MAC, during preparedness, maintains this EAP. The San José EOC Director is the chair during an emergency. Prior to every winter season, OEM will review this EAP with the District and other agencies, as needed. Following an exercise or an incident, the City of San José will conduct an After-Action Review of the EAP with the participating Agency Stakeholders.

The City OEM Director is responsible for revising the EAP document as agreed upon by the participants in the exercises. Updates to the EAP do not require City Council or District Board approval; however, the San Jose City Manager and District Chief Executive Officer or their designee will approve of revisions and other Agency Stakeholders must be notified of the revision. When revisions occur, the City OEM Director will provide the revised pages and an updated revision summary page to all designated 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.

K. USE OF THE EMERGENCY ACTION PLAN

This document is intended to be used by the Agency Stakeholders for integrating with MAC Group members, before, during and after a storm. 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 Agency Stakeholders or not on the original distribution list. The Agency Stakeholders may distribute this internally but are to handle with the same care as other restricted documents.

2. CONCEPT OF OPERATIONS

A. OPERATIONAL LEVELS

The concepts and activities described in this EAP are associated with the level of storm or flood threat. To maintain the collaborative nature of a MAC, this EAP is considered active 12 months of the year, 24 hours a day, and 7 days a week. The principles and actions of a MAC are integrated at all levels. The intensity and degree of activity will increase along with stream and creek conditions. The flood condition levels utilized in this EAP are consistent with the National Weather Service and defined as:

TABLE 1: Flood Condition Levels

Green	Preparedness —Flood stage is not estimated within the next 72 hours; and measured stream depth is below 50% of flood thresholds. By nature of a regular physical meeting between agency personnel from multiple agencies, a MAC is formed.
Yellow	Monitoring —Stream depth is estimated to reach flood stage in 72 hours plus, or the measured stream depth is 50% to 70% of flood stage. This condition is variable and requires more intense monitoring and a heightened level of alertness. Minimal staff in each Stakeholder's Emergency Operations Center (EOC) may be activated. A virtual MAC could be activated. An informal EOC Action Plan (AP) could be initiated.
Orange	Watch —Stream depth is estimated to reach flood stage within 24 to 72 hours or measured depths are at 70% to 100% of flood stage. The Stakeholders' would increase staff in their EOCs, if not yet activated, and a MAC facility could be established. A formal EOC AP will be drafted.
Red	Warning —This is an urgent situation when flood stage or greater is estimated to occur within 24 hours, or is occurring. The Stakeholders' EOC will have been activated and would be monitoring the situation, providing notifications and responding according to a written AP.

B. DETERMINING FLOOD CONDITION LEVELS

While the primary purpose of this EAP is to provide guidance to the Stakeholders during emergencies, **the EAP is in a state of perpetual activation, throughout the year, regardless of the condition.** For the majority of the time Stakeholder operations are focused on preparedness. Preparedness is critical to reduce the risk of flooding and during this period, Stakeholders perform activities consistent with their jurisdictional responsibilities. Table 2 below describes some of the activities performed by the Stakeholders during the flood condition levels including the preparedness period. These are examples and are not all-inclusive and may change based on the situation and needs. In addition, there may be specific activities that should be performed for distinct creeks that are included in Appendices to this EAP.

Concept of Operations

As storm conditions progress, there are four general steps the Agency Stakeholders 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 and other areas of high flow.

Weather Forecasts

The National Weather Service (NWS) provides weather (e.g., precipitation) forecasts 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 Stakeholders participate in these webinars and share all current information.

Hydrologic/Hydraulic Modeling

Based on the weather forecast, 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. This is especially true in unmodified stream systems.

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.

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.

Concept of Operations

ALERT Gauge System

A listing of all ALERT gauges can be found at <http://alert.valleywater.org/cgi.php>. These gauges provide data in near real-time on most creeks in San José 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 every high flow event, the rule curves (depth versus discharge) are updated/calibrated.

Field Information Teams and Field Operations & Maintenance

As water levels increase in the creeks, rivers, and waterways, City and District Field Information Teams (FITs) are deployed to visually monitor and report back to a DOC or EOC the rate of increase in areas of potential flooding. In addition, FITs can monitor facilities for potential damage, the surface drainage and the effect of landslides to City streets. The City, District and other Agency Stakeholders have individual teams who respond to designated “hot spots.” Deployment of these FIT teams are coordinated between the City’s DOCs and the District’s DOC (or other facility).

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

Evaluation—After detecting and gathering adequate intelligence regarding the situation, an evaluation of the water way conditions must be performed by appropriate 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, Watch, 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. The specifics of the severity are included in the Appendices of this EAP.

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 Attachment 1 Emergency Contacts.

Concept of Operations

TABLE 2: Progressive Responsibilities

	Responsibility/Activity	Stakeholder*
Preparedness	Provide technical data on mitigation and preparedness measures.	Each Stakeholder is lead for own agency resources.
	Conduct field inspections of creeks and facilities.	Each parcel owner is lead in own right of way.
	Jointly discuss property management needs and plans.	Each parcel owner is responsible.
	Inventory and Procure Flood Fighting Materials and Equipment.	Each Stakeholder is lead for own materials and equipment.
	Perform mitigation work to reduce flood risk.	Each Stakeholder is lead on own property. By agreement can release to others.
	Involve FEMA Floodplain Manager who maintains the National Flood Insurance Program (NFIP) Community Rating System (CRS) certification.	City is lead.
	Implement and enforce building codes for building in floodplains.	City is lead.
	Provide technical floodplain mapping expertise. Provide City an electronic link to Design Storm (e.g., 10-year, 25-year and/or 100-year) flood maps for creeks included in Appendices.	District is lead.
	Maintain equipment, gauges, telemetry, communications systems, etc.	District lead for stream gauges and District equipment. City lead for city equipment.
	Develop and maintain computer models of watersheds and creeks.	District is lead.
	Participate in winter preparedness workshop.	District is lead.
	Participate in annual EAP review/exercise/updates; ensure plan is functional and up to date.	City is lead.
	Update EAP and Contact/Roles list and provide revisions to Stakeholders.	City is lead.
	Manage flood information websites.	Each Stakeholder manages own site; points to water district for flow.
	Publish Preparedness Public Outreach (e.g., Winter Preparedness) in multiple languages.	District is lead.
	Provide public education in multiple languages.	Each Stakeholder is lead for own agency resources
	Provide resources to support on-going activity to support this EAP and mitigation efforts along waterways in multiple languages.	Each Stakeholder is lead for own agency resources.
	Update Emergency Communications Plan and notification systems.	City is lead. County is key support for warning.

Concept of Operations

Monitoring	Responsibility/Activity	Stakeholder*
	Activate the EAP for "Monitoring."	City is lead.
	Notify staff of own agency about the increased condition level.	Each Stakeholder is lead for their staff.
	Conduct formal monitoring, communicate via virtual systems; communicate with Agency Coordinators to determine next level of activation.	Each Stakeholder is lead for own agency resources.
	Communicate risk to EOC/MAC representatives.	Each Stakeholder is lead within their agency.
	Respond to, and mitigate, minor events as needed; coordinate with each responding agency.	Each Stakeholder is lead for own materials and equipment.
	Stage equipment at localities likely to be affected as needed; coordinate with each responding agency.	Each Stakeholder is lead for own materials and equipment.
	Provide public education in multiple languages.	Each Stakeholder collaborates and is lead to their constituents.
	Provide information to Elected Officials.	Each Stakeholder PIO is lead for own agency.
	Confer with EOC Director on conditions for activating next level.	City is lead.
	Confer with EOC Director for activation of a MAC.	City is lead.
	Identify location for flood fighting resources for the public (e.g. sandbag locations). May begin planning for establishment of special temporary sandbag locations (Attachment 10).	District is lead.
	Review evacuation planning needs.	City is lead.
	Report to designated MAC facility when directed, and available.	Each Stakeholder responds to designated MAC facility.

Concept of Operations

	Responsibility/Activity	Stakeholder*
Watch	Activate the EAP for "Watch."	City is lead.
	Manage information from the Department Operations Center or like facility.	Each Stakeholder is lead within their agency.
	Allow the DOC (or like facility) to manage field response.	Each Stakeholder is lead within agency resources
	Communicate risk to EOC/MAC representatives.	Each Stakeholder is lead within their agency.
	Notify staff of own agency about the increased condition level.	Each Stakeholder is lead for own agency.
	Confer with responding Agency Coordinators to determine response coordination needs and resources needs.	Each Stakeholder is equally responsible for cross coordination.
	Respond to, and mitigate, minor events as needed; coordinate with each responding agency.	Each Stakeholder is lead for own materials and equipment.
	Stage equipment at localities likely to be affected as needed; coordinated with each responding agency.	Each Stakeholder is lead for own materials and equipment.
	Update computer modeling based on forecast and watershed conditions and, if possible and deemed necessary, provide forecast flood maps to City and, if requested, to other Agency Stakeholders.	District is lead
	Update location for flood fighting resources for the public and supply additional resources as needed (e.g. sandbag locations). May establish special temporary sandbag sites that could include those shown in Attachment 10.	District is lead.
	Provide public information in multiple languages.	Each Stakeholder collaborates and is lead to their constituents.
	Provide public warning in multiple languages.	City is lead. County is key support.
	Deploy LRAD and activate other public notification systems, as appropriate.	City is lead.
	Provide information to Elected Officials.	Each Stakeholder is lead for own agency.
	Activate JIS/JIC as appropriate.	City is lead.
	Communicate with media as needed.	Each Stakeholder is lead for own agency.
	Provide information on impact and available resources to and from respective EOCs.	Each Stakeholder is lead for own agency resources
	Provide information to and from respective EOCs, including status reports and briefings.	Each Stakeholder is lead.
	Confer with EOC Director for activation of a MAC, if not already done.	City is lead.
	Report to designated MAC facility when directed, as available.	District is lead.
	Confer with EOC Director on conditions for potential evacuation and shelter support.	City EOC Staff is lead.
	Confer with EOC Director on conditions for activating next level.	City is lead.
	Confer with legal staff on process for proclaiming a Local Emergency.	City EOC Director is lead.

Concept of Operations

	Responsibility/Activity	Stakeholder*
Warning	Activate the EAP for "Warning."	City is lead.
	Report to designated MAC facility when directed, if not already done.	District is lead.
	Communicate risk to EOC/MAC representatives.	Each Stakeholder is lead within their agency.
	Update computer modeling based on forecast and watershed conditions and, if possible and deemed necessary, provide forecast flood maps to City and, if requested, to other Agency Stakeholders.	District is lead
	Provide public information in multiple languages.	Each Stakeholder collaborates and is 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 is lead.
	Implement evacuation plans and deploy resources to evacuate.	City is lead.
	Coordinate resources through respective EOCs.	Each Stakeholder is lead for own resources.
	Proclaim Local Emergency as appropriate.	City EOC Director is lead.
*If only one Stakeholder is noted as lead, all other Stakeholders support the effort.		

Step 3: Emergency Activity/Actions

Based on the event and condition classification, activity/actions by the City, 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 City will determine when to enter into recovery activities. The City EOC Director will work with the MAC Group members to 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.

C. PROGRESSIVE RESPONSIBILITIES

As the weather conditions change, the responsibilities of the City, 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 City or District have the lead responsibility. More detail on how the action is completed or other creek specific activities performed are provided in additional tables in this document or Appendices to this EAP.

Concept of Operations

D. FACILITIES

The MAC Group is made up of staff from the City, District and other Stakeholders. As the conditions require the use of the MAC Group to respond during Monitoring, Watch or Warning Stages, the following systems and facilities can be considered to provide a meeting location for the MAC Group. A decision on which facility or system to implement will be dependent on, but not limited to, the impact of the incident(s), location of the incidents and the resource needs.

- **Virtual MAC (vMAC):** To facilitate communication between Stakeholders, particularly early on when little impact is felt by the storm, the City will initiate contact with the District and other Stakeholders via an e-mail group. The presenting conditions of the storm will identify when the e-mail will expand to conference calls, Skype, or other means to electronically communicate. If the vMAC transitions to a physical location, vMAC activities may continue to enhance communications between multiple EOCs and Department Operations Centers (DOCs). The storm conditions and availability of MAC personnel will determine the need and efficiency of the vMAC operations.
- **City Emergency Operations Center (EOC):** The City EOC Director will determine when to activate the MAC and make the request to co-locate City, District and other Stakeholders personnel to the City EOC to act as a MAC Group. The success and efficiency of the MAC relies on the co-location of City, District and other Agency Stakeholders. In the event that resources are limited, the City EOC Director can consider other options for where MAC staff co-locate, including continued use of the vMAC or requesting the County to support the MAC.

The City EOC is located in the San José Police Administration and Communications building (a.k.a. PAC). The City EOC can support 30 people in the primary Operations room. It is fully equipped with backup power, radio communications, data systems, etc. The EOC is supplemented by various San José Department Operations Centers (DOC: Fire, Parks Recreation and Neighborhood Services, Police, Public Works, and Transportation).

- **San José Mobile Emergency Operations Center (MEOC):** The MEOC is a Type 1 command vehicle that requires the use of a commercial “tractor” to pull it. It can accommodate 12 staff inside. The SJ MEOC can function as a back up to the EOC or provide support to an Incident Commander in the field. If conditions require the use of the SJ MEOC, notifications will go out to members of the MAC.

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E. EQUIPMENT AND TOOLS

Whenever a MAC facility is opened, preparedness activities will ensure the availability and operability of internet access, radios, telephones, and hard copy EOC forms. All representatives responding need to bring their own:

- Identification
- Computer (with appropriate software or modeling systems)
- Data on a USB drive such as contact lists, forms, etc.
- Copies of their respective Emergency Operations Plans and relevant annexes (hardcopy or electronic) and this EAP

F. MULTI-AGENCY COORDINATION GROUP PERSONNEL

The effectiveness of the MAC Group relies on the designated level of authority provided to each Stakeholder representative and the level of the MAC Group activation. Based on the event condition level and related potential for flooding, the personnel who staff the MAC may evolve, due to the knowledge and authority required.

Subject Matter Experts: Staff from the City, 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/Emergency Operations Center (EOP/EOC).
- *Authority includes:* Represent Agency on technical matters; Confer with Agency Coordinators (AC) regarding activation of next level; and Engage outside resources such as National Weather Service.

Agency Coordinators: Staff from the City, District and other Stakeholders who have specific knowledge that will facilitate modifications to plans and procedures, are knowledgeable of the issues related to flood control conditions and maintenance, and have authority to recommend actions or updates to plans.

- *Personnel:* These may include personnel assigned to the following EOP/EOC positions:
 - City Department managers from:
 - Law Enforcement
 - Fire and Rescue
 - Public Works
 - Transportation

Concept of Operations

- Parks, Recreation and Neighborhood Services
- Emergency Management (EM)
- District managers from:
 - Watersheds
 - Water Utility
- *Authority includes:* Represent Agency in discussion of plans and procedures; Direct access to Agency Representative; Ability to affect Agency operations to support response and mitigation; Ability to affect Agency operations to coordinate with other designated MAC Group members; Represent Agency in MAC Group decision-making; and Communicate with next level of Agency management; and to request activation of next level.

Public Information Officers (PIO): Staff from the City, 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 EOP/EOC positions:
 - Public Information Officer
- *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 City PIO initiates activity to disseminate evacuation orders and shelter information.

Agency Representative (AR): Staff from the City, District and other Stakeholders authorized to re-allocate their own agency resources, provide directives and affect emergency orders. City AR makes final decision on the level of activation of the EAP and on evacuation order.

- *Personnel:* These may include personnel assigned to the following EOP/EOC positions:
 - City:
 - City Manager
 - Assistant City Manager
 - Deputy City Manager
 - District:
 - Chief Operating Officer
 - Administration
 - Watersheds
 - Water Utility
 - External Affairs

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- *Authority includes:* Ability to commit or redirect their own Agency resources to common MAC Group issues. City AR confirms considerations for potential evacuation and evacuation order.

Elected Officials: Through each Agency PIO or Liaison staff, elected officials will be contacted and kept informed of the situation during the Watch 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 MAC through PIO or Liaison staff.

G. MULTI-AGENCY COORDINATION GROUP CONTACT INFORMATION

With the exception of elected officials, the City, District and other Agency Stakeholders will maintain a roster of who fills each role. Whoever is designated to fill these roles should consider alternate persons to account for vacation, sick leave, etc. When a MAC is convened, anyone filling these roles needs to provide contact information to City of San José Office of Emergency Management. Contact information would include office and mobile phone numbers, e-mail, and other pertinent data.

Within the City EOC, e-mail accounts will be provided that match the role the person is fulfilling. This will allow first shift responders to leave information for incoming staff. It also allows for a common repository for information.

H. PROCEDURES

The Agency Stakeholders, 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 SJ area.

I. COMMUNICATIONS

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

The MEOC and certain other command vehicles have radio interoperability systems that can (1) communicate on just about any radio system and (2) can "patch" (link) disparate systems together.

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3. MOBILIZATION OF EMERGENCY ACTION PLAN

A. PROGRESSIVE TRIGGERS

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 City, District and other Stakeholders to communicate and collaborate is important. Once a potential or actual event is detected, responding in a coordinated way and collaborating on post incident recovery follows a progression of activities/actions.

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

Therefore, the level of activity will be guided by dynamic decision or educated judgment based on best information available to the Agency SMEs and AC. The level of activity may mirror those activities of the individual jurisdictional EOCs. As weather conditions merit and monitoring take place, the SMEs and AC 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 AC to determine the next steps. As conditions progress, City, District, or other Stakeholders are encouraged to convene at the designated MAC facility.

B. NOTIFICATION

The City, District and other Stakeholders will initiate contact to the appropriate contacts, based on the prevailing weather conditions. This would include those who have a role to perform in the EAP, dispatch and open EOCs. For city responders, City Dispatch, Office of Emergency Management, or others trained in the Everbridge Notification System will initiate the contact and provide information. For the District, Emergency Services will initiate contact and provide the following information.

- Level of Activation
- Situation Status
- Requested Action
- Reporting Requirements

The prevailing conditions will identify whether additional notification or actions will need to take place outside of the designated Stakeholder contacts.

C. RESPONDER NOTIFICATION

As identified in the following status reporting charts, information from the FIT members deployed in the field, information flows into the Department Operations Center (DOC) or to EOC Operations/Planning & Intelligence. The DOC/EOC staff process the information, track the data, and provide the EOC Operations Section with information.

Mobilization of Emergency Action Plan

D. RECIPROCAL NOTIFICATION

Regardless of activation status, if the City or District opens its EOC, the jurisdiction is encouraged to notify the other that they have activated their EOC. Notification can occur via Skype, phone or e-mail.

E. PUBLIC WARNING

The City has trained city dispatch, OEM personnel and others to activate the Alert SCC and IPAWS systems. Following protocol, the PIO will generate the message, have it approved and the trained staff will activate the warning system. Other tools such as social media shall be used and monitored. The deployment of the IPAWS system will be evaluated for most effectiveness and mobilized.

Mobilization of Emergency Action Plan

Multi-Agency Coordination Information Flow "Green" or "Preparedness": No predicted storm				
<div style="text-align: center;"> <div style="border: 1px solid black; padding: 5px; margin: 0 auto; width: 200px;">Agency Representatives</div> <div style="display: flex; justify-content: space-around; margin-top: 20px;"> <div style="border: 1px solid black; padding: 5px; width: 150px; text-align: center;">Agency Coordinators</div> <div style="border: 1px solid black; padding: 5px; width: 150px; text-align: center;">Public Info Officers</div> <div style="border: 1px solid black; padding: 5px; width: 150px; text-align: center;">Subject Matter Experts</div> </div> </div>				
Positions are jointly staffed by each involved agency				
Multi-Agency Coordination Group Roles		City of San Jose	District	Others
Subject Matter Expert				
	Provide technical data on mitigation and preparedness measures	Public Works Transportation Environmental Services	Watersheds Operations & Maintenance Division Watersheds Stewardship & Planning Division Raw Water Operations & Maintenance Divisions	
	Provide technical floodplain mapping expertise			
	Maintain equipment, gauges, telemetry, communications systems, etc.			
	Update plans and procedures for plans and activities that support the EAP			
Agency Coordinator				
	Has direct access to Agency Representative or EOC Director of own agency	OEM Director Public Works Director Transportation Director PRNS Director Environmental Services Director Police Chief Fire Chief	Watersheds Operations & Maintenance Division Watersheds Stewardship & Planning Division Raw Water Operations & Maintenance Division	designated staff from: Santa Clara County SJ Unified School District
	Works with SMEs to collect information, develop plans of action, and identify resources required for preparedness effort			
	Meets on regular basis with EAP agencies on preparedness matters			
	Implements respective parts of the EAP as either department lead or representative of activated Emergency Operations Center			

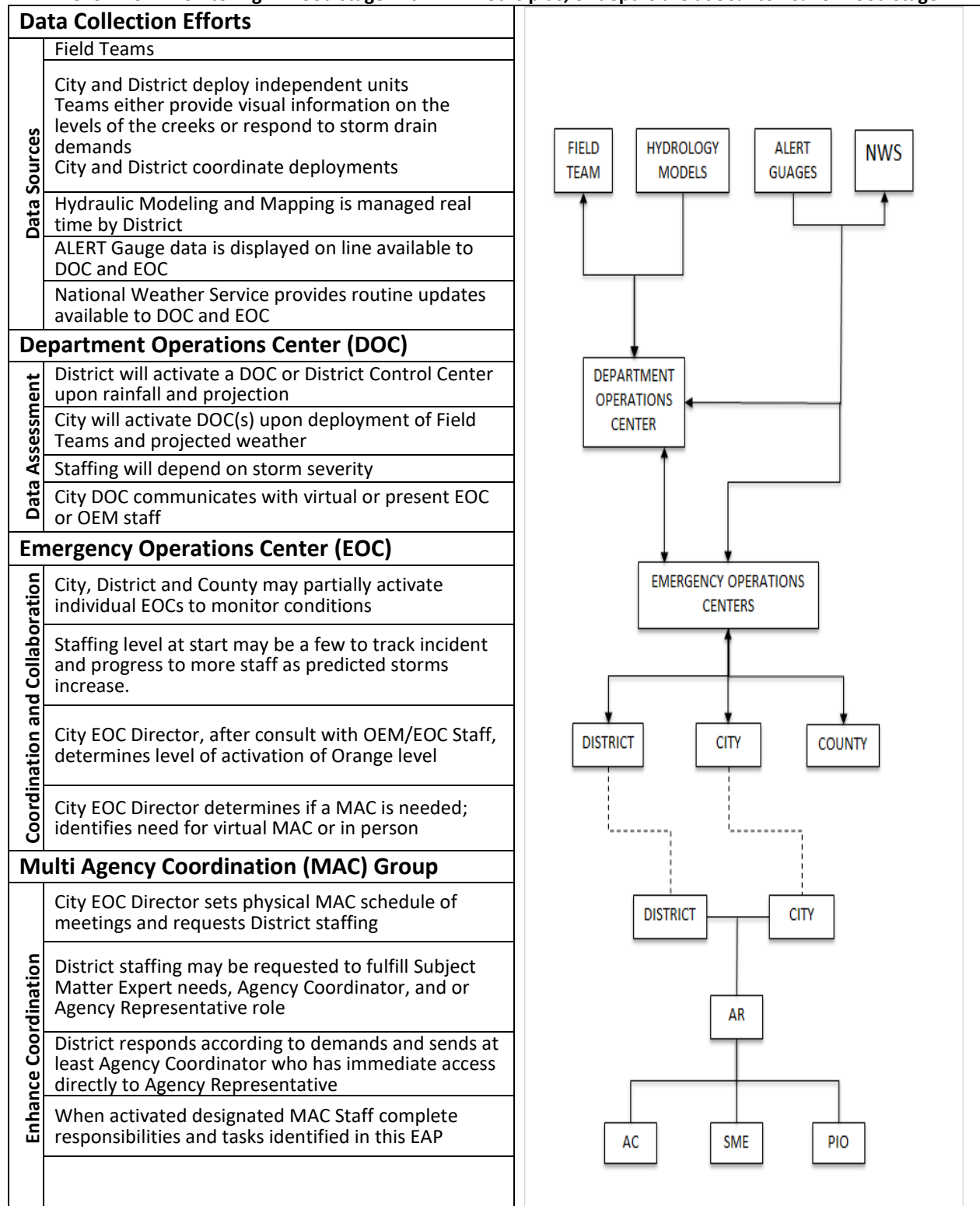
Mobilization of Emergency Action Plan

	Directs/redirects city resources as needed by priorities			
	City OEM in consultation with City EOC Director will determine need to activate to Yellow level			
Multi-Agency Coordination Group Roles		City of San Jose	District	Others
Public Information Officer				
	Provides direction and support on public education jointly with other agencies	Communications Officer E-PIO Team	Public Information Officer	designated Public Information Officer
	Provides coordination to operate a Joint Information System or Center			
Agency Representative				
	Authorizes:	City Manager Assistant CM Deputy CM	Chief Operations Officer for: Administration Watershed Water Operations	County Administrative Officer San Jose Unified School District Superintendent
	Emergency Action Plan Preparedness Planning Mitigation Plans Budget and Resource Allocation	(EOC Director when EOC is activated)		
	Meet Annually for plan review and agency coordination			
	May delegate authorities to Agency Coordinator			

Mobilization of Emergency Action Plan

Multi-Agency Coordination Information Flow

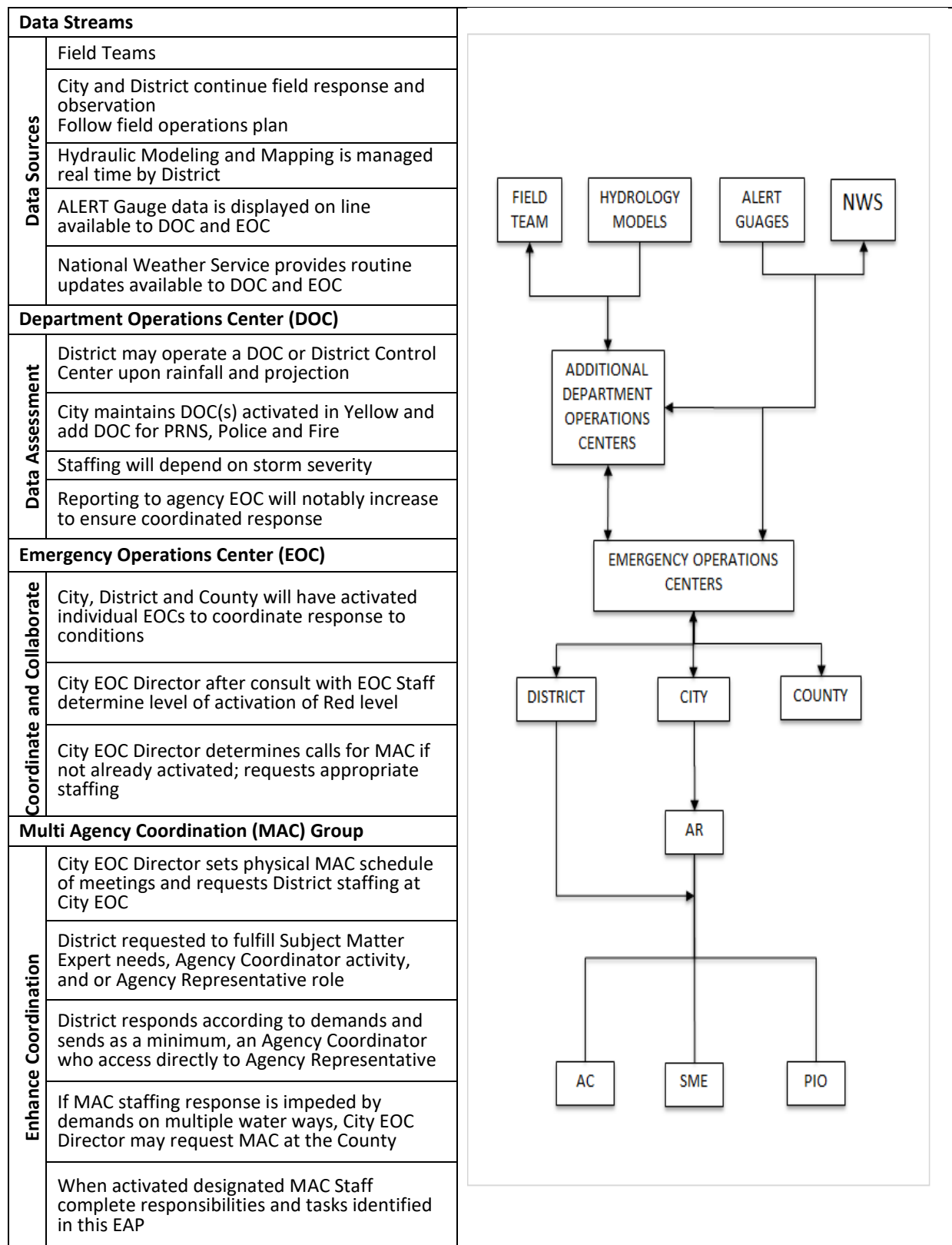
“Yellow” or “Monitoring”: Flood stage within 72 hours plus, or depths are at 50% to 70% of flood stage



Mobilization of Emergency Action Plan

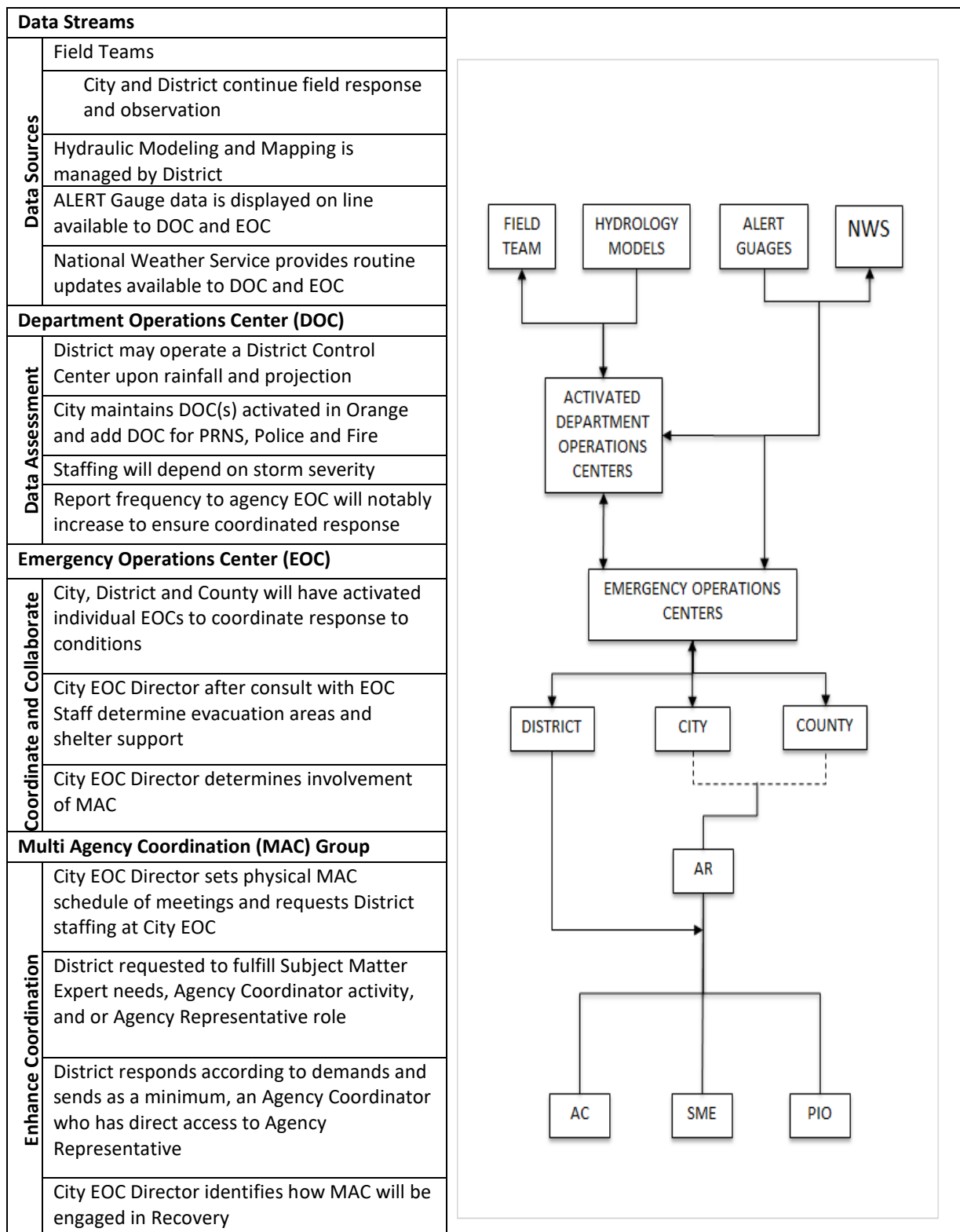
Multi-Agency Coordination Information Flow

"Orange" or "Watch": Flooding within 24 to 72 hours or measured depths are at 70% to 100% of flood stage



Mobilization of Emergency Action Plan

Multi-Agency Coordination Information Flow “Red” or “Warning”: Flood stage is estimated to occur within 24 hours.



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4. EMERGENCY ACTION PLAN OBJECTIVES AND FUNCTIONS

The City, District and other Stakeholders will focus on the following Objectives, Capabilities, and Functions. The following is consistent with the concepts of the National Incident Management System (NIMS) from the Federal Emergency Management Agency (FEMA) and the Standardized Emergency Management System (SEMS) from the State of California Office of Emergency Services (CalOES).

A. 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**
 - 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

B. FUNCTIONS

In keeping with the concepts of SEMS and NIMS, utilizing common functions to maintain the orderly flow of information and responsibility between agencies is important. Consistency in utilizing the SEMS Functions in an activation, similar to those in an EOC, improves the organization and communication flow. They are listed below in the order of when they would be called upon during the progression of the EAP:

- Planning and Intelligence
- Operations Coordination
- Emergency Public Information
- Logistics and Resource Management
- Management

Emergency Action Plan Objectives and Functions

Planning/Intelligence

As with any 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 shape the information needs.

Documentation

All activity and actions will be documented as best as possible through the use of the ICS Unit Log 214, as a minimum, and other forms available at the EOC Facility. The use of status boards is encouraged and will be adapted from available resources.

Situation Status

The SMEs consolidate all intelligence and create Situational Awareness (SA) regarding weather forecasts, damage assessments, flooding reports, traffic conditions, etc. This is accomplished through reports, documentation on the City EOC status boards and maps, and conveyed through an Action Plan (AP). The AP may be verbal at the Monitoring stage. When the City EOC is activated for a MAC, the AP will be written.

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.

Notification

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

Operations Coordination

- Activities and actions required for responding to and mitigating flood events are reported by FIT teams to the respective DOC.
- The appropriate DOC will monitor respective FIT teams. The DOC will provide operational updates to the appropriate City EOC Operations Section personnel.
- Critical life safety concerns in the field may be directly relayed from the field to the EOC as needed.

Emergency Action Plan Objectives and Functions

Emergency Public Information

As the event unfolds there is a constant need of notifying the public of conditions and what to do. The Public Information Officers (PIO) are responsible for identifying with whom to communicate, creating the message, and specifying the format and method of communication to deliver the message public and stakeholders.

The PIOs from each agency will follow the checklists and responsibilities identified in the jurisdiction's EOP. This EAP does not change that responsibility or override the tasks outlined in the plan. The purpose is to coordinate the Public Affairs and/or designated Public Information Officers (PIOs) from each agency to create a common message to avoid confusing the public, which can occur when each of the agencies sends out disparate messages.

Warning

As part of the Emergency Public Information and Warning Core Capability comes the need to let the public know to prepare for the expected impacts of imminent flooding. This is accomplished through use of the Alert SCC, IPAWS, and deployment of LRADs. Door to door contact with volunteers or employees will also be employed.

Special attention to multi-lingual or mono-lingual needs will be considered.

The PIOS should consider the activation of mutual aid and establishment of a Joint Information System (JIS) or Joint Information Center (JIC).

Logistics and Resource Management

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 the form, will be coordinated with the Agency fulfilling the need. If resources cannot be met by local Agency Stakeholders, a request for assistance can be sent to the Santa Clara County Operational Area.

Reimbursement

As resources from one Agency are shared with another Agency, the use of equipment, personnel or other resources may be reimbursable, based upon agreement.

Emergency Action Plan Objectives and Functions

Management

As conditions warrant or progress, the City, District and other Stakeholders Authorized Representatives by definition have the ability to make policy decisions, including those on matters of cost and/or liability. The City, District and other Stakeholders may confer on:

- Critical conditions
- Agency priority responses
- Common resource needs
- Resource request processing
- Managing any conflicting policy issues

C. PROGRESSION

The checklists in the Attachments demonstrate how the City, District 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.

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ATTACHMENT 1

Web-Based Data Sources

- <https://gis.valleywater.org/SCVWDFloodWatch/>
- <http://valleywater.org/>
- <https://www.valleywater.org/floodready>
- <https://www.valleywater.org/floodready/sign-up-for-emergency-alerts>
- <http://alert.valleywater.org/>
- <https://www.valleywater.org/floodready/sandbags>
- <https://www.valleywater.org/floodready/flood-safety-tips>
- <http://water.weather.gov/ahps2/index.php?wfo=mtr>
- <http://water.weather.gov/ahps2/forecasts.php?wfo=mtr>
- <http://www.sanjoseca.gov/index.aspx?NID=751>
- <https://msc.fema.gov/portal/search>

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ATTACHMENT 2

Subject Matter Experts Action List

PURPOSE:

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

WHO DESIGNATED:

City	District and Other Stakeholders
Public Works Transportation	Watersheds Operations & Maintenance Division Watersheds Stewardship & Planning Division Raw Water Operations & Maintenance Division

ACTIONS:

	Responsibility/Activity	Stakeholder
Preparedness	Provide technical data on mitigation and preparedness measures.	Each Stakeholder is lead for own agency resources.
	Conduct field inspections of creeks and facilities.	Each parcel owner is lead in own right of way.
	Jointly discuss property management needs and plans.	Each parcel owner is responsible.
	Perform mitigation work to reduce flood risk.	Each Stakeholder is lead on own property. By agreement can release to others.
	Provide technical floodplain mapping expertise. Provide City an electronic link to Design Storm (e.g., 10-year, 25-year and/or 100-year) flood maps for creeks included in Appendices.	District is lead.
	Maintain equipment, gauges, telemetry, communications systems, etc.	District lead for stream gauges and District equipment. City lead for city equipment.
	Develop and maintain computer models of watersheds and creeks.	District is lead.
	Participate in winter preparedness workshop.	District is lead.
	Participate in annual EAP review/exercise/updates; ensure plan is functional and up to date.	City is lead.
	Manage flood information websites.	Each Stakeholder manages own site; points to Water District for flow.

Attachment 3—Subject Matter Experts Action List

	Responsibility/Activity	Stakeholder
Monitoring	Notify staff of own agency about the increased condition level.	Each Stakeholder is lead for their staff.
	Conduct formal monitoring, communicate via virtual systems; communicate with Agency Coordinators to determine next level of activation.	Each Stakeholder is lead for own agency resources.
	Communicate risk to EOC/MAC representatives.	Each Stakeholder is lead within their agency.
	Report to designated MAC facility when directed, and available.	Each Stakeholder responds to designated MAC facility.
	Review evacuation planning needs.	City is lead.
Watch	Communicate risk to EOC/MAC representatives.	Each Stakeholder is lead within their agency.
	Notify staff of own agency about the increased condition level.	Each Stakeholder is lead for own agency.
	Provide information to and from respective EOCs, including status reports and briefings.	Each Stakeholder is lead.
	Report to designated MAC facility when directed, as available.	District is lead.
	Update computer modeling based on forecast and watershed conditions and, if possible and deemed necessary, provide forecast flood maps to City and, if requested, to other Agency Stakeholders.	District is lead.
Warning	Report to designated MAC facility when directed, if not already done.	District is lead.
	Communicate risk to EOC/MAC representatives.	Each Stakeholder is lead within their agency.
	Update computer modeling based on forecast and watershed conditions and, if possible and deemed necessary, provide forecast flood maps to City and, if requested, to other Agency Stakeholders.	District is lead.
*If only one Stakeholder is noted as lead, all other Stakeholders support the effort.		

ATTACHMENT 3

Agency Coordinators Action List

- Agency Coordinators are designated Agency Stakeholder staff who may normally be assigned roles in an EOC Management or Operations Section.
- Agency Coordinators should have authority to recommend actions or updates to plans.

PURPOSE:

- Agency Coordinator primary role is to coordinate actions between the Stakeholders to resolve questions on response and assign resources from their respective agency for comprehensive support to the storm condition.

WHO DESIGNATED:

City	District and Other Owners
EOC Operations Section staff for: <ul style="list-style-type: none"> • Public Works • Transportation • Utilities • Police • Fire • Parks, Recreation and Neighborhood Services • Emergency Management 	<ul style="list-style-type: none"> • Watersheds Operations & Maintenance Division • Watersheds Stewardship & Planning Division • Raw Water Operations & Maintenance Division

ACTIONS:

	Responsibility/Activity	Stakeholder
Preparedness	Provide technical data on mitigation and preparedness measures.	Each Stakeholder is lead for own agency resources.
	Jointly discuss property management needs and plans.	Each parcel owner is responsible.
	Inventory and Procure Flood Fighting Materials and Equipment.	Each Stakeholder is lead for own materials and equipment.
	Involve FEMA Floodplain Manager who maintains the National Flood Insurance Program (NFIP) Community Rating System (CRS) certification.	City is lead.
	Implement and enforce building codes for building in floodplains.	City is lead.
	Participate in winter preparedness workshop.	District is lead.
	Participate in annual EAP review/exercise/updates; ensure plan is functional and up to date.	City is lead.
	Update EAP and Contact/Roles list and provide revisions to Stakeholders.	City is lead.
	Update Emergency Communications Plan and notification systems.	City is lead. County is key support for warning.

Attachment 4—Agency Coordinators Action List

	Responsibility/Activity	Stakeholder
Monitoring	Notify staff of own agency about the increased condition level.	Each Stakeholder is lead for their staff.
	Communicate risk to EOC/MAC representatives.	Each Stakeholder is lead within their agency.
	Respond to and mitigate minor events as needed; coordinate with each responding agency.	Each Stakeholder is lead for own materials and equipment.
	Stage equipment at localities likely to be affected as needed; coordinated with each responding agency.	Each Stakeholder is lead for own materials and equipment.
	Report to designated MAC facility when directed, and available.	Each Stakeholder responds to designated MAC facility.
	Confer with EOC Director on conditions for activating next level.	City is lead.
	Confer with EOC Director for activation of a MAC.	City is lead.
	Identify location for flood fighting resources for the public (e.g. sandbag locations). May begin planning for establishment of special temporary sandbag locations (Attachment 10).	District is lead.
	Review evacuation planning needs.	City is lead.
Watch	Manage information from the Department Operations Center.	Each Stakeholder is lead within their agency.
	Allow the DOC to manage field response.	Each Stakeholder is lead within agency resources.
	Notify staff of own agency about the increased condition level.	Each Stakeholder is lead for own agency.
	Confer with responding Agency Coordinators to determine response coordination needs and resources needs.	Each Stakeholder is equally responsible for cross coordination.
	Respond to and mitigate minor events as needed; coordinate with each responding agency.	Each Stakeholder is lead for own materials and equipment.
	Stage equipment at localities likely to be affected as needed; coordinated with each responding agency.	Each Stakeholder is lead for own materials and equipment.
	Update location for flood fighting resources for the public and supply additional resources as needed (e.g. sandbag locations). May establish special temporary sandbag sites that could include those shown in Attachment 10.	District is lead.
	Deploy LRAD and activate public notification as appropriate.	City is lead.
	Provide information on impact and available resources to and from respective EOCs.	Each Stakeholder is lead for own agency resources.
	Provide information to and from respective EOCs, including status reports and briefings.	Each Stakeholder is lead.
	Confer with EOC Director for activation of a MAC.	City is lead.
	Report to designated MAC facility when directed, as available.	District is lead.
	Confer with EOC Director on conditions for potential evacuation and shelter support.	City EOC Staff are lead.

Attachment 4—Agency Coordinators Action List

	Responsibility/Activity	Stakeholder
Warning	Report to designated MAC facility when directed, if not already done.	District is lead.
	Implement evacuation plans and deploy resources to evacuate.	City is lead.
	Coordinate resources through respective EOCs.	Each Stakeholder is lead for own resources.
*If only one Stakeholder is noted as lead, all other Stakeholders support the effort.		

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ATTACHMENT 4

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.

WHO DESIGNATED:

City	District and Other Stakeholders
Communications Director	External Affairs
Designated city reps	Office of Communications

ACTIONS:

	Responsibility/Activity	Stakeholder
Preparedness	Participate in winter preparedness workshop.	District is lead.
	Participate in annual EAP review/exercise/updates; ensure plan is functional and up to date.	City is lead.
	Update EAP and Contact/Roles list and provide revisions to Stakeholders.	City is lead.
	Publish Preparedness Public Outreach (e.g., Winter Preparedness).	District is lead.
	Provide public education regarding flooding. Stakeholders should communicate on outreach.	Each Stakeholder is lead for own agency resources.
	Update Emergency Communications Plan and notification systems.	City is lead. County is key support for warning.
Monitoring	Notify staff of own agency about the increased condition level.	Each Stakeholder is lead for their staff.
	Report to designated MAC facility when directed, and available.	Each Stakeholder responds to designated MAC facility.
	Provide public education regarding flooding. Stakeholders should communicate on outreach.	Each Stakeholder collaborates and is lead to their constituents.
	Provide information to Elected Officials.	Each Stakeholder is lead for own agency.
Watch	Notify staff of own agency about the increased condition level.	Each Stakeholder is lead for own agency.
	Provide public information in multiple languages.	Each Stakeholder collaborates and is lead to their constituents.
	Provide public warning in multiple languages.	City is lead. County is key support.




Attachment 5—Public Information Officer Action List

	Responsibility/Activity	Stakeholder
	Deploy LRAD and activate public notification as appropriate.	City is lead.
	Provide information to Elected Officials.	Each Stakeholder is lead for own agency.
	Activate JIS/JIC as appropriate.	City is lead.
	Communicate with media as needed.	Each Stakeholder is lead for own agency.
	Report to designated MAC facility when directed, as available.	District is lead.
Warning	Report to designated MAC facility when directed, if not already done.	District is lead.
	Provide public information in multiple languages.	Each Stakeholder collaborates and is 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 is lead.
	Coordinate resources through respective EOCs.	Each Stakeholder is lead for own resources.
*If only one Stakeholder is noted as lead, all other Stakeholders support the effort.		

Attachment 5—Public Information Officer Action List

PUBLIC COMMUNICATIONS MESSAGING FLOOD EMERGENCY MESSAGES






<p>WHEN YOU HEAR “FLOOD MONITORING”</p> <p><i>Stream depths are 50% to 70% to flood stage</i></p>	<p>WHEN YOU HEAR “FLOOD WATCH”</p> <p><i>Stream depths are 70% or more to flood stage</i></p>	<p>WHEN YOU HEAR “FLOOD WARNING”</p> <p><i>Stream depths are near flood stage</i></p>
<p>DO THIS:</p> <ul style="list-style-type: none"> • Be alert, listen to news channels. • Tell neighbors to be alert. • Locate sandbags: visit www.valleywater.org/floodready. • Arrange for a place to stay in case of an evacuation. • Seniors or mobility-impaired: Ask family or friends to help you if needed. • Be ready to move your pets to another location. • Be ready to move valuable items to a secure place. • Be ready to gather important documents, medicines, spare clothes. 	<p>DO THIS:</p> <ul style="list-style-type: none"> • Listen to the news. • Be ready to evacuate. • Protect your property with sandbags. • Seniors or mobility-impaired: Ask family or friends to get you NOW. • Move valuable items to a higher or secure place. • Consider moving pets NOW. • Be ready to move your car/s. • Pack a bag with important documents, medicines, spare clothes. 	<p>DO THIS:</p> <ul style="list-style-type: none"> • Keep listening to the news. • Calmly evacuate NOW. • Tell your neighbors to evacuate. • Take your bag with important documents, medicines, spare clothes. • Move your car/s to high ground. • Go to a City Shelter if needed. Find shelters at www.sanjoseca.gov. • Take pets to the San José Animal Shelter for a temporary stay during disasters. 

October 2017

Attachment 5—Public Information Officer Action List

MENSAJES DE EMERGENCIA EN INUNDACIONES






PREPARACIÓN: <i>Las profundidades de la corriente están por debajo del 50% de la etapa de inundación.</i> Prepárese para los desastres antes de que sucedan. Haga un plan con su familia, o descargue ReadySCC , una aplicación móvil eso te ayuda a crear un plan, armar un kit y saber qué hacer en caso de emergencia.		
CUANDO ESCUCHE "MONITOREO DE INUNDACIONES" <i>Las profundidades de la corriente son 50% a 70% a la etapa de inundación</i>	CUANDO ESCUCHE "VIGILANCIA DE INUNDACIÓN" <i>Las profundidades de la corriente son 70% o más a la etapa de inundación</i>	CUANDO ESCUCHE "ADVERTENCIA DE INUNDACIÓN" <i>Las profundidades de corriente están en o cerca de la etapa de inundación</i>
HAZ ESTO: <ul style="list-style-type: none"> <input type="checkbox"/> Esté alerta, escuche los canales de noticias. <input type="checkbox"/> Diga a los vecinos que estén alertas. <input type="checkbox"/> Localice sacos de arena: visite www.valleywater.org/floodready. <input type="checkbox"/> Identifique un lugar para permanecer en caso de una evacuación. <input type="checkbox"/> Personas mayores o con problemas de movilidad: pida ayuda a su familia o amigos si es necesario. <input type="checkbox"/> Esté listo para mover sus mascotas a otra ubicación. <input type="checkbox"/> Esté listo para mover artículos valiosos a un lugar seguro. <input type="checkbox"/> Esté listo para reunir documentos importantes, medicamentos, cambios de ropa. 	HAZ ESTO: <ul style="list-style-type: none"> <input type="checkbox"/> Escuche las noticias. <input type="checkbox"/> Esté listo para evacuar. <input type="checkbox"/> Proteja su propiedad con sacos de arena. <input type="checkbox"/> Personas mayores o con problemas de movilidad: pida ayuda INMEDIATA a su familia o a sus amigos. <input type="checkbox"/> Mueva los artículos valiosos a un lugar más alto o seguro. <input type="checkbox"/> Considere mover mascotas AHORA. <input type="checkbox"/> Esté listo para mover su vehículo/s. <input type="checkbox"/> Empaque una bolsa con documentos importantes, medicinas, cambios de ropa. 	HAZ ESTO: <ul style="list-style-type: none"> <input type="checkbox"/> Siga escuchando las noticias. <input type="checkbox"/> Evacue tranquilamente ahora. <input type="checkbox"/> Diga a sus vecinos que evacuen. <input type="checkbox"/> Lleve su bolso con documentos importantes, medicinas, cambios de ropa. <input type="checkbox"/> Mueva su vehículo/s a un terreno alto. <input type="checkbox"/> Vaya a un refugio de la ciudad si es necesario. Encuentra refugios en www.sanjoseca.gov. <input type="checkbox"/> Lleve animales domésticos al refugio de animales San José para una estadía temporal durante los desastres. 

October 2017

Attachment 5—Public Information Officer Action List

CÁC THÔNG TIN KHẨN CẤP VỀ LŨ LỤT



SỰ CHUẨN BỊ: Bề sâu con suối nằm dưới 50% của mức lụt. Chuẩn bị cho thiên tai trước khi chúng xảy ra. Lập kế hoạch với gia đình quý vị, hoặc tải xuống ReadySCC , một ứng dụng di động giúp quý vị lập một kế hoạch, gồm các đồ trang bị, và hiểu biết phải làm gì trong một tình trạng khẩn cấp.		
KHI QUÝ VỊ NGHE THÔNG TIN “GIÁM SÁT LŨ LỤT” Chiều sâu dòng suối 50% đến 70% dẫn đến lũ lụt	KHI QUÝ VỊ NGHE THÔNG TIN “CANH PHÒNG LŨ LỤT” Chiều sâu dòng suối 70% hay hơn dẫn đến lũ lụt	KHI QUÝ VỊ NGHE THÔNG TIN “CẢNH CÁO LŨ LỤT” Chiều sâu dòng suối đã gần kề lũ lụt
LÀM NHƯ SAU: <ul style="list-style-type: none"> <input type="checkbox"/> Hãy cảnh giác, lắng nghe các chương trình tin tức. <input type="checkbox"/> Mách bảo hàng xóm nên cảnh giác. <input type="checkbox"/> Tìm các báo cáo: viếng trang mạng www.valleywater.org/floodready. <input type="checkbox"/> Dàn xếp một chỗ để cư ngụ nếu lỡ phải di tản. <input type="checkbox"/> Các bậc cao niên hoặc khuyết tật về di chuyển: Hỏi sự giúp đỡ cho quý vị từ gia đình hoặc bạn bè nếu cần thiết. <input type="checkbox"/> Sẵn sàng để di chuyển các thú nuôi trong nhà đến một nơi khác. <input type="checkbox"/> Sẵn sàng để di chuyển các đồ vật quý giá đến một nơi an toàn. <input type="checkbox"/> Sẵn sàng để gom lại tất cả các giấy tờ quan trọng, thuốc men, quần áo dự bị. 	LÀM NHƯ SAU: <ul style="list-style-type: none"> <input type="checkbox"/> Lắng nghe các chương trình tin tức. <input type="checkbox"/> Sẵn sàng để di tản. <input type="checkbox"/> Bảo vệ các tài sản của quý vị bằng bao cát. <input type="checkbox"/> Các bậc cao niên hoặc khuyết tật về di chuyển: Hỏi gia đình và bạn bè đến rước quý vị NGAY BÂY GIỜ. <input type="checkbox"/> Di chuyển các đồ vật quý giá đến một nơi cao và an toàn hơn. <input type="checkbox"/> Cần nhắc việc di chuyển các thú nuôi trong nhà bây giờ. <input type="checkbox"/> Sẵn sàng để di chuyển xe của quý vị. <input type="checkbox"/> Chuẩn bị một túi sách tay với các giấy tờ quan trọng, thuốc men, quần áo dự bị. 	LÀM NHƯ SAU: <ul style="list-style-type: none"> <input type="checkbox"/> Tiếp tục theo dõi tin tức. <input type="checkbox"/> Bình tĩnh khi di tản ngay. <input type="checkbox"/> Bảo các hàng xóm quý vị phải di tản. <input type="checkbox"/> Lấy theo túi sách tay với các giấy tờ quan trọng, thuốc men, quần áo dự bị. <input type="checkbox"/> Lái xe quý vị đến một nơi cao hơn. <input type="checkbox"/> Dời đến Nơi Tạm Trú Của Thành Phố nếu cần thiết. Truy cập các nơi tạm trú tại www.sanjoseca.gov. <input type="checkbox"/> Đem các thú nuôi trong nhà đến cơ quan San José Animal Shelter để tạm trú trong cơn tai họa. 

October 2017

Attachment 5—Public Information Officer Action List


Prepare for Winter Storms

Are you flood safe? Santa Clara County has had several damaging floods over the years. It is important that you make the necessary plans to protect your family and property from flooding. Most homeowner's and renters insurance do not cover flood damage; and typically there is a 30-day waiting period for a policy to go into effect.

Floodwater can flow swiftly through neighborhoods and away from streams when creeks "overbank" or flood. Dangerously fast-moving floodwaters can flow thousands of feet away from the flooded creek within minutes.

Don't wait for the damage to happen. Plan ahead to keep your family and property safe.

www.valleywater.org/Floodready




Keep floodsafe with tips from the Santa Clara Valley Water District!

Keep this information handy!


WHAT TO DO

Protect your family and property from flooding


before	during	after
<ul style="list-style-type: none">Consider flood insurance. To get insured, call 1-888-379-9531 or go to www.floodsmart.gov.Prepare a family emergency plan and emergency kit for your home and car with supplies. Store important documents and valuables in a safe deposit box. For more information, visit: www.ready.gov/make-a-planDesignate a family meeting spot.Examine your house for cracks in the foundation, exterior walls and small openings around pipes. Seal them.Build a sandbag barrier to block shallow water from entering structures. Use of sandbag guidelines: valleywater.org/sandbags/Place valuables in a high place (2nd floor, if possible) and move vehicles to higher ground.Keep rain gutters and drainage channels free of debris.	<ul style="list-style-type: none">Be aware that flash flooding can occur. If a flood is imminent, avoid low-lying areas and seek shelter in the highest area possible.Tune to radio station KCBS (740 AM) for emergency information.If advised to evacuate, do so immediately. Turn off utilities at the main switches or valves. Disconnect electrical appliances. Do not touch electrical equipment if you are wet or standing in water.DO NOT drive into flooded areas. If floodwaters rise around your car, abandon the car and move to higher ground. A foot of water will cause many vehicles to float. Two feet of rushing water can carry away most vehicles, including SUVs and pick-ups.	<ul style="list-style-type: none">Listen for news reports on whether the community's water supply is safe to drink.Never drive through flooded roadways. Play it smart, play it safe. Whether driving or walking, any time you come to a flooded area, Turn Around Don't Drown®. bit.ly/2hBE7WD Don't walk, swim, drive or play in floodwater.DO NOT walk in floodwaters. Water may be contaminated from oil, gasoline or raw sewage. Underground or downed power lines may also have electrically charged the water. Stay away from downed power lines and report them to your power company.Return home only when authorities indicate it is safe.




Sign up for the free "Alert SCC" Santa Clara County emergency alert system at www.alertscc.com.



Download the ReadySCC app to get emergency notifications, create your emergency plan, follow a detailed guide for preparedness and more.



Santa Clara Valley Water District

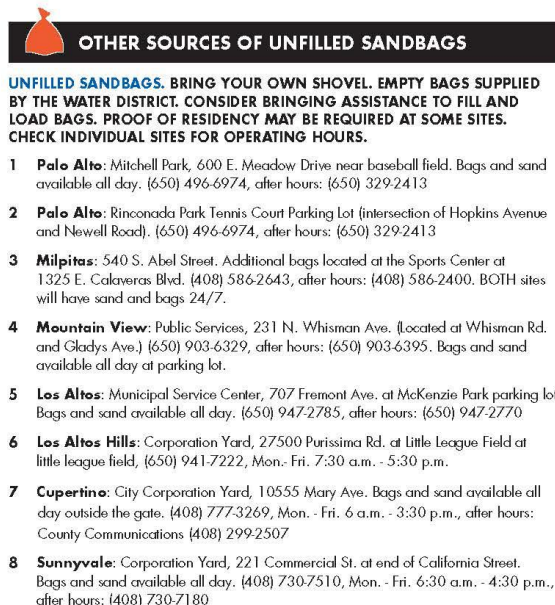


CONTACT US

See trash or downed trees in a creek? Want to report dumping or other problems? Let us know. Use our Access Valley Water customer request and information system to submit requests directly to a water district staff person. Go to Valleywater.org or download the **Access Valley Water App**.

Campbell (408) 866-2145
***Cupertino** (408) 777-3269
(408) 299-2507‡
(408) 846-0444
(408) 846-0350‡
***Los Altos** (650) 947-2785
(650) 947-2827‡
Los Altos Hills (650) 941-7222
Los Gatos (408) 399-5770
***Milpitas** (408) 586-2600
(408) 586-2400‡
(408) 354-7635
(408) 299-2507‡
Monte Sereno (408) 776-7333
(408) 779-2101‡
***Mountain View** (650) 903-6329
(650) 903-6395‡
***Palo Alto** (650) 496-6974
(650) 329-2413‡
***San José** (408) 794-1900
(408) 277-8956‡
***Santa Clara** (408) 615-3080
(408) 615-5640‡
Saratoga (408) 868-1245
(408) 299-2507‡
***Sunnyvale** (408) 730-7400
***Unincorporated** (408) 494-2750
(East Yard)
(408) 366-3100
(West Yard)
(408) 683-1240
(South Yard)
Santa Clara Valley Water District (408) 630-2378
‡ Use this number after business hours

Joint Emergency Action Plan for Severe Storm and
Flood Response in City of San José
MC14104



- 9 **Santa Clara:** City Corporation Yard, 1700 Walsh Ave. (408) 615-3080, after hours: (408) 615-5640. Available 8 a.m.- 4 p.m. inside gate (Must call first)
- 10 **San Jose:** County East Yard, 1505 Schallenberger Rd., Mon. - Fri., 7:30 am. - 4 p.m. (408) 494-2750, after hours: County Communications (408) 299-2507
- 11 **San Jose:** County West Yard, 11030 Doyle Rd., bags and sand available anytime outside gate. (408) 366-3100, after hours: County Communications (408) 299-2507
- 12 **San Jose:** City West Yard, 5090 Williams Road, filled sandbags available anytime outside gate. (408) 277-4373
- 13 **San Jose:** City South Yard, 4420 Monterey Rd. at Skyway Drive, filled sandbags available anytime outside gate. (408) 361-6818
- 14 **Los Gatos/Monte Sereno:** 41 Miles Avenue at Balzer Field parking lot (Monte Sereno citizens pick up at Los Gatos site), bags and sand available anytime at lot. (408) 399-5770, after hours: (408) 354-8600
- 15 **Saratoga:** Corporation Yard, 19700 Allendale Ave., near Post Office, bags and sand available anytime outside gate. (408) 868-1245, after hours: County Communications (408) 299-2507
- 16 **Campbell:** City Corporation Yard, 290 South Dillon Ave., (408) 866-2145, Mon.-Fri. 7 a.m. - 3:30 p.m.
- 17 **Morgan Hill:** City Corporation Yard, 100 Edes Ct., Mon. - Fri. 8 a.m. - 5 p.m., open all day, bags and sand available anytime outside gate. (408) 776-7333, after hours (408) 779-2101
- 18 **Gilroy:** Fire Station, 7070 Chestnut St. at 10th Street, bags and sand available in the parking lot behind fire station. (408) 846-0451, after hours: (408) 846-0350 (leave msg)

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Attachment 5—Public Information Officer Action List

PUBLIC COMMUNICATIONS DELIVERY METHODS

1. ALERT SCC and IPAWS if warranted.
2. MEDIA NEWS RELEASE including ethnic media.
3. RADIO & TV STATIONS – Provide specific broadcast information.
4. SOCIAL MEDIA: Post message to NEXTDOOR, FACEBOOK, TWITTER, CITY WEBSITE.
5. HOMELESS ENCAMPMENTS: XX to walk encampments and share above warnings.
Contact and provide downloadable flyer:
6. Inform administrators at SCHOOLS, CHURCHES, SJSU, SCOUT TROOPS IN FLOOD ZONE.
7. Contact managers at MOBILE HOME PARK OFFICES.
8. Contact leaders at Chamber of Commerce, Downtown Association to engage BUSINESS DISTRICT.
9. Place SANDWICH BOARD SIGNS ON MAJOR CORNERS: **Be alert to the likelihood of flooding in 24-72 hours.**
10. KNOCK-AND-TALK in at-risk neighborhoods. Staff prepared with numbers to call and basic info if asked.
11. Implement NO PARKING zones.

ATTACHMENT 5

Agency Representative Action List

PURPOSE:

- Direct actions to facilitate the EAP.
- Re-allocate agency resources to address EAP as needed.
- Provide directives and affect emergency orders.
- City AR makes final decision on the level of activation of the EAP and on evacuation order.

WHO DESIGNATED:

City	District and Other Owners
<ul style="list-style-type: none"> • City Manager • Assistant City Manager • Deputy City Manager 	<ul style="list-style-type: none"> • Chief Operating Officer <ul style="list-style-type: none"> ○ Administration ○ Watershed ○ Water Utility

ACTIONS:

	Responsibility/Activity	Stakeholder*
Preparedness		
	Participate in winter preparedness workshop.	District is lead.
	Participate in annual EAP review/exercise/updates; ensure plan is functional and up to date.	City is lead.
	Update EAP and Contact/Roles list and provide revisions to Stakeholders.	City 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		
	Activate the EAP for "Monitoring."	City is lead.
	Determine level of EOC staffing after consult with OEM.	City is lead.
	Report to designated MAC facility when directed, and available.	Each Stakeholder responds to designated MAC facility.
	Provide public education.	Each Stakeholder collaborates and is lead to their constituents.
	Provide information to Elected Officials.	Each Stakeholder is lead for own agency.
	Identify conditions for activating next level after consult with OEM.	City is lead.
	Determine need for activation of a MAC.	City is lead.

Attachment 6—Agency Representative Action List

	Responsibility/Activity	Stakeholder*
Watch	Activate the EAP for “Watch.”	City is lead.
	Allow the DOC to manage field response.	Each Stakeholder is lead within agency resources.
	Provide information on impact and available resources to and from respective EOCs.	Each Stakeholder is lead for own agency resources.
	Report to designated MAC facility when directed, as available.	District is lead.
	Confer with EOC Director on conditions for activating next level.	City is lead.
	Confer with legal staff on process for proclaiming a Local Emergency.	City EOC Director is lead.
Warning	Activate the EAP for “Warning.”	City is lead.
	Report to designated MAC facility when directed, if not already done.	District is lead.
	Provide public warning and shelter information in multiple languages.	City is lead. County is key support.
	Implement evacuation plans and deploy resources to evacuate.	City is lead.
	Proclaim Local Emergency as appropriate.	City EOC Director is lead.
*If only one Stakeholder is noted as lead, all other Stakeholders support the effort.		

ATTACHMENT 6 Elected Officials Action List

PURPOSE:

- Coordinate with constituents.
- Check with respective EOC Director on conditions.
- Coordinate information through the Public Information Officer/Liaison.

WHO DESIGNATED:

City	District and Other Owners
• City Councilmember	• Board of Directors

ACTIONS:

	Responsibility/Activity	Stakeholder*
Preparedness	Participate in winter preparedness workshop as requested	District 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	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 MAC facility for more detailed briefing when requested, as available	Each Stakeholder is lead.
Warning	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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APPENDIX A Coyote Creek

PURPOSE

This Appendix to the City, District and other Stakeholders Joint Emergency Action Plan (EAP) for Severe Storms and Flooding is meant to provide additional guidance specific to Coyote Creek. It will not duplicate information already in an EOP or the EAP, but will provide Coyote Creek specifics for:

1. Incident detection
2. Evaluation and condition level classification
3. Notification and communications
4. Emergency actions

COYOTE CREEK DESCRIPTION

The Coyote watershed is located on the east side of Santa Clara County and encompasses an area of over 320 square miles, including three reservoirs located in the upper watershed areas. The watershed drains from south to north and includes the entire City of Milpitas, eastern portions of San José, portions of Morgan Hill and unincorporated lands within eastern Santa Clara County. Water flows into Coyote Creek through local drainage systems and through 29 tributaries, of which Upper Penitencia Creek, Berryessa Creek, Lower Silver Creek, Upper Silver Creek and Fisher Creek flow directly into Coyote Creek below the reservoirs.

Below the reservoirs, Coyote Creek is about 42 miles in length and is crossed by Highways 101 and 237, Interstates 880 & 280, Metcalf Road, Silver Creek Valley Road, Yerba Buena Road, Capitol Expressway, Tully Road, Story Road, East William Street, San Antonio Road, Santa Clara Street, Julian Street, Mabury Road, Berryessa Road, Oakland Road, Brokaw Road, Montague Road, and Tasman Drive.

About 32 miles of Coyote Creek is unimproved, much of it heavily vegetated, with a variety of adjacent land uses, such as, golf courses, open space, parks, residences and businesses. Over 5 miles of improvements between the San Francisco Bay and Montague Expressway were constructed in 1995 to protect North San José, Alviso, and Milpitas from a 100-year flood. In addition, a short section of levee and floodwall were constructed to provide about 25-year flood protection for the Golden Wheel and South Bay Mobile Home Parks downstream of Berryessa Road. And there have been other modifications that add up to about 5 miles of additional improvements.

COYOTE CREEK FLOOD THREATS

The flood prone areas exist where the creek is in a more natural state, with significant vegetation, and are under a variety of ownerships that include a significant amount of private property. In the improved portions of the creek, there is a comprehensive management program to provide the design objectives of the modified creek. The unimproved areas of the creek do not have a comprehensive management program due to lack of: environmental clearances, public ownership, and a defined level of flood protection.

Appendix A—Coyote Creek

The two most recent flood events along Coyote Creek since the upstream reservoirs were constructed occurred in 1997 and 2017. Both of these floods primarily impacted three flood hotspots along the creek: (1) Golden Wheel and South Bay Mobile Home Parks downstream of Berryessa Road; (2) a single-family residential neighborhood near East William Street; and (3) a high-density residential neighborhood in the Rock Springs Drive area downstream of Tully Road. These floods caused considerable damage requiring evacuations and demonstrated the inherent uncertainty in estimating flood flows in a natural stream system.

In addition to the three main flood hotspots, there are other locations that are considered flood hotspots or may be considered a flood risk requiring attention during high flow events. The main areas of concern are included in the Coyote Flood Thresholds & Condition Levels section, but areas still at risk that are not considered flood hotspots are the improved reaches downstream of Montague Expressway that are protected by levees. Because of the flood risk, these areas are important to monitor and inspect before, during and after storm events. These areas are shown on FEMA Flood Insurance Rate Maps (FIRMs) as Zone X – Area with Reduced Flood Risk due to Levee. The FIRMs can be found at <https://msc.fema.gov/portal/search>.

FLOOD EVENT DETECTION

There are several detection methods that are described in the EAP 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 and other areas of high flow.

Of these methods, the gauging and field observation methods specific to Coyote Creek are described below:

ALERT Gauge System

A listing of all ALERT gauges in the Coyote Watershed can be found at <http://alert.valleywater.org/sqi.php>. These gauges provide data in near real-time at several locations on Coyote Creek and for all major tributaries downstream of the reservoirs. Upstream gauges will provide valuable information for flood events occurring downstream and may give many hours' notice to take action. Table 1 shows approximate travel times between key points along Coyote Creek.

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

1. Annually sites will be prioritized for manual gauging and teams are assigned.
2. After every high flow event, the rule curves (depth versus discharge) are updated/calibrated. High flow calibration on Coyote Creek gauges was done after the 1997 event and again after the 2017 event.
3. ***The Madrone gauge is considered more accurate for predication downstream flood depths when Anderson reservoir spills due to the channel characteristics.*** The Edenvale gauge is sometimes used and is part of

Appendix A—Coyote Creek

the NWS forecast modeling; however, it has a lower level of confidence due to potential backflow conditions.

Field Observations

Field observations can be critical to verify what is occurring because ALERT gauges are not always a reliable source of information and modeling information can vary from the actual condition. In addition, there are other known hot-spots and facilities that should be visually checked during high flows. Supplementing with visual observations from staff deployed in the field (i.e., Field Information Teams) and other field reporting is an important component to detection.

To allow additional information to be accurately gathered, several visual stream stage monitoring locations have been installed for observations. These are located at:

Rock Springs:

Lookout location is driveway entrance to stables.

The 'circuit' for this monitoring station will include the entire Rock Springs area, including Bevin Brook Court.

East William Street:

Stage gauge installed on pedestrian bridge.

Lookout location will be from the vehicular bridge.

Circuit would include William Street Park, Selma Olinder Park, school, and surrounding neighborhood.

Mabury Road:

Stage gauge installed on middle pier of the bridge.

Lookout location on the northeast side.

Circuit would include Watson Park, City Yard, Trailer Park and Truck Driving School.

Berryessa Road:

Stage gauge installed on bridge pier.

Lookout location on north east side by trailhead.

Circuit would include Industry areas on west side of the creek and the Mobile Home Park.

Appendix A—Coyote Creek

Charcot Road:

Stage gauge installed on bridge pier.

Lookout location can be on either side of the creek.

Circuit would be the bridge location.

The District operates Field Information Teams (FITs) that are assigned to specific locations during storms and high flow events to provide this valuable information. In addition, the City also deploys FIT teams in a coordinated way to assure that all critical locations are being monitored. Locations of FIT deployment by the City and District may overlap during storm and flood events. The MAC Group will coordinate this effort through the Planning/Intelligence Section so that resources are most effectively utilized and information is shared.

District Hot-Spots for possible FIT deployment are:

1. Visual stream gauges—checking for high water and rate of change
2. Known Flood Hot-Spots
3. Real-time Flooding—documenting flooding
4. Bridge Piers—checking for debris blockages
5. Trash Racks—checking for debris blockages
6. Mobile Home Park Levee downstream of Berryessa Road—check for stability
7. Sandbag sites—checking for supply and access issues
8. Previously repaired or other project sites—checking for performance
9. Raw water facilities—dams and canals

COYOTE FLOOD CONDITION LEVELS AND SEVERITY

Sometimes an event is a flash flood that occurs suddenly without much early notice. However, with weather forecasting and Coyote Creek 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, however, this information should be used as guidance only and not with absolute certainty.

To provide this advanced notice, a threat level will 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. Because of the uncertainties of modeling in the future, a condition 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.

Appendix A—Coyote Creek

Green	Preparedness —Flood stage is not estimated within the next 72 hours; and measured stream depth is below 50% of flood thresholds. By nature of a regular physical meeting between agency personnel from multiple agencies, a MAC is formed.
Yellow	Monitoring —Stream depth is estimated to reach flood stage in 72 hours plus, or the measured stream depth is 50% to 70% of flood stage. This condition is variable and requires more intense monitoring and a heightened level of alertness. Minimal staff in each Stakeholder's Emergency Operations Center (EOC) may be activated. A virtual MAC could be activated. An informal EOC Action Plan (AP) could be initiated.
Orange	Watch —Stream depth is estimated to reach flood stage within 24 to 72 hours or measured depths are at 70% to 100% of flood stage. The Stakeholders' would increase staff in their EOCs, if not yet activated, and a MAC facility could be established. A formal EOC AP will be drafted.
Red	Warning —This is an urgent situation when flood stage or greater is estimated to occur within 24 hours, or is occurring. The Stakeholders' EOC will have been activated and would be monitoring the situation, providing notifications and responding according to a written AP.

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 of different stream stages are estimated utilizing hydraulic models and flood maps from the 1997 and 2017 floods.

Flood severity categories are defined by the NWS as:

Action	An established gage 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	Minimal or no property damage, but possibly some public threat (e.g., inundation of roads).
Moderate Flooding	Some inundation of structures and roads near stream, evacuations of people and/or transfer of property to higher elevations.
Major Flooding	Extensive inundation of structures and roads, significant evacuations of people and/or transfer of property to higher elevations.

A 2017 flood inundation map of Coyote Creek is shown in **Figure 1A** and the associated Flood Thresholds **Table 2A** on the following page. The map is the Federal Emergency Management Agency (FEMA) 1 percent flood map. This map is based on the best available information and modeling when it was created and should be considered is approximate due to the difficulty in estimating an actual event and the changing conditions of the creek.

Appendix A—Coyote Creek

Table 3A is a flood severity table for the Madrone Gauge that is used to estimate areas that will be subject to flooding on Coyote Creek. Mapping associated with this table will be provided to Agency Stakeholders. By utilizing the **Table 1A** for travel times and actual measurements at Madrone, the time for a flood flow to reach a given location can be estimated.

The flood stage can either be estimated by using weather forecasts to model stream depths at that location or may be based on actual measurements. This information would be used to establish Condition Levels and Severity Levels for specific areas subject to flooding. The District and City will coordinate with the National Weather Service to be consistent in the threat level and severity category. Below are examples of how the tables should be used.

EXAMPLE 1

Situation: Stream depth at the Madrone gauge is currently at 5 feet and estimated to reach 10 feet in 24 hours.

Analysis: Using Table 3A the 5-foot stage is below flood stage, however, the Flood Severity for a 10-foot stage predicted to occur in 24 hours would be described as **Moderate Flooding**. And, because the 10-foot stage is expected in 24 hours at Madrone Gauge and all travel times to flood hotspots are less than 17 hours from this gauge, the Condition Level would be set as **Flood Watch** (24 to 72 hours). The specific areas subject to flooding are described in Table 3A for 10-foot stage and below.

EXAMPLE 2

Situation: Stream depth at the Madrone gauge is currently measured at 13 feet.

Analysis: Table 3A describes the Flood Severity as **Major Flooding** for a 13-foot stage at the Madrone gauge. And, the Condition Level should be set as **Flood Warning**, since travel times shown on Table 1A are less than 24 hours

EXAMPLE 3

Situation: Stream gauge at William Street Bridge is observed to be at 23 feet.

Analysis: Using information from Table 2A, the Condition Level would be **Flood Warning** for ID#'s 4a & 4b (three low-lying structures on 17th Street along the creek bank and the park east of Coyote Creek), and **Flood Watch** for ID# 4c (low lying homes on the west side of Coyote Creek).

The figures and tables on the following pages identify flood thresholds and triggers for actions at the flood hot-spots.

Notifications and Activity/Actions: Based on the condition level and flood severity level, notification activity/actions will be taken by both the City, District and other Stakeholders. The level of activity will be guided by the best information available to the Agency Subject Matter Experts (SMEs) and Agency Coordinators (ACs). The level of activity may mirror those activities of the individual jurisdictional Emergency Operations Centers (EOCs). As weather conditions merit and monitoring take place, the SMEs and ACs may be in their home offices or

Appendix A—Coyote Creek

their jurisdiction's EOC, if activated. The "call to action" may be a series of phone calls among the SMEs and ACs to determine the best approach to coordination.

The following are tables providing guidance on the types of notifications and actions that should take place for Coyote Creek.

INFRASTRUCTURE AT RISK

There are important infrastructure and facilities at risk of flooding. Based on intelligence gathered during the storm event, the MAC will determine the risk and provide notifications as appropriate. The facilities below are within the area where people, property, and infrastructure may be at risk:

FACILITY TYPE	NAME	ADDRESS	PHONE
SCHOOL	Olinder Elementary School San Jose Unified School District	890 East William Street San Jose, CA 95116	(408) 535-6000
	McKinley Elementary School Franklin-McKinley School District	651 Macredes Avenue San Jose, CA 95116	(408) 283-6000
	San Jose High School San Jose Unified School District	275 North 24th Street San Jose, CA 95116	(408) 535-6000
	Empire Gardens Elementary School San Jose Unified School District	1060 East Empire Street San Jose, CA 95112	(408) 535-6000
UTILITIES	PG&E Metcalf Transmission Substation	150 Metcalf Road San Jose, CA 95138	1 (800) 743-5000
OTHER	Hibbit's Family Stables	1896 Senter Road San Jose, CA 95112	(408) 998-2872 or (408) 478-9182

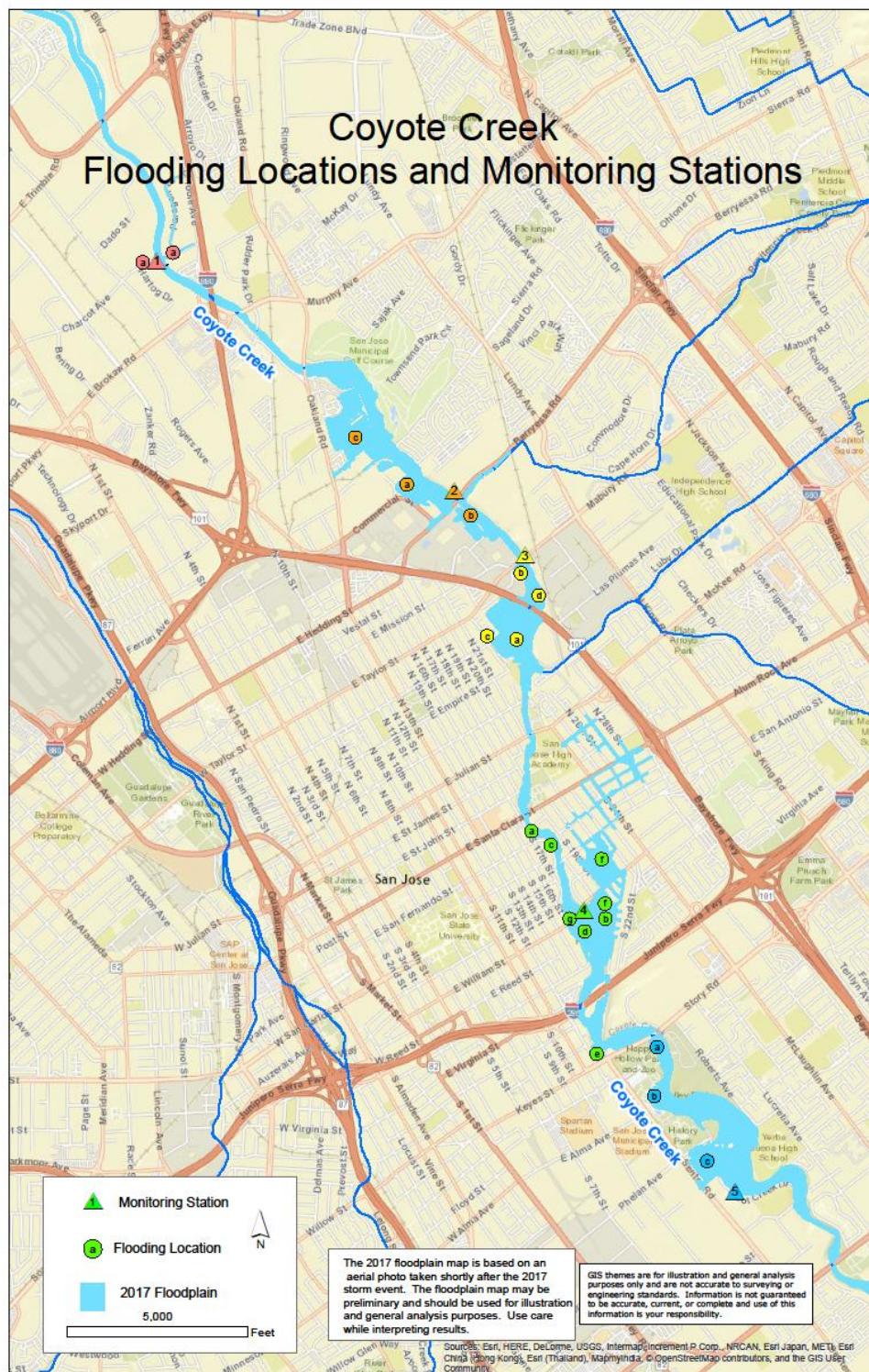
Appendix A—Coyote Creek

TABLE 1A: Coyote Creek Travel Times

Estimated Peak Travel Times for 2017 February Flood Event, rounded to the nearest half hour											
	Madrone Gauge (Anderson Spillway)	Coyote Creek Golf Drive	Edenvale Gauge	Singleton Road Crossing	Tully Road	Rock Springs	East William Street	Watson Park	Berryessa Road	South Bay MHP	Charcot Road
Madrone Gauge (Anderson Spillway)	-	-	-	-	-	-	-	-	-	-	-
Coyote Creek Golf Drive	4:00	-	-	-	-	-	-	-	-	-	-
Edenvale Gauge	5:30	1:30	-	-	-	-	-	-	-	-	-
Singleton Road Crossing	8:00	4:00	2:30	-	-	-	-	-	-	-	-
Tully Road	10:00	6:00	4:30	2:00	-	-	-	-	-	-	-
Rock Springs	10:30	6:30	5:00	2:30	0:30	-	-	-	-	-	-
East William Street	13:00	9:00	7:30	5:00	3:00	2:30	-	-	-	-	-
Watson Park	15:00	11:00	9:30	7:00	5:00	4:30	2:00	-	-	-	-
Berryessa Road	15:30	11:30	10:00	7:30	5:30	5:00	2:30	0:30	-	-	-
South Bay MHP	16:00	12:00	10:30	8:00	6:00	5:30	3:00	1:00	0:30	-	-
Charcot Road	17:00	13:00	11:30	9:00	7:00	6:30	4:00	2:00	1:30	1:00	-
Highway 237 USGS Gauge	17:30	13:30	12:00	9:30	7:30	7:00	4:30	2:30	2:00	1:30	0:30
Disclaimer: The peak travel times in this table are based on data collected during the February 2017 flood event. Flood may happen before flow peaks. The data may be preliminary and should be used for general analysis purposes. Use care while interpreting results.											


Appendix A—Coyote Creek

FIGURE 1A: Coyote Creek Flooding Locations and Monitoring Stations





Appendix A—Coyote Creek


TABLE 2A: Coyote Creek Flood On-Site Monitoring Thresholds

ID#	Index Location	Flooding Description	FLOOD THREAT STAGE AT MONITORING LOCATION				MONITORING LOCATIONS	PHOTO
			50% Capacity	70% Capacity	100% Capacity	2017 Flood High Water Mark		
1a	Charcot	Charcot Bridge overtops, flooding in streets and eventually threatening nearby businesses.	14' to 15'	16' to 17'	18' to 19'	18.9'	Charcot Road Bridge	
2a	Downstream Berryessa Rd—Industrial	Businesses west of Coyote Creek floods. Automotive junkyard and concrete plant at risk.	5' to 6'	6' to 7'	8' to 9'	16.1'	Berryessa Road Bridge	
2b	Upstream Berryessa Rd—Industrial	Industrial area west of Coyote Creek floods threatening businesses.	10' to 11'	12' to 13'	13' to 14'			


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ID#	Index Location	Flooding Description	FLOOD THREAT STAGE AT MONITORING LOCATION				MONITORING LOCATIONS	PHOTO
			50% Capacity	70% Capacity	100% Capacity	2017 Flood High Water Mark		
2c	Mobile Home Parks	Levee to the west of Coyote Creek overtops, flooding streets and homes. Businesses near the railroad tracks at risk.	12' to 13'	14' to 15'	15' to 16'			
3a	Watson Park	Dog park begins to flood first, followed by the Watson Park.	12' to 13'	13' to 14'	15' to 16'	22.0'	Mabury Road Bridge	
3b	RV Storage Lot	RV Lot west of Coyote Creek flooded.	13' to 14'	16' to 17'	18' to 19'			
3c	Watson Park Neighborhood	Streets immediately to the west of Watson park begin to flood.	15' to 16'	18' to 19'	20' to 21'			
3d	CSJ Mabury Yard	Coyote Creek overtops the east bank, flooding the city of San Jose Yard.	17' to 18'	19' to 20'	22' to 23'			

Appendix A—Coyote Creek

ID#	Index Location	Flooding Description	FLOOD THREAT STAGE AT MONITORING LOCATION				MONITORING LOCATIONS	PHOTO
			50% Capacity	70% Capacity	100% Capacity	2017 Flood High Water Mark		
4a	17th Street—Lowest Homes	Three low-lying structures begin to flood.	15' to 16'	18' to 19'	20' to 21'	33.3'	William Street Bridge	
4b	Selma Park	Park east of Coyote Creek begins to flood.	18' to 19'	21' to 22'	24' to 25'			
4c	17th St & Arroyo Way	Several low-lying homes located very near the Creek on the west side begin to flood.	19' to 20'	22' to 23'	25' to 26'			
4d	William Street Park	Coyote Creek Trail & Park, including Olinder School baseball field, begin to flood.	22' to 23'	25' to 26'	28' to 29'			
4e	NE of 12th & Keyes Streets	Car ports – located on the first floor of two-story apartment buildings – begin to flood.	14' to 15'	16' to 17'	17' to 18'			
4f	Olinder Neighborhood and School	Selma park fills and overflows to the northeast, flooding streets, the school, and homes. Water does not return to creek and flows northeasterly through streets.	26' to 27'	29' to 30'	31' to 32'			
4g	Area northwest of E. William St.	E. William St. overtops on the west side of Coyote Creek, flooding homes, backyards, and streets.	27' to 28'	30' to 31'	32' to 33'			

Appendix A—Coyote Creek

ID#	Index Location	Flooding Description	FLOOD THREAT STAGE AT MONITORING LOCATION				MONITORING LOCATIONS	PHOTO
			50% Capacity	70% Capacity	100% Capacity	2017 Flood High Water Mark		
5a	Happy Hollow Zoo	Low lying areas, including animal enclosures begin to flood.	13' to 14'	15' to 16'	17' to 18'	20.6'	Rock Springs Stable Drive	
5b	Kelley Park	Park begins to flood.	14' to 15'	16' to 17'	17' to 18'			
5c	Rock Springs Neighborhood	Homes and streets begin to flood.	17' to 18'	19' to 20'	20' to 21'			
Disclaimer: The flooding thresholds in this table are based on hydraulic modeling results calibrated with data collected during the February 2017 flood event. Hydraulic modeling results are estimates. Information is accurate within the model limitations and assumptions/data used for model development. Use care while interpreting results.								

Appendix A—Coyote Creek

TABLE 3A: Madrone Gauge Flood Severity Thresholds (NWS Model)

Madrone Gauge Thresholds	Stage (ft)	Description
Action	6	<ul style="list-style-type: none"> Low flow crossings across Coyote Creek will be inundated.
Minor Flooding	7	<ul style="list-style-type: none"> Flooding to low lying businesses northwest of Berryessa Road and Coyote Creek.
Minor Flooding	8	<ul style="list-style-type: none"> Horse Ranch opposite the Rock Springs Neighborhood at risk of flooding. Watson Park and Coyote Creek Trail at Selma Park begins to flood. Homes in the creek along Arroyo Way and 17th Street northwest of East William Street begin to flood. Flooding to businesses northwest of Berryessa Road and Coyote Creek.
Moderate Flooding	9	<ul style="list-style-type: none"> Apartments that back onto Coyote Creek at the intersection of Keyes Street and South 12th Street begin to flood lower level garages. Watson and Selma Parks flooding. Homes along Arroyo Way and 17th Streets, and homes northwest of William Street and the creek flood. Flooding beings at Williams Street Park, Happy Hollow Zoo and Kelley Park. Berryessa Road is at risk of localized street flooding, with business northwest of Berryessa Road and Coyote Creek flooding.

Appendix A—Coyote Creek

Madrone Gauge Thresholds	Stage (ft)	Description
Moderate Flooding	10	<ul style="list-style-type: none"> Sycamore Avenue accessing the Boys Ranch Detention Facility at risk of inundation. Low areas in Happy Hollow Zoo affecting structures and animals flood. Rock Springs Neighborhood at risk of flooding. Apartments that back onto Coyote Creek at the intersection of Keyes Street and South 12th Street at risk. Homes located near the creek along Arroyo Way and 17th Street, Brookwood Avenue, S 16th Street and East William Street, 19th Street between San Antonio and Calhoun are at risk. Olinder school begins to flood. Watson, Selma, Kelley, and William Street Parks are flooding. Low areas of Roosevelt Park are flooded. Woodborough Drive starts to become inundated. A few homes located in the RV storage lot south of Maybury Drive may flood. Business northwest and southwest of Berryessa Road and Coyote Creek flood.
Major Flooding	11	<ul style="list-style-type: none"> Sycamore Avenue accessing the Boys Ranch Detention Facility flooded. Kelly Park, and Happy Hollow Zoo flooding. Apartment buildings at Keyes Street and South 12th Street possibly flooded. Homes along Arroyo Way and 17th Street, homes north of William Street on South 16th Street and East William, homes along Brookwood Avenue, and 19th Streets are at flood risk. Selma Park inundated and overflows into Olinder Neighborhood. Minor flooding at Olinder School. William Street Park is inundated. Watson Park inundated and begins to flood Monfernio Drive. RV Storage lot north of US-101 flooded. Flooding in the offices and industrial areas north and south of Berryessa Road west of the creek.

Appendix A—Coyote Creek

Madrone Gauge Thresholds	Stage (ft)	Description
		<ul style="list-style-type: none"> The floodwall on the south side of Golden Wheel and South Bay Mobile Home Parks begin to overtop.
Major Flooding	12	<ul style="list-style-type: none"> Sycamore Avenue accessing the Boys Ranch Detention Facility flooded, and adjacent Malaguerra Avenue intersections inundated. Flooding to Kelley Park, and Happy Hollow Zoo. Rock Springs neighborhood levee is overtopped. Apartments that back onto Coyote Creek at the intersection of Keyes Street and South 12th Street flooded at lower levels. Flooding in the Olinder Neighborhood, to houses located along Arroyo Way and 17th Street. Selma Park and William Street Park flooded. Moderate flooding to homes north of East William Street west of the Creek and to Olinder School. Minor flooding occurs at the neighborhood on Monfernio Drive located west of Watson Park, with the park being flooded. Mobile homes located in the RV storage lot north of US-101 flood. Flooding to commercial businesses north and south of Berryessa Road on the west side of the Creek. Flooding in the Golden Wheel and South Bay Mobile Home Parks. Minor street flooding occurs at Charcot Ave due to bridge overtop.
Historical High Water	12.06'	February 2017

Appendix A—Coyote Creek

Madrone Gauge Thresholds	Stage (ft)	Description
Major Flooding	13	<ul style="list-style-type: none"> • Hellyer Park has significant flooding. • Major flooding in the Rock Springs Neighborhood and adjacent horse ranch. • Happy Hollow Zoo and Kelley Park flooded. • Lower levels of apartment buildings at Keyes and 12th Street are flooded. • East William/Olinder Neighborhood (South 22nd Street, South 21st Street, Brookwood Avenue and 19th, 20th, and 21st Street) flood with flows moving northeast towards US-101 and Lower Silver Creek. • Ponding of concern on the Southside of Lower Silver Creek at West Court and Anne Darling Elementary School, South 16th Street and East William near the Creek, Brookwood Avenue, Arroyo Way and South 17th Street, and Gilthero Court. • Flooding for Olinder Elementary School, and San Jose Community Middle and High Schools. • East Taylor Street and Kellogg Plant on Eggo Way flooding. • RV storage park north of US-101 flooding. • US-101 flooding near Mabury Road. • Commercial and industrial area near Berryessa Road are significantly flooded. • Major flooding in the Mobile Home Parks. • Spill at Charcot Avenue Bridge escapes to the east of Charcot Avenue Bridge toward I-880 and CA-237, and escapes to the west toward Montage Expressway and North 1st Street.

Appendix A—Coyote Creek

Madrone Gauge Thresholds	Stage (ft)	Description
Major Flooding	14	<ul style="list-style-type: none"> Disastrous flooding occurs along Coyote Creek downstream of Tully to the San Francisco Bay. Rock Springs Neighborhood and adjacent horse ranch inundated. Apartment buildings at the intersection of Keyes Street and S. 12th Street flooded. Happy Hollow Zoo and Kelley Park flooded. Spills from Selma Park flow northerly to flood a large area east of the creek, continuing northward to Upper Penitencia Creek, overflowing Hwy 101. West bank outbreaks at Watson Park, N 20th Street, Roosevelt Street, N. 19th Street at its southern end, N 18th Street, East St. John Street, East Santa Clara Street and S. 17th Street. The neighborhood located northwest of Watson Park may be flooded. Floodwaters converge to the Commercial Street Neighborhood around N. 4th Street and N. 10th Street to cause flooding north of I-880 in San Jose, California. Businesses north and south of Berryessa Road and west of the creek are inundated. The South Bay and Golden Wheel Mobile home parks are inundated; there is risk that floodwaters could overtop and flood homes to the west. Charcot Bridge overtopping on both right and left banks flowing away from the Creek flooding an area roughly between Coyote Creek and Guadalupe River, and between Montague Expressway to CA-237. Japantown, Hyde Park, and Northside San Jose are possible flooded.
<p>Disclaimer: The flooding thresholds in this table are based on hydraulic modeling results calibrated with data collected during the February 2017 flood event. Hydraulic modeling results are estimates. Information is accurate within the model limitations and assumptions/data used for model development. Use care while interpreting results.</p>		

APPENDIX B

Guadalupe River

PURPOSE

This Appendix to the Joint Emergency Action Plan (EAP) for Severe Storms and Flooding Response in the City of San Jose is meant to provide additional guidance specific to Guadalupe River. It will not duplicate information already in an Emergency Operations Plan (EOP) or the EAP, but will provide Guadalupe River specifics for:

1. Incident detection
2. Evaluation and condition level classification
3. Notification and communications
4. Emergency actions

GUADALUPE RIVER DESCRIPTION

The Guadalupe River begins about a half mile upstream of Blossom Hill Road at the confluence of Guadalupe Creek and Alamitos Creek and flows about 20 miles through Santa Clara County and the City of San Jose. Adjacent land uses are predominantly residential and commercial and includes the urban areas of Downtown San Jose. Its watershed drains about 170 square miles of Santa Clara County and City of San Jose and is bounded on the south and southwest by the Santa Cruz Mountains, on the west by San Tomas and Saratoga Creeks watershed, and on the east by Coyote Creek watershed. The three major tributaries that flow into the river are: Los Gatos Creek; Canoas Creek; and Ross Creek. Six reservoirs in the upper watershed area of Guadalupe River that store water primarily for ground water recharge are: Lake Elsmar, Lexington Reservoir and Vasona Reservoir along Los Gatos Creek; Guadalupe Reservoir on Guadalupe Creek; Almaden Reservoir on Alamitos Creek; and Calero Reservoir on Calero Creek.

The river is crossed by many major roadways that include: Highways 85, 87, 101 and 237; Interstates 880 & 280; Blossom Hill Road; Capitol Expressway; Almaden Expressway; West San Carlos Street; West Santa Clara Street; West Taylor Street; Montague Expressway; and Tasman Drive. There are also bike/pedestrian paths along a majority of the river length, light-rail that runs along some of its length with several crossings, and it is crossed by three wooden railroad trestles.

All of the Guadalupe River has been modified over the years for purposes either beneficial to adjacent land owners (e.g., flood protection, water conservation or land reclamation) or by governmental agencies to provide the community flood protection and/or environmental restoration/protection. Projects that provide 100-year (1 percent) flood protection have been completed from the San Francisco Bay to about a half mile upstream of Interstate 280. The remaining upstream reaches of the Guadalupe River are currently being studied by the Santa Clara Valley Water District (District) and U.S. Corps of Engineers for flood protection improvements.

Appendix B—Guadalupe River

GUADALUPE RIVER FLOOD THREATS

Flooding threats exist along all of Guadalupe River from the San Francisco Bay to Blossom Hill Road with the greatest risk of flooding in the Upper Guadalupe River upstream of Interstate 280 where flood protection improvements have not been completed. Because the flood protection improvements north of I-280 include levees, floodwalls, and many roadway crossings, these areas are still considered a threat for flooding due to potential failures, unforeseen channel blockages, or unusually large storm events.

There are several flood hotspots on the Upper Guadalupe River. Two of the more severe threats are flooding from Ross Creek and Canoas Creek caused by high water levels in Guadalupe River. The water that overbanks Ross Creek due to high water in Guadalupe River flows northerly on the west side of the river through residential/commercial properties towards the interchange of Highway 87 and Interstate 280. Waters that overbank Canoas Creek due to Guadalupe River flow northerly on the east side of the river through residential, commercial, and industrial properties towards the same interchange area. In addition, major flooding can occur from the Guadalupe River between Willow Glen Way and Willow Street. The flood hotspots on Guadalupe River are listed below (**Figure 1B**):

- North bank of Ross Creek near Almaden Expressway,
- North bank of Canoas Creek near Nightingale Drive,
- East side of Guadalupe River between Branham Lane and Capitol Expressway,
- West bank of Guadalupe River from Malone Road to Alma Road, and
- East Bank of Guadalupe River from Willow Glen Way to Willow Street.

Land uses at risk of flooding include mostly homes and businesses, however there are some significant infrastructure also at risk of flooding. Deep floodwaters could enter Highway 87 and Interstate 280 near their interchange resulting in major highway closures and traffic disruptions that could last several days. The Valley Transportation Authority Light Rail service could also be disrupted in this area until flood waters recede and the tracks are cleaned.

The most recent flood along Guadalupe River that caused significant damages and disruptions occurred in 1995. There were two separate flood events that year, which impacted Highway 87, VTA's Light Rail, homes/businesses south of I-280, and many areas of downtown and north San Jose.

Even though there are no river related flood hotspots north of I-280 because of the flood protection improvements, flood risks still exist due to interior drainage issues behind the levees and potential for extreme storm events, levee failures, or unanticipated channel blockages. The adjacent land uses that would be impacted by a flood due to an unforeseen event in this area include many residential, industrial, commercial and critical governmental infrastructure (e.g., sewage treatment facility). Because of the significant threat to public health and safety and disruptions if this would occur, this section is considered a potential flood threat and should be monitored and inspected during high flow conditions.

FLOOD EVENT DETECTION

There are several detection methods that are described in the EAP that include weather forecasts, hydrologic/hydraulic modeling, Automated Local Evaluation in Real Time (ALERT)

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stream/reservoir/precipitation gauge systems, and field observation of stage gauges and other areas of high flow.

Of these methods, the gauging and field observation methods specific to Guadalupe River are described below:

ALERT Gauge System

A listing of all ALERT gauges in the Guadalupe Watershed can be found at <http://alert.valleywater.org/sqi.php>. These gauges provide data in near real-time at several locations on Guadalupe River and for all major tributaries downstream of the reservoirs. Upstream gauges will provide valuable information for flood events occurring downstream and may give several hours' notice to take action. Gauges in the downstream reaches will show the flood risk at specific locations and whether any unexpected event is occurring (e.g., channel blockage).

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

1. Annually sites will be prioritized for manual gauging and teams are assigned.
2. After every high flow event, the rule curves (depth versus discharge) are updated/calibrated. High flow calibration on gauges in the Guadalupe River watershed was done after the 1995 flood event and again after the high flows of February 2017.
3. Predicting flood condition levels in advance of flooding requires modeling of the watershed specific to the storm forecast. This prediction of the flood condition levels will be done in coordination with the NWS forecast modeling; however, the Districts prediction may differ from the NWS forecast. Therefore, those tools should be used for guidance.

Field Observations

Field observations can be critical to verify what is occurring because ALERT gauges are not always a reliable source of information and modeling information can vary from the actual condition. In addition, there are other known hot-spots and facilities that should be visually checked during high flows. Therefore, supplementing with visual observations from staff deployed in the field (i.e., Field Information Teams) and other field reporting is an important component to detection.

To allow additional information to be accurately gathered, several visual stream stage monitoring locations have been installed for observations. These are located at:

1. Guadalupe River at Montague Expressway
2. Guadalupe River at West Alma Avenue
3. Guadalupe River at Branham Lane
4. Canoas Creek at Nightingale Drive
5. Ross Creek at Cherry Avenue

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The District operates Field Information Teams (FITs) that are assigned to monitor specific locations during storms and high flow events to provide valuable information for detection and for calibrating computer models. In addition, the City also deploys FIT teams in a coordinated way to assure that all critical locations are being monitored. The Multi-Agency Coordination (MAC) Group AC convened per the EAP and/or each jurisdictions Emergency Operations Center (EOC) will coordinate this effort through their Planning/Intelligence Section so that resources are most effectively utilized and information is shared.

Hot-Spots for possible FIT deployment are:

1. Visual stream gauges—checking for high water and rate of change
2. Known Flood Hotspots
3. Real-time Flooding—documenting flooding
4. Bridge Piers—checking for debris blockages
5. Trash Racks—checking for debris blockages
6. Levees—check for stability
7. Sandbag sites—checking for supply and access issues
8. Previously repaired or other project sites—checking for performance
9. Raw water facilities—dams and canals

GUADALUPE RIVER FLOOD CONDITION LEVELS AND SEVERITY

Sometimes an event is a flash flood that occurs suddenly without much early notice. However, with weather forecasting and Guadalupe River 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 will 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. Because of the uncertainties of forecasting future conditions, a condition 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.

Green	Preparedness —Flood stage is not estimated within the next 72 hours; and measured stream depth is below 50% of flood thresholds. By nature of a regular physical meeting between agency personnel from multiple agencies, a MAC is formed.
Yellow	Monitoring —Stream depth is estimated to reach flood stage in 72 hours plus, or the measured stream depth is 50% to 70% of flood stage. This condition is variable and requires more intense monitoring and a heightened level of alertness. Minimal staff in each Stakeholder's Emergency Operations Center (EOC) may be activated. A virtual MAC could be activated. An informal EOC Action Plan (AP) could be initiated.

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Orange	Watch —Stream depth is estimated to reach flood stage within 24 to 72 hours or measured depths are at 70% to 100% of flood stage. The Stakeholders' would increase staff in their EOCs, if not yet activated, and a MAC facility could be established. A formal EOC AP will be drafted.
Red	Warning —This is an urgent situation when flood stage or greater is estimated to occur within 24 hours, or is occurring. The Stakeholders' EOC will have been activated and would be monitoring the situation, providing notifications and responding according to a written AP.

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.

Flood severity categories are used to describe the level of flood risk posed by the storm and are defined by the National Weather Service as:

Action	An established gage 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	Minimal or no property damage, but possibly some public threat (e.g., inundation of roads).
Moderate Flooding	Some inundation of structures and roads near stream, evacuations of people and/or transfer of property to higher elevations.
Major Flooding	Extensive inundation of structures and roads, significant evacuations of people and/or transfer of property to higher elevations.

A flood inundation map of Guadalupe River is shown in **Figure 1B** and the associated Flood Thresholds **Table 1B** on the following page. The map is the Federal Emergency Management Agency (FEMA) 1% flood map. This map is based on the best available information and modeling when it was created and should be considered approximate due to the difficulty in estimating an actual event and the changing conditions of the creek. Additional floodplain mapping may be developed as needed by the District for use by the MAC.

Table 2B is a flood severity table based on the Almaden Expressway ALERT Gauge that is used to estimate areas that will be subject to flooding on Guadalupe River. Because there is very little notice for flooding based on this gauge, flood conditions will often utilize predictive methods based on weather forecast and watershed conditions.

These tables along with the actual or modeled data would allow the District or MAC to establish threat levels for specific areas subject to flooding. Mapping associated with this table will be provided to Agency Stakeholders. This information will be made available for notifications and will be coordinated with the National Weather Service to be consistent in the dissemination of threat level and severity information.

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NOTIFICATIONS AND ACTIVITY/ACTIONS

General notifications and actions are described in the EAP which describes threat level and severity, notifications and activity/actions to be taken by the City, District and other Stakeholders. The general level of activity will be guided by the best information available to the Agency Subject Matter Experts (SMEs) and Agency Coordinators (ACs). The level of activity may mirror those activities of the individual jurisdictional Emergency Operations Centers (EOCs). As weather conditions merit and monitoring take place, the SMEs and ACs may be in their home offices or their jurisdiction's EOC, if activated. The "call to action" may be a series of phone calls among the SMEs and ACs to determine the best approach to coordination.

In addition, there are specific actions and notifications that are to be taken for the Guadalupe River because of the possibility of temporary flood barrier deployments to protect Downtown San Jose. These are described on **Table 3B** and shown in **Figures 2B and 3B**. In addition, the District Operations & Maintenance DOC has Standard Operating Procedures they will follow to implement their responsibilities related to the deployment.

INFRASTRUCTURE AT RISK

There are no Federal Emergency Management Agency (FEMA) defined critical facilities located in the floodplain, however, there are other important infrastructure where people, property, and important facilities may be at risk. Based on intelligence gathered during the storm event, the MAC will determine the risk and provide notifications as appropriate. Below is a listing of some of that infrastructure.

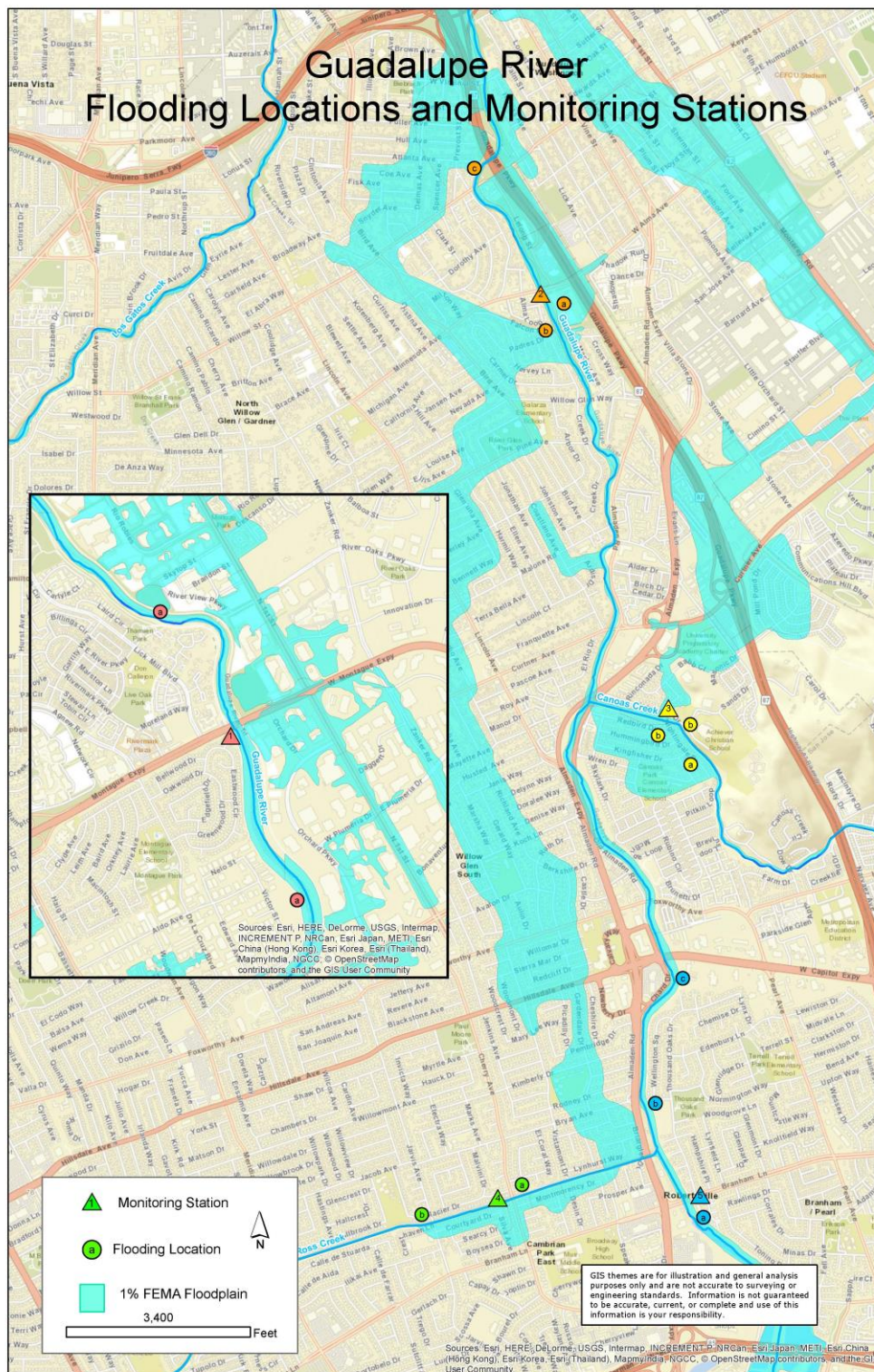
FACILITY TYPE	NAME	ADDRESS	PHONE
SCHOOLS	Galarza Elementary School San Jose Unified School District	1610 Bird Avenue San Jose, CA 95125	(408) 535-6000
	Canoas Elementary School San Jose Unified School District	880 Wren Drive San Jose, CA 95125	(408) 535-6000
	Schallenberger Elementary School San Jose Unified School District	1280 Koch Lane San Jose, CA 95125	(408) 535-6000
	Hacienda Elementary School San Jose Unified School District	1290 Kimberly Drive San Jose, CA 95118	(408) 535-6000
	Washington Elementary School San Jose Unified School District	100 Oak Street San Jose, CA 95110	(408) 535-6000

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FACILITY TYPE	NAME	ADDRESS	PHONE
UTILITIES	Interstate 280 and Highway 87	Caltrans and California Highway Patrol	911 or (800) 835-5247 (if non-emergency), (707) 648-4180 (local Division of CHP)
	Light Rail at Virginia Street and near Interstate 280 where flood stop logs are installed (Figure 2B)	VTA	911 or (408) 321-2300
	Caltrain	1355 Lick Avenue San Jose, CA 95110	(877) 723-7245
	Southern Pacific Railroad		911 or (888) 877-7267
OTHER	Elks Lodge	444 West Alma Avenue San Jose, CA 95110	(408) 298-3880



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FIGURE 1B: Upper Guadalupe River 1% Floodplain





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TABLE 1B: Guadalupe River Flood On-Site Monitoring Thresholds

ID #	Index Location	Flooding Description	Flood Threat Stage at Monitoring Location			Monitoring Locations	Photo
			50% Capacity	70% Capacity	100% Capacity		
1a	Upstream and downstream of Montague Expressway, with the highest risk between Montague Expressway and Trimble Road	Levees overtop on both sides of the creek, flooding nearby homes and businesses. Once levees overtop, levee failure may occur, causing sudden and catastrophic damage.	20'-21'	24'-25'	30'-31'	Montague Expressway Bridge (Guadalupe River)	
2a	Upstream of Alma Avenue on the East Bank near Elk's Lodge	Water overtops upstream of Alma Avenue and floods Elks Lodge, flowing northward along Lelong Street.	12'-13'	15'-16'	17'-18'	West Alma Avenue Bridge (Guadalupe River)	
2B	Upstream of Alma Avenue on the West Bank	Water breaks out slightly upstream of Alma Avenue on the west bank, spilling towards the west near Falcon Place.	14'-15'	16'-17'	18'-19'		
2c	Upstream of CA-87 on the West Bank	Water overbanks on the west side near Minnesota Avenue and Mills Court.	14'-15'	16'-17'	19'-20'		

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ID #	Index Location	Flooding Description	Flood Threat Stage at Monitoring Location			Monitoring Locations	Photo
			50% Capacity	70% Capacity	100% Capacity		
3a	Few hundred feet upstream of Nightingale Drive on the southwest bank	Water overtops the southwestern levee and spills into the residential neighborhood.	7'-8'	10'-11'	13'-14'	Nightingale Drive Culvert (Canoas Creek)	
3b	Nightingale Drive Culvert and southern levee downstream of Nightingale Drive	Water overtops the southern levee and the Nightingale Drive culvert and inundates the neighborhood.	7'-8'	10'-11'	14'-15'		
4a	Cherry Avenue	Water spills out just upstream of the Cherry Avenue Culvert, as well as along the levees upstream and downstream.	5'-6'	7'-8'	9'-10'	Cherry Avenue Culvert (Ross Creek)	
4b	Jarvis Avenue	Water spills out upstream of the Jarvis Avenue Culvert, as well as along the levees downstream and upstream.	5'-6'	7'-8'	9'-10'		

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ID #	Index Location	Flooding Description	Flood Threat Stage at Monitoring Location			Monitoring Locations	Photo
			50% Capacity	70% Capacity	100% Capacity		
5a	Upstream Branham Lane	Water spills out upstream Branham Lane on both sides.	15'-16'	17'-18'	19'-20'	Branham Lane Bridge (Guadalupe River)	
5b	East bank near Thousand Oaks Park	Low spot near Thousand Oaks Park becomes flooded, eventually spreading to the residential homes.	15'-16'	17'-18'	19'-20'		
5c	Upstream Capitol Expressway	Water spills out upstream of Capitol Expressway, flooding businesses along the road.	15'-16'	17'-18'	19'-20'		
Disclaimer: The flooding thresholds in this table are based on hydraulic modeling results calibrated with data collected during the historical flood events. Hydraulic modeling results may be preliminary and should be used for general analysis purposes. Information is accurate within the model limitations and assumptions/data used for model development. Use care while interpreting results.							

Appendix B—Guadalupe River

TABLE 2B: Almaden Expressway Gauge Flood Severity Thresholds (NWS Model)

Almaden Expressway Gauge Thresholds	Stage (ft)	Description
Action	7.5	Water levels reaching flood stage with areas within the banks under high flows.
Minor Flooding	8.5	Overtopping upstream of Alma Avenue Bridge east into the Elk's Lodge begins and the Alma Avenue's Hwy 87/railroad undercrossing begins filling with water.
Minor Flooding	11.5	Flooding near Alma Avenue extends north along Lelong Street in addition to Elk's Lodge and undercrossing being flooded. In addition, flooding begins to the west downstream of Alma Avenue into the neighborhood.
Historical High Water	11.73	January 1995
Moderate Flooding	13	Floodwaters flow north and east under both the Willow Street and Alma Avenue undercrossings. Additional overbanking occurs to the west downstream of Willow Street flooding the neighborhoods. Overbanking also begins upstream of Alma Avenue to Willow Glen Way. Flooding of Highway 87 begins.

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Almaden Expressway Gauge Thresholds	Stage (ft)	Description
Major Flooding	15	<p>Washington/Guadalupe, Tamien, and Alma/Almaden Neighborhoods east of Highway 87 are inundated from floodwaters. Widespread flooding in the eastern Willow Glen Neighborhoods, as well as the Gardner and Atlanta/Bird Neighborhoods. Highway 87/Interstate 280 interchange and the adjacent Light rail flood.</p> <p>Areas along Thousand Oaks upstream of Capitol Expressway are at risk of flooding.</p> <p>Waters will flood out of both Ross Creek and Canoas Creek flooding neighborhoods to the south of both creeks and also flowing overland to the north ending up near Interstate 280 and Highway 87.</p> <p>For flooding from the Willow Street to Willow Glen Way and Canoas Creek area, temporary flood barriers will be installed at Almaden Avenue and Vine Street near Interstate 280 and at VTA Crossings (see Figure 2B).</p>
<p>Disclaimer: The flooding thresholds in this table are based on hydraulic modeling results calibrated with data collected during the February 2017 flood event. Hydraulic modeling results are estimates. Information is accurate within the model limitations and assumptions/data used for model development. Use care while interpreting results.</p>		

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TABLE 3B: Temporary Flood Barrier Progressive Responsibilities

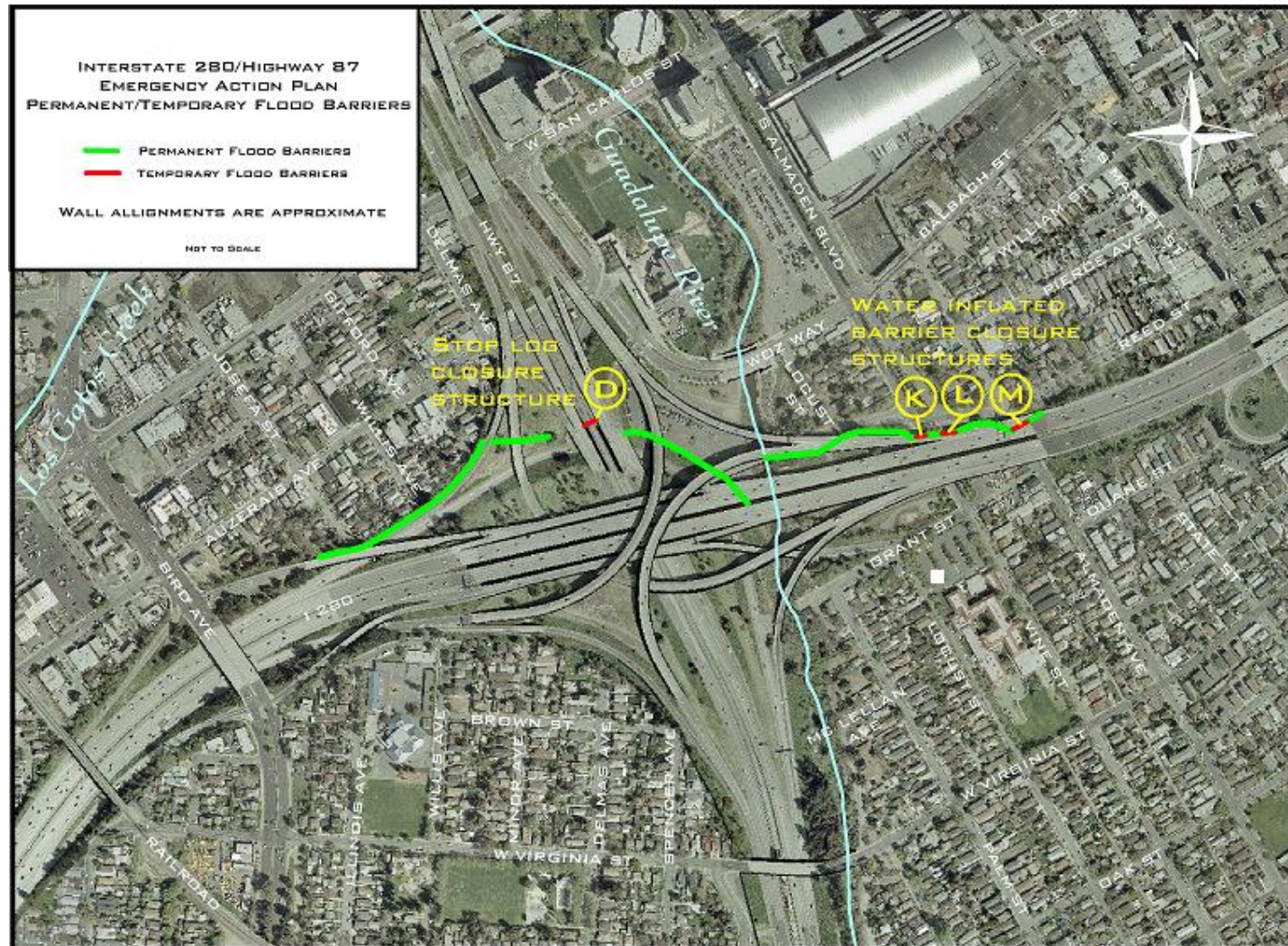
Flood Barrier Deployment Level	Flood Condition Level	Flood Severity	Responsibility/Activity	Stakeholder
Monitor	Monitor	Minor or greater	Monitor/Inspect river and clear obstructions/blockages.	District Field Operations & Maintenance (O&M)
			Alert of condition and activities to MAC/EOC's and Stakeholders – Operational Area, San Jose PD & Fire, CHP, Caltrans, and VTA.	District – O&M, Emergency Services or EOC is lead
			Alert crews and staff that will be deployed for barrier placement and road detours of the condition.	Each Stakeholder is lead for their responsibility
Prepare	Watch	Moderate or greater	All Monitoring Activities	
			Deploy FIT to assist field crews for monitoring Guadalupe River (District & City).	City and District will coordinate
			Prepare action plan for event.	MAC, EOC's, or DOC's
			Check that flood barriers and traffic controls are near deployment sites.	Each Stakeholder is lead for their responsibility
			Prepare materials for delivery near deployment area for implementation team use (sandbags and sheeting needed for partial sealing of drainage inlets).	District

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Flood Barrier Deployment Level	Flood Condition Level	Flood Severity	Responsibility/Activity	Stakeholder
Mobilize	Warning	Major	All Monitoring and Prepare Activities.	
			Establish on-site Operations & Maintenance Field Command for deployment if necessary.	District & City
			Position barriers (bladder dams and stoplogs) near deployment locations (Figure 2B) and prepare to deploy.	District
			Provide Police assistance for homeless evacuations needed for deployment as necessary.	City
			Initiate Outreach to alert affected areas of potential flooding	City
			Partially sandbag drainage inlets on Duane Street that flow north of barrier locations (Figure 3B). Inlets should allow storm in-flow until overland floodwaters are imminent.	City or District Field Command
Deploy	Flooding Occurring	Major	All appropriate previous activities.	
			Direct a FIT or other field staff to monitor the following locations in the floodplain as determined necessary: <ul style="list-style-type: none"> • Curtner Avenue at Highway 87, • Little Orchard Street between Curtner Avenue and Barnard Avenue, • West Alma Avenue west of Monterey Street, • Alma Avenue at Highway 87/Caltrain underpass, • Willow Street at Highway 87/Caltrain underpass, and • Lick Avenue near the Tamien Caltrain parking lot between Willow Street and Alma Avenue. 	MAC, District & City EOC/DOC, or District Field Command
			Direct deployment of flood barriers, detours/traffic controls, and drainage inlets. Decision to deploy barriers could be based on: <ol style="list-style-type: none"> 1. Floodwaters crossing West Alma Avenue west of Monterey Street could reach the temporary barriers within 2 hours. 2. Floodwater flowing east of the Caltrain tracks and nearing Lick Avenue could reach temporary barriers within 2 hours. 	MAC, District & City EOC/DOC, or District Field Command
			Deploy temporary barriers at locations shown in Figure 2B. Deployment of the barriers K, L & M should take approximately 2 hours and be done when conditions 1 or 2 from above occur. Deployment of stoplogs at D should take approximately 30 minutes and can be decided based on visual monitoring of the floodwaters filling in the highway interchange near the location of deployment.	District, City & VTA
			Following deployment of the K, L & M, complete sandbagging of storm drains on Duane Street near Interstate 280 that flow north of barrier into downtown San Jose (Figure 3B).	City or District

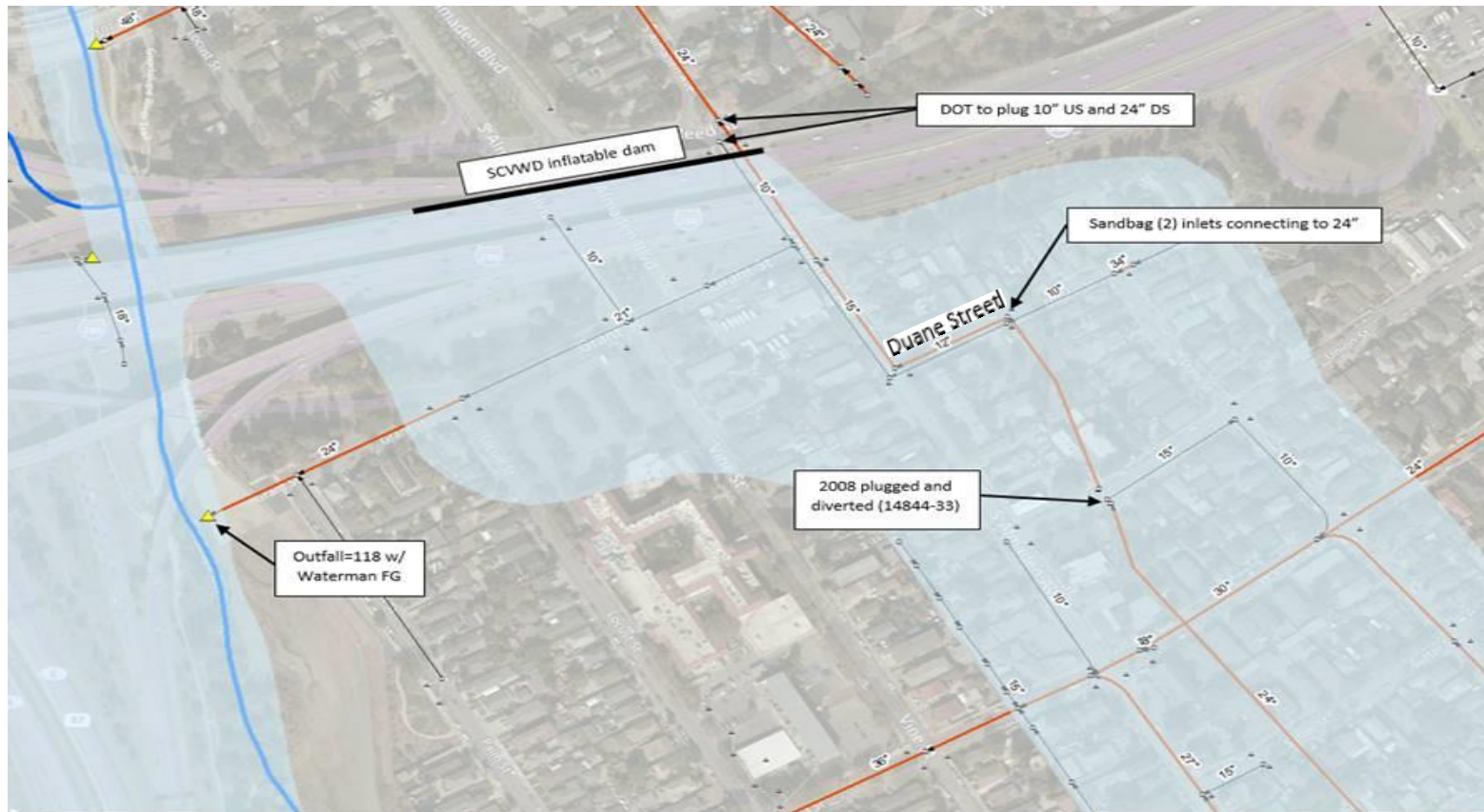
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FIGURE 2B: Temporary Flood Barrier Locations



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FIGURE 3B: Temporary Sandbagging of Storm Drain Inlets



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APPENDIX C

Canoas Creek

PURPOSE

This Appendix to the City, District and other Stakeholders Joint Emergency Action Plan (EAP) for Severe Storms and Flooding is meant to provide additional guidance specific to Canoas Creek. It will not duplicate information already in an entities Emergency Operations Plan (EOP) or the EAP, but will provide Canoas Creek specifics for:

1. Incident detection
2. Evaluation and condition level classification
3. Notification and communications
4. Emergency actions

CANOAS CREEK DESCRIPTION

Canoas Creek begins at Cottle Road and flows 7.4 miles through South San Jose before it discharges into Guadalupe River just upstream of Almaden Expressway. Adjacent land uses are predominantly residential and commercial property. The creek is crossed by several major roadways that include: Highways 87 and 85, Capitol Expressway, Blossom Hill Road, and Santa Teresa Boulevard. The Canoas Creek watershed drains about 18.6 square miles of Santa Clara County and City of San Jose and is bounded on the south by the Almaden hills, on the west by Guadalupe River Watershed and on the east by Coyote Creek Watershed (Monterey Road). The channel was improved around 1970 and is generally trapezoidal with a 10'-12' wide concrete channel bottom and 1.5 to 1 earthen side slopes. There are levees from Guadalupe River to about 2,500 feet upstream near a farm bridge. From that point to the upstream limit of the creek at Cottle Road the top of bank is generally the same or slightly higher than adjacent ground.

CANOAS CREEK FLOOD THREATS

The major flood threat occurs near Nightingale Drive and is primarily caused by a backwater from high flows in Guadalupe River. The flooding begins by spilling south over the levee into a low residential area and possibly into Canoas Elementary School. As flow depth increases the spills occur over the north levee area and flow northward towards downtown San Jose east of Almaden Expressway and west of Monterey Road. The Light Rail station at Curtner Avenue floods and water flows under Highway 87 into the Mill Pond Neighborhood. Highway 87 downstream of Curtner Avenue is elevated, but 21 36" pipe culverts allow floodwaters to pass under the roadway into commercial and industrial areas that include San Jose Unified School District's Bus Yard and Maintenance Department. Floodwaters continue to flow through residential, commercial and industrial areas and end up at Interstate 280 near Almaden Road where temporary flood barriers are to be deployed to divert floodwaters back to Guadalupe River (see Appendix B regarding deployment of temporary flood barriers).

In addition, the creek may spill overbank upstream of culverts at Snell Avenue, Tillamook Drive, Blossom Avenue, and Calero Avenue. However, the major issue in the upstream area is that the creek does not have 100-year flood capacity and storm water is not able to enter the creek. This results in a shallow floodplain flowing along streets starting near Dunn Avenue to Highway 87. This floodplain varies in width and narrows at Blossom Hill Road, Highway 85, and

Appendix C—Canoas Creek

Capitol Expressway. Waters in this shallow floodplain are not expected to enter structures, but rather to flow through the streets.

Flood events occurred in 1911, 1981, 1982, 1985 and 1995. The 1995 flooding overtopped the levees near Nightingale Drive and backflowed through the local drainage system into the adjacent low-lying neighborhood to the south flooding into residential structures. This event was the highest recorded event at the Canoas Creek flow gauge at Almaden Expressway since the creek was improved.

FLOOD EVENT DETECTION

There are several detection methods that are described in the EAP 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 and other areas of high flow.

Of these methods, the gauging and field observation methods specific to Canoas Creek are described below:

ALERT Gauge System

A listing of all ALERT gauges in the Guadalupe Watershed can be found at <http://alert.valleywater.org/sqi.php>. These gauges provide data in near real-time at several locations in the watershed including on Canoas Creek.

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

1. Annually sites will be prioritized for manual gauging and teams are assigned.
2. After every high flow event, the rule curves (depth versus discharge) are updated/calibrated. High flow calibration on Canoas Creek gauges was done after the 1995 event and again after the 2017 storm event.

Field Observations

Field observations can be critical to verify what is occurring because ALERT gauges are not always a reliable source of information and modeling information can vary from the actual condition. In addition, there are other known hot-spots that do not have ALERT gauges that may be visually checked during high flows. Supplementing with visual observations from staff deployed in the field (i.e., Flood Information Teams) and other field reporting is an important component to detection.

To allow additional information to be accurately gathered a visual stream stage monitoring location has been installed for observations. This is located at Nightingale Drive.

The District operates Field Information Teams (FITs) that are assigned to specific locations during storms and high flow events to provide this valuable information. In addition, the City also deploys FIT teams in a coordinated way to assure that all critical

Appendix C—Canoas Creek

locations are being monitored. Locations of FIT deployment by the City and District may overlap during storm and flood events. The EAP Multi-Agency Coordination (MAC) Group will coordinate this effort through the Planning/Intelligence Section so that resources are most effectively utilized and information is shared.

District Hot-Spots for possible FIT deployment are:

1. Visual stream gauges—checking for high water and rate of change
2. Known Flood Hot-Spots
3. Real-time Flooding—documenting flooding
4. Levees—check for stability
5. Bridge Piers—checking for debris blockages
6. Trash Racks—checking for debris blockages
7. Sandbag sites—checking for supply and access issues
8. Previously repaired or other project sites—checking for performance
9. Raw water facilities—dams and canals

CANOAS FLOOD CONDITION LEVELS AND SEVERITY

Sometimes an event is a flash flood that occurs suddenly without much early notice. However, with weather forecasting and Guadalupe River and Canoas Creek 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 will 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. Because of the uncertainties of forecasting future conditions, a condition 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.

Green	Preparedness —Flood stage is not estimated within the next 72 hours; and measured stream depth is below 50% of flood thresholds. By nature of a regular physical meeting between agency personnel from multiple agencies, a MAC is formed.
Yellow	Monitoring —Stream depth is estimated to reach flood stage in 72 hours plus, or the measured stream depth is 50% to 70% of flood stage. This condition is variable and requires more intense monitoring and a heightened level of alertness. Minimal staff in each Stakeholder's Emergency Operations Center (EOC) may be activated. A virtual MAC could be activated. An informal EOC Action Plan (AP) could be initiated.

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Orange	Watch —Stream depth is estimated to reach flood stage within 24 to 72 hours or measured depths are at 70% to 100% of flood stage. The Stakeholders' would increase staff in their EOCs, if not yet activated, and a MAC facility could be established. A formal EOC AP will be drafted.
Red	Warning —This is an urgent situation when flood stage or greater is estimated to occur within 24 hours, or is occurring. The Stakeholders' EOC will have been activated and would be monitoring the situation, providing notifications and responding according to a written AP.

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 of different stream stages are estimated utilizing hydraulic models and flood maps.

Flood severity categories are defined by the NWS as:

Action	An established gage 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	Minimal or no property damage, but possibly some public threat (e.g., inundation of roads).
Moderate Flooding	Some inundation of structures and roads near stream, evacuations of people and/or transfer of property to higher elevations.
Major Flooding	Extensive inundation of structures and roads, significant evacuations of people and/or transfer of property to higher elevations.

A flood inundation map of Canoas Creek is shown in **Figure 1C** and the associated Flood Thresholds **Table 1C** on the following page. The map is the Federal Emergency Management Agency (FEMA) 1 percent flood map. This map is based on the best available information and modeling when it was created and should be considered approximate due to the difficulty in estimating an actual event and the changing conditions of the creek.

Table 2C is a flood severity table for the Almaden Expressway Gauge that is used to estimate areas that will be subject to flooding. Because there is very little notice for flooding based on this gauge, flood conditions will often utilize predictive methods based on weather forecast and watershed conditions.

These tables along with the actual or modeled data would allow the District or MAC to establish threat levels for specific areas subject to flooding. Mapping associated with this table will be provided to Agency Stakeholders. This information will be made available for notifications and will be coordinated with the National Weather Service to be consistent in the dissemination of threat level and severity information.

Appendix C—Canoas Creek

Notifications and Activity/Actions: Notifications and actions are described in the Joint EAP which describes threat level and severity, notifications and activity/actions to be taken by both the City, District and other stakeholders. The level of activity will be guided by the best information available to the Agency Subject Matter Experts (SMEs) and Agency Coordinators (ACs). The level of activity may mirror those activities of the individual jurisdictional Emergency Operations Centers (EOCs). As weather conditions merit and monitoring take place, the SMEs and ACs may be in their home offices or their jurisdiction's EOC, if activated. The "call to action" may be a series of phone calls among the SMEs and ACs to determine the best approach to coordination.

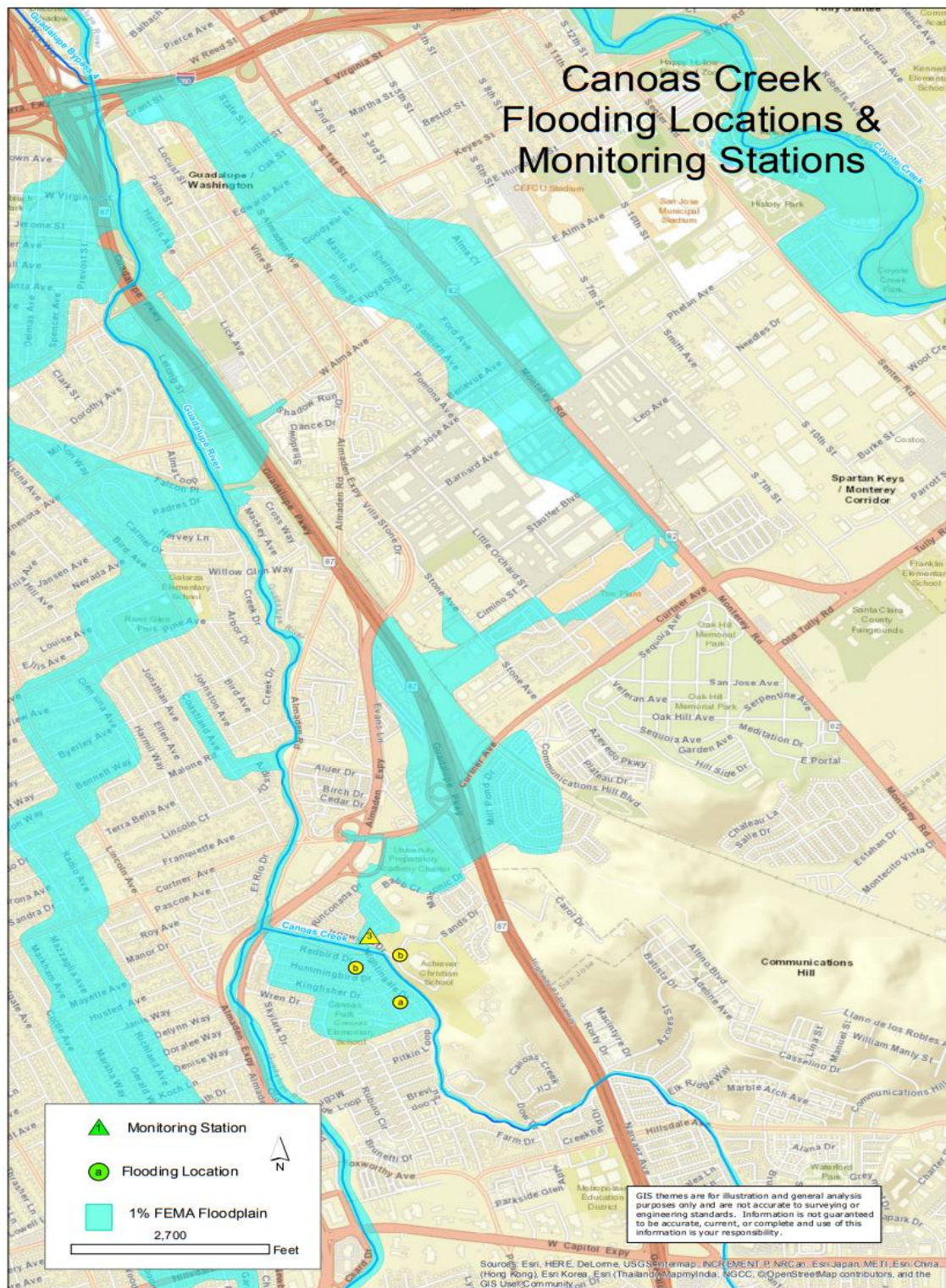
INFRASTRUCTURE AT RISK

There are no Federal Emergency Management Agency (FEMA) defined critical facilities located in the floodplain, however, there are other important infrastructure where people, property, and important facilities may be at risk. Based on intelligence gathered during the storm event, the MAC will determine the risk and provide notifications as appropriate. The facilities below are within the area where people, property, and infrastructure may be at risk:

FACILITY TYPE	NAME	ADDRESS	PHONE
SCHOOL	Canoas Elementary School	890 East William Street San Jose, CA 95116	(408) 535-6000
	Santa Teresa High School	651 Macredes Avenue San Jose, CA 95116	(408) 283-6000
UTILITIES	Light Rail Stations at Curtner Avenue	150 Metcalf Road San Jose, CA 95138	1 (800) 743-5000
OTHER	San Jose Unified Bus Yard and Maintenance Department	1896 Senter Road San Jose, CA 95112	(408) 998-2872 or (408) 478-9182


Appendix C—Canoas Creek

FIGURE 1C: Canoas Creek Flood Map and Inspection Locations



Appendix C—Canoas Creek

TABLE 1C: Canoas Creek Flood On-Site Monitoring Thresholds

ID #	Index Location	Flooding Description	Flood Threat Stage at Monitoring Location			Monitoring Locations	Photo
			50% Capacity	70% Capacity	100% Capacity		
3a	Few hundred feet upstream of Nightingale Drive on the southwest bank	Water overtops the southwestern levee and spills into the residential neighborhood.	7'-8'	10'-11'	13'-14'	Nightingale Drive Culvert (Canoas Creek)	
3b	Nightingale Drive Culvert and southern levee downstream of Nightingale Drive	Water overtops the southern levee and the Nightingale Drive culvert and inundates the neighborhood.	7'-8'	10'-11'	14'-15'		
5c	Upstream Capitol Expressway	Water spills out upstream of Capitol Expressway, flooding businesses along the road.	15'-16'	17'-18'	19'-20'		
Disclaimer: The flooding thresholds in this table are based on hydraulic modeling results calibrated with data collected during the historical flood events. Hydraulic modeling results may be preliminary and should be used for general analysis purposes. Information is accurate within the model limitations and assumptions/data used for model development. Use care while interpreting results.							

Appendix C—Canoas Creek

TABLE 2C: Canoas Creek at Almaden Expressway Gauge Flood Severity Thresholds (NWS Model)

Madrone Gauge Thresholds	Stage (ft)	Description
Action	9.5	Calero Avenue and Blossom Hill Road could flood from high flow and/or debris buildup. Street flooding is possible. Canoas Creek begins experience a backwater condition when the Guadalupe River is at a stage of about 7' at the Almaden Expressway stream gauge.
Minor Flooding	13.5	Overtopping occurs upstream of Nightingale Drive.
Historical High Water	13.8	January 1995
Moderate Flooding	15	Significant flooding in the Canoas Garden Neighborhood near Nightingale Drive occurs. Waters start flowing north towards Curtner Avenue and Almaden Expressway. Canoas Elementary School and the Mill Pond Neighborhood are at risk.
Major Flooding	16	Entire Canoas Gardens Neighborhood impacting Canoas Elementary School. Floodwaters flow northward and inundate the Mill Pond Neighborhood and may impact the Light Rail Station at Curtner Avenue. Flood areas are primarily west of Highway 87, East of Almaden Expressway and south of Curtner Avenue, however, some water may continue northward across Curtner Avenue.
Major Flooding	17	Major flooding occurs as floodwaters continue north of Curtner Avenue towards the Highway 87 and Interstate 280 interchange. Almaden Terrace Apartments, Guadalupe Almaden Neighborhood, and Northern Cross Neighborhood are inundated. Water may cross east of CalTrain Railroad Tracks that are just east of Highway 87 and continue through industrial and commercial areas bounded by Curtner Avenue and Barnard Avenue. Floodwaters flow towards Monterey Road and if flooding continues the floodwater will reach 1 st Street and require temporary flood barriers to be deployed near Interstate 280 to protect Downtown San Jose (Appendix B).
Disclaimer: The flooding thresholds in this table are based on hydraulic modeling results calibrated with data collected during the January 1995 and February 2017 storm events. Hydraulic modeling results are estimates. Information is accurate within the model limitations and assumptions/data used for model development. Use care while interpreting results.		

APPENDIX D

Ross Creek

PURPOSE

This Appendix to the City, District and other Stakeholders Joint Emergency Action Plan (EAP) for Severe Storms and Flooding is meant to provide additional guidance specific to Ross Creek. It will not duplicate information already in an EOP or the EAP, but will provide Ross Creek specifics for:

1. Incident detection
2. Evaluation and condition level classification
3. Notification and communications
4. Emergency actions

ROSS CREEK DESCRIPTION

Ross Creek begins in the Town of Los Gatos upstream of Blossom Hill Road and discharges about 6.1 miles later into the Guadalupe River at Almaden Expressway about 1,000 feet north of Branham Lane in the City of San Jose. The watershed is part of the Guadalupe River Watershed and drains about 10 square miles of primarily medium density residential areas in the City of San Jose and Town of Los Gatos and is bounded on the south by the Guadalupe Creek, and on the west and north by Los Gatos Creek.

Ross Creek is predominantly a constructed trapezoidal earth channel with 8 ft to 12 ft bottom width and side slopes ranging from 1.5:1 to nearly vertical due to erosion. Maintenance roads of about 17 ft in width are present along most of the creek. There are culverts at road crossing with the major roads crossings including Blossom Hill Road, Los Gatos Almaden Road, Leigh Avenue, Highway 85, Camden Avenue, Meridian Avenue, Cherry Avenue and Almaden Expressway.

ROSS CREEK FLOOD THREATS

Ross Creek is a very flashy drainage area and depth of flow can change quickly. It can also be influenced by high water in Guadalupe River and may flood due to that influence. The flood prone areas are generally located upstream of culverts at Jarvis Avenue and Cherry Avenue due to constriction of the flows. These areas flood adjacent residential areas. However, the most significant flooding is upstream of Briarglen Drive between Jarvis Avenue and Almaden Expressway that can be exacerbated by a backwater from high flows in Guadalupe River. Flooding in this area causes minor impacts to a residential area south of the creek and major impacts to the north. The floodplain to the north flows west of Almaden Expressway and east of Cherry Avenue up to Curtner and then east of Lincoln Avenue north of Pine Street. This flooding continues through Willow Glen to Interstate 280 west of Highway 87 and can flood three elementary schools and a community center. Flooding can also impact the Interstate 280 and Highway 87 interchange. Figure 1D shows the Federal Emergency Management Agency (FEMA) 100-year (1 percent) floodplain for Ross Creek.

Appendix D—Ross Creek

FLOOD EVENT DETECTION

The flood event detection methods include weather forecasts, hydrologic/hydraulic modeling, Automated Local Evaluation in Real Time (ALERT) stream/reservoir/precipitation gauge systems, and field observation of stage gauges and other areas of high flow.

Of these methods, the gauging and field observation methods specific to Ross Creek are described below:

ALERT Gauge System

A listing of all ALERT gauges in the Guadalupe River Watershed can be found at <http://alert.valleywater.org/sqi.php>. These gauges provide data in near real-time at several locations in the watershed. Upstream gauges will provide valuable information for flood events occurring downstream and may give hours' notice to take action. However, the ALERT gauges on Ross Creek at Cherry Avenue and on Guadalupe River at Almaden Expressway will be the primary gauges used for determining the flood condition on Ross Creek.

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

1. Annually sites will be prioritized for manual gauging and teams are assigned.
2. After every high flow event, the rule curves (depth versus discharge) are updated/calibrated. High flow calibration on Guadalupe Watershed gauges was done after the 1995 event and some were completed after the 2017 winter high flows.

Field Observations

Field observations can be critical to verify what is occurring because ALERT gauges are not always a reliable source of information and modeling information can vary from the actual condition. In addition, there are other known hot-spots and facilities that should be visually checked during high flows. Supplementing with visual observations from staff deployed in the field and other field reporting is an important component to detection.

The District operates Field Information Teams (FITs) that are assigned to specific locations during storms and high flow events to provide this valuable information. In addition, the City also deploys FIT teams in a coordinated way to assure that all critical locations are being monitored. Locations of FIT deployment by the City and District may overlap during storm and flood events. The EAP Multi-Agency Coordination (MAC) Group and/or the jurisdictions EOC will coordinate this effort through the Planning/Intelligence Section so that resources are most effectively utilized and information is shared.

District Hot-Spots for possible FIT deployment are:

1. Visual stream gauges—checking for high water and rate of change
2. Known Flood Hot-Spots

Appendix D—Ross Creek

3. Real-time Flooding—documenting flooding
4. Bridge Piers—checking for debris blockages
5. Trash Racks—checking for debris blockages
6. Levees downstream of Highway 101—check for stability
7. Sandbag sites—checking for supply and access issues
8. Previously repaired or other project sites—checking for performance
9. Raw water facilities—dams and canals

To aid in accurately gathering information, a visual stream stage monitoring location has been installed at Cherry Avenue on Ross Creek.

ROSS CREEK FLOOD CONDITION LEVELS AND SEVERITY

Sometimes an event is a flash flood that occurs suddenly without much early notice. However, with weather forecasting and computer modeling of the watersheds 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 will 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. Due to uncertainties of forecasting future conditions, a condition 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.

Green	Preparedness —Flood stage is not estimated within the next 72 hours; and measured stream depth is below 50% of flood thresholds. By nature of a regular physical meeting between agency personnel from multiple agencies, a MAC is formed.
Yellow	Monitoring —Stream depth is estimated to reach flood stage in 72 hours plus, or the measured stream depth is 50% to 70% of flood stage. This condition is variable and requires more intense monitoring and a heightened level of alertness. Minimal staff in each Stakeholder's Emergency Operations Center (EOC) may be activated. A virtual MAC could be activated. An informal EOC Action Plan (AP) could be initiated.
Orange	Watch —Stream depth is estimated to reach flood stage within 24 to 72 hours or measured depths are at 70% to 100% of flood stage. The Stakeholders' would increase staff in their EOCs, if not yet activated, and a MAC facility could be established. A formal EOC AP will be drafted.
Red	Warning —This is an urgent situation when flood stage or greater is estimated to occur within 24 hours, or is occurring. The Stakeholders' EOC will have been activated and would be monitoring the situation, providing notifications and responding according to a written AP.

Appendix D—Ross Creek

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 of different stream stages are estimated utilizing hydraulic models, the FEMA flood map, and flood maps from the 1995 floods.

Flood severity categories are defined by the NWS as:

Action	An established gage 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	Minimal or no property damage, but possibly some public threat (e.g., inundation of roads).
Moderate Flooding	Some inundation of structures and roads near stream, evacuations of people and/or transfer of property to higher elevations.
Major Flooding	Extensive inundation of structures and roads, significant evacuations of people and/or transfer of property to higher elevations.

A 100-year (1 percent) flood inundation map of Ross Creek is shown in **Figure 1D** and the associated Flood Thresholds **Table 1D** on the following page. The map is the Federal Emergency Management Agency (FEMA) 1 percent flood map. This map is based on the best available information and modeling when it was created and should be considered is approximate due to the difficulty in estimating an actual event and the changing conditions of the creek.

Table 2D is a flood severity table for the Ross Creek at Cherry Avenue Gauge that is used to estimate areas that will be subject to flooding. Because there is very little notice for flooding based on this gauge, flood conditions will often utilize predictive methods based on weather forecast and watershed conditions. In addition, the Guadalupe River gauge at Almaden Expressway is used to predict flooding. Refer to Appendix B of the EAP for flood severity based on that gauge.

These tables along with the actual or modeled data would allow the District or MAC to establish threat levels for specific areas subject to flooding. Mapping associated with this table will be provided to Agency Stakeholders. This information will be made available for notifications and will be coordinated with the National Weather Service to be consistent in the dissemination of threat level and severity information.

NOTIFICATIONS AND ACTIVITY/ACTIONS

Notifications and actions are described in the Joint EAP which describes threat level and severity, notifications and activity/actions to be taken by both the City, District and other stakeholders. The level of activity will be guided by the best information available to the Agency Subject Matter Experts (SMEs) and Agency Coordinators (ACs). The level of activity may mirror those activities of the individual jurisdictional Emergency Operations Centers (EOCs). As weather conditions merit and monitoring take place, the SMEs and ACs may be in their home offices or their jurisdiction's EOC, if activated. The "call to action" may be a series of phone calls among the SMEs and ACs to determine the best approach to coordination.

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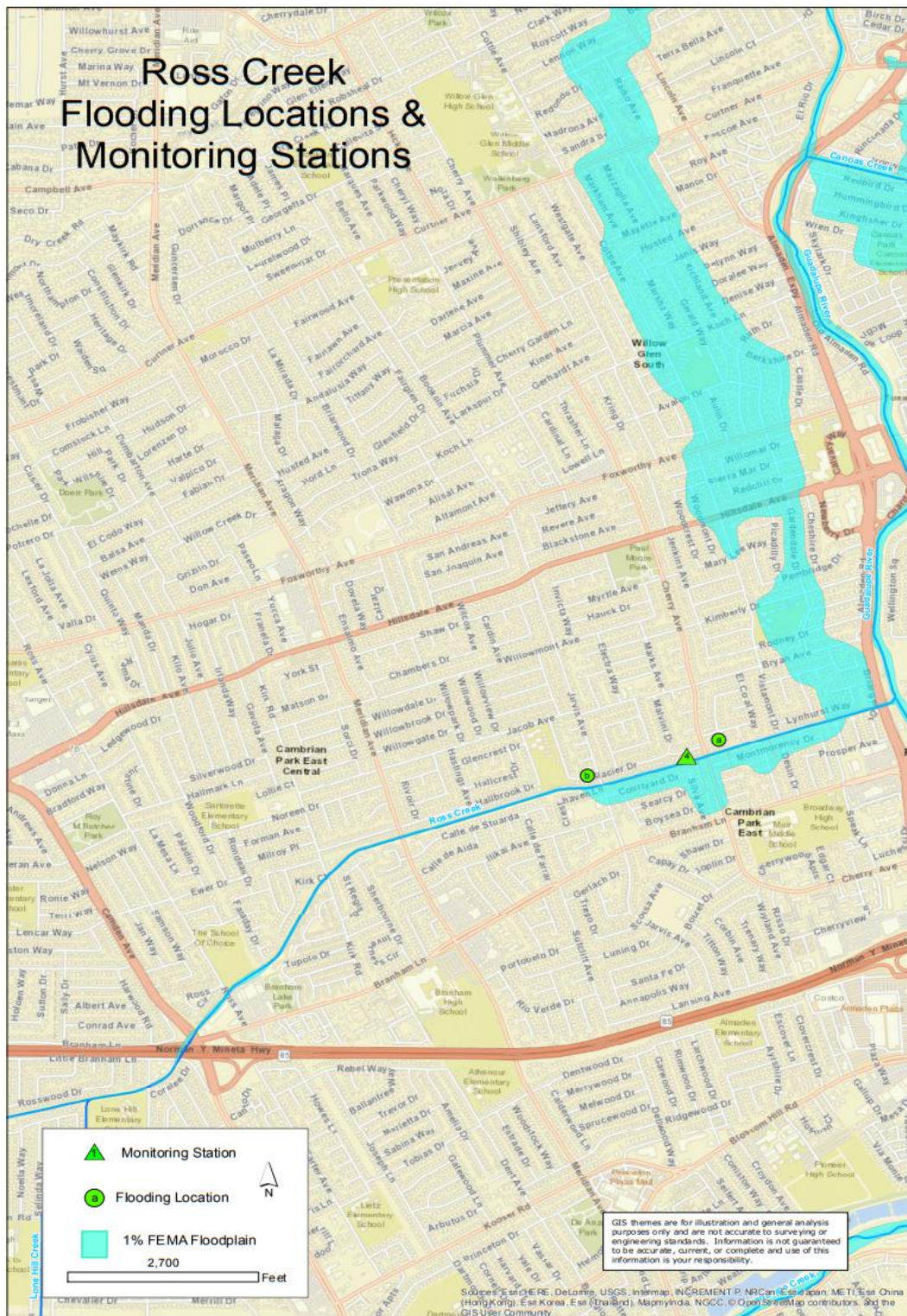
INFRASTRUCTURE AT RISK

There are no Federal Emergency Management Agency (FEMA) defined critical facilities located in the floodplain, however, there are other important infrastructure where people, property, and important facilities may be at risk. Based on intelligence gathered during the storm event, the MAC will determine the risk and provide notifications as appropriate. The facilities below are within the area where people, property, and infrastructure may be at risk:

FACILITY TYPE	NAME	ADDRESS	PHONE
SCHOOL	Hacienda Elementary School	1290 Kimberly Drive San Jose, CA 95118	(408) 535-6000
	Schallenberger Elementary School	1280 Koch Lane San Jose, CA 95125	(408) 535-6000
	Galarza Elementary School	1610 Bird Avenue San Jose, CA 95125	(408) 535-6000
OTHER	Willow Glen Community and Senior Center	2175 Lincoln Avenue San Jose, CA 95125	(408) 448-6400


Appendix D—Ross Creek

FIGURE 1D: Ross Creek Flood Map and Inspection Locations



Appendix D—Ross Creek

TABLE 1D: Ross Creek Flood On-Site Monitoring Thresholds

ID #	Index Location	Flooding Description	Flood Threat Stage at Monitoring Location			Monitoring Locations	Photo
			50% Capacity	70% Capacity	100% Capacity		
4a	Cherry Avenue	Water spills out just upstream of the Cherry Avenue Culvert, as well as along the levees upstream and downstream.	5'-6'	7'-8'	9'-10'	Cherry Avenue Culvert (Ross Creek)	
4b	Jarvis Avenue	Water spills out upstream of the Jarvis Avenue Culvert, as well as along the levees downstream and upstream.	5'-6'	7'-8'	9'-10'		
Disclaimer: The flooding thresholds in this table are based on hydraulic modeling results calibrated with data collected during the historical flood events. Hydraulic modeling results may be preliminary and should be used for general analysis purposes. Information is accurate within the model limitations and assumptions/data used for model development. Use care while interpreting results.							

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TABLE 2D: Cherry Avenue Gauge Flood Severity Thresholds (NWS Model)

Madrone Gauge Thresholds	Stage (ft)	Description
Action	7.5	Creek is flashy and can be quickly influenced by changes in localized rainfall and/or high flows in Guadalupe River.
Minor Flooding	10	Water begins to overtop Cherry Avenue Culvert onto Montmorency Drive to the south and at Jarvis Avenue Culvert staying in the adjacent area. Storm drains start backing up into low-lying neighborhoods causing local flooding of streets.
Historical High Water	10.9	May 1996
Moderate Flooding	11	Water begins spilling to north between Jarvis Avenue and Almaden Expressway and sheet flowing north through the neighborhood towards Hillsdale Avenue. Hacienda Elementary School may experience flooding.
Major Flooding	12'+	This is the stage of about the 100-year flood event. Significant flooding occurs between Jarvis Avenue and Almaden Expressway south of Hillsdale Avenue and backwater from Guadalupe River may contribute to additional flood duration. Depending on the duration of overtopping, waters may move north past Hillsdale Avenue flowing east of Cherry Avenue up to Curtner Avenue and then continuing east of Lincoln Avenue north of Pine Street towards the Interstate 280 and Highway 87 interchange. This flooding will likely impact Willow Glen Community Center and Hacienda, Schallenberger, and Galarza Elementary Schools.
Disclaimer: The flooding thresholds in this table are based on hydraulic modeling results calibrated with data collected during the May 1996 and February 2017 flood event. Hydraulic modeling results are estimates. Information is accurate within the model limitations and assumptions/data used for model development. Use care while interpreting results.		